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**MIRDEC 2022**

**MIRDEC 19th  
International Academic Conference  
Economics, Business and Contemporary Discussions in Social Science**

**CONFERENCE PROCEEDINGS  
Barcelona 2022, Spain  
Full Paper Series**

Editors

**Kemal Cebeci  
Sandra Ribeiro  
John Marangos**

**HCC St. Moritz  
Barcelona, Spain  
23-25 November 2022**

MIRDEC 19th -Barcelona 2022  
International Academic Conference on  
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23-25 November 2022, Barcelona, Spain  
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# Masters International Research & Development Center

## **MIRDEC International Academic Conference**

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**Business & Enterprise:** Business cycles, business planning, supporting SME, policies to promoting SME, e-commerce, women entrepreneurs education and development, strategic integration between innovation & entrepreneurship, entrepreneurship in developing countries, corporate and social entrepreneurship, leveraging digital skills for innovation in the society, high- tech, R & D, enterprises.

**Demography & Population:** Migration studies, demography, population studies.

**Economics:** Microeconomics, macroeconomics, economic growth, fiscal and monetary policy, finances, public regulations, sustainable development, agro-economics, climate change.

**Environment:** Environment economics, fiscal policy for protecting environment, green production, sustainable growth, natural resource, management, climate change, macro-micro issues in environment studies.

**Education:** Research & development in education, technology and education, education strategies for different age groups, life time education, pedagogy, learning and teaching, educational psychology, curriculum and instruction, e-learning, virtual learning, global internet courses, blended learning, flipped, pathway, enabling, work integrated learning, executive training, training and development, educational leadership.

**Entrepreneurship:** Product, innovation, social, political, knowledge, corporate venturing, digital media.

**European Studies:** EU crisis, monetary union, enlargement process of EU, tax harmonization in EU, fighting with tax competition in EU, EU energy policy, competitiveness, EU social policy, Fighting unemployment, income distribution, EU migration, understanding migrants and asylum in European Union, European migrant crisis, refugee crisis, social reflections of Syria crisis to EU area, cooperation for improving EU, Brexit, future projections, EU environment policy and resource efficiency, EU relations with third party countries, climate change and EU, integration, culture.

**Finance:** Corporate, international, green finance, financial reporting, public finance, financial markets, financial services, financial instruments, capital movements, government budgeting.

**Globalization studies:** Framework of globalization, history of globalization, economic globalization, cultural globalization, political globalization, globalization and international law, globalization and arts, globalization and conflicts, globalization and new world order, sustainable growth and development, globalization and climate change, regional integrations, human rights and globalization, migration, global institutions, technological platform for globalization, national boundaries, globalization and internet, globalization and sports, globalization and free trade.

**Health:** Public health, health policies, hospital management, public and private health services, economic, social and political aspects of health services.

**International Business:** Culture and business, regional-global business, entry modes, strategy, expansion, mergers & acquisitions, trade, franchising strategies.

**Internet & Social Media Studies:** Social media, internet, future of communication.

**Management:** Human resources, cultural problems in labor mobilization, international human resource, mobility of human resource, business, cross cultural, corporate governance, financial resources, gender issues, technological resources, natural resources, knowledge.

**Marketing:** New media, social media marketing strategies, international, consumer research, market research, policy research, sales research, pricing research, distribution, advertising, packaging, product, media.

**Philology, Language & Translation Studies:** Historical study of language, aspects and research of speech production, transmission reception, linguistics, translation studies.

**Social Business:** Socially responsible enterprise, environmentally conscious enterprise, non-government institutional activities, globalization and social business, care programs.

**Social Sciences:** Anthropology, communication studies, new communication in new world order, demography, development studies, information and communication studies, international studies, journalism, library science, human geography, history, law, political science, public administration, psychology, sociology.

**Tourism:** Developing sustainable tourism destinations, tourism and heritage preservation, tourism economics, tourism policies, hospitality, tourism management and marketing, tourism planning and regional development, protected areas and tourism.

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## TABLE OF CONTENTS

### **ANA MARIA QUARESMA AND SANDRA RIBEIRO**

CONCENTRATION OF THE VOTING POWER AND MARKET CAPITALIZATION: THE CASE OF PSI 15..... 3

### **EVE PARTS AND ANNA-STINA REINAS**

IS DEGROWTH SOCIETY POSSIBLE? ESTIMATING CHANGES IN EUROPEAN VALUES ..... 15

### **ELONA SHEHU, REGIS DIBRA AND HYSEN MUCEKU**

THE IMPACT OF CORPORATE GOVERNANCE AND RISK MANAGEMENT ON THE PROFITABILITY OF BANKS IN ALBANIA ..... 29

### **IRINA ANA DROBOT**

TRAVELLING IN VIRGINIA WOOLF'S DIARY AND IN GRAHAM SWIFT'S AUTOBIOGRAPHICAL WRITINGS ..... 41

### **CEMILE OZGUR**

FORECASTING OUT OF SAMPLE INDEX VOLATILITY: A COMPARISON BETWEEN ASYMMETRIC GARCH AND STOCHASTIC VOLATILITY MODELS ..... 49

### **SUKRIYE GUL REIS AND OMER FARUK RENCBER**

DETERMINING MACROECONOMIC FACTORS AFFECTING THE MARKET INDEX USING A DATA MINING TECHNIQUE: EVIDENCE FROM AN EMERGING COUNTRY ..... 65

### **NATALIA ROBITASHVILI, EKATERINE BAKHTADZE, NARGIZ PHALAVANDISHVILI AND NATO JABNIDZE**

POSSIBILITIES FOR SUSTAINABLE RURAL TOURISM DEVELOPMENT AND ITS IMPACT ON THE STANDARD OF LIVING OF THE POPULATION IN GEORGIA ..... 73

### **HAKAN KOSE AND OZLEM YASAR UGURLU**

THE EFFECT OF NATIONAL CULTURE ON NATIONAL INNOVATIVENESS ..... 81

### **BADRI GECHBAIA AND LEVAN GVARISHVILI**

MODERN TRENDS OF REGIONAL DEVELOPMENT OF GEORGIA AND COMPETITIVENESS OF REGIONS ..... 103

### **IRINA VASHAKMADZE AND IRINE TAVADZE**

THE ROLE OF THE NATIONAL BANK REGULATIONS IN THE STABILITY OF THE GEORGIAN ECONOMY AND THE ASSESSMENT OF ITS INFLUENCE TO THE BANKING SECTOR ..... 111

### **FEYZA OZDINC**

BEHAVIORAL INSIGHTS TO THE CENTRAL BANK OF THE REPUBLIC OF TURKEY'S INFLATION TARGETING POLICY ..... 119

**SAMANEH RAISS SHAGHAGHI**

ACCOUNTABILITY AUDITING IN CHINA'S FIGHT AGAINST CORRUPTION..... 129

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# CONFERENCE PROCEEDINGS

**BARCELONA 2022**

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ANA MARIA QUARESMA<sup>1</sup> AND SANDRA RIBEIRO<sup>2</sup>

## CONCENTRATION OF THE VOTING POWER AND MARKET CAPITALIZATION: THE CASE OF PSI 15

### Abstract

Good Corporate Governance Practices are seen as influencing the good performance of organizations. In listed companies, with the social capital open to investors, their adoption is even more relevant because the market up prices companies that comply with the recommendations in this matter and penalizes those whose corporate governance is not guided by the best corporate governance practices.

The Boards of Directors, being the link between the company and its investors/shareholders, are responsible for compliance with Good Corporate Governance Practices, thus attracting investors with an positive impact on the growth and sustainability of organizations. There are several recommendations to the Boards of Directors for the good governance of companies. In this study, we took as a sample the companies that make up the PSI 15, Euronext Lisbon Stock Index, and verified whether the Corporate Governance variable: CONPOV (concentration of voting power) influenced the Market Capitalization of the organizations under study.

It was found that most of the companies under study have a high CONPOV index and that they are the ones that achieve a higher market capitalization, highlighting a positive correlation between the variables under study.

**Keywords:** Corporate governance, concentration of voting power, market capitalization

**JEL Codes:** M10, M16, M20, M30

### 1. Introduction

According to the Organization for Economic Co-operation and Development (OECD, 2019), good practices of Corporate Governance help to create an environment of trust, transparency and accountability needed to promote long-term investment, financial stability, and business integrity, thereby supporting stronger growth and more inclusive societies.

Silva et al. (2017) showed evidence that corporate governance mechanisms positively impact the results of companies. In the same manner, Munteanu et al. (2019) also reported a positive relationship between the company's performance and the efficiency of corporate governance models. They pointed out that investors pay close attention to corporate governance systems deployed in a company and are willing to pay more considering these systems. In this way the market value of the organization will be improved through good corporate governance practices.

A structuring role of the board of directors is, in addition to establishing strategies and guidelines, to exercise monitoring to mitigate agency dysfunctions. This means that the board of directors can provide a more accurate look at investors so that their interests are preserved.

Good Corporate Governance practices translate into advantages for the companies, investors, the market and overall, with positive economic impacts (Figure 1).

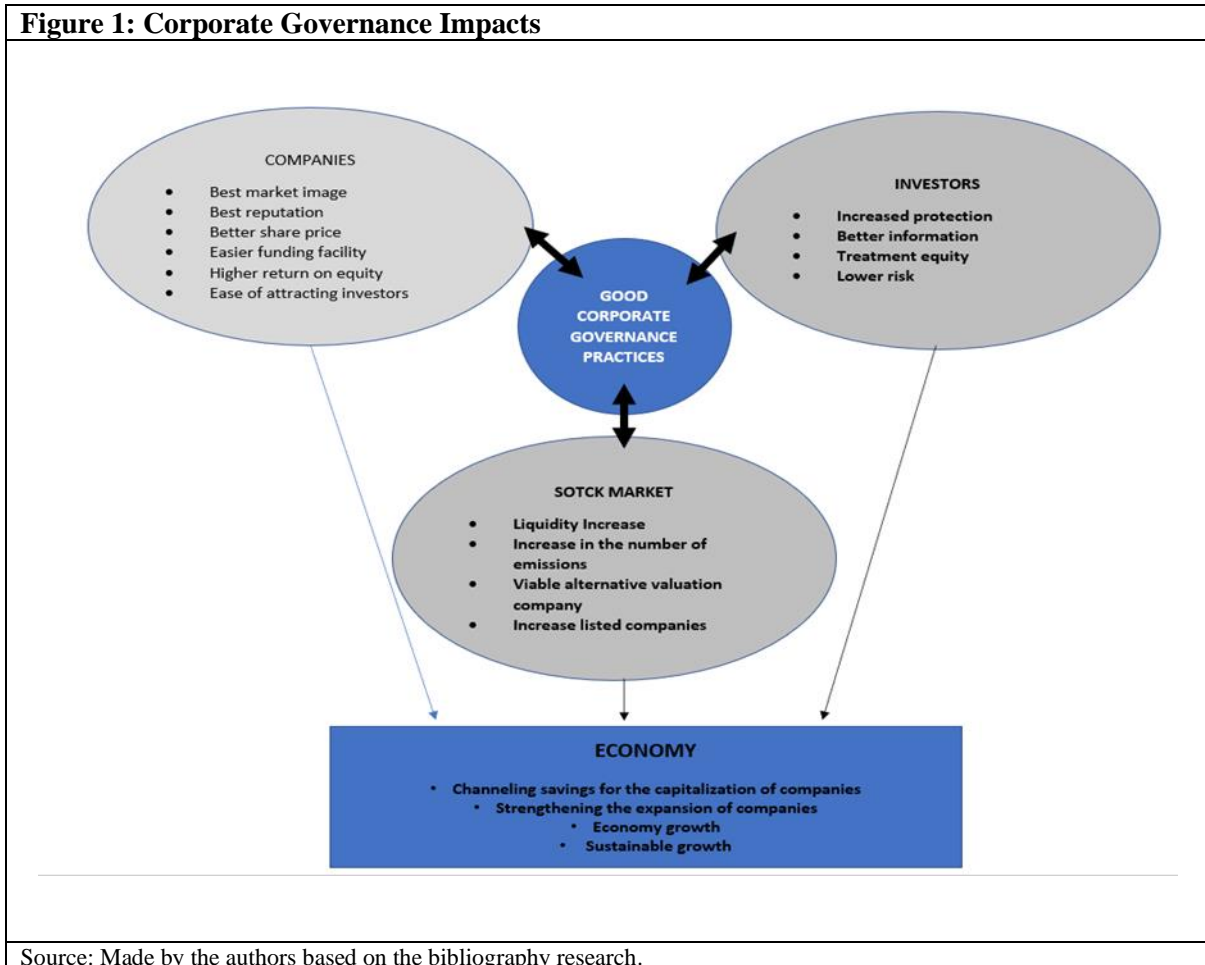
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**Figure 1: Corporate Governance Impacts**



Source: Made by the authors based on the bibliography research.

The assumptions of the research focus on the good corporate governance practices adopted by the Board of Directors, on companies with high concentrations of voting power and better management monitoring, give a benefit for investors in general, and shareholders in particular, showing better performances in the market (higher stock market capitalizations), with positive impact on the stock market listing more attractive organizations for investment and influencing positively the country's economic growth.

The relevance of this study is to observe the characteristics of the board of directors, evaluated by the concentration of voting power, and the impact on the companies market performance, evaluated by the market capitalization. The study involves companies that list PSI 15, the Portuguese stock exchange index.

## 2. Theoretical Fundamentals

The importance of a strengthened corporate governance system, endowed with a set of good governance practices and a well-structured board of directors, has been highlighted as relevant to the alignment of interests between ownership and control.

According to the Agency Theory, the separation between ownership and management translates into agency costs that negatively influence the value of the company. Higher costs of monitoring of management can be associated to dispersed property. Concentrated ownership provides sufficient incentive for the largest shareholders to monitor management. Their greater voting power allows them

to affect the composition of the board of directors and their decisions. Corroborating previous studies (Berle & Means (1932); Shleifer & Vishny (1997); Claessens *et al* (2002); La Porta *et al.* (2000) Lemmon & Lins (2003); Durnev & Kim (2005); Aggrawal *et al* (2009); Alimehmeti & Paletta (2012); Miralles-Quirós & Lisbon (2013); Zakaria, Purhanudin & Palanimally (2014); Oluwagbemiga, Michael & Zacccheaus (2014), concentrated ownership results in better performance of companies.

Aggrawal & Nagarajan (1990) in their study analyzed the relationship between ownership concentration and companies' performance and concluded that corporate control cannot be challenged, that the concentration of ownership can help reduce or eliminate agency costs, and that the performance of companies improves when ownership and the interest of managers come together through concentration of ownership. Li (1994) claims that the ownership structure is related with the differences in corporate governance models around the world.

La Porta, Lopez-de-Silanes, Shleifer & Vishny (2000) and Durnev & Kim (2005) in their studies concluded that there was a positive relationship between ownership and the value of the company, that is, companies with better investment opportunities and best corporate governance practices should have greater appreciation by investors. It is also verified that the more profitable the investment opportunities, the more shareholders will be oriented towards the concentration of ownership, thus raising the valuation of companies.

Lefort and Urzua (2008) show that the board of directors is a crucial internal governance mechanism that affords the main control over agency costs, and arrangements with the difficulties relating to the management of the organization.

Alimehmeti & Paletta (2012) analyzed Italian listed companies over a four-year period (2006-2009), where they concluded that there was a positive relationship between the concentration of ownership and the value of the company, except for 2008, where the results showed a nonlinear relationship, which may be an indication of a financial crisis.

Zakaria *et al* (2014) studied the impact of the ownership structure on the performance of trade and service companies during the years 2005-2010 and concluded that when the ownership of companies is concentrated or under the ownership of management, performance increases.

A study by Oluwagbemiga, Michael & Zacccheaus (2014) explores the relationship between the concentration of property and the value of companies listed on the Nigerian Stock Exchange during the period 2008-2012. The results of the analysis proved the existence of a positive relationship between the value of the company and the concentration of ownership.

Madhani (2017) states that the board of directors has generally been perceived as the backbone of corporate governance, being one of the most important corporate governance mechanisms used by shareholders to monitor management. Shukla and Limbasiya (2020) indicate that board structures, when sending positive signal to potential investors, significantly influence the company's performance.

### **3. Methodology, Sample and Variables**

The methodology used reflects the bibliographic research, the analysis of corporate governance reports and the shares prices on Euronext Lisbon Website to obtain statistical data and their treatment was made through SPSS. All data reports on 21/12/31.

The sample was composed by all the PSI 15 companies. PSI 15 is the Portuguese Stock Exchange Index (see annex 1).

The figure below shows the sample composition.

**Figure 2- Sample Composition**

PSI 15 COMPOSITION - EURONEXT LISBON		
NAME	ISIN	ISSUER COUNTRY
ALTRI SGPS	PTALTOAE0002	Portugal
B.COM.PORTUGUÊS	PTBCP0AM0015	Portugal
CORTICEIRA AMORIM	PTCOR0AE0006	Portugal
CTT CORREIOS PORT	PTCTT0AM0001	Portugal
EDP	PTEDP0AM0009	Portugal
EDP RENOVAVEIS	ES0127797019	Spain
GALP ENERGIA - NOM	PTGAL0AM0009	Portugal
GREENVOLT	PTGNV0AM0001	Portugal
J.MARTINS SGPS	PTJMT0AE0001	Portugal
MOTA ENGIL	PTMEN0AE0005	Portugal
NOS SGPS	PTZON0AM0006	Portugal
REN	PTRELOAM0008	Portugal
SEMAPA	PTSEM0AM0004	Portugal
SONAE	PTSON0AM0001	Portugal
THE NAVIGATOR COMP	PTPTIOAM0006	Portugal

Source: Made by the authors consulting www.euronext.com.

In the figure below the independent variable is explain. It is denominated CONPOV – Concentration of the Voting Power. We collect all the data from the Corporate Governance Reports and analyzing the qualified participations of each company in study (all the shareholders that hold plus then 2% of the Social Capital) then selected the 3 major shareholders to obtain the percentage of the Social Capital detained by them to see the concentration of the voting power.

**Figure 3- Independent Variable – CONPOV**

INDEPENDENT VARIABLES / CONCENTRATION OF THE VOTING POWER	
<b>CONPOV</b>	
Concentration of the Voting Power	
% of the Number of listed Shares owing by the 3 major shareholders	$CONPOV = 100 \times \sum_{i=1}^3 \left( \frac{P_i}{P} \right)$

Source: Made by the authors based on the bibliography research.

In figure 4 the Dependent Variable is expose. The MARKCP – Market Capitalization was obtain consulting the Market Capitalization of each company in study, on the 31<sup>st</sup> of December 2021, and divide by the book value to obtain the CAP- Capitalization, for companies listed on a stock exchange, they can assume different categories, depending on how their market value increases. Thus, companies can be Nano-Caps; Micro-Caps; Small-Caps; Medium-Caps; Large-Caps; Mega-Caps.

**Figure 4 – Dependent Variable- MARKCP**

DEPENDENT VARIABLE / MARKET CAPITALIZATION	
MARKCP	
Market Value of the company/ Book Value	CAP- Capitalization

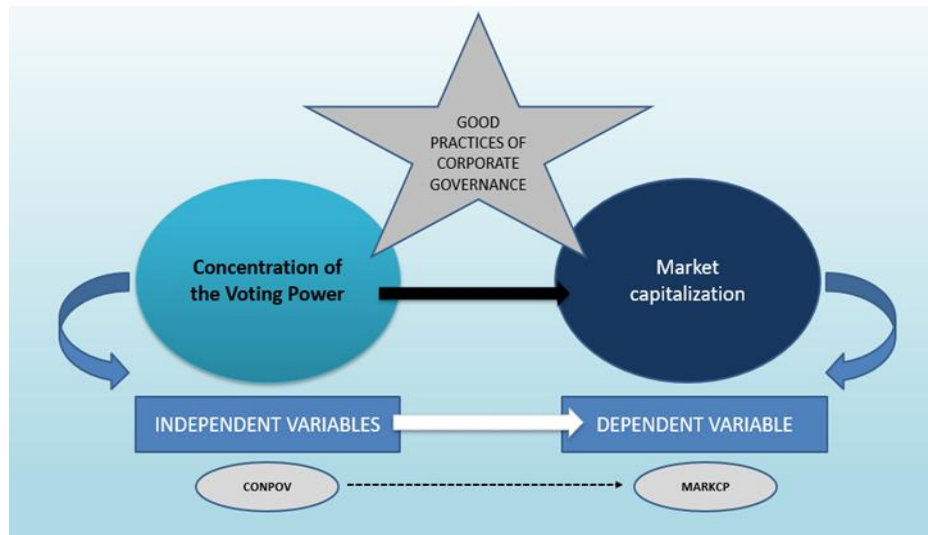
Source: Made by the authors based on the bibliography research.

#### 4. Conceptual Model and Hypothesis

This study is based on a positive relationship between the concentration of property and the value of the company. The research question is “There is a positive relationship between the listed companies that had a higher concentration of the voting power and higher market capitalization?”

The concentration of property will be analyzed by the Concentration of the Voting Power (CONPOV). The value of the company will be analyzed by the Market Capitalization evaluated by the Cap Compartment of the company (MARKCP). Take in consideration this relationship, the figure 5 resume the conceptual model of this research. We formulate the hypothesis: There is a positive relationship between the Concentration of the voting Power (CONPOV) and the Market Capitalization (MARKCP).

**Figure 5 – Conceptual Model**

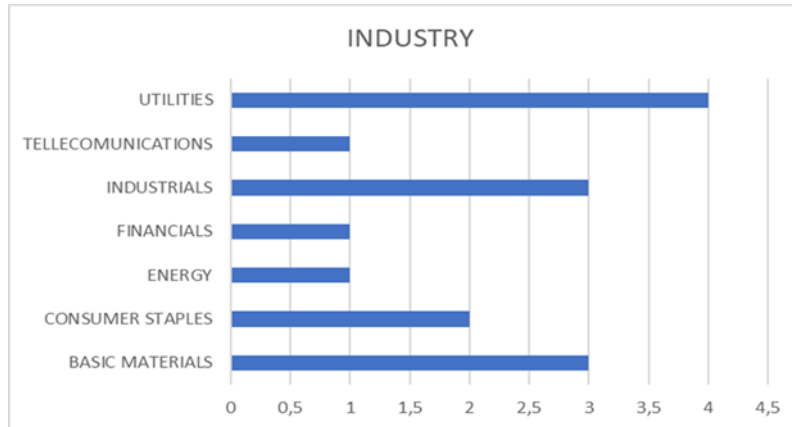


Source: Made by the authors.

#### 5. Empirical Results

The processing of the data collected (see Annex 2) could be observed as follows. The characterization of the sample allows us to identify that most of the companies listed in PSI 15 are from utilities industry (4 of 15 companies) although distribution by industry is heterogenous – see graphic 1

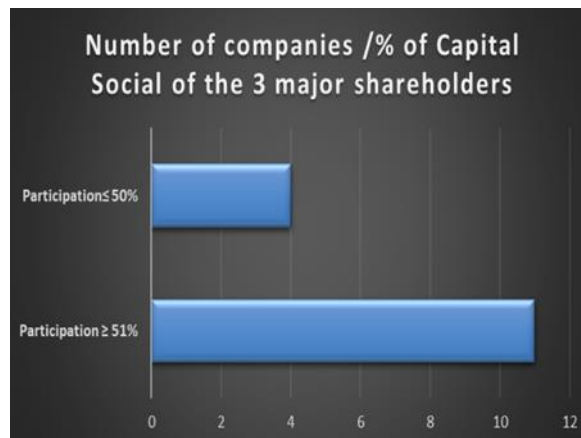
**Graphic 1 – Sample Composition: Industry**



Source: Made by the authors based on SPSS outputs.

Concerning the Concentration of the Voting Power (see annex 3) it is possible to observe that most of the companies had more that 50% of the social capital owned by the 3 major shareholders (11 of 15). Even the 4 companies that had less of 50% had a higher CONPOV (30,80%, 33,77%, 45,90% and 46,62%). It reveals a higher concentration of the CONPOV in PSI 15 – see graphic 2.

**Graphic 2 – Sample Composition: CONPOV**



Source: Made by the authors based on SPSS outputs.

Also is possible to see that not all the listed companies analyzed had 3 shareholders with qualified participations (4 of 15), as observed in figure 5, and one of them only had a qualified shareholder that hold 69,97% of the social capital.

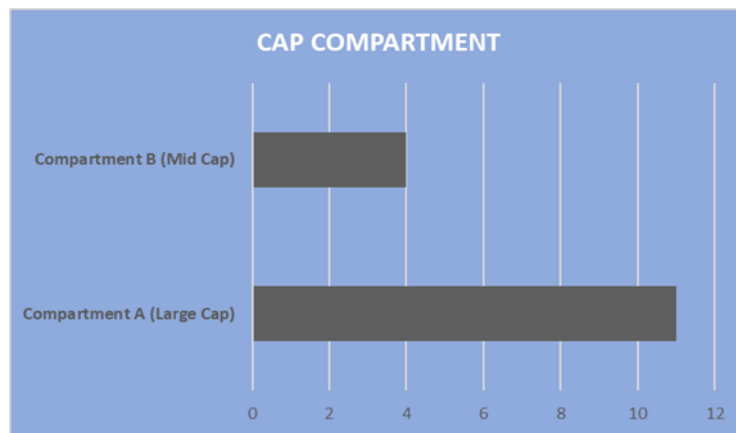
**Figure 5- Major Shareholders**

<b>PSI 15 COMPOSITION - MAJOR SHAREHOLDERS</b>		
<b>NAME</b>	<b>SHAREHOLDERS</b>	<b>% CAPITAL SOCIAL</b>
ALTRI SGPS	PROMENDO INVESTIMENTOS, S.A.	18,67%
	CADERNO AZUL, S.A.	15,11%
	ACTIUM CAPITAL, S.A.	12,84%
B.COM.PORTUGUÊS	GRUPO FOSUN	29,95%
	GRUPO SONANGOL	19,49%
	GRUPO BLACKROCK	2,68%
CORTICEIRA AMORIM	AMORIM INV. E PARTICIPAÇÕES SGPS SA	51,00%
	A MORIM SGPS SA	10,08%
	A PORTA DA LUA SA	6,23%
CTT CORREIOS PORT	Manuel Champalimaud, SGPS, S.A.	13,54%
	Global Portfolio Investments, S.L.	10,36%
	GreenWood Builders Fund I, LP	6,90%
EDP	CHINA THREE GORGES CORPORATION	19,19%
	BLACKROCK, INC.	7,38%
	OPPIDUM CAPITAL, S.L.	7,20%
EDP RENOVAVEIS	EDP – ENERGIAS DE PORTUGAL, S.A. – SUCURSAL EN ESPAÑA	74,98%
	BLACKROCK INC.	3,65%
	***	***
GALP ENERGIA - NOM	Amorim Energia B.V.	33,34%
	Parública – Participações Públicas (SGPS) S.A.	7,48%
	Massachusetts Financial Services Company	5,08%
GREENVOLT	Altri, SGPS, S.A	58,72%
	V-RIDIUM EUROPE SP. Z O. O.	9,23%
	NATIONALE-NEDERLANDEN	2,82%
J.MARTINS SGPS	Sociedade Francisco Manuel dos Santos, SGPS, S.E.	56,14%
	Comgest Global Investors, S.A.S.	2,06%
	BlackRock, Inc	2,06%
MOTA ENGIL	FM – Sociedade de Controlo, SGPS, SA	40,03%
	China Communications Construction Group	32,41%
	Mutima Capital Management, LLC	2,11%
NOS SGPS	ZOPT, SGPS, S.A.	52,15%
	Sonae, SGPS, S.A	7,38%
	Mubadala Investment Company PJSC	5,00%
REN	State Grid Corporation of China	25,00%
	Pontegadea Inversiones S.L	12,00%
	Lazard Asset Management LLC	6,15%
SEMAPA	Cimo – Gestão de Participações, SGPS, S.A	47,93%
	Sodim, SGPS, S.A.	33,84%
	***	***
SONAE	Efanor Investimentos, SGPS, S.A.	52,89%
	Criteria Caixa, S.A.	2,00%
	****	***
THE NAVIGATOR COM	Semapa – Sociedade de Investimento e Gestão, SGPS, S.A.	69,97%
	***	***
	***	***

Source: Made by the authors consulting Corporate Governance Reports.

For the MARKCP we can observed that PSI 15 companies are all categorized in CAP A (Large Cap) and CAP B (Mid CAP) however 11 were in CAP A and only 4 in CAP B who reveals a higher capitalization to all- see graphic 3

**Graphic 3 – Sample Composition: MARKCP**



Source: Made by the authors based on SPSS outputs.

Concerning the correlation between the variables the results show a moderate/low positive correlation between the MARKCP and CONPOV variables, which may indicate that a higher (smaller) CONPOV may lead to a higher (lower) MARKCP – see figure 6.

**Figure 6 – Correlations**

		Correlations	
		MARKCP	CONPOV
MARKCP_	Pearson Correlation	1	.240
	N	15	15
CONPOV	Pearson Correlation	.240	1
	N	15	15

Source: SPSS Output 20, 2016. \*\*Significant at 1% level and \*Significant at 5% level.

We can see that the hypothesis was validated as we can find a positive correlation.

## 6. Conclusions

Confirming previous studies, it was found that companies with a higher concentration of property achieve better performances in the market.

The presence of reference shareholders on the Boards of Directors, through their qualified holdings, reduce management monitoring costs and allow better supervision of the management, which allows them to increase the company's valuation in the market.

Good Corporate Governance Practices are evidenced by the good performance of the functions assigned to the Boards of Directors, resulting in the positive evaluation of investors rewarding these practices with the appreciation of the company's market value in relation to its book value.

The higher concentration of the voting power of companies listed in PSI 15, 74% of the companies hold 51%, or plus, of the capital in the 3 largest shareholders, reveals that the decisions on general meetings can be approved without the vote in favor of the minority shareholders.

This weak spraying of capital exposes the characteristic of the European Corporate Governance Model where there is a high concentration of capital (unlike in the Anglo-Saxon Model where capital spraying is one of its most distinctive characteristics).

This study has some limitations as the quality of the results can be judged based on the minor dimension of the sample data, however the sample is composed by all the companies listed in PSI 15. Therefore, the validation of the conclusions cannot be extrapolated. Following the limitations highlighted above, future research could examine a large sample included the indexes for others stock markets

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ANNEXES

Annex \1 – General Data

PSI15 COMPOSITION - EUROVEXT LISBON								
NAME	% CAPITAL OWNED BY THE FIRST 3 QUALIFIED PARTICIPATION CONPOV	SHARE PRICE 22/12/31	NUMBER OF LISTED SHARES	VALUE OF MARKET CAPITALIZATION	NV	CAP COMPARTMENT MARKCP	INDUSTRY	SECTOR
ALTRISGPS	46,62%	3,962	205 131 672	812 659 991	0,125	Compartment A (Large Cap)	BASIC MATERIALS	PAPER
B.COMPORTUGUES	52,12%	0,141	15 113 989 952	2 129 561 184	0,000	Compartment A (Large Cap)	FINANCIALS	BANKS
CORTICEIRA AMORIM	67,51%	11,280	133 000 000	1 500 240 000	1,000	Compartment A (Large Cap)	INDUSTRIALS	CONTAINERS AND PACKING
CTT CORREIOS PORTUGAL	30,80%	4,555	145 350 000	662 069 250	0,500	Compartment B (Mid Cap)	INDUSTRIALS	DELIVERY SERVICES
EDP	33,77%	4,832	3 965 681 012	19 162 170 650	1,000	Compartment A (Large Cap)	UTILITIES	ALTERNATIVE ELECTRICITY
EDP RENOVAVEIS	78,63%	21,900	960 538 162	21 036 223 748	5,000	Compartment A (Large Cap)	UTILITIES	ALTERNATIVE ELECTRICITY
GALP ENERGIA - NOVA	45,90%	8,520	771 171 121	6 570 377 951	1,000	Compartment A (Large Cap)	ENERGY	INTEGRATE OIL AND GAS
GREENVOLT	70,77%	6,210	139 169 046	864 255 112	0,100	Compartment B (Mid Cap)	UTILITIES	ALTERNATIVE ELECTRICITY
J.MARTINS SGPS	60,26%	20,100	629 293 220	12 648 793 722	1,000	Compartment A (Large Cap)	CONSUMER STAPLES	FOOD RETAILERS AND WHOLESALERS
MOTA ENGIL	74,55%	1,255	306 775 950	385 075 879	1,000	Compartment B (Mid Cap)	INDUSTRIALS	CONSTRUCTION
NOS SGPS	64,53%	3,410	515 161 380	1 756 700 306	1,660	Compartment A (Large Cap)	TELECOMMUNICATIONS	TELECOMMUNICATIONS SERVICES
REN	43,15%	2,545	667 191 262	1 698 001 762	1,000	Compartment A (Large Cap)	UTILITIES	CONVENTIONAL ELECTRICITY
SEMAPA	81,77%	11,700	81 270 000	950 859 000	0,000	Compartment B (Mid Cap)	BASIC MATERIALS	PAPER
SONAE	54,89%	1,003	2 000 000 000	2 006 000 000	1,000	Compartment A (Large Cap)	CONSUMER STAPLES	FOOD RETAILERS AND WHOLESALERS
THE NAVIGATOR COMPANY	69,97%	3,350	711 183 069	2 382 463 281	0,000	Compartment A (Large Cap)	BASIC MATERIALS	PAPER

Source: Authors.

**Annex 1 – Sample Composition: Sector/Industry**

PSI 15 COMPOSITION - INDUSTRY/SECTOR		
NAME	INDUSTRY	SECTOR
ALTRI SGPS	BASIC MATERIALS	PAPER
B.COM.PORTUGUÊS	FINANCIALS	BANKS
CORTICEIRA AMORIM	INDUSTRIALS	CONTAINERS AND PACKING
CTT CORREIOS PORT	INDUSTRIALS	DELIVERY SERVICES
EDP	UTILITIES	ALTERNATIVE ELECTRICITY
EDP RENOVAVEIS	UTILITIES	ALTERNATIVE ELECTRICITY
GALP ENERGIA - NOM	ENERGY	INTEGRATE OIL AND GAS
GREENVOLT	UTILITIES	ALTERNATIVE ELECTRICITY
J.MARTINS SGPS	CONSUMER STAPLES	FOOD RETAILERS AND WHOLESALERS
MOTA ENGL	INDUSTRIALS	CONSTRUCTION
NOS SGPS	TELECOMUNICATIONS	TELECOMUNICATIONS SERVICES
REN	UTILITIES	CONVENTIONAL ELECTRICITY
SEMAPA	BASIC MATERIALS	PAPER
SONAE	CONSUMER STAPLES	FOOD RETAILERS AND WHOLESALERS
THE NAVIGATOR COMP	BASIC MATERIALS	PAPER

Source: Authors.

**Annex 2 – Sample Composition: CONPOV**

PSI 15 COMPOSITION - CONPOV	
COMPANY NAME	CPDO
ALTRI SGPS	46,62%
B.COM.PORTUGUÊS	52,12%
CORTICEIRA AMORIM	67,31%
CTT CORREIOS PORT	30,80%
EDP	33,77%
EDP RENOVAVEIS	78,63%
GALP ENERGIA - NOM	45,90%
GREENVOLT	70,77%
J.MARTINS SGPS	60,26%
MOTA ENGL	74,55%
NOS SGPS	64,53%
REN	43,15%
SEMAPA	81,77%
SONAE	54,89%
THE NAVIGATOR COMP	69,97%

Source: Authors.

## EVE PARTS<sup>1</sup> AND ANNA-STINA REINAS<sup>2</sup>

### IS DEGROWTH SOCIETY POSSIBLE? ESTIMATING CHANGES IN EUROPEAN VALUES

#### Abstract

Degrowth is a multidisciplinary movement which argues that endless growth on a planet with limited resources is unsustainable and will inevitably lead to the collapse of the entire capitalist system. Degrowth proposal aims to abandon the growth mentality and switch into a path where all the economic and societal processes function within the ecological limits of the planet. To make that transition happen, several ideological and structural alterations are needed. The way of living, working and consumption needs to be re-conceptualized and restructured. Human values and attitudes play a key role in replacing egoistic, materialistic attitudes by trust, community, simplicity and caring. Since the transition needs to be done democratically, these attitudes should be shared by the majority of the population.

This paper aims to assess the possibility of transition towards a degrowth society in Europe, based on the data from 5 waves of European Value Survey (1981-2022). Authors analyzed whether there has been a change over time towards values and attitudes that are compatible with the degrowth ideology. The results show that on the positive side, people are ready to put more emphasis on family and individuality. On the negative side, work was perceived more important than leisure time, and less people perceive the idea of a simple natural life as good. Also, over time there has been a rise in materialistic values and fall in post-materialistic value. However, these negative changes were small in absolute values and overall support level for degrowth ideas is high.

**Keywords:** Degrowth, values, Europe

**JEL Codes:** A13, Q56

#### 1. Introduction

Degrowth is a broad, multidisciplinary movement which emerged in the 1970s as a critique of growth-oriented capitalism. The essence of the criticism lies in the idea that endless growth on a planet with limited resources is inherently unsustainable and will inevitably lead to a collapse of the entire economic system. The origin of this idea is from a report called “Limits to Growth”, commissioned by the Club of Rome in 1972 (Meadows et al., 1972). This report presented the results of a computer model capable of predicting the outcomes of exponential growth in population and capital. According to the model, in a scenario where no changes occur in rate and way that humans produce and consume, there will be an end to growth before the year 2100, resulted either by the depletion of resources or rise in pollution levels. These predictions have turned out to be surprisingly accurate in retrospect (Turner, 2008). The degrowth proposal is a possible solution to this limits-to-growth dilemma. It wishes to abandon the growth mentality and substitute it with a more natural, simplistic way of living, where people consume and produce much less (Demaria et al, 2013).

The degrowth proposal offers an imaginary society, in which all the economic and societal processes function within the ecological limits of the planet. In addition to this, the degrowth advocates argue that when growth is no longer a priority, there will be more equality and justice. Also, it is believed that degrowth society will allow people to live more fulfilling, happy lives.

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This topic is highly relevant in today's society since human impact on the environment is becoming more evident. The rising number of environmental problems is frightening – species are becoming extinct, pollution levels are rising and the climate is warming. There are also social problems such as poverty, hunger, inequality and violence. Measures that have been taken to tackle these problems do not seem to be sufficient and what is more, the solutions still entail economic growth (United Nations, n.d.). According to the degrowth movement, growth mentality is the root of the problems and this is why “sustainable growth” is in itself an oxymoron (Kallis et al, 2015). Proponents of degrowth see that the solution can only be to dramatically change the way a society function. In order to establish a truly sustainable way of living, what needs to happen is not smaller growth or even zero growth, but a severe reduction in consumption and production, along with an intertwined cultural and political change (Kallis, 2011).

The aim of this study is to assess the possibility of transition towards a degrowth society. According to several authors in the degrowth discourse, human values and attitudes play a key role in that transition (Latouche, 2009; Heikkinen, 2015; Bilancini & D'Alessandro, 2012). Since the transition needs to be done democratically (Romano, 2012), shared values and attitudes are necessary. Compatible with the degrowth movement, egoistic and materialistic attitudes need to be replaced by trust, community, simplicity. Also, caring attitudes towards the environment are needed and family, friends and leisure time have to take importance over work. To achieve the goal, following research question were set:

*RQ1: How are the degrowth values and attitudes in Europe changed over time?*

*RQ2: How are the degrowth values and attitudes related to the socio-demographic characteristics like gender, age, education, and income?*

According to the best knowledge of the authors, there are no former studies about changes in degrowth values, which proves the novelty of current study.

Rest of the paper is structured as follows. Section 2 opens theoretical background of degrowth movement, describes which changes in human values and attitudes are necessary for the transition to take place and how would a degrowth society look like. Also, an overview of past few empirical papers about degrowth attitudes and values is given. Section 3 introduces data and methodology. Section 4 presents and discusses the results of empirical analysis, while Section 5 concludes and suggests further research directions.

## **2. Theoretical Background**

Sustainable degrowth is a multifaceted concept which has its origins in many fields, like ecological economics, social ecology, economic anthropology, and environmental and social activist groups (Martinez-Alier et al, 2010). There is no single definition of degrowth, nor has been clearly defined what it is that has to degrow, how we can measure it and which policies are best to achieve it (van der Bergh, 2011). However, it must be taken into account that the academic discourse of the concept of degrowth is relatively new, still focusing on increasing the awareness of the problems and bringing the topic of the limits to growth back into discussion and politics. Proponents of degrowth also argue that some degree of ambiguity is common in many e social science concepts without compromising their usefulness (Kallis, 2011). In broad terms, degrowth can be defined as „ a voluntary movement towards a just, participatory, and ecologically sustainable society... The main objectives of degrowth are to meet basic human needs and ensure a high quality of life, while reducing the ecological impact of the global economy to a sustainable level, equitably distributed between nations” (Research and Degrowth, 2010: 524). Kallis (2011: 874) defines sustainable degrowth from an ecological–economic perspective as „a socially sustainable and equitable reduction (and eventually stabilization) of society's throughput“, the latter referring to the materials and energy a society extracts, processes, and returns back to the

environment as waste (Daly, 1996). In terms of economics, degrowth is a process whose end goal is a steady-state economy (Kerschner, 2010; O'Neill, 2012). Steady-state can be defined as an economy with “a constant flow of throughput at a sustainable (low) level, with population and capital stock free to adjust to whatever size can be maintained by the constant throughput” (Daly, 2008: 3).

There are two main lines of arguments that together comprise the theoretical foundation of degrowth – the arguments from ecological limits and the arguments from social limits. The ecological arguments are based on the premise that the resources on this planet are limited and the continued extraction of them will result in their depletion and severe environmental damage. Today, the energy throughput of most developed societies is extremely high because of the large quantities of production and consumption (Andreoni, 2017). Production processes and consumption levels rely largely on fossil fuels as source of energy and the approaching peak oil will inevitably make these processes much more expensive and bring an end to the rapid rate of growth (Hirsch et al, 2006). According to the degrowth movement, societies have to be able to function with much smaller energy throughput and this can be accomplished with reduction in production and consumption (Kallis, 2011).

The social limit to growth is that growth is not able to accomplish its goal of making people happier with rising levels of affluence. Easterlin's paradox is evident when seeing that while economic growth has made countries more prosperous, subjective wellbeing and levels in happiness have not improved in a significant way. The reason for this is that people measure their own happiness and satisfaction in life by looking at the people around them and making judgments about their own position relating to that of others (Easterlin, 1995). So, a person will not feel happy about their own rise in income when the average income rises and the majority gets a rise in their income as well. When happiness depends on the fact that people around us have less, then inequality is constantly reproduced in a society (Kallis et al, 2015). Diener and Biswas-Diener (2002) have reviewed various studies relating wealth and happiness and summarize the results as follows: 1) there is a high correlation between the wealth of countries and average subjective wellbeing; 2) at the national level, there is a small correlation between income and life satisfaction of individuals; 3) the economic growth in developed countries over the decades has resulted in relatively small increase in subjective wellbeing; 4) people who value more material things are generally less happy. Their overall conclusion is that higher income can increase subjective wellbeing of poor people, but for those who are already relatively well off, additional income does not increase life satisfaction (ibid). These outcomes give a hope that if consumption decreases as a result of degrowth, there will be not great loss in happiness. This conclusion is supported by Andreoni and Galmarini (2014), who propose a theoretical model that formally relates well-being to the concept of degrowth. Their well-being equation is based on the concepts of sphere of capitals and needs, including goods and materials (consumption capital), social relationships (social capital), health of the individual/s (health capital) and environment (natural capital). Model also distinguishes between reciprocity and market works, and the preliminary results show that the maximum level of well-being is obtained by properly sharing the total working time between the market and the reciprocity work (ibid). The reduction in consumption and production levels will cause a reduction in working hours as well. In order that fewer working hours would not cause high unemployment rates and related social problems in the society, several measures have been proposed. These measures include, for example, basic income (Alexander, 2015) or work-sharing practices (Schor, 2015). As a result of reduction in working hours but keeping most jobs, people would have more leisure time. Voluntary and unpaid work will be also very important in a degrowth society and offer several opportunities. The reduction in working hours will cause the economy to shrink and thus slower growth and reduce environmental problems such as pollution, but also offer social benefits, since alternative activities for work, such as voluntary work, more leisure time or time to spend with family will offer chance to create strong social bonds and practice creativity.

If degrowth is inevitable, the question arises how it can become socially sustainable. Kallis (2011) argues that pricing mechanisms alone are unlikely to secure smooth adaptation. To make a transition towards a degrowth society to happen, several ideological and structural alterations are needed. At the same time, many proponents of degrowth believe that the transition needs to be done democratically (Romano, 2012; Deriu, 2015). This means that reconceptualizing the way of living, working and consumption needs to be consistent with human values and attitudes. This is not an easy task, as values and beliefs tend to be rather rigid and stable over time. First of all, the prevailing ideology of continuous economic growth should be abandoned and replaced by degrowth as a positive social development. Such change could be supported by environmental and redistributive policies that concern, for example, basic income, reduction of working hours, environmental and consumption taxes, controls on advertising, and others (Kallis, 2011). Such external nudges could contribute to replacing egoistic, materialistic attitudes with values like trust, community, simplicity and caring.

Most proponents of degrowth agree that this transition should be based on people's own values, attitudes and habits. It requires society to set limits for itself and make a voluntary decision to live more simply and consume less (Deriu, 2015). For its success, the majority of society must share degrowth values and attitudes. According to the best knowledge of the authors, there are only few empirical studies tackling the role of values in degrowth process. Ančič and Domazet (2015) explored the degrowth potential in Europe using the data for 18 countries that participated in the ISSP (International Social Survey Program) Environment module in 2009-2011. Degrowth was measured by variables presenting personal willingness to make a material sacrifice in order to protect the environment, assessment of personal behaviour in line with degrowth principles, and attitudes on economic growth-environment trade-off. Their findings indicate the prevalence of common awareness of environmental limits to growth among all participating nations, but a potential to apply the degrowth principles was different between 'richer' and 'poorer' states, as well as between younger and older respondents.

The study of Drews and van den Berg (2016) examines public beliefs and attitudes about a wider range of aspects in the growth debate. They identify six dimensions of public attitudes: prosperity with growth; environmental limits to growth; general optimism; wrong priority; overrated GDP; and governmental control. Using data from Spanish online survey, they found that a majority of the respondents view growth and environmental sustainability as compatible (green growth), while about one-third prefers either ignoring growth as a policy aim (a-growth), or stopping it altogether (degrowth). Only very few people want growth unconditionally (growth-at-all-costs), still about one-third of the respondents believe that growth may be never-ending. Those who believe in degrowth justified their position by arguments such as growing inequality, high national debt, an aging society, environmental problems and scarcity of resources. On the other hand, there are proponents of endless growth believing that the development of technology can overcome the limits of growth and that it is possible to replace all non-renewable energy sources with renewable ones.

Current study complements the above two analysis by adding more countries and time periods, and using different dataset.

### **3. Data and Methodology**

The most important prerequisite for a successful transition towards a degrowth is that the values and attitudes that people have are compatible with the degrowth ideology. To capture this, we analyze the data of values from five waves of the European Value Survey – 1981, 1990, 1999, 2008 and 2017. Total dataset includes 49 European countries and 212 100 observations.

Based on theoretical considerations, 10 survey questions were selected that could provide insight into people's values and attitudes concerning family, work, environment, leisure time and consumption. As

one of the aims was to assess changes over time, only questions that have been in at least three survey rounds were included in the analysis. The 8 questions have been thematically divided into three groups and 2 individual indicators were added to them. All questions are measured on Likert scales. The answers have been recoded to be logically ordered from smallest to largest, where 1 always represents a negative value (respectively "bad thing", "not at all important" or "strongly disagree").

First group of questions assess the people's subjective perception about the importance of family, work and free time in their life, using Likert scale from 1 (not at all important) to 4 (very important). Second group of questions measures the readiness to live a simpler and family-oriented life in the future on Likert scale from 1 (such change would be bad) to 3 (change would be good). Third group of questions deals with the importance of work, money and material possessions. More specifically, respondents were asked, on Likert scale 1-3, whether putting less emphasis on these values in the future is for them a bad or a good change. Altogether, the above questions provide insight into how these important aspects of life are emphasized by respondents, and whether there has been positive change over the years. In a degrowth society, it is expected that family and free time have a great and increasing importance, while the role and importance of work, money and material benefits in life is less and decreasing.

Additional question asks directly whether person is ready to give part of his or her income for the environment, measured on Likert scale from 1 (don't agree) to 4 (agree completely). Answer to this question reflects the awareness of environmental problems and willingness to make one's own contribution to alleviate the problems.

Finally, pre-calculated postmaterialist index is used. This index is based on two original EVS questions which ask respondents to set their first and second choice among the following aims of the nation: maintaining order in the nation, giving people more say, fighting rising prices, and protecting freedom of speech<sup>3</sup>. In general, post-materialist values are, for example, trust, civic engagement and tolerance, while materialistic values are related to money and power. In a degrowth society, people should have more post-materialist values. Since cooperation and community are of great importance, there must be trust and tolerance between people. Also, civic activity is important, because the transition to sustainable degrowth requires citizens' interest in change and willingness to demand these changes. Postmaterialist index has been recoded so that the original 4 values on Likert scale 1-4 are reduced to three, where value 1 is "materialist", 2-3 are aggregated and marked with the variant "mix" and the value 4 is "postmaterialist". Unfortunately, not all questions were included in all survey rounds. The presence and descriptive statistics of the available variables can be seen in Table 1.

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<sup>3</sup> See Vloet and Halman (1994: 50) for more detailed explanation.



<b>Table 1. Descriptive Statistics of the Variables of Degrowth Values</b>					
EVS-wave	1981-1984	1990-1993	1999-2001	2008-2010	2017-2020
	(N=19121)	(N=37917)	(N=40906)	(N=65975)	(N=57891)
Descriptive Statistics	Mean Std.dev.	Mean Std.dev.	Mean Std.dev.	Mean Std.dev.	Mean Std.dev.
<b>Valuing family, work and free time (scale 1-4)</b>					
Important in life: Family	na	1,20 0,483	1,18 0,465	1,16 0,433	1,14 0,401
Important in life: Leisure time	na	1,84 0,753	1,89 0,758	1,78 0,724	1,71 0,695
Important in life: Work	na	1,54 0,730	1,54 0,762	1,57 0,785	1,58 0,772
<b>Readiness to live more natural and family-oriented life (scale 1-3)</b>					
Future changes: More emphasis on family life	1,15 0,423	1,13 0,420	1,10 0,358	na	na
Future changes: More emphasis on individual	1,20 0,479	1,20 0,520	1,16 0,446	na	na
Future changes: A simple and more natural lifestyle	1,21 0,499	1,23 0,562	1,24 0,550	na	na
<b>Readiness to put less emphasis on work, money and material benefits (scale 1-3)</b>					
Future changes: Less importance placed on work	2,29 0,879	2,25 0,864	2,28 0,894	na	2,17 0,903
Future changes: Less emphasis on money and material possessions	1,46 0,715	1,61 0,818	1,61 0,837	1,50 0,768	na
<b>Valuing the environment (scale 1-4)</b>					
Would give part of my income for the environment	na	2,15 0,848	2,38 0,885	2,27 0,905	na
<b>Postmaterialist values (scale 1-3)</b>					
Post-Materialist index 4-item	1,83 0,66	1,94 0,645	1,85 0,629	1,79 0,61	1,91 0,627

Source: Authors' calculations based on EVS (2021) dataset. na – data were not available

First, we analyze the trends in degrowth values over time. As there was asymmetry in the data, non-parametric Mann-Whitney U-test was used to assess whether the changes in the mean values of the answers are statistically significant or not. Second, binary logistic regression was performed to clarify the relationships between the degrowth values and socio-demographic variables of the respondents such as age, sex, education and income level. For that purpose, the answers to selected questions were recoded into two groups, where the first group has a positive attitude towards degrowth (answers like *very important, rather important, a good thing*) and the second group has a negative or neutral attitude towards degrowth (answers like *not very important, not at all important, a bad thing, don't mind*). All the analyses were conducted using IMP SPSS Statistics.

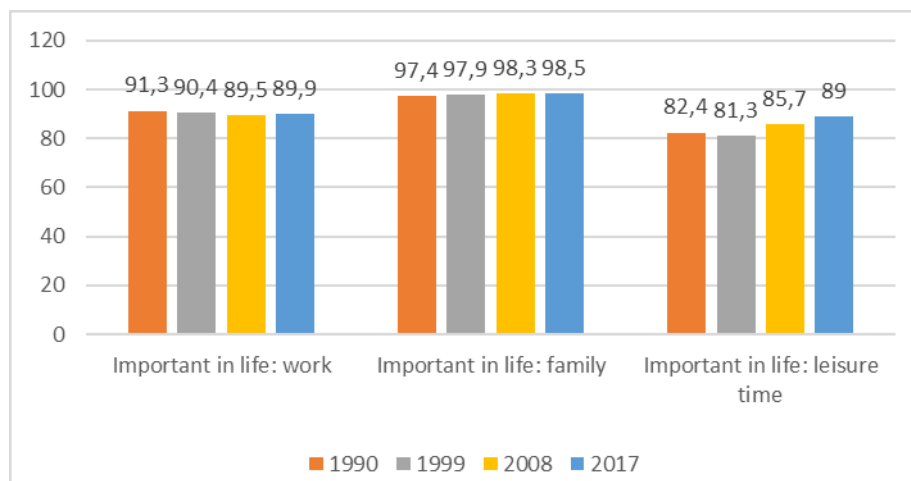
## 4. Results and Discussion

### 4.1. Evaluation of the Changes in Mean Values of Degrowth Attitudes

The first research question focused on the changes in degrowth values and attitudes in Europe over time. We compared changes in the mean values of each variables for longest time period available. The results of Mann-Whitney U-test revealed that in general, the changes in mean values have been relatively small, although in most cases these were statistically significant. Here we analyze graphically the changes in shares of respondents who support degrowth ideas, following the division of the variables into three groups, plus two individual variables.

Figure 1 shows that the changes in the people’s assessment of the importance of family and work. We can see that these values have changed very little over the observed period. There is a small decrease in the importance of work and small increase in the importance of family. On absolute scale, both values are at very high level, fluctuating around 90% (importance of work) and 98% (importance of family). Importance of leisure time is somewhat lower, ranging between 81-89% over years; however, over the longer period 1990-2017 its importance has increased the most. From the point of view of sustainable degrowth, it would be good if people value leisure time more, because in shrinking economy where working hours decrease will be more free time available. This free time can be filled with alternative activities like socializing, creative activities, or volunteering – which all have great value in a degrowth society. In this sense, it can be problematic that work was perceived more important than leisure time.

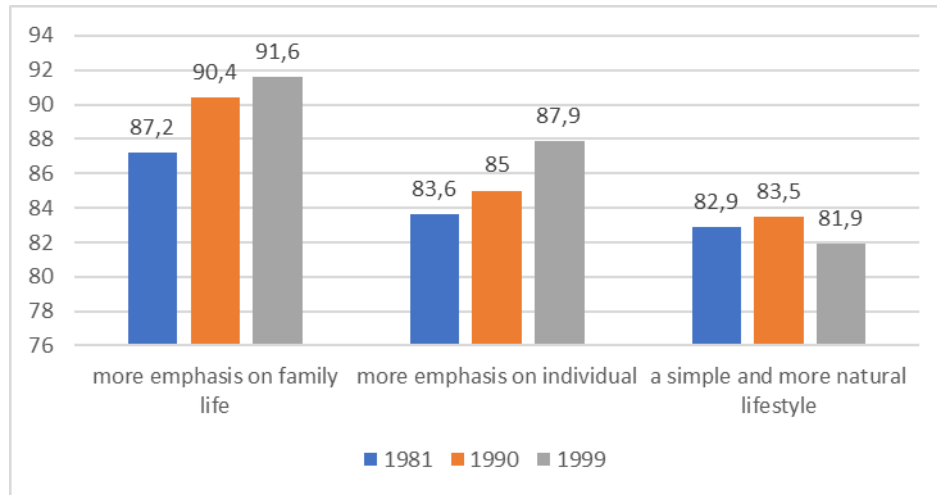
**Figure 1. Assessment of the Importance of Family, Work and Leisure Time (Share of the Respondents (%) Answering that Respective Aspect of Life is “Very Important” or “Rather Important”)**



Source: Compiled by the authors based on EVS (2021) data.

The dynamics of the variables describing the readiness to live more natural and family-oriented life is presented in Figure 2. There has been quite remarkable change towards more emphasis on family (from 87.2% to nearly 92%) and individuality (from 83.6% to nearly 88%). However, readiness to live a more simple and natural life has slightly decreased after temporary increase in the middle of the observed period and remains below 82%, which is still a high level.

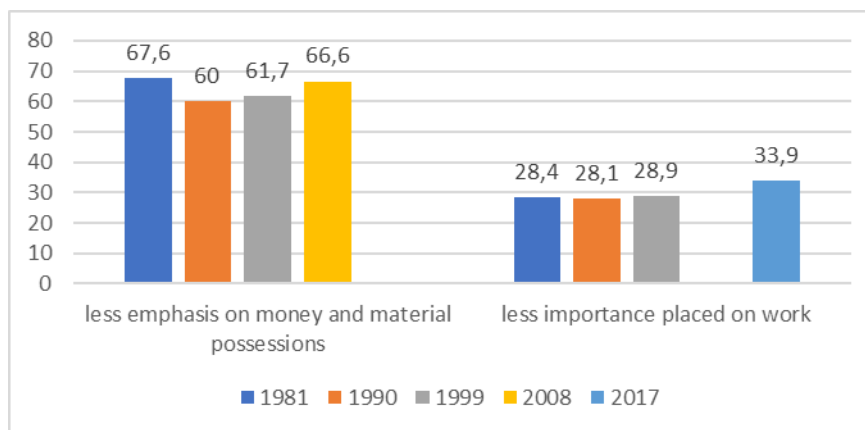
**Figure 2. Assessment of the Future Change in Lifestyle (Share of the Respondents (%) Answering that Respective Change is “A Good Thing”)**



Source: Compiled by the authors based on EVS (2021) data.

Since easier, more natural life, prioritizing family and individuality are important values of degrowth movement, then it is positive that most people have an attitude to focus more on these aspects in their life. Unfortunately, these variables were not available for the latest survey rounds, so no up-to-date conclusions can be made about whether observed movement towards degrowth attitudes is consistent.

**Figure 3. Assessment of the Future Change in Material Values (Share of the Respondents (%) Answering that Respective Change is “A Good Thing”)**



Source: Compiled by the authors based on EVS (2021) data.

Changes in values related to placing less emphasis on work and material benefits are presented in Figure 3. From the point of view of degrowth, it would be good if the answers to these questions associate with valuing less money and material things, because the desire for material benefits causes people to place excessive emphasis on work, money and consumption – the values which contradict the concept of degrowth. The results in this aspect are not very promising. Smaller importance of work has been accepted only by 28-29% of the respondents over years 1981-1999, however by year 2017 the share of people who value this attitude has increased close to 34%. The share of respondents who support the

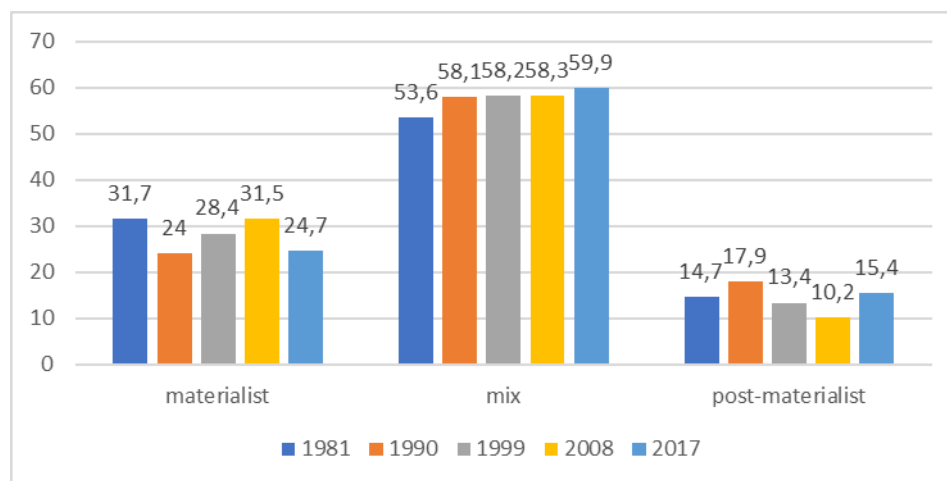
idea that money and other material possessions should have smaller importance in their lives follows U-shape dynamics: it declined from 67.6%-level in 1981 to 60-62% in 1990 and 1999, while starting rise again up to 66.6% by 2008 – but still remaining lower than in the first survey round.

It is remarkable that the share of those who are willing to put less emphasis on material things is relatively low (60-67%), as compared to much higher share of respondents (81-83%) who appreciated a simpler and more natural lifestyle in the future. This may indicate that although the idea of simpler, more nature-friendly life looks theoretically nice, still many people would not be willing to make this transition at the expense of their own income and consumption.

Results also revealed that work generally plays important role in people's lives, and there are rather few people who consider change towards less importance placed on work as good. Although switching to sustainable development path requires shifting the emphasis from work to other aspects of life, it cannot be said with certainty that peoples' tendency to prioritize work would be detrimental to the possibility of a transition to degrowth. In addition to the source of income, work plays an important role in people's lives for many other reasons; e.g. it provides an opportunity for self-fulfillment and social contacts, makes people feel that they are contributing to the functioning of the society, etc.

Regarding changes in environmental attitudes, there has been a sharp decrease in share of people who are willing to give part of their income for the environment – from 71.2% in 1990 to only 60.4% in 1999. After that the share has started to increase again, reaching 65.4% by 2008. On the positive side, over the years 60-70% of people have agreed or rather willing to give up some of their income for the environment, which enables to suggest that a large part of people care about environmental problems and are also ready to contribute to alleviate these problems.

**Figure 4. Changes in Postmaterialist Index (Share of Respondents (%) in Different Categories)**



Source: Compiled by the authors based on EVS (2021) data.

Finally, postmaterialist index shows quite unclear trend (see Figure 4). The share of persons being in between two extremes has increased slowly but constantly over the years. At the same time, the shares of materialists and postmaterialists has been fluctuating up and down without an understandable trend, and the same holds for the mean value of postmaterialist index. Overall, there has been about 1.4-3 times more materialists than postmaterialist, depending on the year. Consequently, the observed situation is rather negative in the context of degrowth, as post-materialistic values are more compatible with a degrowth society.

#### 4.2. Relations Between Degrowth Values and Socio-demographic Characteristics

To answer the second research question, we employed binary logistic regression. The results are presented in Table 2. Most of the regression coefficients were statistically significant at  $p < 0.01$ . However, the overall prediction power of the models was low and values of Nagelkerke  $R^2$  remained between 0,008 and 0,092. Also, Hosmer-Lemeshow test indicated a good fit only for two models, with dependent variables of „Important in life: free time“ ( $p=0.145$ ) and „Future changes: more emphasis on individual“ ( $p=0.144$ ).

The most important results were as follows. Women were more likely to belong to the group preferring more natural lifestyle, valuing highly family and placing less emphasis on material possessions and money. Contrary, men belonged more likely to the group which values highly both work and leisure, and they also perceived more emphasis on individual as a good future change. Additionally, men tend to have more postmaterialist values, as compared to women.

Age was statistically significant factor in all models, except in model of the importance of free time where the youngest and oldest age groups didn't differ from each other. In general, middle-age group and older people were more likely to have values and attitudes which were compatible with degrowth: they value more highly family, individuality and simpler lifestyle. As compared to younger age group, the largest differences occurred in case of the importance of family. However, there were also some contradictory results: although older age groups prefer to put less emphasis on money and material possessions, they also find work being important in their life. Contrary, youngest respondents belong more likely to the group which values work as less important and places even less value on work in the future. Younger age group shared also more likely postmaterialist values.

**Table 2. Results of Binary Logistic Regression**

Independent variables (reference group)	Odds ratio	Gender (ref. wom.)	Age (ref. 15-29)		Education (ref. lower)		Income (ref. low)	
		Men	30-49	50+	medium	higher	medium	high
Important in life: work	B	0,410**	1,113**	0,154**	0,919**	1,334**	0,676**	0,878**
	Exp(B)	1,507	3,045	1,167	2,508	3,798	1,965	2,405
Important in life: family	B	-,185**	1,411**	1,811**	1,810**	2,183**	1,295**	1,553**
	Exp(B)	0,831	4,100	6,116	6,113	8,874	3,651	4,726
Important in life: leisure time	B	0,132**	0,194**	0,021	0,893**	1,217**	0,494**	0,611**
	Exp(B)	1,141	1,214	1,021	2,442	3,378	1,639	1,843
Future changes: more emphasis on family life	B	-,221**	0,733**	1,393*	1,454**	1,350**	0,559**	0,383**
	Exp(B)	0,802	2,081	4,025	4,281	3,858	1,749	1,467
Future changes: more emphasis on individual	B	0,104**	0,417**	0,579**	0,758**	1,381**	0,363**	0,434**
	Exp(B)	1,110	1,517	1,784	2,135	3,979	1,438	1,543
Future changes: simple and more natural lifestyle	B	-,187**	0,556**	0,841**	1,008**	1,041**	0,280**	0,049*
	Exp(B)	0,829	1,743	2,319	2,740	2,832	1,323	1,050
Future changes: less emphasis on money and material possessions	B	,157**	0,206**	0,272**	0,161**	0,439**	0,093**	0,093
	Exp(B)	0,854	1,229	1,312	1,174	1,551	1,097	1,098
Future changes: less importance placed on work	B	0,007	-,173**	-,604**	-,640**	-,567**	-,139**	-,120**
	Exp(B)	1,007	0,841	0,547	0,527	0,567	0,870	0,887
Would give part of my income for the environment	B	-,010	0,036*	-,046*	0,174**	0,516**	0,306**	0,430*
	Exp(B)	0,990	1,037	0,955	1,190	1,675	1,359	1,537
Post-materialist index	B	0,290**	-,601**	-1,12**	-,711**	-,213	-,012	0,321**
	Exp(B)	1,337	0,548	0,328	0,491	0,808	0,988	1,378

Source: Authors.

\*\* statistically significant at p<0.01, \* statistically significant at p<0.05

People with higher educational level and higher income were more likely to belong to groups where more emphasis on family, preferring a more natural life, and placing less emphasis on material benefits was chosen as “good”. Also, more educated and richer people were more likely willing to give part of their income for the environment. On the other hand, lower educational level associated with higher postmaterialist values and less importance placed on work.

When generalizing the above results, we can see that these coincide largely with the findings of Ančič ja Domazet (2015), especially regarding differences in values between educational and income levels and age groups. But what can we conclude about the possibility of transition towards a degrowth society? Along the process of economic development, nations become richer, their educational levels usually increase and populations are ageing. Based on the regression results, all these trends likely increase the acceptance of degrowth values. However, there are some exceptions regarding two values:

shrinking younger generations tend to have more postmaterialist values and they rather put less importance on work, and the same holds for those with lower income and educational level.

## 5. Conclusions

When all the findings are taken into account, the overall impression is that European people in general hold values and attitudes that are compatible with degrowth. In all analyzed waves of the EVS survey, a very high percentage of people (roughly 82-92%) thought that it would be a good change in the future to place more emphasis on family, individual, and a more simple, natural lifestyle. Similarly, less importance placed on money and material possessions was considered as a good change by up to 67% of the respondents. On the positive side, the changes in the mean values of degrowth attitudes has over time risen in a direction positive for the degrowth movement.

On the negative side, importance of work is still high and only a small share of people consider the future change towards less importance placed on work as “good”. However, this can be interpreted in many ways. If the importance of work is related to desire to increase one’s material living standard, then degrowth is hard to achieve. Alternatively, the importance of job might also be related to self-realization. In this case, decrease in consumption and lower pressure on environment is still possible. Given that working hours are shrinking in degrowth society, additional free time could be devoted voluntary work, family, or hobbies.

Thus, the main conclusion would be that people generally find the ideas and values that the degrowth movement advocates very sympathetic and this makes the transition towards a degrowth society more likely. This positive tendency is implicitly supported by processes like population ageing and increasing income and educational levels, as respective population groups – elderly, richer and more educated – appeared to have more likely values that support degrowth idea.

The main limitation of this study is the fact that the values of many important indicators were missing in several survey rounds. There are several options for further research. For example, country-level analysis would enable to compare differences in degrowth values between nations and regions. Methodologically, it would be reasonable to look for more clear structures within degrowth values using clustering and/or exploratory factor analysis. Also, alternative research questions could be of interest, like how is the readiness of switching towards degrowth society related to development level broader cultural values of different countries? Or who are the winners and who are the losers in degrowth process? Finally, whether and how can governments or international organizations nudge the people’s behavior and values into desired direction?

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## THE IMPACT OF CORPORATE GOVERNANCE AND RISK MANAGEMENT ON THE PROFITABILITY OF BANKS IN ALBANIA

### Abstract

Corporations are a major part of our society, they are part of the political, economic, social and cultural environment. This makes corporate governance vital to a country's well-being. The financial industry, especially the banks that occupy the largest part, have had a great development in their governance after the economic crisis of 2007-2008. Basel III, which forces all banks to be more conservative at risk. The corporate governance of the bank's risk management reflects the conducted business cultures, the latter having a special economic significance. The special importance of this work is the review of the same literature, as a basis for gathering information and developing empirical analysis. They are taken in the articles of local and foreign authors, to bring a broad perspective in corporate governance and risk management. For the empirical analysis, secondary sources such as Annual Audit Reports of banks were taken. The areas of absolute importance in the performance of banks are risk management. The influence of their key role in the investments of the shareholders and the return of the investments in the latter. Good risk management brings the value of investments in the banks to the return of shareholders' investments.

**Keywords:** Risk management, corporate governance, return on capital, bank profitability, non-performing loans.

**JEL Codes:** G20, G30, E50

### 1. Introduction and Study Methodology

Monetary policy during the 80's was of great importance, which was faced with the increasing pressure changes in the growth of by-products which affected the reduction of GDP. The cycle was saved by accommodative monetary policies, where with the help of financial institutions, mainly banks, they came out of the biggest recession since the 'The Great Depression'. (Friedman, 1988) Nowadays, banks are institutions that play an important role in the economic development and wellbeing of a country, being the catalyst of progress. Development level and the role of the financial system in the economy determine the stage of development of a country. Economist have divided it into 3 stages:

1. Empirical phase – Non-developed financial institutions which is accompanied by low levels of economic growth, the low level of capital turnover is another quality of this phase
2. Credit phase – Financial institutions take the main role of development, mainly banks, the latter representing the direction of sources of funds. Entities that have excess funds through financial intermediaries allocate funds to entities with a shortage of funds. The result is an economy with rapid growth and economic and social development that affects the growth of national well-being.
3. Financial markets phase – The economy operates on the basis of an 'invisible' money, electronic money plays a major role by transferring and investing capital regardless of national borders and without time limits. (Bundo, Luçi, & Cane, 2005).

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Albania is in the second phase, the lack of a proper capital market has caused the banks to hold the largest share of the financial system. Banking institutions have a share of 94% of GDP, while the non-banking<sup>4</sup> sector stands at 11%, both sectors have a decrease from the previous year, but they constitute an important item in the domestic economic stability. (Banka e Shqipërisë, 2022) Corporate governance, risk management ensure that banking institutions are the catalysts of development, also play a role in the profitability. Bankruptcy of 2 large investment banks like ‘Lehman Brothers’ and ‘Bearn Stearns’, revealed that a mechanism like the bank board is the main actor in the most aggressive recession since the economic depression of the 30’s. (Bredart, 2014).

Changes in the business climate have brought another competitiveness in the banking sector which during the first years of democracy was fragile. (Meka, 2018) Competitiveness means that the market reflects, lower loan rates, increased deposit rates, bringing the domino effect of increased savings and investments. Lowering the ‘Spread’ can lead to risky investments to maintain the same or higher levels of profitability.

Profitability is a reflection of the quality of governance and shareholder behavior, the bank’s competitive strategies and risk management. (Hallunovi, 2016) In this paper we focus on governance and risk management in second level banks in Albania. The main purpose of this study is to analyse how governance and risk management affect the profitability of second level banks of Albania. Interest to research more in this field that is seeing development in finance, has led to the concretization of the main objective of this paper, ‘Identification of the relationship of profitability with governance and risk management in banks.’ In achieving the goal of this paper, several objectives have been set that must be realized:

- Determining and describing the factors influencing the profitability of banks
- Conducting empirical analysis in the most important banks in the country.
- Make recommendations regarding profitability influencers based on empirical findings.

*Research questions*

In order to achieve the main purpose of this study, the research questions were formulated as follows:

- How do factors such as governance and risk management affect the profitability of banks in Albania?
- How much do factors such as governance and risk management affect the profitability of banks in Albania?
- How can governance and risk management be improved to increase the profitability of banks in Albania?

*Hypotheses of this paper*

*Hypothesis 1:*

H<sub>0</sub>: Number of representatives in Board of Directors plays a statistically important role in bank profitability and return on capital.

H<sub>1</sub>: Number of representatives in Board of Directors does not play a statistically important role in bank profitability and return on capital.

*Hypothesis 2*

H<sub>0</sub>: Gender diversity and board member independence plays a statistically important role in bank profitability and return on capital.

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<sup>4</sup> Non-banking sector – The non-banking sector includes savings and loan companies, insurance companies, pension funds and investment funds.

H<sub>2</sub>: Gender diversity and board member independence does not play a statistically important role in bank profitability and return on capital.

*Hypothesis 3:*

H<sub>0</sub>: Non performing loans, capital adequacy ratio and loan-to-deposit ratio play a statistically important role in bank profitability and return on capital.

H<sub>3</sub>: Non performing loans, capital adequacy ratio and loan-to-deposit ratio do not play a statistically important role in bank profitability and return on capital.

*Hypothesis 4*

H<sub>0</sub>: Number of representatives in Board of Directors plays a statistically important role in bank profitability and return on assets.

H<sub>4</sub>: Number of representatives in Board of Directors does not play a statistically important role in bank profitability and return on assets.

*Hypothesis 5:*

H<sub>0</sub>: Gender diversity and board member independence plays a statistically important role in bank profitability and return on assets.

H<sub>5</sub>: Gender diversity and board member independence does not play a statistically important role in bank profitability and return on assets.

*Hypothesis 6:*

H<sub>0</sub>: Non performing loans, capital adequacy ratio and loan-to-deposit ratio play a statistically important role in bank profitability and return on assets.

H<sub>6</sub>: Non performing loans, capital adequacy ratio and loan-to-deposit ratio do not play a statistically important role in bank profitability and return on assets.

### ***Study Methodology***

The methodology used to validate the hypotheses is a empirical analyses. To analyse the effect of the 2 factors, we will use the size of management board, female board members, independent members as variables that will represent governance, non-performing loans, capital adequacy and loans on deposits as variables that will represent risk management, to represent profitability as a variable, return on capital and return on assets are set. The period studied will be 2010-2020. The data of the sample are secondary statistical data, obtained from annual audited reports of banks.

This paper is focused on banks of systemic importance and non-systemic banks of significant size for the banking sector, they are: Banka Kombëtare Tregtare (BKT) sh.a, Raiffeisen Bank sh.a, Credins Bank, Intesa SanPaolo Bank sh.a, OTP bank, Tirana Bank and Union Bank sh.a. The years are limited to the period of 2010 – 2020, during the 2020 due to Covid-19 the country experienced an economic recession which may have affected on the results of this study.

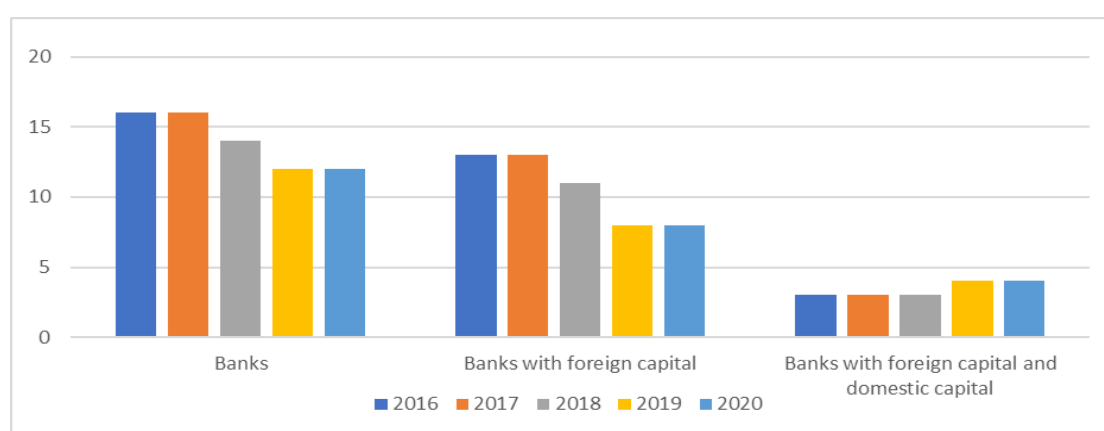
### **2. Literature Review**

Albania transformed the banking system in the early 90s just like in the countries of the eastern socialist bloc. In 1992, the laws on which the monetary policy would be based were drafted and developed, the two- level banking system was created with the Bank of Albania, in the role of central bank, and the commercial banks that will be supervised by the central bank. (Ibrahimi & Salko, 2004) The banking system at the beginning of the 1992 consisted mainly of banks with state capital, of which there were 4 entities and 2 others with mixed ownership. Reforms of the banking system in its beginnings aimed to maximize the importance of such institutions in the national economic development. The low efficiency

of banks with state capital created the necessity of the privatization of the sector, the process began in 1995 with the drafting of the law that allowed the privatization of state-owned banks. This process created BKT which was owned by the Ministry of Finance, in 2004 Savings Bank completed the process of privatization in the Albanian banking sector. (Musta & Shehu, 2015).

Banks today are divided in addition to the division into systemic<sup>5</sup> importance or other banks, they are divided according to the origin of the capital. In Albania, 70% of the total assets of the banking sector are foreign capital and 30% are domestic capital. Foreign investments in this sector originate from different European countries, but we also have the presence of Islamic banking (UBA Bank). (Banka e Shqipërisë, 2018).

**Graphic 1. Number of Banks in Albania**



Source: Bank of Albania, 2020.

Corporate governance is a topic that has been receiving increased attention in recent years. Corporate governance includes the function of directing an entity rather than controlling it, it promotes fairness, transparency to stakeholders, primarily shareholders. Different countries have different approaches to corporate governance, Anglo-Saxon countries such as Great Britain and the USA corporate governance is focused on the interest of investors, in countries with a tendency towards welfare state capitalism such as Japan, Germany, France the horizon is more comprehensive including the welfare of the employee as well as the consumers. Creating an environment where employees feel valued is a feature of European culture. (Stanwick & Stanwick, 2002) Competitiveness, innovation and globalization have driven corporate governance as an important part of sustainability in the market, creating a more transparent, direct and above all more ethical business environment to achieve the entity's objectives (Mohamad & Sori, 2011). The financial crises of recent years, in particular the 2007-2008 crisis, called into question the adequacy of bank regulations and the role of bank governance. Imprudent lending and stock market positions that took the form of 'bets' contributed to the bankruptcy of the 2 largest investment banks such as 'Lehman Brothers' and 'Bear Stearn'. The cost of 'Bailout' was 500 billion dollars or equivalent 3.5% of US GDP for 2009. (Lucas, 2019) Various authors concluded that, senior risk managers as well as the board failed to control excessive appetite for risk. Risk managers tend to neglect risk during the phase of economic booms (Kashyap, Rajan, & Stein, 2008). The banking industry has special treatments, the trust of individual savings from where it originates the main financing of the industry's activity makes the banking sector mandatory to submit to local and international regulations. It is regulated by institutions with national and international legal power, this distinguishes it from the

<sup>5</sup> Systemic bank – The bank is classified as systemically important if its bankruptcy would create financial stress or financial crisis.

natural form of corporate governance. In recent years the law for corporate governances had some changes, the banking industry showed a high standard in the organization and management of banks in the country, this industry is well organized compared to the standards of corporate governance in our country (Brumbulli, 2012). The legislation stipulates that the number of board members should not be less than 5 people, also an important change integrated into the new law on the governance of banks in Albania is the establishment of the mandates of board members in the range of 4 years. Establishing this 4 year term creates a board that focuses on long term policies. This also plays a role in the effectiveness of the bank, significantly reducing the risk of constant change of members.

The economic transition from a centralized economy to a free market economy brought significant changes to the banking industry, from 1992 at the level of 3 state banks until today where 12 banks are present in the banking industry, all with private capital. This sector has been described as a complex industry with a large number of stakeholders starting from depositor to shareholders etc. Emerging markets, of which Albania is also a part, are characterized by a high demand for credit due to the increase in investments. Credit risk is the most important risk in the banking system in the country. In the first years of banking in Albania the experience with bad loans was the same as in any country in Eastern Europe. Non performing loans were the main part of the banks' portfolios. In 1999, 82% of the loans of the National Commercial Bank (BKT) were non refundable, while in one of the largest banks in the country, such as Savings Bank, which was also state owned, non performing loans were 85%. Deficiencies in managerial ability and lax administration were among the main reasons that contributed to the increase in the level of non performing loans in state owned banks. Faced with these conditions, the Bank of Albania decided not to credit these banking institutions anymore. Banks with joint capital and those with private capital also experienced a period of problems, this proves the high credit risk during the first years of banking in the country. (Çeliku & Luçi, 2003) This problem appeared again after the financial crisis of European Union, in 2016 this loan level was 20% of the total loan. One of the key factors in determining the supply of credit and the profitability level in a bank is the quality of the loan. Economist, pointed out that poor lending standards together with mass lending influenced the levels of non performing loans. The basic principles of lending were not followed during the credit 'boom' such as a) the cyclical nature of the economy b) diversification of the loan portfolio c) risk management should be extended to the entire entity. (Shella, 2013) Another risk that appears in the second level banks in Albania is the operational risk. Operational risk as in the world has developed a lot during the last 10 years when risk concepts advanced apart from the traditional ones. Innovation has created opportunities for companies to support their activity of specific processes in technology. This opportunity created by technological progress creates threats to the banks. The Central Bank of Albania issued the regulation for this risk in 2011, which is mandatory for implementation in all banks in this sector.

Another risk that appears in the banks of our system is liquidity risk. This risk after the last financial crisis was brought to the attention of regulators all over the world, including the regulator of the banking sector in Albania. In 2009, in order to help the banking sector and regain the trust of citizens, the Bank of Albania adapted the regulation for liquidity risk management. According to Shehu (2016), Bank of Albania made changes to the regulation in 2011, indicating more conservative in foreign currency, increasing the liquid minimum from 20% to 25% and increasing the standards that bring the banking sector closer to European standards. (Duraj, Imeraj, & Moci, 2013) The difficult business climate after the financial crisis created a new phenomenon in Albanian banking, the phenomenon of excess liquidity. There are a lot of reasons for excessive liquidity, but the most important are, a) the contraction of investment activity in the country b) few alternatives in the investment financial system, the lack of capital market c) the decrease in the demand for loans. The low risk appetite from banking sector mainly but also from Albanian businesses during time of economic uncertainty has played a role in creating high levels of liquidity. Low financial development limits individuals who have savings to invest in financial instruments or international markets (Kola, Gjipali, & Sula, 2019).

### 3. Empirical Analyses

To create an overview of our data, table below contains the descriptive data for our variables of the 7 banks considered for the years 2010 – 2020.

	ROE%	ROA%	MB	FMB%	IMB%	NPL%	CAR%	RLD%
Mean	8.1	0.76	5.81	11.2	71	14.1	16.4	52.7
Median	6.7	0.72	5	0	71.4	10.8	15.3	50.3
Maximum	24.1	2.2	7	60	100	47.2	29.6	84
Minimum	-22.1	-4	5	0	33.3	3.6	12.5	30.1
Std. Dev.	9.1	1	0.942	15.7	17.3	9.3	3.1	10.1
Observations	77	77	77	77	77	77	77	77

Source: Authors.

The average return on capital is at 8.1% with a maximum value of 24.1% and a minimum value of -22.1%. Returns from assets during 2010-2020 recorded an average of 0.76% with a maximum and minimum values at 2.2% and -4% respectively. Bank board members recorded a maximum of 7 members indicating that banking corporations remain at small levels of corporate size compared to the western financial world. Banks gender diversity remains at low levels, marking an average of 11.2%, where there are banks where the presence of women on the board is at the minimum level of 0, the maximum number of female in board is at 60% of board members. The ratio of non performing loans is one of the important variables of this model, the average of non performing loans is 14.1% with a maximum level of 47.2%, a level almost as half of the total loans, the lowest level of non performing loans is 3.6%. The capital adequacy ratio in the banks studied is at the average level of 16.4% about 4.4% higher than the regulatory requirements of the Bank of Albania, the maximum level is 29.6% with a minimum 12.5%.

This shows that the second-tier banks in the country are conservative compared to those of the European Union markets or the markets in the US. Economic shocks that may come from the market can be better absorbed at this level of capital adequacy, which is at extremely high levels, higher than the levels required by Basel III or local regulators. The ratio of loans to deposits is an indicator of the liquidity of the banking sector. The average of this ratio is 52.7%, indicating that the lending activity in the country is at lower levels than the growth of deposits in the country. The maximum of this ratio marked the level of 84% and a minimum of 30.1%. This type of report shows the high level of liquidity of the banking sector despite deposits at high levels despite the fact that interest rates during the years under review have had a downward trend to create ease in domestic economic activity.

Perfect multicollinearity is when the independent variables considered have a very strong relationship with each other. When this value is equal to 1, it means that there is a perfect linear relationship between the independent variables (Wooldrige, 2012).

**Table 2. Correlation Matrix, ROE**

	ROE	MB	FBM	IBM	NPL	CAR	RLD
ROE	1.000						
MB	0.008	1.000					
FBM	-0.082	0.399	1.000				
IBM	0.705	-0.049	0.037	1.000			
NPL	-0.557	-0.071	-0.171	-0.406	1.000		
CAR	-0.253	-0.296	-0.333	-0.088	0.306	1.000	
RLD	0.036	0.043	0.277	-0.064	-0.206	-0.407	1.000

Source: Authors.

**Table 3. Correlation Matrix, ROA**

	ROA	MB	FBM	IBM	NPL	CAR	RLD
ROA	1.000						
MB	0.001	1.000					
FBM	-0.072	0.399	1.000				
IBM	0.631	-0.049	0.037	1.000			
NPL	-0.588	-0.071	-0.181	-0.406	1.000		
CAR	-0.206	-0.296	-0.333	-0.088	0.306	1.000	
RLD	0.065	0.043	0.277	-0.064	-0.206	-0.407	1.000

Source: Authors.

The largest value in the correlation matrices is 0.7 less than the absolute value of 0.8 which is considered as the threshold value to determine a perfect multicollinearity. These empirical tests used the ‘panel data’ technique where after the ‘Huassman’ test it is estimated that the ‘Fixed Effects’ model is the right as p- value < 0.05  $H_0 \downarrow$ . The empirical equations of this study are as follows:

$$ROE_{it} = \beta_0 + \beta_1 MB_{it} + \beta_2 IBM_{it} + \beta_3 FBM_{it} + \beta_4 NPL_{it} + \beta_5 CAR_{it} + \beta_6 RLD_{it} + \varepsilon_{it}$$

$$ROA_{it} = \beta_0 + \beta_1 MB_{it} + \beta_2 IBM_{it} + \beta_3 FBM_{it} + \beta_4 NPL_{it} + \beta_5 CAR_{it} + \beta_6 RLD_{it} + \varepsilon_{it}$$



**Regression Analysis of These Data are Processed Through Eviews Software**

Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 09/23/22 Time: 10:51				
Sample: 2010 2020				
Periods included: 11				
Cross-sections included: 7				
Total panel (balanced) observations: 77				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MB	-0.000669	0.013460	-0.049710	0.9605
IBM	0.381485	0.040393	9.444303	0.0000
FBM	-0.080128	0.038833	-2.063407	0.0431
NPL	-0.139386	0.068470	-2.035726	0.0459
CAR	-0.879653	0.210456	-4.179748	0.0001
RLD	0.150819	0.062320	2.420056	0.0184
C	-0.091245	0.092479	-0.986658	0.3275
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.852510	Mean dependent var	0.081885	
Adjusted R-squared	0.824855	S.D. dependent var	0.091453	
S.E. of regression	0.038273	Akaike info criterion	-3.535395	
Sum squared resid	0.093750	Schwarz criterion	-3.139687	
Log likelihood	149.1127	Hannan-Quinn criter.	-3.377115	
F-statistic	30.82723	Durbin-Watson stat	1.964242	
Prob(F-statistic)	0.000000			

Source: Processed by the authors.

The model is statistically significant as a result of Prob (F-stat) < 0.05, R<sup>2</sup> at a value of 0.852 indicates that the data fits the model, indicating that 85.2% of the dependent variable ROE is explained by the selected independent variables. The model equation is:

$$\text{Return of equity} = -0.091 - 0.006 * \text{Member of board} + 0.381 * \text{Independent board member} - 0.080 * \text{female board member} - 0.139 * \text{non performing loans} - 0.879 \text{ capital adequacy ratio} + 0.150 \text{ loans to deposit ratio} + \varepsilon.$$

Board members have a negative relationship with return on equity where an increase of 1 member on the board under c.p.b conditions would bring a decrease of 0.006 pp in returns on equity, although this relationship is not statistically significant since p-value > 0.05 => *Hypothesis 1 H<sub>0</sub>* ↓

Female members on the board have a negative relationship with the return on capital, where a 1 pp increase in the number of women on the board of directors under c.p.b conditions will bring a decrease of about 0.08 pp, this relationship is statistically significant since p-value < 0.05.

Independent board members have a position relationship with return on equity where a 1 pp increase in independent board members under c.p.b conditions will bring about a 0.381 pp increase in returns on equity, we conclude that this relationship is statistically significant since p-value < 0.05 These results => *Hypothesis 3 H<sub>0</sub>* ↓

The ratio of non-performing loans has a negative relationship with the return on capital where a 1 pp increase in this ratio under c.p.b conditions would bring about a 0.139 pp decrease in returns on capital, this relationship is statistically significant since p-value < 0.05.

The capital adequacy ratio has a negative relationship with the return on capital, where a 1 pp increase in this ratio under c.p.b conditions will bring a decrease of about 0.879 pp in the returns on capital, this relationship is statistically significant since the p-value < 0.05.

The loan-to-deposit ratio has a positive relationship with the return on capital, where a 1 pp increase in this ratio in c.p.b conditions leads to an increase of about 0.15 pp, this relationship is statistically significant since p-value < 0.05 These results => *Hypothesis 4 H0* ↑

**Regression Analysis of These Data are Processed Through Eviews Software**

Dependent Variable: ROA				
Method: Panel Least Squares				
Date: 09/23/22 Time: 11:23				
Sample: 2010 2020				
Periods included: 11				
Cross-sections included: 7				
Total panel (balanced) observations: 77				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MB	-0.003088	0.001617	-1.909902	0.0606
IBM	0.034987	0.004852	7.210617	0.0000
FBM	-0.006486	0.004665	-1.390495	0.1692
NPL	-0.031273	0.008225	-3.802349	0.0003
CAR	-0.100663	0.025280	-3.981852	0.0002
RLD	0.028731	0.007486	3.837933	0.0003
C	0.007317	0.011109	0.658692	0.5125
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.838181	Mean dependent var	0.007625	
Adjusted R-squared	0.807840	S.D. dependent var	0.010488	
S.E. of regression	0.004597	Akaike info criterion	-7.773885	
Sum squared resid	0.001353	Schwarz criterion	-7.378177	
Log likelihood	312.2946	Hannan-Quinn criter.	-7.615605	
F-statistic	27.62536	Durbin-Watson stat	2.220230	
Prob(F-statistic)	0.000000			

Source: Processed by the authors.

Prob (F-stat) values less than 0.05 indicate that the model is statistically significant. R<sup>2</sup> at the value of 0.838 shows that the data fits the model, where 83.8% of the dependent variable (ROA) is explained by the independent variables. The equation of this model is:

$$\text{Return of assets} = 0.007 - 0.003 * \text{Member of board} + 0.034 * \text{Independent board member} - 0.006 * \text{female board member} - 0.031 * \text{non performing loans} - 0.100 \text{ capital adequacy ratio} + 0.028 \text{ loans to deposit ratio} + \varepsilon.$$

Board members have a negative relationship with return on assets where an increase of 1 member on the board under c.p.b conditions would bring a decrease of 0.003 pp in returns on capital, although this relationship is not statistically significant since p-value > 0.05 => *Hypothesis 2 H0* ↓

Female board members have a negative relationship with return on assets where a 1 pp increase in women on the board under c.p.b conditions will bring a slight decrease of about 0.006 pp in return on assets, however this relationship is not statistically significant since p-value > 0.05.

Independent board members have a positive relationship with return on assets where a 1 pp increase in independent board members under c.p.b conditions will bring about a 0.034 pp increase in return on assets, we conclude that this relationship is statistically significant since p-value < 0.05 These results => *Hypothesis 5 H0* ↓

The ratio of non-performing loans has a negative relationship with the return on assets where a 1 pp increase in this ratio under c.p.b conditions would bring about a 0.031 pp decrease in the return on assets, this relationship is statistically significant since  $p\text{-value} < 0.05$ .

The capital adequacy ratio has a negative relationship with the return on assets where a 1 pp increase in this ratio under c.p.b conditions will bring about a 0.1 pp decrease in the returns on assets, this relationship is statistically significant since the  $p\text{-value} < 0.05$ .

The loan-to-deposit ratio has a positive relationship with the return on capital, where a 1 pp increase in this ratio in c.p.b conditions leads to an increase of about 0.028 pp in the return on assets, this relationship is statistically significant since  $p\text{-value} < 0.05$ . These results  $\Rightarrow$  *Hypothesis 6 H0*  $\uparrow$

#### 4. Conclusions and Recommendations

Banking system is a very important column of a national economy, as in Albania, thus taking an added importance regarding to governance and good risk management. Banks in the country are getting into a new phase of development, together with the entire national economy, a process that has aged over 30 years of free market economy. A good banking governance will create a favourable economic climate, not only in the sector itself but also in the economy of Albania as a whole. Analysis of systemically important banks, together with 2 other local banks created a clear view of the banking governance and risk management in the country banking system. The number of persons in their Board of Directors did not produce a result to be considered an determinant factor of their profitability. The contrary resulted when taking in consideration the presence of independent individuals and gender diversity inside the Board of Directors.

Independent members of boards, in both principal markers of profitability, resulted having a positive relation. This result shows that having a non-direct stance on decision making processes minimises the conflict of interest, which, on its own, is in the highest interest of the bank and banking system. Return on capital are showed to be affected more, indicating that funds of shareholders are better used where the presence of independent members of board is higher. Regarding women presence in boards, it was shown that it had a negative effect on one of the profitability items, that is return on capital. This finding can be explained as a more conservative stance that women tend to pose regarding high risk-taking actions, resulting on lower returns.

Banks are part of risk management business and it means that the banks must have its primary objective to manage it. The ratio of non performing loans as a marker of credit risk resulted in a negative relationship with profitability. As a consequence, the growth of the ratio indicates a lower return, marking bad economical outcomes. Non performing loans cause a low return on capital which in term brings less earnings in shareholders. The ratio of capital adequacy also resulted in a negative relationship with profitability markers. International and national regulators put strict regulation on capital adequacy, leaving less space for freedom on economical enterprises of the banks. Belief in banking system is one of the main reasons behind the "legislation" of such ratio in high thresholds. In turn this might bring negative effect in the sector, bringing down profitability while making the national economical environment less competitive regionally.

Loan-to-deposit ratio as a marker of risk of liquidity resulted to have a positive relationship with profitability of the banks. This ratio show the ability of the sector to credit the economy. In the local banking system, loans take approximately half, showing the ability to afford creditation requests. Excess liquidity does not necessarily mean a "strong" banking sector, but it may indicate that banks in the country should be more innovative in using this liquidity to bring a higher profitability to the sector.

Banks in Albania must perfect the art of risk management to create an economic environment with high prosperity.

Recommendations:

- Promotion of policies supporting the inclusiveness of independent members in the boards of directors of banking institutions in the country.
- Establishing a gender diversity in the boards to create an environment that is not excessive to the risk and to eliminate the "group thinking" of men.
- The increase in lending credit to the local economy, taking into account the liquidity position of the banking system, would increase the efficiency and profitability of banking institutions.

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IRINA ANA DROBOT<sup>1</sup>

## TRAVELLING IN VIRGINIA WOOLF'S DIARY AND IN GRAHAM SWIFT'S AUTOBIOGRAPHICAL WRITINGS

### Abstract

The purpose of this paper is to look at common experiences Woolf and Swift had when travelling to various countries abroad, such as Greece, which is a place they both travelled to. Woolf also travelled to Turkey. Both authors have connected the experience of visiting the cities to their own evolution as writers. For instance, Woolf was very much impressed by Constantinople (today, Istanbul), an experience which she describes in her diaries, to the point that she was inspired to write about Clarissa Dalloway's enthusiastic experience of walking through the city of London. She describes her experience as a dive in a new town, while Clarissa, her character in the novel *Mrs Dalloway*, speaks about a plunge while going out in the city. Graham Swift describes in his volume of autobiographical writings called *Making an Elephant: Writing from Within* the experience of travelling to Greece and his wish to finally start writing his first novel. Travelling for both authors is not related only to the physical space. They not only observe their surroundings in minute detail. They also associate their surroundings with various emotions and states of mind having to do with their work as writers or with their personal development as writers. The paper will also take into consideration the way travelling is regarded culturally speaking in two various ages, of Woolf and Swift, and the various ideas associated with travelling regarding personal development, such as broadening one's horizons.

**Keywords:** Moments of revelation, cultural studies, self-development.

**JEL Codes:** Z10, Z11, Z13

### Introduction

Virginia Woolf and Graham Swift have both written about places they had travelled to in their autobiographical writings. Virginia Woolf has a travel diary, from 1906-1909, where she documents her travels from Greece, Turkey and Italy. At the time she was 24 and 27 years old.

Jan Morris, editor of the book *Travels with Virginia Woolf* (1993), goes through her "diaries and journals, correspondence and rare travel essays" and "follows her footprints from Sussex and Cornwall to wartime London, Italy and the Riviera to Greek mountains and southern Spain".

Graham Swift, in his autobiographical volume *Making an Elephant: Writing from Within*, initially published in 2009, has two essays about his trips to Greece: *Isaac Babel, Greece, 1967* and *Greece Again, 1974*. The first trip to Greece also led Swift through other countries, as he confesses:

"In September 1967 I found myself in Thessaloniki, northern Greece, with two days or so to kill before catching a train, for which I had dated tickets, all the way back across Europe to London and home. Five months before, at the age of seventeen, I'd set off in the reverse direction with just a rucksack and no previous unshepherded experience of 'abroad', and I was now at the end of a long, looping journey that had taken me from mainland Greece island-hopping across the Aegean, zigzagging overland as far as eastern Turkey, back again to Istanbul and European

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Turkey, then across the newly opened borders of Bulgaria to Plovdiv and Sofia, finally winding through the Bulgarian mountains and forests southwards again to Greece.” (Swift, 2009, p. 18)

Swift started on his need to travel a year after being accepted for his studies at Cambridge. It was a time when he decided to reflect upon his purpose in life more than to focus on his studies. Apparently, he would have liked to be a writer since a long time ago in his life, yet had never gone towards taking concrete action towards this goal.

For both authors, to some extent at least, these trips are not related only to the admiration and visiting of the physical places themselves. They associate the process of travelling with wandering about themselves and about their wish to begin writing and improving themselves as writers. While, in the beginning, for Swift the travelling is mostly a mean to escape from everything, including writing itself, as he claims that the “five-months journey” from 1967 was “a very unbookish affair” (Swift, 2009, p. 20), for Woolf the journey to Italy, as presented in her diary entry for September 1908, means the beginnings of the stream of consciousness, as well as her connection between writing and the visual arts (Woolf, 1908). As Woolf herself claimed, she was aiming to depict the workings of the mind, in the very process of thinking, which would be fragmentary, and not coherent:

“As for writing, I want to express beauty too... I attain a different kind of beauty, achieve a symmetry by means of infinite discords; showing all the traces of the mind’s passage through the world; achieve in the end, some kind of whole made of shivering fragments; to me this seems the natural process; the flight of the mind...” (Woolf, 1908)

These reflections occur while Woolf is remembering some beautiful fresco paintings that she had seen in Italy and which she describes in her diary entry from the respective day. Therefore, we could claim that there was an association established between the visuality of the Italian arts, the way they impressed Woolf, and the way she drew her inspiration to think about her stories as visual, although they were taking place inside her characters’ minds mostly, with very little attention paid to the external detail. At the same time, we can see a vivid picture of London and its streets when her characters are taking walking there, the most famous being Mrs Dalloway.

Woolf continues, claiming that she would like to write both “with the eye” and “with the mind”, meaning that she would like to create a strong visual image in the mind of her readers: “I should like to write not only with the eye but with the mind; + discover real things beneath the show” (Woolf, 1908).

While Woolf works hard to begin the technique she is now famous for, and is thinking actively about her writing process, Swift takes some time to relax and take his mind off both reading and writing. Afterwards, after a bit of taking a break from these concerns, Swift discovers the short stories of Isaac Babel, a writer who simply inspires him to start writing himself.

The process of writing appears to have started while travelling to different countries, for Swift, in Greece and for Woolf, in Italy. However, their journeys do not focus as much on the external reality and the very culture of the respective countries.

## Materials and Methods

Both authors use the physical journeys as pretexts for reflecting on their work as writers and on turning towards their inner selves. This is a device, after all, that can be noticed all throughout their novels. Their characters, even if they are taking walks throughout London and throughout its suburbs, the latter being a favourite aspect in Swift's novels, always have overlapping thoughts about their own lives and their relationships with other characters. The characters' walks are not just physical walks. They are just the counterparts of their "walks" in a figurative sense throughout their memories in their lives and throughout their personal dilemmas.

With her trip to Turkey, when visiting Constantinople, or today's Istanbul, Woolf gets her inspiration for the well-known moment of her character Mrs Dalloway's walk throughout the city of London, according to the British Library (2022), where her travel diaries are stored. Thus, at the time, in September-October 1906, Woolf feels "overwhelmed by the city" of today's Istanbul and finds "its unfamiliarity [...] exciting". She mentions the following in her diary: "There are few experiences more exhilarating than the first dive into a new town— Even when your plunge is impeded—as ours was this morning by a sleek Turkish Dragoman" (Woolf, 1906). The same elements of "dive" and "plunge" which take place "into a city can be seen to echo her depiction of the city in *Mrs Dalloway* (1925), which opens with Dalloway stepping out onto a London street to 'buy the flowers herself', full of anticipation for not only the day ahead but the city itself" (British Library, 2022): "What a lark! What a plunge! For so it had always seemed to her, when, with a little squeak of the hinges, which she could hear now, she had burst open the French windows and plunged at Bourton into the open air."

Woolf's experience in today's Istanbul, is, therefore, an example of universal emotional reaction. As a proof, it is transferred towards the strong emotional reaction felt by Mrs Dalloway in the city of London, in a completely different country and city. Moreover, Mrs Dalloway is walking through the town where she lives, while Woolf was visiting a completely different city and country, which allowed for her to experience reality anew. Why does Mrs Dalloway experience the city from a fresh perspective, when she has lived there all her life? This could be regarded as a significant detail, since the day described in the novel is one that prompts her to reflect on her life starting from her youth until the present moment described in the novel, all while she runs her errands for preparing her party. She reflects on her entire life, and on her relationships with her friends, as well as on her choice of man she would eventually marry. The readers get the opportunity to make the story complete in their minds through Mrs Dalloway's wandering through significant episodes in her life from the past.

We can see in Swift's accounts of his trips towards Greece how he begins to wander away from his purpose, that of becoming a writer. As a matter of fact, he seems to be simply taken about by a moment of undecision in his life, and a moment when everything is blurry, regarding his present and future life. Swift sounds in a very adventurous and exploratory mood in what follows. Not even social unrests and such political events can stop his wish to travel to the chosen place:

"Meanwhile, there'd been a military coup in Greece, tanks on the streets, and the country was being placed, with consequences yet unknown, under one of the worst dictatorships to afflict post-war Europe. This didn't deter me. With a rucksack and fifty pounds and a rail ticket to Athens—the return ticket yet to finalized—I set off." (Swift, 2009, p. 19)



This moment coincides with the reflections of Swift's personal thoughts and desires. We can see here a contrast between external circumstances and Swift's own personal mood of deciding to continue travelling in spite of all the political turmoil going on at the time in Greece. At the same time, the situation in Greece could have larger consequences on the rest of the world, or at least in the European countries. In spite of all of this, Swift decides that his need to travel is more significant: "I certainly knew then, in a secretive, submerged way, that I wanted to be a writer. I knew it as a schoolboy, which is what I still essentially was." (Swift, 2009, p. 19)

We could hardly claim that the journey was a relaxing one. At least this political event could make us readers doubt this. However, we could see the political turmoil at the level of historical events to simply reflect and parallel the personal and psychological dilemmas of Swift. This is an aspect that is frequently present in Swift's novels. He notices personal and public history, and the way these two can intersect at some point (Lea, 2020). His characters are full of various dilemmas, just like himself on the beginning of his journeys. The theme of history will be present in all of his novels, and also show how private lives can be influenced by large-size, historical events (Malcolm, 2003).

Place, in the novels of both Virginia Woolf and Graham Swift, are seen from a lyrical perspective. Moreover, place is perceived in a subjective way by the characters (Drobot, 2014). The same can be seen from Woolf's and Swift's autobiographical accounts. This can show how much actually these authors can transfer from their own experience to the experience of their characters.

Graham Swift describes his road towards becoming a writer as a difficult one. He believes he is one of those writers that could not just magically start writing as very naturally gifted writers. He had to work his way through becoming a writer, and he had to work hard. Practice was a hard try for him. He mentions the fact that reading the work of Isaac Babel did not make things easier for him on his journey towards becoming a writer, but he has simply been a source of motivation:

"Reading Babel didn't quicken the process. I wouldn't truly become a writer for another six or seven years; and, oddly enough, Greece would again be involved. But Babel certainly quickened *me*. And from then on I felt he was 'at my side': this wonderful, vanished storyteller whom I yet felt, very foolishly no doubt, I could have met, liked and talked with long into the night." (Swift, 2009, p. 24)

What draws Swift close to Babel is the fact that this writer underlines the fact that he himself is not a "natural" writer, but had to go through hard work before having success as a writer (Swift, 2009, p. 24). Swift, therefore, identifies himself with Babel from this point of view, and begins to see in him an example for his struggle to become a writer.

In his second account about Greece, from 1974, Swift mentions how he has been teaching himself to write, and how learning writing can be compared, at least from a figurative point of view, to travelling:

"Some people have assumed, because of the generation I belong to and because I wrote a novel set in the Fens, that I'm a product of the University of East Anglia's well-known creative-writing school. The reality is that I spent three years at York, pulling a fast one about my doctoral intentions while, as a novice writer, being entirely on my own. Creative-writing courses, which have now proliferated, can be valuable ways of giving aspiring writers useful time, temporary security and the company of like minds, but I retain a stubborn antipathy to the notion that

writing can be institutionally and communally ‘taught’. Like rough travelling, I think the learning’s best done alone.” (Swift, 2009, p. 32)

From the above paragraph, we notice how Swift believes that being solitary is required for his possibility of becoming a writer. We could say that this is an example of his personal moments of revelation, passed on to his fictional characters. His characters are often solitary, and they reflect on their life, eventually reaching such moments of revelation when they understand the purpose of their life or they gain insight regarding certain issues in their lives (Drobot, 2014). Similarly, Woolf’s characters can experience similar moments, which she calls in her own terms “moments of being”, a term which appears in one of her essays.

A sudden moment of awareness regarding the characters’ goals, the relationship with their surroundings, with the city, with nature, with others, reaches a high level of understanding when they feel that they know something. They feel they have reached illumination, and feel richer spiritually than before. It is a poetic moment, but also a moment related to self-insight.

Travelling, or simply walking throughout a city that is familiar can prompt moments of revelation for both Woolf’s and Swift’s characters (Drobot, 2014). The process is similar to the way travelling has enlightened each of these writers on their way. We can notice the influence of their similar personal experiences on their fictional writings.

Regarding Swift’s experience, in his 1974 trip to Greece account, he mentions that he has tried to do his best writing a novel there. However, the trip was just a motivation and a reward for his decision to become a writer. It did not solve anything, as he mentions below that he had realized that he had not written anything of value during this time:

“Some while after my return to England I got out the manuscript of my novel, began to read it and knew at once that it was awful. Irredeemably awful. Strangely, this lucid realization didn’t devastate me. I’ve abandoned work since with much greater agony. I didn’t feel that those days on the veranda had been wasted or that those weeks in the Aegean sun were a delusion. No, the judgement I could now coolly pass on myself would have poisoned those days. Those days were inviolate. Let life be lived.

Nonetheless, what I’d written was crap.” (Swift, 2009, p. 39)

Woolf’s work was also in progress when she was practicing writing in her diaries, which are, after all, a mixture of literary practice and factual account.

While both writers can be said to have experienced moments of revelation regarding writing, they are different moments. Woolf finds a durable experience to hand on to, such as that of the parallel between her enthusiastic experience of walking through Istanbul and Mrs Dalloway’s experience of walking through London, as well as her beginnings in her stream-of-consciousness technique, which also includes some visual experiences. The characters have various sensations and revelations, and in the case of a walk throughout the city we notice both the character’s emotion and the visual experiences. Swift, however, mentions, during his two trips to Greece, how he has either postponed his training as a writer or simply done some attempts that were, afterwards, when he judges them later, not valuable. However, the trips could be regarded as a first step in his realizing the fact that he would like to be a writer and that he had had this wish since childhood. At the same time, he realizes the huge amount of work that needs to be put into achieving this dream.

Both writers revise and revise before sending their works for publishing; therefore, this is another common trait for them.

From a cultural studies perspective, Woolf's novel *Mrs. Dalloway* contains a large dimension related to travelling, since "Every character in the novel is somehow related to a foreign place" (Lamont, 2001, p. 161). From the same point of view of cultural studies, Woolf's novel *The Waves* has been analyzed as suggesting "an exotic imperial setting", which is that of "colonial India (or Ceylon), or to some extent Africa, as a Robinsonade island" (Baradaran, 2006, p. 240). These types of settings can be established through the readers' background knowledge, as they can imagine various such settings function of the issues discussed at the time. However, the main issue could be that of the characters' inner isolation, and therefore a parallel between unexplored islands and their psychology and reflections can be drawn. The fact that the travelling is figurative and symbolic is highlighted in Swift's novel *Last Orders*, where a group of friends sets off to a pilgrimage towards Margate, where they would scatter the ashes of their friend Jack Dodds. The pilgrimage is both physical and spiritual, since they remember various moments in their lives when they were talking to their friend Jack. At some point, we reach the following understanding, together with the characters: "It's like we're travelling but it's all the same place" (Swift, 2019, p. 63). The understanding of this saying could be related to the idea that the friends' memories can reach the same common issues regarding their friend Jack. The travelling cannot help them escape the issues they had left unsolved with Jack or their grief over the passing away of their friend.

Travelling nowadays can be connected to the concept of self-development, which is, after all, similar to the idea of spiritual experiences and deeper understanding of oneself which can be achieved through travelling (Parsons et al, 2019). After all, we are all familiar with initiatic trips which lead to the heroes' development in fairy-tales, and which is a constant element throughout world cultures. This development can occur function of anyone's preoccupation and age they live in. Students nowadays can take breaks from their studies in order to find themselves, to understand what they would like to do with their future, what working domain is suitable for them, what experiences through contact with a different cultural mindset can teach them. The same mindset about travelling is visible in the autobiographical writings of Woolf and Swift.

## Results

Through travelling, the two authors begin not only to better understand themselves, but to become more aware of the relationships that can be established between persons and their surroundings. These relationships can be prompted by the fact that it is an actual stereotype in the mindsets of all cultures to draw a parallel between travelling into physical spaces and travelling in the sense of personal development. It has been a constant, starting from early fairy-tales, myths, and reaching contemporary fiction and even contemporary psychology. Seeing new things, communicating with people having different mindsets can lead to a change in one's perspective over values and what can be important in life. Travelling can open up fresh perspective from which we can understand the world, ourselves and also our relation with other persons. We can also begin to see things that worry or preoccupy us from a larger perspective and understand that, compared to world-scale issues, they are not that anxiety-provoking, or we can even find solutions and answers to our issues through communication with persons from other cultural environments. During the eighteenth-nineteenth century, there has been the practice of travelling for youths in the aristocratic class, in order for them to gain experience. Generally, American young people would travel to Europe in order to gain insight and knowledge into old world civilization. In Woolf's fiction, an equivalent can be found in her novel *The Voyage Out*, where Rachel Vinrace visits the exotic lands of the British colonies. The insight she gets, however, does not help her progress. On the contrary, she dies, since she realizes that her age and culture do not allow for the necessary conditions for women to progress from an individualistic point of view.

The places the two authors have visited are not valuable for the accounts related to the places in themselves. They are not set up to look for the specificity of the places alone, or to explore their history or even contemporary to them mindset thoroughly. For Woolf, it is an emotional and visual experience which she transfers to her fiction. For Swift, the trips he remembers mostly are those to Greece, since he associates them with his decision of starting to write, although the beginning sets him off his goal. He does not read and does not try to write, but apparently, though, gathers material which we can later on, as knowledgeable readers, find in his fictional works. For instance, Greece and its beauty is mentioned in the novel *Out of This World*, together with events of social unrest which are witnessed up to a point by Swift himself during his trips.

### Conclusions

Travelling for both Woolf and Swift was an occasion to reflect on and practise their writing. We can clearly see her the expected hint towards personal development. Travelling was, therefore, an occasion to know themselves better and to establish a connection with the surroundings, starting from their own experience and then transferring it later on to their characters.

Through the experience of travelling, we can see the beginnings of the establishment of their identity as writers. Of course, travelling makes up for moments of revelation, but it does not solve magically their wishes and understandings about themselves. They also realize that they will need to work hard in order to achieve their dreams of being writers.

Writing, in their cases, is not a magical gift, which they get with no effort at all. They are not the chosen ones that can simply start writing a great novel from scratch. Swift underlines how his craft as a writer needs hard work. Woolf also mentions how she has to go through numerous reviews of her own novels. The two authors are far from the image of the divinely inspired artist, spontaneously producing works of art.

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**CEMILE OZGUR<sup>1</sup>**

## **FORECASTING OUT OF SAMPLE INDEX VOLATILITY: A COMPARISON BETWEEN ASYMMETRIC GARCH AND STOCHASTIC VOLATILITY MODELS**

### **Abstract**

Modelling volatility and obtaining accurate forecasts is one of the core and challenging research fields in finance. Day by day, there is a growing number of GARCH models that are quite popular among academics and finance professionals. However, Stochastic Volatility (SV) as one of the alternative models did not become as popular as GARCH. Moreover, there are still very few papers assessing volatility modelling/forecasting performance of SV. Stemming from these observations, the main aim of this research is to compare out-of-sample volatility forecasting performance of asymmetric GARCH (Exponential GARCH, Glosten-Jagannathan-Runkle GARCH, Threshold GARCH) and SV models. For this purpose, BIST100 index data is obtained for the period of March 2019 – November 2021 that consists six hundred fifty-two daily return observations. Selected volatility models are fitted to the data and one-day ahead volatility forecasts are obtained for an out-of-sample period of one hundred fifty-two days. Performance of the models are compared by using the frequently applied loss statistics of Mean Absolute Error (MAE), Mean Squared Error (MSE) and Root Mean Squared Error (RMSE). In terms of the applied statistics, the smallest MAE is obtained from the forecasts of SV model. On the other hand, the volatility forecasts of TGARCH(1,1) model obtained the smallest MSE and RMSE values. Overall, the results of this research reveal the applicability of SV to BIST100 returns since it was able to model the dynamics of the index in one hundred fifty-two distinct periods and managed to produce the best volatility forecasts in terms of MAE.

**Keywords:** Stock indices, volatility forecasting, EGARCH, TGARCH, stochastic volatility

**JEL Codes:** C18, C22, C58, G17

### **1. Introduction**

Volatility is employed in many areas and applications of finance, such as portfolio allocation, option pricing and many more. As a result, accurate volatility modelling and forecasting is one of the core and challenging research areas in finance. Early works assumes that the volatility of financial time series is constant. Later, it is shown that financial time series has some properties called “stylized facts” with which the dynamics of the series cannot be modelled with the existing assumptions of constant moments. In other words, it is well documented that most of the financial series has a time varying volatility, fat tails and volatility clustering properties. Following the stylized facts findings, several volatility models are proposed. Perhaps, (Generalized) Autoregressive Conditional Heteroskedasticity ((G)ARCH) models of Engle (1982) and Bollerslev (1986) are the most popular ones applied in modelling the dynamic structure of financial series. GARCH models define time varying volatility as a deterministic function of lagged values of innovations and the volatility itself. Additional to the previously mentioned stylized facts, researchers also discovered an asymmetric reaction to different news depending on their sign and a negative correlation between the lagged returns and the current volatility of returns. These findings led to the development of various GARCH extensions that are able to take into account asymmetric response properties of financial returns such as the Exponential GARCH (EGARCH) of Nelson (1991), Glosten-Jagannathan-Runkle GARCH (GJR-GARCH) of Glosten et al. (1993) and Threshold GARCH (TGARCH) of Zakoian (1994).

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One of the alternatives to GARCH models is the Stochastic Volatility of Taylor (1982, 1986). Stochastic Volatility (SV) model assumes that time-varying volatility is an unobservable latent stochastic process in which the logarithm of squared returns follows a first order auto-regressive process. Similar to GARCH, various SV models or extensions are also developed, such as “Asymmetric Stochastic Volatility” (ASV) (Omori, Chib, Shephard, & Nakajima, 2007) and “heavy-tailed Asymmetric” SV models (Nakajima & Omori, 2012). Nevertheless, Stochastic Volatility did not become the first choice of volatility modelling and there are fewer papers investigating and comparing their modelling performance with GARCH family models.

As a result, the aim of this research is to forecast out-of-sample volatility of index returns by employing various GARCH models as well as the SV model of Taylor (1982, 1986). Daily returns of BIST 100 index are obtained for the period of March 2019 – November 2021. First, from a vast number of GARCH specifications three of them (EGARCH, GJR-GARCH and TGARCH) that are able to model asymmetric effects are employed for the deterministic modelling of index volatility. Once, one-day ahead out-of-sample volatility forecasts of GARCH specifications are obtained, an evaluation on the applicability of Stochastic Volatility model is conducted. Then, SV is fitted to the data in order to obtain one-day ahead volatility forecasts for the full out-of-sample period consisting 152 days. Volatility forecasts of the models are compared with the loss functions commonly applied in literature that are Mean Absolute Error, Mean Squared Error and Root Mean Squared Error.

## 2. Related Work

According to Jacquier, Polson, and Rossi (1994) the foundations of Stochastic Volatility (SV) models dates back to the work of Clark (1973) in which he suggests to model the changes of stock prices with an independent and identically distributed mixture model. Later, Taylor (1982) proposed to model time varying volatility as a random probabilistic process in which the logarithm of time varying volatility follows a first order autoregressive (AR(1)) process. The popular SV models that are developed in asset-pricing literature defines volatility as a discrete-time approximation of the Ornstein-Uhlenbeck diffusion process, see for example; Hull and White (1987), Wiggins (1987). Since then, various types of SV models as well as SV parameter estimation methods are proposed. As a result, it is not possible to exhaust all the literature on the subject since this paper is not a literature survey. But some of the works that are highly related to the research of this paper are mentioned on the following paragraphs.

Kim, Shephard and Chib (1998) made a comprehensive analysis of Stochastic Volatility models by employing Markov Chain Monte Carlo sampling methods. The analysis includes likelihood evaluation, inference, filtering and diagnostics as well as a comparison between SV and ARCH models. Koopman and Uspensky (2002) proposed a “Stochastic Volatility in Mean” (SVM) model in which the unobserved stochastic volatility is embedded in mean equation as an explanatory variable. Authors employed the Monte Carlo Likelihood approach in order to estimate the parameters of SVM. The results of an empirical application comparing the proposed model (SVM) with GARCH in Mean (GARCH-M) are also presented indicating the ability of SVM to be a “competitive alternative to GARCH models”. On the other hand, Malmsten and Teräsvirta (2010) investigated how well the three volatility models, the Exponential GARCH (EGARCH), Generalized Auto-regressive Conditional Heteroskedasticity (GARCH) and the Autoregressive Stochastic Volatility (ASV), are able to model financial series specific properties called “stylized facts”. The authors argue that the results show an indistinguishable better modelling ability between the considered models in terms of moment structure of the models. Men, McLeish, Kolkiewicz, and Wirjanto (2017) proposed two slightly new versions of asymmetric SV (ASV) models consisting two different correlation structures and compared them with the existing ASV by employing Markov Chain Monte Carlo algorithms (a simulation-based methodology). According to the research results, parameter estimates of the proposed two new ASV models are found to be reasonable. Gurung et al. (2017) investigated edible oils price volatility forecasting performance of

GARCH and SV models. Moreover, authors proposed a third model combining the forecasts of GARCH and SV models by using the Kalman Filter. The research results reveal that the combined model performs better in forecasting volatile series, leading to a possibility of using the method on other highly volatile data. On the other hand, Büberkörü (2019) investigated applicability of asymmetric Stochastic Volatility (ASV) model to BIST100 index of Turkish Stock Market during the period of 2007-2008 global financial crises. The researcher divided the investigation period of January 2002 – August 2016 into three sub-periods which are pre-crises, crises and post-crises periods and applied the ASV model to each period with its commonly used initial parameters in literature. According to the results of the study, it is argued that the ASV model can be applied to model BIST100 index volatility since the leverage effects are prevalent in the index returns especially during the crises period.

Kim, Jun, and Lee (2021) applied SV and various GARCH models in order to forecast volatility of nine cryptocurrencies (Bitcoin, XRP, Ethereum, Bitcoin Cash, Stellar, Litecoin, TRON, Cardano, and IOTA-by) during low and high volatile periods (from 19 August 2018 to 27 November 2018 and from 2 January 2018 to 27 November 2018). Accuracy comparisons of volatility forecasts of the applied models yielded results in favor of SV. As a result, authors express the need for employing SV for future risk management of cryptocurrency portfolios. In one of the recent papers, Zakaria and Benbachir (2022) aimed to model the stochastic volatility of two exchange rates, MAD/USD and MAD/EURO, for the period of 2 February 2000 – 3 March 2017. Researchers preferred to employ a Bayesian approach that is based on the Monte Carlo Markov Chain (MCMC) algorithm. Moreover, they proposed a new approach in order to improve Stochastic Volatility modelling and implement the Bayesian MCMC algorithm. According to the results, researchers argue that the proposed model yields a predictive efficacy and can be employed in exchange rate prediction tasks.

### 3. Research Methodology

In finance literature, Generalized Autoregressive Conditional Heteroskedasticity (GARCH) (Engle, 1982; Bollerslev, 1986) processes are one of the most well-known and commonly applied models of time varying volatility. A heteroskedastic time series sequence with a constant mean is defined as:

$$y_t = \mu + \varepsilon_t, \quad \varepsilon_t = \sigma_t z_t, \quad \varepsilon_t \sim \mathcal{D}(0, \sigma_t^2) \quad (1)$$

In Equation 1,  $\mathcal{D}$  is the distribution of  $\varepsilon_t$  and  $z_t$  has a zero mean and unit variance. The conditional variance of the series (for example; financial returns) is then:

$$\sigma_t^2 = E(y_t - \mu)^2 \quad (2)$$

The traditional symmetric GARCH( $p, q$ ) (Engle, 1982; Bollerslev, 1986) defines conditional variance as follows:

$$\sigma_t^2 = \omega + \sum_{j=1}^p \beta_j \sigma_{t-j}^2 + \sum_{i=1}^q \alpha_i \varepsilon_{t-i}^2 \quad (3)$$

where  $\omega > 0$  and  $\alpha, \beta \geq 0$ . Additional to volatility clustering and fat tail properties of the returns, Black (1976) also documented a new property called “leverage effect” and defined it as the existence of a negative correlation between the lagged returns and the current volatility of returns. Leverage effect leads to a decrease in volatility when the returns are positive and an increase in volatility when the returns are negative. It is also observed that financial returns exhibit a larger volatility when the previous returns are negative compared to the positive ones with the same magnitude indicating the existence of an asymmetric response to the sign of news (Chang & McAleer, 2017). Leverage effect and asymmetric response findings together with the parameter positivity constraints of GARCH models paved the way to the development of asymmetric GARCH models. Currently, there are many types of GARCH models with or without asymmetric modelling abilities. From these, in this paper four types of asymmetric



GARCH models that are; Exponential GARCH (EGARCH) (Nelson, 1991), Glosten-Jagannathan-Runkle GARCH (GJR-GARCH) (Glosten et al., 1993) and Threshold GARCH (TGARCH) (Zakoian, 1994) are employed.

Furthermore, instead of using a deterministic equation, volatility models which define time varying volatility as a stochastic process called Stochastic Volatility models are also developed (Taylor, 1982). Even though, Stochastic Volatility models are not as commonly applied as the GARCH processes, especially in practice, there are various studies indicating their superior performance compared to the others. As a result, additional to asymmetric GARCH, this paper includes Stochastic Volatility as one of the models employed to obtain out-of-sample volatility forecasts of index returns.

### 3.1. Glosten-Jagannathan-Runkle GARCH

One of the documented stylized facts of financial returns, asymmetric response of volatility to positive and negative news, modelled via an indicator function  $I$  within the GJR-GARCH model of Glosten et al. (1993). The model is:

$$\sigma_t^2 = \omega + \sum_{j=1}^p \beta_j \sigma_{t-j}^2 + \sum_{i=1}^q (\alpha_i \varepsilon_{t-i}^2 + \gamma_i I_{t-i} \varepsilon_{t-i}^2) \quad (4)$$

where  $I_{t-i} = 1$  if  $\varepsilon_{t-i} < 0$ ,  $I_{t-i} = 0$  otherwise. Parameter  $\gamma_i$  at Equation 4 determines the size of the asymmetric effects on conditional variance. When a realized return is smaller than the expected return (negative error term) the impact of negative news on conditional variance is  $(\alpha_i + \gamma_i)$  and when the news is positive the impact is  $\alpha_i$ . The stationarity condition for a GJR-GARCH( $I, I$ ) process is  $\alpha_1 + \beta_1 + (\gamma_1/2) < 1$  and the conditional variance is positive if  $\omega > 0$ ,  $\alpha_1 \geq 0$ ,  $\alpha_1 + \gamma_1 \geq 0$  and  $\beta_1 \geq 0$ .

### 3.2. Exponential GARCH

One of the main criticisms of the traditional GARCH model is the restrictions imposed on the model parameters in order to ensure the positivity of conditional variance. Yet, another popular GARCH model proposed by Nelson (1991) eliminates these restrictions by specifying conditional variance with a logarithmic form. Exponential GARCH (EGARCH) model of Nelson (1991) can be written as:

$$\ln(\sigma_t^2) = \omega + \sum_{j=1}^p \beta_j \ln(\sigma_{t-j}^2) + \sum_{i=1}^q g_i(z_{t-i}) \quad (5)$$

where  $g_i(z_{t-i}) = \alpha_i z_{t-i} + \gamma_i (|z_{t-i}| - E|z_{t-i}|)$ ,  $i=1,2,\dots,q$ . Asymmetric response of volatility to the news is represented by two parameters, with  $\alpha_i$  sign effect and with  $\gamma_i$  size effect is captured. When  $\alpha_i < 0$ , the impact of negative news on conditional variance is bigger compared to positive news with the same magnitude. The process is stationary as long as  $\sum_{j=1}^p \beta_j < 1$ .

### 3.3. Threshold GARCH

Zakoian (1994) proposed a model in which asymmetric response of volatility to positive and negative news is defined by conditional standard deviation ( $\sigma_t$ ) instead of conditional variance ( $\sigma_t^2$ ). TGARCH( $p, q$ ) model is given as:

$$\sigma_t = \omega + \sum_{j=1}^p \beta_j \sigma_{t-j} + \sum_{i=1}^q \alpha_i (|\varepsilon_{t-i}| - \eta_i \varepsilon_{t-i}) \quad (6)$$

where  $\omega, \alpha_i, \beta_j \in \mathbb{R}$  and  $|\eta_i| < 1$ . Since volatility is defined on  $\sigma_t$ , parameter positivity constraints are not imposed by the model. At the same time,  $\alpha_i - \eta_i$  captures both the size and sign effects of different types of news.

### 3.4. Stochastic Volatility

Proposed by Taylor (1982, 1986), Stochastic volatility (SV) model defines conditional volatility of financial returns as an unobservable probabilistic process. Contrary to GARCH in which volatility is modelled deterministically, in SV it is assumed that conditional volatility is a latent stochastic process that is defined as follows (Hull & White, 1987; Kim, Shephard, & Chib, 1998):

$$y_t = \beta e^{(h_t/2)} \varepsilon_t, \quad y_t | h_t \sim \mathcal{N}(0, e^{h_t}) \quad (7)$$

$$h_t = \mu + \varphi(h_{t-1} - \mu) + \sigma \eta_t, \quad \eta_t \sim \mathcal{N}(0, 1) \quad (8)$$

$$h_t | h_{t-1}, \mu, \varphi, \sigma \sim \mathcal{N}(\mu + \varphi(h_{t-1} - \mu), \sigma^2) \quad \wedge \quad h_0 \sim \mathcal{N}(\mu, \sigma^2 / (1 - \varphi^2)) \quad (9)$$

where  $y_t = (y_1, y_2, \dots, y_n)$  is a sequence of time series observations (financial returns) with a contemporaneous variance of  $e^{h_t}$ . The error term  $\varepsilon_t$  is assumed to have a normal distribution  $\varepsilon_t \sim \mathcal{N}(0, 1)$ .  $\beta$  is defined as a scale parameter which is equal to  $e^{\mu/2}$ . On the other hand,  $h_t$  also called as log-volatility is assumed to be a stationary process ( $|\varphi| < 1$ ) and defined by taking the logarithm of squared observations. In Equation 8,  $\mu, \sigma$  and  $\varphi$  are defined as the level, volatility and persistence of  $h_t$ , respectively. Moreover, the innovations of  $\eta_t$  and  $\varepsilon_t$  are assumed to be independent of each other (uncorrelated).

There are various approaches to estimate the parameters of SV model. One of them is to employ the Kalman filter by maximizing the quasi-likelihood function. Nevertheless, as explained by Kim, Shephard and Chib (1998), the quasi-likelihood estimator having the assumption of normally distributed  $\log \varepsilon_t^2$  is found to have poor small sample properties. The other approach is to employ Markov chain Monte Carlo (MCMC) sampling methods that have a widespread application in Bayesian literature, such as the Gibbs sampling or the Metropolis-Hastings algorithms. In this paper, in order to sample the latent volatilities  $h$  and the parameter vector  $\theta = (\mu, \varphi, \sigma)$ , an MCMC algorithm using “all without a loop” (AWOL) method is employed. Once, the latent variables and the parameters are inferred from their posterior distributions using the MCMC algorithm, then the future log-volatilities are forecasted. Moreover, it is important to mention that there are various SV models other than the one defined above. Additional to univariate SV, multivariate stochastic volatility models (see for example; Liesenfeld & Richard, 2006) are also developed that are out of the scope of this paper.

### 3.5. Model Forecast Comparisons

Volatility forecasting performance of the models explained in the previous sections are compared with two commonly employed statistics which are Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE). MAE is the mean value of absolute errors estimated from:

$$MAE = \frac{1}{n} \sum_{t=1}^n |y_t^2 - \hat{\sigma}_t^2| \quad (10)$$

In Equation 10,  $n$  is the total number of out-of-sample observations,  $y_t$  represents the out-of-sample returns observed at time  $t$  and  $\hat{\sigma}_t^2$  is the volatility forecasts of a model for the day  $t$  (for SV it is  $\hat{\sigma}_t^2 = e^{h_t}$  since the model assumes  $y_t|h_t \sim \mathcal{N}(0, e^{h_t})$ ). On the other hand, RMSE is the root of mean value of the squared errors (root of MSE):

$$RMSE = \sqrt{\sum_{t=1}^n (y_t^2 - \hat{\sigma}_t^2)^2 / n} \quad (11)$$

#### 4. Data and Empirical Findings

This section introduces the data employed to obtain one-day ahead volatility forecasts of various models that are explained on the previous paragraphs. Following the data properties, empirical findings related to volatility modelling and forecasts of the asymmetric GARCH and SV models are presented.

##### 4.1. Data

This paper employs daily close prices of BIST 100 index of Turkish Stock Market for the period of March 2019 – November 2021 that consists 652 daily return observations. Daily returns are estimated from:

$$y_t = ((\log(P_t) - \log(P_{t-1})) * 100) \quad (12)$$

where  $P_t$  is the daily close price of the index at time  $t$ . While full sample descriptive statistics of the price and return series are given on Table 1, time series plots of the variables are presented in Figure 1.

**Table 1. Full Sample Descriptive Statistics of BIST 100**

BIST 100	Mean	Std. Dev.	Skew.	Kurt.	J.-Bera (p val.)	ADF (p val.)	LB(7) (p val.)	LB(12) (p val.)	LM(7) (p val.)	LM(12) (p val.)
Prices	1194.9	208.3	0.232	1.693	52.27 (0.000)	-2.264 (0.466)	4346.5 (0.000)	7206.7 (0.000)	640.55 (0.000)	635.59 (0.000)
Returns	0.071	1.472	-1.313	10.47	1704.01 (0.000)	-25.064 (0.010)	11.525 (0.117)	15.237 (0.229)	33.15 (0.000)	37.94 (0.000)

Source: Author

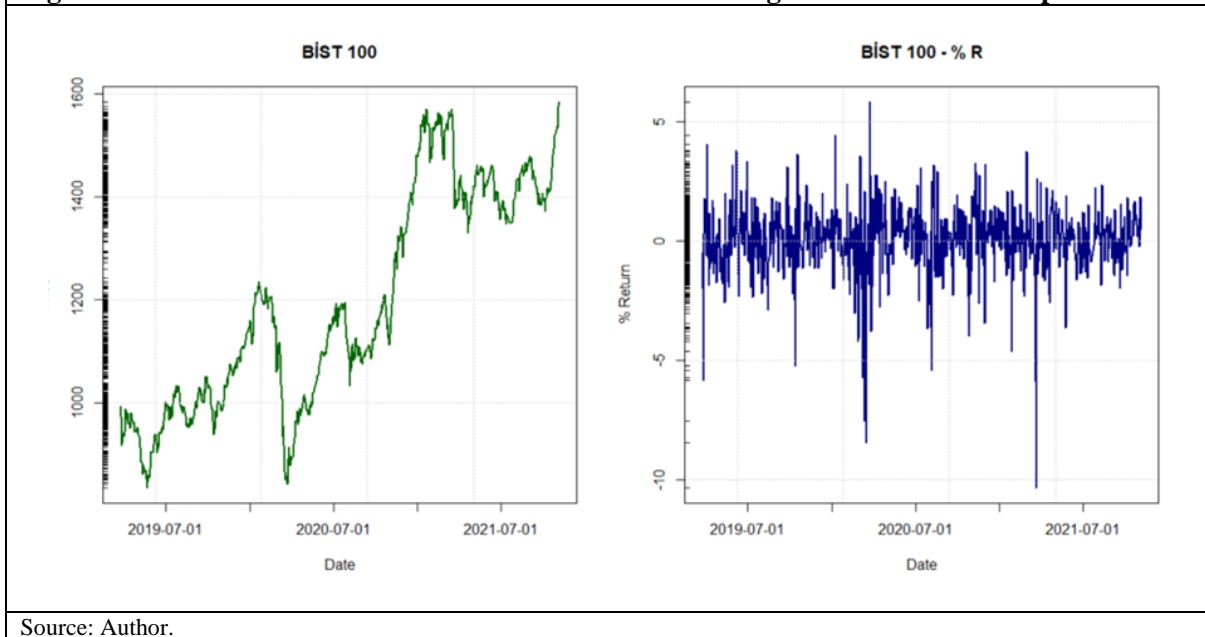
When the full sample descriptive statistics of the price and return series are evaluated, it can be seen that both of the series are not normally distributed (see Jarque-Bera (j.-Bera) test results) with either positive or negative skewness (0.232 for prices and -1.313 for returns). According to the applied Augmented-Dickey Fuller (ADF) test results, while daily prices of BIST 100 index has a unit root, daily returns does not have one. Moreover, applied Ljung-Box tests (LB(7) and LB(12) for the lags of 7 and 12) indicate the non-existence of serial auto-correlation in returns contrary to prices in which the auto-correlation is significant. Finally, Lagrange Multiplier tests applied for the lags of 7 and 12, respectively (LM(7) and LM(12)) (Engle (1982)) reveal the existence of auto-correlation in squared series.

Once the full sample returns are obtained, the first five hundred and demeaned returns (starting from 25 March 2019 till 23 March 2021) are employed to fit asymmetric GARCH and SV models in order to obtain one-day ahead model specific volatility forecasts. A rolling-windows approach is consistently applied until the last observation yielding a total of 152 one-day ahead volatility forecasts. More

specifically, the following steps are employed for a purpose to obtain one-day ahead volatility forecasts of each model:

- a) Identify model fit window:  $w_i = \mathbf{r} = \{r_i, r_{i+1}, \dots, r_{i+499}\}, i = \{1, 2, \dots, 152\}$
- b) Demean the returns and check for auto-correlation and heteroskedasticity
- c) Fit the volatility forecasting model: [GARCH, EGARCH, GJR-GARCH, TGARCH or SV]
- d) Obtain one-day ahead volatility forecasts of the fitted model

**Figure 1. Time Series Plots of BIST 100 Index and Percentage Returns - Full Sample**



#### 4.2. Empirical Findings

Two main approaches are applied to obtain out-of-sample volatility forecasts of asymmetric GARCH models. First, volatility forecasts of models having the minimum Bayesian Information Criteria (BIC) of each window is obtained. In each model fit window, the  $p, q$  orders of asymmetric GARCH models are varied from 1 to 3 which is thought to be sufficient in determining the best fit (min BIC) of a model  $[(p, q) \in \{(1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3)\}]$ . Moreover, GARCH innovations are assumed to be either Normal or Student-t distributed. Out of 152 windows, EGARCH(1,1), EGARCH(2,1), TGARCH(1,1) and GJR-GARCH(1,1) models (all with Student-t innovations) are selected as the minimum BIC model in 16, 28, 106 and 3 number of windows, respectively. In terms of BIC, clearly TGARCH(1,1)-std outperformed the rest by obtaining the minimum values in most of the (105) model fit windows. Furthermore, applied window specific ARCH LM tests confirmed that the selected min BIC models were able to model conditional heteroskedasticity since there were no remaining ARCH effects on the residuals. Once a model yielding the minimum BIC criteria is selected for each window, one-day ahead volatility forecasts of these models are obtained. In order to fit the models and obtain the volatility forecasts “rugarch” package (Ghalanos, 2019) of R software (R Core Team, 2019) is employed.

As a second approach, instead of employing a mixture of asymmetric GARCH models, a single model specific one-day ahead volatility forecasts are obtained for all windows. In other words, EGARCH(1,1), TGARCH(1,1) and GJR-GARCH(1,1) models with Student-t innovations are directly fitted to each window and model specific out-of-sample forecasts are obtained. Additionally, window specific one-

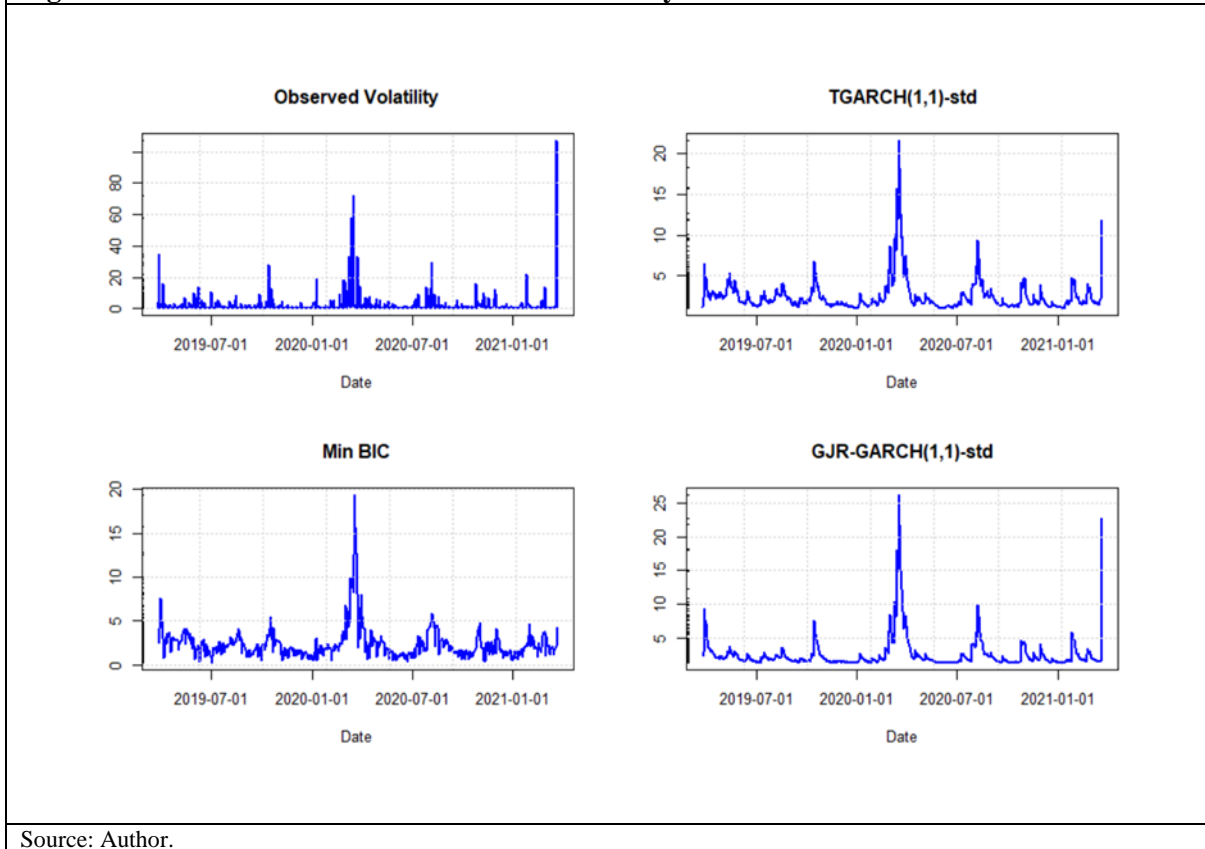
day ahead volatility forecasts of the traditional symmetric GARCH(1,1) model with Student-t innovations is also obtained in order to be able to have a more complete forecast comparisons. As a result, out-of-sample volatility forecasting performance of each single model can be evaluated independently. Moreover, directly employing a symmetric or asymmetric GARCH(1,1) using a rolling windows approach is a common application in finance literature. Table 2 summarizes model specific estimated parameters and diagnostic tests of the fitted GARCH models for the first window. A time series plot of the first window observed volatility ( $y_t^2$ ) and fitted conditional volatility ( $\sigma_t^2$ ) of the models are given on Figure 2.

**Table 2. First Window Parameter Estimates of GARCH Models**

Model / Param.	$\omega$	$\alpha_1$	$\alpha_2$	$\beta_1$	$\gamma_1$	$\eta_1$	$\gamma_2$	$\nu$	LB(12)	LM(12)
min BIC*	0.069 (2.49)	-0.365 (-4.34)	0.203 (2.15)	0.905 (26.97)	-0.285 (-2.20)	-	0.435 (3.26)	4.85 (4.71)	10.69 (0.56)	2.14 (0.99)
GARCH(1,1)	0.218 (1.94)	0.0792 (2.18)	-	0.839 (13.96)	-	-	-	3.65 (5.91)	12.17 (0.43)	2.03 (0.99)
TGARCH(1,1)	0.155 (2.49)	0.097 (2.99)	-	0.829 (15.69)	-	1.00 (2.99)	-	4.34 (4.96)	10.64 (0.56)	2.77 (0.99)
GJR-GARCH(1,1)	0.233 (1.95)	0.00 (0.00)	-	0.807 (8.49)	0.195 (2.50)	-	-	4.142 (4.23)	10.75 (0.55)	2.63 (0.99)
EGARCH(1,1)	0.081 (2.62)	-0.189 (-3.86)	-	0.898 (26.09)	0.089 (1.61)	-	-	4.374 (4.92)	10.11 (0.61)	2.98 (0.99)

\* The first window minimum BIC model is EGARCH(2,1)-std. The suffix of -std indicates Student-t distributed innovations with a shape parameter of  $\nu$ . In parenthesis estimated t statistics of the parameters are given.  
 Source: Author.

**Figure 2. Observed and Fitted Conditional Volatility - First Window**



Similar to symmetric and asymmetric GARCH processes, Stochastic Volatility (SV) model explained in Section 3.4 is also fitted to every single window in order to be able to estimate its parameters and derive one-day ahead volatility forecasts. The initial values of the SV parameters ( $\mu, \phi, \sigma$ ) specifying the prior distribution of the parameter vector  $\theta$  are summarized in Table 3.

**Table 3. Default and Pre-Selected Values of Initial Parameters**

Initial Parameter / Model	$\mu$		$\varphi: [(\varphi + 1/2) \sim B(a, b)]^*$		$\sigma$
	Mean	Standard Dev.	a	b	
SV-tuned	-10	1	30	1.5	0.6
SV default parameters	0	100	5	1.5	1

\* B is the beta distribution.

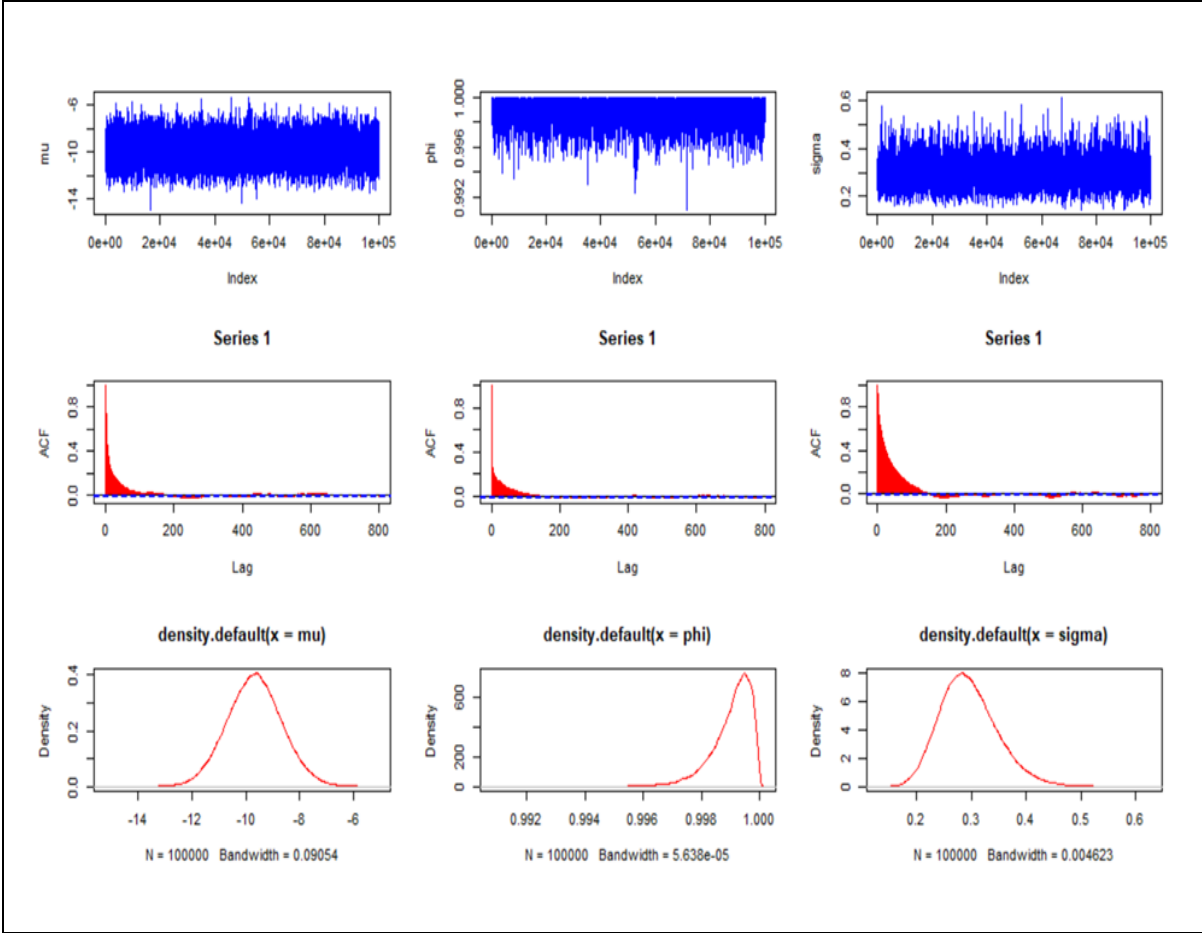
Source: Author

As explained by Hosszejni and Kastner (2019) one needs to assess the serial correlation and convergence of the sampled parameters since a good MCMC sampler will produce samples with low serial correlation. The Autocorrelation Function (ACF) of the sampled parameters are given in Figure 3. Moreover, in order to fit SV, “stochvol” package (Hosszejni & Kastner, 2021) of R Software (R Core Team, 2019) is employed. From the below Figure 3, it can be seen that the correlation observed in the

first lags dropped significantly on the following lags indicating the efficiency of the employed sampler in producing uncorrelated samples. Since SV is fitted to 152 windows, all the window specific ACF values are obtained and examined for a probable existence of high and persistent serial autocorrelation. Furthermore, trace paths and posterior density diagrams of the parameters are also presented in Figure 3.

Additional to ACF, window specific trace paths of samples are also examined for the existence of parameter stability yielding samples within certain limits. Moreover, 100 000 draws are made in each window of a MCMC sampling including 10 000 burning samples. First window posterior draws of SV model (SV-tuned) parameters as well as a figure of the estimated in-sample volatilities ( $e^{h_t}$ ) can be found on Table 4 and Figure 4, respectively.

**Figure 3. ACF of 100 000 Parameter Draws of SV-tuned - First Window**



Source: Author.

**Table 4. First Window Posterior Draws of SV-tuned**

	mean	sd	5%	50%	95%	ESS
$\mu$	-9.671	1.0155	-11.3335	-9.6718	-7.987	3397
$\varphi$	0.999	0.0007	0.9977	0.9992	1.000	4797
$\sigma$	0.296	0.0525	0.2179	0.2913	0.390	1671
$e^{\mu/2}$	0.009	0.0050	0.0035	0.0079	0.018	3397
$\sigma^2$	0.090	0.0328	0.0475	0.0848	0.152	1671

Source: Author.

Once, SV models are fitted to each estimation window, window specific one-day ahead volatility forecasts are obtained. Table 5 presents the obtained MAE, MSE and RMSE statistics of the models. As can be seen from Table 5, one-day ahead volatility forecasts of the traditional GARCH(1,1) model with Student-t innovations is also obtained with the same rolling-windows methodology applied to asymmetric GARCH processes in order to be able to have a complete symmetric and asymmetric GARCH family comparison.

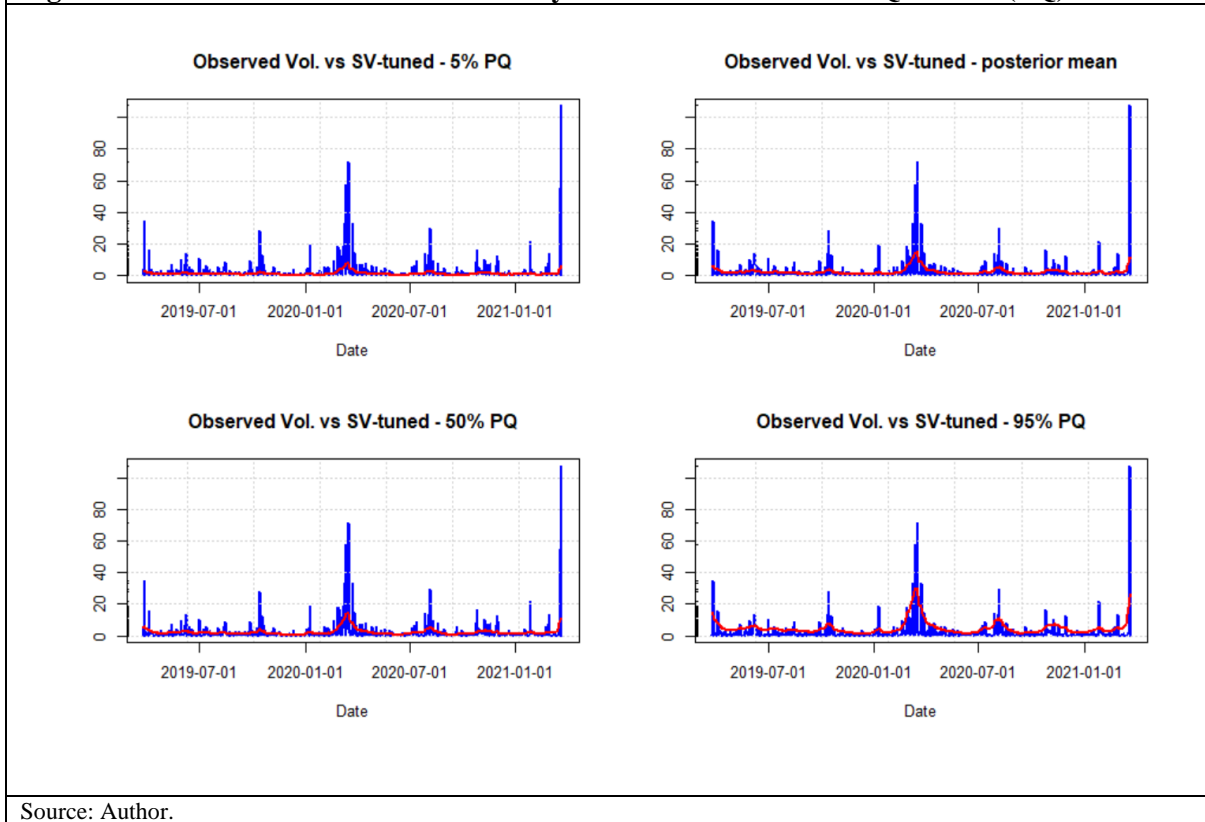
**Table 5. Out-of-Sample MAE, MSE and RMSE Statistics**

Model	MAE	MSE	RMSE
GARCH(1,1)-std	1.6390	4.5153	2.1249
minBIC	1.7507	6.3479	2.5195
EGARCH(1,1)-std	1.7181	4.9508	2.2250
GJR-GARCH(1,1)-std	1.7843	7.6973	2.7744
TGARCH(1,1)-std	1.6036	<b>4.4111</b>	<b>2.1003</b>
<b>SV-tuned (50% quantile)</b>	<b>1.3268</b>	4.5012	2.1216

Source: Author.



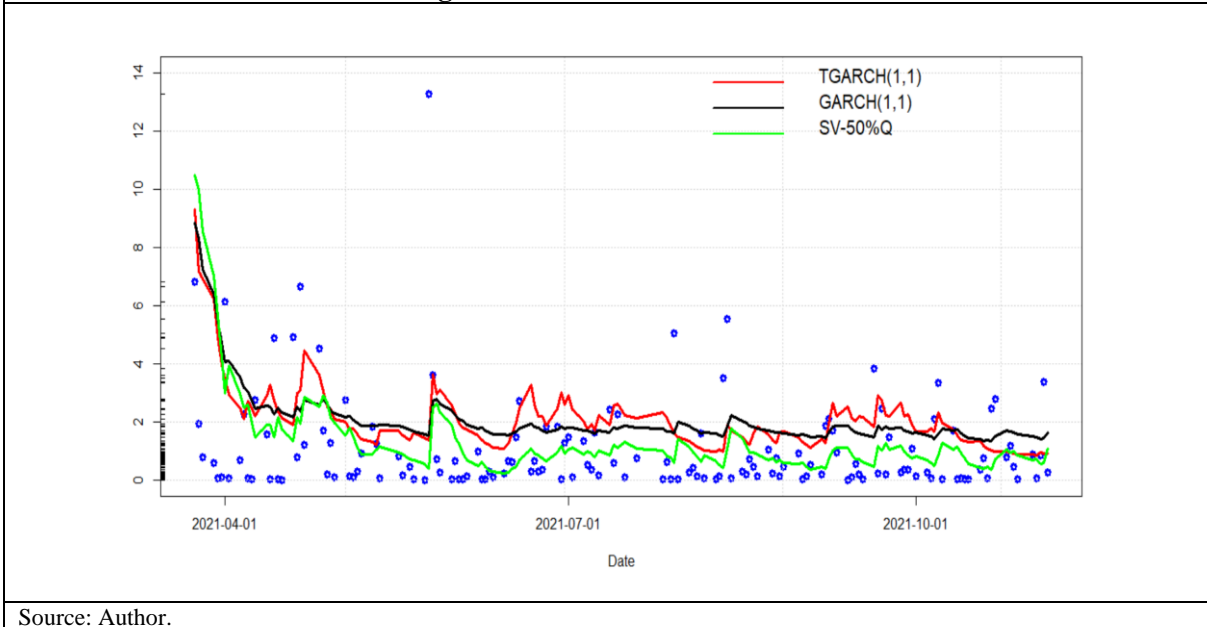
**Figure 4. First Window Observed Volatility and SV-tuned Posterior Quantiles (PQ)**



Source: Author.

Table 5 shows that while SV-tuned obtained the smallest loss value in MAE, TGARCH(1,1) had the smallest MSE and RMSE measures. Nevertheless, MSE and as a result RMSE measures can easily be inflated by a couple of losses since their squared values will have a high impact on the mean. In Figure 5, out-of-sample volatility forecasts of the three models that obtained the smallest loss values are compared with the observed volatilities ( $y_t^2$ ) shown with blue dots. Moreover, one-day ahead out-of-sample conditional volatility forecasts ( $\sigma_{t+1}^2$  for GARCH and  $\sigma_{t+1}^2 = e^{h_{t+1}}$  for SV-tuned) of all models are shown on Figure 6.

**Figure 5. Out-of-Sample Observed Volatility (Blue Dots) vs Conditional Volatility Forecasts of the First Three of Best Performing Models**

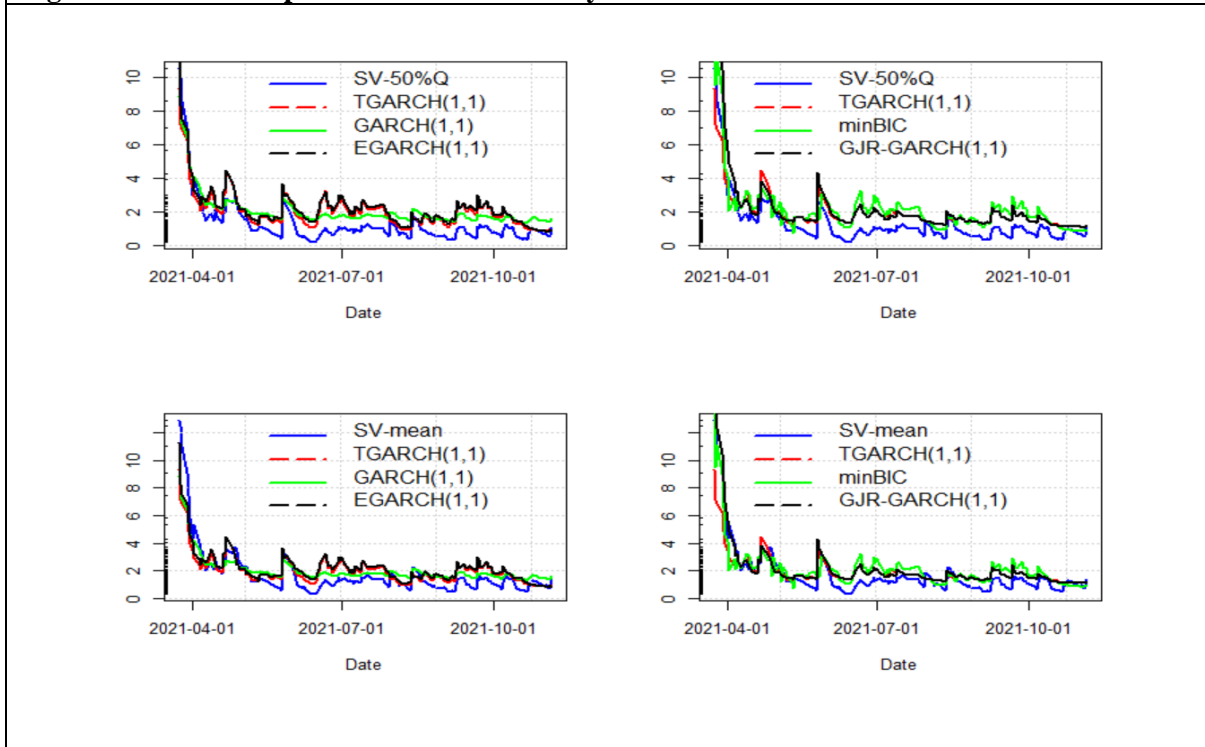


Source: Author.

## 5. Discussion and Conclusions

In this paper, a comparison between out-of-sample volatility forecasts of various models including asymmetric GARCH and Stochastic Volatility are presented. Compared to existing literature where there are still very few papers published on the subject that are also considering only a few periods, this research applied a rolling-windows methodology in which each model is fitted to 152 distinct periods (windows) in order to be able to obtain one-day ahead volatility forecasts.

**Figure 6. Out-of-sample Conditional Volatility Forecasts of All Models**



Source: Author.

In the literature, it is possible to find various ways of comparing different models. Some of these include comparing the in-sample fits of the models with the well-known statistics such as Loglikelihood, AIC or BIC criteria. One of the other ways of comparing the in-sample fits or out-of-sample forecasts of the models is to use a pre-specified loss function(s) such as MAE, MSE or RMSE. Additional to models with pre-specified orders, in this research the first method of comparing one of the pre-selected criteria (minimum BIC) is applied to choose window specific asymmetric GARCH type (EGARCH, TGARCH or GJR-GARCH) as well as the  $p, q$  order. On the other hand, as explained by Kastner and Frühwirth-Schnatter (2014) it is important to carefully select the initial parameters of MCMC sampling since the choice of initial (starting) parameters effect the performance of the method. As a result, window specific initial parameters of SV are determined carefully by searching a combination of parameters and assessing ACF of the produced parameter samples as well as trace plots and ESS values. Once the volatility forecasts are obtained, model specific values of the loss measures are estimated. According to the applied statistics, SV and TGARCH(1,1)-std are ranked as the best two forecasters depending on the measure. Surprising results came from the symmetric GARCH(1,1) with Student-t innovations which obtained the third best loss measures. Overall, the results of this research reveal the applicability of Stochastic Volatility to BIST100 returns since it was able to model the dynamics of the index in one hundred fifty-two distinct periods and managed to produce the best volatility forecasts in terms of MAE. Nevertheless, one needs to also mention that in this research only the basic SV model is employed in a one day-ahead volatility forecasting task. There are also various SV models considering the leverage and/or non-normal distribution of the model innovations. The one-day ahead volatility forecasting performance of these models can also be compared within a similar rolling windows approach applied at this paper. Also, volatility forecasts of various models can be compared not only for one-day ahead but for longer forecast horizons. Moreover, volatility forecasting performance of the models can be compared with additional loss functions or other regression-based methods applied in the literature.

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**SUKRIYE GUL REIS<sup>1</sup> AND OMER FARUK RENCBER<sup>2</sup>**

**DETERMINING MACROECONOMIC FACTORS AFFECTING THE MARKET INDEX USING A DATA MINING TECHNIQUE: EVIDENCE FROM AN EMERGING COUNTRY**

**Abstract**

The aim of this study are to develop a regression algorithm and determine the order of importance of the factors affecting the BIST market index, which is among the emerging markets, using data mining techniques. For this purpose, first of all, six different algorithms (Gradient Boosted Tree, H2O Linear Ensemble, XGBOOST, Random Forest, Polynomial and Linear Regression Algorithms) are used to determine the algorithm that best predicted the market index return. Then, the order of importance of the variables is determined by using the Gradient Boosted Tree Algorithm, which best predicts the return. According to the results obtained from the study, the variables affecting the market index return are inflation, oil and exchange rate in order of importance. The least important variables are found to be money supply, gold and industrial production index, respectively.

**Keywords:** Stock market return, data mining techniques, Gradient Boosted Tree Algorithm, Borsa Istanbul

**JEL Codes:** G11, J11, C45

**Introduction**

Modern portfolio theory argues that all investors think rationally. Accordingly, the aim of the investors is to maximize the utility function. That is, they aim to maximize the expected utility in each period. Investors consider the expected return and risk together when creating a portfolio. The measure of return is the average of the expected returns of the assets that make up the portfolio, and the measure of risk is the variance of these portfolio returns. The risk of the portfolio is the deviation between the expected return and the actual return. Capital market investors, who want to minimize this deviation, review the factors that will risk their portfolio returns. The development of the capital market to be invested in and the economic conjuncture in the relevant capital market affect these decisions significantly. Previous studies also confirm this.

Borsa Istanbul is an emerging capital market and the only organized stock exchange in Turkey. By the November 2022 the local investors number are 3.311.491 and foreign investor number 15.816. The market value is about 127.918 million Dolar. Approximately 30% of the market value consists of foreign investor portfolio (*Merkezi Kayıt Kuruluşu | Data Analysis Platform, 2022*)

Previous studies have given a lot of attention to which macroeconomic factors affect the Borsa Istanbul market index, which has an important place in emerging markets. However, it has been observed that studies on the order of importance of these factors are not sufficiently addressed. So the aim of this study is to develop a regression model and determine the order of importance of the macroeconomic factors affecting the BIST market index, which is among the emerging markets, using data mining techniques. For this purpose monthly data is used from 2010:02 to 2022:05 and six different algorithms are used to determine the algorithm that best predicted the Borsa Istanbul market index return.

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## Literature Review

Al-Jafari et al. (2011) investigate the relation macroeconomic variables and stock prices for 16 developed and 16 emerging markets using Granger causality test and Pedroni panel cointegration tests. They find a significant causal relationship between macroeconomic variables, with the exception of interest rate and money supply, and stock prices for developed and emerging markets. It also finds a significant causal relationship between stock prices and macroeconomic variables for developed and emerging markets with the exception of exchange rate and money supply for developed markets. The findings also show a positive long-run relationship between real economic activity level and stock prices for developed markets. Furthermore, the results find that the relationship between macroeconomic variables and stock return in emerging markets is significantly more established than in developed markets.

Humpe & Macmillan (2009) examine whether macroeconomic variables influence stock prices in the US and Japan and apply a cointegration analysis for the case of the US and Japan. According to the results for the US, stock prices are positively related to industrial production and negatively related to both the consumer price index and the long-term interest rate and an insignificant relationship between the US stock prices and the money supply. However, for the Japanese, stock prices are influenced positively by industrial production and negatively by the money supply and industrial production to be negatively influenced by the consumer price index and a long-term interest rate.

The relationship between macroeconomic indicators and stock market performance is examined for *Nigeria* by Olokoyo et al. (2020), for *Indian* by Pal & Mittal (2011) and Tripathi & Seth (2014), for *Korean* by Kwon & Shin (1999), for *Malaysian* by Ibrahim & Aziz (2003). They apply cointegration tests and find similar documents.

According to the results obtained from the study examining the long-term effect of macroeconomic variables and stock market performance, the variables are cointegrated in the long run. The stock markets return are dependent on macroeconomic variables even though the same may not be statistically significant in all the cases and all the variables.

There are important results for BIST 100 Index return. Researchers test the relation between different macroeconomic indicators and BIST 100 Index return. Our study aim to put forward what is the order of importance of the indicators that effect the BIST Index. So the literature review is designed according to which indicators are expected to effect the Index. Akgün et al.(2013) examine gold and oil prices effect on BIST Index return. They use cointegration analysis to explain the relation. Empirical results show that fluctation in oil prices affects economical factors. Whereas the BIST 100 Index has positive relationship with oil prices and negative relationship with oil prices. Beside this, Altin (2014) test the relation between exchange rates and BIST 100 using cointegration and causality methods. He finds short and long term relation between to variables. Noorie et all. (2020) use BIST 30 Index to put forward the macroeconomic effects on the Index. Using cointegration and causality methods and they find a positive impact of interest rate on BIST 30 Index.

Ojaghlou (2020) examine the ability of macroeconomic indicators to predict the volatility of BIST 100 Index returns. In order to investigate the relationship, nonlinear ARDL models are employed. The findings show that the variables are cointegrated. Also there is positive and statistically significant asymmetric long run relationship from inflation to Istanbul stock market and also GDP, nominal exchange rate, S&P500 have significant and positive long run effect on Istanbul stock market returns. Erol & Aytekin (2019) test the role of macroeconomic factors effect on BIST 100 Index using Multivariate Linear Regression model. According to the results there is statistically significant relationship between BIST 100 Index and the indicators of the overnight lending interest rate, the

industrial production index and the inflation rate but there is not statistically significant with growth rate and golden ounce price. İlhan & Akdeniz (2020) examine the effect of macroeconomic indicators on BIST 100 Index before and during the COVID-19 pandemic. They use the Flexible Least Squares method and empirical results indicate that interest rate, VIX, and oil prices had significant effects on BIST 100 for certain periods. On the other hand, the exchange rate and CDS premium significantly and negatively affect BIST 100 in the whole sample. Moreover, it is determined that the exchange rate is the macroeconomic variable with the highest impact on BIST 100 based on the quantitative magnitude of the coefficients.

**Data**

In this study, the BIST market index was chosen as a target variable in the study; IPI, oil, gold, exchange rate, M2, Inflation, CLI, CDS and interest rate are taken as input variables. Using these macroeconomic data, 6 algorithms (Gradient Boosted Trees, Polynomial Regression, XGBOOST, Random Forest, H2O Ensemble Regression and Linear Regression) frequently used in regression problems in data mining were run. The reason for choosing these methods in practice; The aim of this study is to compare statistical techniques based on classical mathematical models with methods based on manual and automatic algorithmic learning. The explanation of variables which used in the analysis are reported in Table 1 as below.

**Table 1. Data Used in the Study**

Code of Variables	Explanation
BIST 100	Borsa Istanbul Market Index Return
IPI	Industrial Production Index
OIL	Brent Oil Price
GOLD	1 Ounce Gold London Sale Price
EXCHANGE RATE	Real Effective Exchange Rate
M2	Money Supply2
INFLATION	Consumer Price Index
CLI	Combined Leading Indicators Index
CDS	Credit Default Swap
INTEREST RATE	1 Year Term TL Deposit Interest Rate

Source: Authors.

**Methodology**

Regression analyzes are applied for the purpose of understanding the past or forecasting the future. The methods are applied in many fields such as social, science, health or engineering. In some studies, regression analysis is called "line or curve fitting". In this study, in terms of statistic, it is aimed to compare the statistical estimation methods used according to their historical development in terms of methodology. Accordingly, linear and polynomial regression on classical statistical techniques; XGBOOST, Random Forest and Gradient Boosted Tress and H2O Linear Ensemble regression methods based on machine learning algorithm were used. The techniques used in this section are briefly explained.



## Classic Statistical Applications: Linear ve Polynomial Regression

The linear regression method is aimed to develop a mathematical model in which the independent variables can best explain the dependent variable. The mathematical equation used in the estimation of the dependent variable in the linear regression method is as follows;

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + u_i \quad i = 1, 2, \dots, n$$

In the equation, x represents the independent variables and y represents the dependent variable. In linear regression analysis, techniques such as least squares and maximum likelihood can be used to determine the coefficients and develop the model. In the univariate polynomial regression analysis, the expected equation to be obtained is as follows;

$$y = \beta_0 + \beta_1 x + \beta_2 x^2 + \dots + \beta_k x^k + \varepsilon$$

Polynomial regression is used when it is considered that the relationship between the dependent variable and the independent variables is not linear. The method basically works according to the curve-fitting logic.

## Machine Learning Algorithms: Gradient Boosted Trees, Random Forest and XGBOOST

Machine learning methods have an algorithmic structure. Accordingly, the data set is divided into two parts training and testing. First, the algorithm is trained so that it can predict the independent variables and the dependent variable. Then it is tested with a different data set to see how successful the training is. This form of education is called supervised learning. In this study, Gradient Boosted Trees, Random Forest, and the XGBOOST techniques from machine learning techniques were used. The reason for choosing these methods is; all of them include ensemble (boosting and bagging) learning techniques.

**Random Forest;** It is based on the logic that a large number of decision trees develop the model that can solve the problem and the final prediction model is formed by taking the averages. The method has the bagging decision trees algorithm. Accordingly, multiple decision trees are used instead of a single decision tree. This is the strength of the method.

**Gradient Boosting Trees;** The method works similarly to the random forest algorithm. However, in GBM, a model consisting of decision trees containing weak prediction models is developed. It includes the learning process to minimize the loss function, which is the difference between the actual value and the estimated value in regression problems. The algorithm learning is completed by optimizing the loss function with the gradient descent technique.

**Extreme Gradient Boosting (XGBOOST):** Developed by Chen and Guestrin (2016). Unlike GBM, the algorithm aims to optimize the loss function more quickly. Gradient Boosted Trees works on the principle of strengthening weak models in multiple iterations, taking into account the residuals that are the difference between the predicted values and the actual values during boosting. XGBM, on the other hand, does the same job by making use of hardware, faster through parallel processing, and more accurately by avoiding the problem of excessive learning that can be achieved with hyperparameter customizations (Yakut and Kuru, 2021).

## Automatic Machine Learning Algorithm: H2O Linear Ensemble Learning

From machine learning techniques, H2O is different from others due to its auto-learning algorithm. Accordingly, data is read in parallel in H2O. H2O is an open-source, fast and scalable machine learning

and predictive analytics program written in a java programming language that allows us to create machine learning models on big data and enables these models to be easily produced in the corporate environment. It works with many supervised and unsupervised learning algorithms. The variant used in this study is the H2O Linear Ensemble Learning algorithm (Kucuk, 2022).

### Implementation

According to the algorithm with the lowest error, the financial ratios affecting the market index were ranked according to their importance. Therefore, the essential questions to be answered are as follows;

- Which algorithm is the most successful in solving the problem?
- Which variable is the most important variable in terms of the market price index?
- What is the importance of the variables affecting the market price index?

In regression-based applications, the problem understanding and estimation skills of the methods can be examined with various metric measurements. These are as in the Table 2.

**Table 2. The Success Measures of the Regression Methods**

MSE (Mean Square Error)	$MSE = \frac{1}{n} \sum_{i=1}^n e_i^2$
RMSE (Root Mean Square Error)	$RMSE = \sqrt{\frac{1}{n} \sum_{i=1}^n e_i^2}$
MAE (Mean Absolute Error)	$MAE = \frac{1}{n} \sum_{i=1}^n  e_i $
MAPE (Mean Absolute Percentage Error)	$MAPE = \frac{100\%}{n} \sum_{i=1}^n \left  \frac{e_i}{y_i} \right $

Source: Authors.

In data mining applications, overfit problems may be encountered for some algorithms. Therefore, applying cross-validation during the training process of the algorithm can be a solution to this problem. In this study, algorithms were first trained and then tested by cross-validation 10-fold. Obtained error levels are as in the Table 3 as below.

**Table 3. The Evaluation Metrics of the Methods**

<b>Gradient Boosted Tree</b>						
<b>R<sup>2</sup></b>	<b>MAE</b>	<b>MSE</b>	<b>RMSE</b>	<b>MSD</b>	<b>MAPE</b>	<b>ADJ R<sup>2</sup></b>
0,97	44,65	5015,60	70,82	0,53	0,04	0,97
<b>Polynomial Regression</b>						
<b>R<sup>2</sup></b>	<b>MAE</b>	<b>MSE</b>	<b>RMSE</b>	<b>MSD</b>	<b>MAPE</b>	<b>ADJ R<sup>2</sup></b>
0,95	48,68	5574,06	74,65	0,005	0,05	0,95
<b>Random Forest Regression</b>						
<b>R<sup>2</sup></b>	<b>MAE</b>	<b>MSE</b>	<b>RMSE</b>	<b>MSD</b>	<b>MAPE</b>	<b>ADJ R<sup>2</sup></b>
0,92	50,57	7686,26	87,67	-4,12	0,045	0,96
<b>Linear Regression</b>						
<b>R<sup>2</sup></b>	<b>MAE</b>	<b>MSE</b>	<b>RMSE</b>	<b>MSD</b>	<b>MAPE</b>	<b>ADJ R<sup>2</sup></b>
0,95	54,38	5869,87	76,61	-2,08	0,056	0,95
<b>XGBOOST</b>						
<b>R<sup>2</sup></b>	<b>MAE</b>	<b>MSE</b>	<b>RMSE</b>	<b>MSD</b>	<b>MAPE</b>	<b>ADJ R<sup>2</sup></b>
0,97	45,31	3704,79	60,86	0,75	0,04	0,97
<b>H2O Linear Ensemble</b>						
<b>R<sup>2</sup></b>	<b>MAE</b>	<b>MSE</b>	<b>RMSE</b>	<b>MSD</b>	<b>MAPE</b>	<b>ADJ R<sup>2</sup></b>
0,17	227,41	102571,7	320,26	10,59	0,25	0,17

Source: Authors.

As can be seen in the Table, when the errors are compared, it is seen that the least error and the highest explanation level are obtained with the Gradient Boosted Tree algorithm and the XGBOOST. The H2O linear ensemble algorithm has the lowest explanation level and the highest error. The linear regression algorithm, on the other hand, has moderate explanatory power.

There are many techniques to see which variable has the most impact on the output. Some of them are as follows; LGM Measure (Lindeman et al., 1980), PMVD (Feldman, 2005), Dominance Analysis (Azen & Budescu, 2003), and Permutation-based MSE. In this study, the importance levels of the variables will be determined according to the MSE differences based on permutation. Accordingly, the results obtained are as in the Table 4.

**Table 4. The Importance of the Variables**

<b>Without Shuffling MSE</b>	<b>5015,602</b>		
<b>New Mse With Shuffling</b>		<b>Difference (Absolute value)</b>	<b>Importance Rank</b>
<b>IPI</b>	4991,65	23,95231	9
<b>OIL</b>	6099,335	1083,733	2
<b>GOLD</b>	5111,44	95,83766	8
<b>EXCHANGE RATE</b>	3942,894	1072,708	3
<b>M2</b>	4702,303	313,2994	7
<b>INFLATION</b>	3788,116	1227,486	1
<b>CLI</b>	4701,492	314,1098	6
<b>CDS</b>	4597,552	418,0504	5
<b>INTEREST RATE</b>	4076,092	939,51	4

Source: National Statistics Office of Georgia.

As can be seen in the Table, the most important variable in terms of the BIST market index was found to be the CPI ratio. After that, Oil, exchange rate and interest rate are other important variables. The least important variables are; M2 was found as gold price and IPI.

## Conclusion

In this study, the factors affecting the BIST index were examined. Accordingly, it is aimed to determine the method that best estimates the index with 6 different methods. In this direction, methods based on mathematical modeling and methods based on algorithm logic were compared.

According to the results obtained in the study; Gradient Boosted Trees and XGBOOST were found to be the best predictors of the stock market index. The linear regression method, one of the classical techniques based on the mathematical model, has an explanation level of 95%. However, in the H2O Linear Ensemble technique, this rate is 17%. It is observed that the data can be estimated by mathematical modeling, but the predictions are unsuccessful according to the machine learning-based H2O linear regression model. Finally, the factors affecting the stock market index the most are inflation, oil and exchange rates; It was seen that the least affected ones were IPI, gold price and the CLI.

In the study, classical, machine learning-based and automatic machine learning-based methods were applied. As an alternative to the methods used in this direction, it can be suggested to use methods such as Multiple Adaptive Regression Splines (MARS), radial basis functions or Wavelet.

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**POSSIBILITIES FOR SUSTAINABLE RURAL TOURISM DEVELOPMENT AND ITS  
IMPACT ON THE STANDARD OF LIVING OF THE POPULATION IN GEORGIA**

**Abstract**

The main problem of rural areas, particularly the mountainous villages of Georgia is the low standard and poor living conditions, including lack of income, low employment, developed infrastructure, inadequate housing and communal conditions. The main alternative to improving the living standards of the population of the rural settlements is development of tourism.

Rural tourism ensures the rational use of local resources and stimulates the economic development of villages. This stimulates the diversification of tourism products, the protection of cultural heritage, the development of the agricultural sector and local infrastructure, an increase in employment and income of the local population, and an overall improvement in the standard of living of the local population.

Rural tourism development directly connects to employment of the population and improvement of their standard and quality of living. The connection and dependence of month revenue of rural population, which is the main indicator of standard of living and revenues from international tourism has been defined by correlation-regression analysis method. The results of the statistical analysis have shown that rural tourism stimulates an increase in the standard of living of the population in the rural settlements of the country.

**Keywords:** Rural Tourism, standard of living, quality of life

**JEL Codes:** M20

**Introduction**

As of 2021, in Georgia, 40.6% of the population lives in rural areas and tries to earn a living from agriculture. [1] However, agriculture is a low-income sector, and its share in Georgia's GDP does not exceed 7%. [2] which hinders the diversified development of the countryside and the eradication of poverty. Therefore, it is very important to support the development of the countryside, which will lead to the diversification of the rural economy, one of the important areas of which is rural tourism. Rural tourism provides a synergistic effect, promotes the development of local production and services. As a result, rural development is one of the priorities of the Georgian government, which is actively supported by donor and international organizations.

Georgia has a rich natural and cultural heritage for the development of tourism. The picturesque nature of the regions of Georgia, the diversity of flora and fauna and the hospitable population create the best conditions for the development of rural tourism. Tourism in Georgia is a priority sector, as it has a significant impact on the development of related branches of the economy, improving the material standing of society and satisfying spiritual needs. Prior to the Covid 19 pandemic, the number of foreign visitors in 2019 was 7,725,774. [3] Tourism can be considered as one of the important factors in improving the level and quality of living of the population. The positive effect of tourism in this sector

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is manifested in the creation of jobs, increasing incomes and, consequently, living standards, accelerating the process of urbanization, improving infrastructure, restoring and developing local culture, traditions and customs.

Rural tourism is the movement of people from their place of residence to the countryside with a stay in the countryside of at least 24 hours and up to 6 months, and the purpose of their visit is recreation and entertainment. Rural tourism is associated with all types of rural tourism.

Organization for Economic Co-operation and Development (OECD) states rural tourism should be: [4]

- Located in rural areas.
- Functionally rural, built upon the rural world's special features; small-scale enterprises, open space, contact with nature and the natural world, heritage, traditional societies, and traditional practices.
- Rural in scale – both in terms of building and settlements – and therefore, small scale.
- Traditional in character, growing slowly and organically, and connected with local families.
- Sustainable – in the sense that its development should help sustain the special rural character of an area, and in the sense that its development should be sustainability in its use of resources.
- Of many different kinds, representing the complex pattern of the rural environment, economy, and history.

The term 'rural tourism' has been adopted by the European Community (EC) to refer to all tourism activity in a rural area. Rural tourism is associated with tourism destinations such as **agritourism, wilderness and forest tourism, farm tourism, green tourism and ecotourism**. Various estimates suggest that tourism in rural areas makes up 10 to 20% of all tourism activity, and a Eurobarometer survey reported that 23% of European holidaymakers choose the countryside or rural areas as a destination every year.

Rural tourism is an important form of tourism sector which plays an important role and gives many benefits to rural areas community. When tourists travel to rural areas, they support the local economy and helps in various way. Rural tourism helps in the development of rural areas and living standards of host communities. Some importance and benefits of rural tourism are following as:

- Provides a source of new, alternative or supplementary income and employment in rural areas.
- Rural tourism spurs infrastructure development in rural areas.
- Help to reduce gender and other social power
- Encourage collective community
- Reinvigorate local culture.
- Instill the sense of local pride, self-esteem, and identity
- Contribution to conservation and protection.
- Increase the living standards of the local community.
- Assists refurbishment and re-use of abandoned properties.
- Provide opportunities for retaining population in areas that might otherwise experience depopulation.
- Enable areas to be repopulated.

Rural tourism is a growing form of tourism. Rural tourism benefits the host community of rural areas as well as surrounding natural environment through preservation and conservation of natural resources.

The main argument in support of rural tourism in Europe is overcoming of the economic and social problems facing rural residents [5].

2020 marks the ‘Year of Tourism and Rural Development’, a theme shared with this year’s World Tourism Day. The sustainability of tourism in rural areas will only be successful if a comprehensive, inclusive planning strategy is adopted and implemented based on a multi-action and multi-stakeholder participatory approach. The UNWTO Recommendations on Tourism and Rural Development aim to support governments at various levels, as well as the private sector and the international community in developing tourism in rural territories in a way that contributes to inclusive, sustainable and resilient development.[6]

The COVID-19 pandemic has triggered rising interest from tourists looking for new experiences based around natural and rural areas in the open air, far from congested settings. This, combined with the already rising demand for more authentic experiences that offer stronger engagement with local communities, their culture and products, as well as demand for a greener approach in all stages of the travel experience opens up immense opportunities for the economic, social and environmental revitalization of rural areas through tourism. [7]

### **Research Results and Discussion**

Based on the positive effects of tourism, the development of rural tourism is advisable in regions with a low standard of living of the population. This also applies to the mountainous regions of Georgia, where the creation of tourist locations based on natural and cultural features will significantly improve the standard of living and conditions of the population.

Based on the definitions given below, it is logical to conclude that the development of rural tourism is directly related to employment, income growth, and an increase in the level and quality of life:

- Rural tourism is a concept that includes tourism activities created and managed by the local population based on a close link with the natural and anthropogenic environment. [8] (Europe in figures, Eurostat Yearbook. 2010 //URL: <http://eurostat.ec.europa.eu>)
- Rural tourism is one of the types of ecological tourism that is carried out in rural areas, outside nature conservation areas, is based on the natural features of the area, its cultural and historical capacity, at the same time providing for the organization of accommodation for tourists in rural areas and the involvement of local rural communities in tourism activities. [9] (Власюк Т. Б. Становление и развитие малого предпринимательство в сфере сельского туризма Автореферат дис.на поиск. уч. ст. к. эк. Наук.Ижевск, 2007)
- Rural tourism is a combination of activities and services that local farmers and peasants offer to tourists in order to attract them to their homes and earn additional income through these activities [10] (European Commission, (1955). Marketing Quality Rural Tourism Leader TechnicalDossier, March 1995)
- Rural tourism product market is a place where tourists go out of town to purchase tourism goods and services. Rural tourism is a tool to increase demand for rural services and products, thereby contributing to generation of employment as a key objective of the economic system. [p. 18–20]

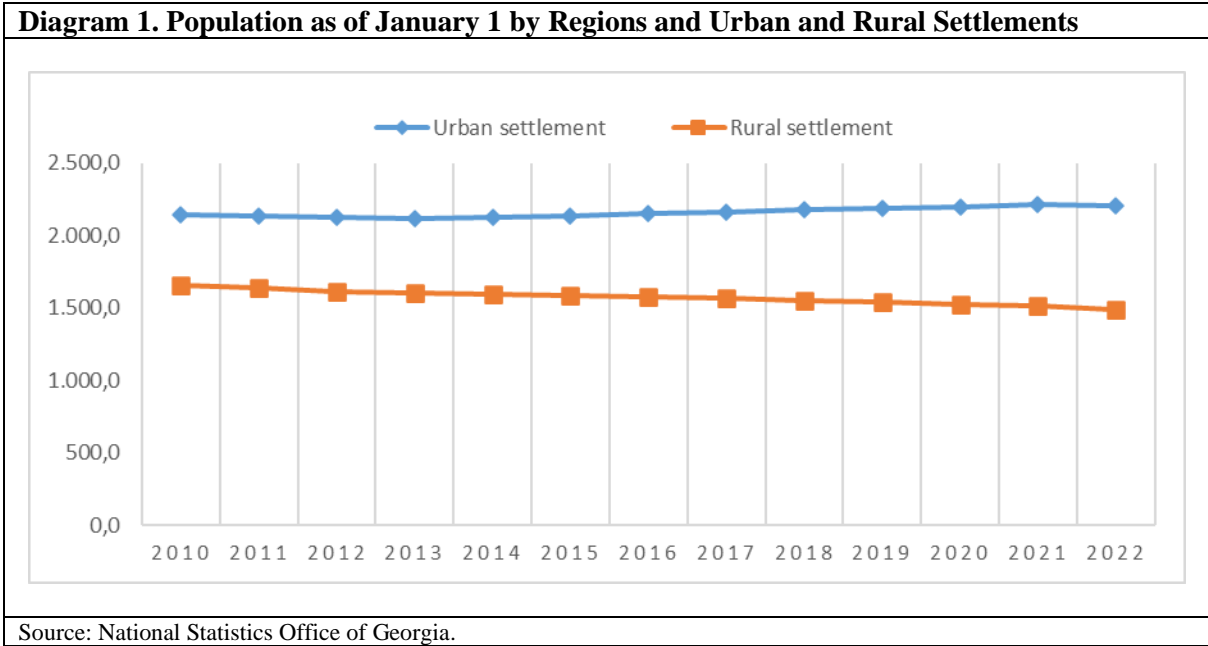
The standard of living of the population is the most important socio-economic category, which is understood as the level and quality of satisfaction of the material and spiritual needs of the population. “The main role in the study of the category of standard of living belongs to social needs. On the one hand, this is the unity of the biological needs of an individual, the satisfaction of which is necessary for the physical and spiritual existence of an individual or for the reproduction and development of his life



process, on the other hand, a person is a public and social element, which obviously creates links associated with its social relations”. The standard of living is a key indicator of human well-being and economic development. In a broad sense, the standard of living of the population includes the conditions of life, work, life, employment, recreation and education, although in this case the term “life quality” is used.

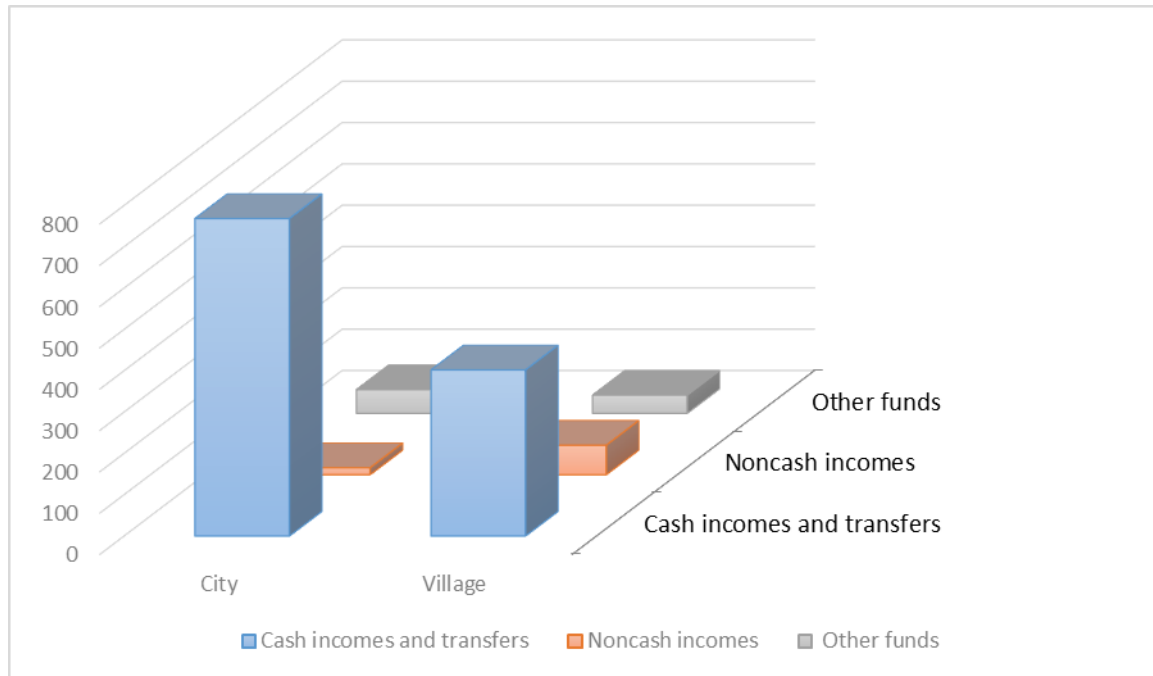
The standard of living is determined by socio-economic factors, of which the following indicators are of particular relevance: Poverty, unemployment, education, healthcare, sources of income, spending patterns, etc. Of the indicators, it should be noted income differences both between population groups and between cities and villages. Income inequality is due to the high unemployment rate of the rural population, low incomes, high number of populations below the absolute poverty line, low level of development of housing and utility conditions and infrastructure, etc.

The low standard of living and quality of life of the rural population leads to a decrease in the population. In 2021, compared to 2010, the population in rural areas of Georgia decreased by 9.6% (Diagram 1), which is associated with low birth rates and high migration from rural to urban areas.



According to 2021 data, the average monthly cash incomes and transfers of the urban population were twice the average monthly incomes and transfers of the rural population (Diagram 2), and the share of the population below the absolute poverty line for the rural population was 21,3%. %, while this indicator for the urban population was set at 15%. Among the programs and projects implemented by the state to eliminate this problem, the priority is the development of rural tourism.

**Diagram 2. Distribution of Average Monthly Incomes of the Population by Urban and Rural Areas in 2021, (Million GEL)**



Source: National Statistics Office of Georgia.

The development of rural tourism is directly related to employment, income growth, and an increase in the level and quality of life. The link between these events can be illustrated by the method of parallel columns, which clearly shows the average monthly income of the rural population and the trend in the development of income from international tourism over time. We determined these indicators by excluding the pandemic period, as the tourism market was paralyzed in 2020-2021.

**Table 1. Average Monthly Income of the Population and Income from International Tourism Over Time**

	2015	2016	2017	2018	2019
Distribution of the average monthly income of the population by villages (million GEL)	340.13	351.62	354.42	370.20	414.12
Income from international tourism (million GEL)	4,264.99	4,958.69	6,757.88	8,167.96	9,209.11

Source: National Statistics Office of Georgia.

The increase in income from international tourism is directly correlated with the increase in the income of the rural population. The degree of density events was determined by the correlation coefficient on a pairwise basis.

$$r_{x/y} = \frac{\overline{xy} - \bar{x}\bar{y}}{\sigma_x\sigma_y} = 0.888$$

The resulting value indicates a strong linkage between the events. Consequently, tourism income is closely linked to the average monthly income of the rural population. Since the linkage between events is dense, we can create a linear regression model.

$$y = a_0 + a_1x$$

wherefrom

$$a_0 = 299,38 \text{ and } a_1 = 0.01$$

The regression model will be as follows:

$$y = 299.38 + 0,01x$$

This model allows us to determine the forecast levels. The value of the average absolute increase in income from international tourism is GEL 1236.03.

$$\bar{\Delta} = \frac{x_n - x_1}{n-1} = 1236.03 \text{ million GEL}$$

Thus, by 2022, international tourism revenues should be set at an average of 12,917.2 million GEL. Accordingly, the income of the rural population will  $y = 428.5$  million GEL

The linear dynamic model allows us to determine the forecast value:

$$\hat{x}_t = a_0 + a_1t$$

$$\hat{x}_t = 6671,73 + 1309.8t$$

$$\hat{x}_{2022} = 6671.73 + 1309.8 * 5 = 13\,220.73 \text{ million GEL.}$$

According to the dynamic model, international tourism incomes in 2022 should be set at the level of 13,220.73 million GEL. And based on the regression model, the average monthly income of the rural population should be equal to 431.6 million GEL.

Based on the considered models, it can be concluded that an increase in income from tourism leads to an increase in the income of the rural population. The development of rural tourism has a positive effect not only on the income of the population, but also on infrastructure, transport provision, housing and utility, social conditions, etc.

The development of rural tourism in a number of cases is considered as an element of regional stimulation of the economic development of backward villages [10].

The regions of Georgia are characterized by a variety of different natural-climatic, cultural, recreational, gastronomic, ethnographic resources, which creates an interesting potential for the development of rural tourism. The regions of Georgia have the following potential and resources available for rural tourism:

- ✓ **Kakheti region** is distinguished by winemaking and viticulture, tourists may be interested in the grape harvest process, the traditional Georgian winemaking technology and the peculiarities of storing wine (in qvevri - a jug dug into the ground), in Kakheti tourists can try local dishes and hallmark confectionery - churchkhela. In addition, Kakheti is rich in historical and cultural monuments.
- ✓ **Svaneti region** is a quite rapidly developing region, natural conditions and historical values attract foreign and domestic tourists mainly in summer, although Svaneti is outstanding in winter, in particular Mestia has great potential for ski tourism.
- ✓ **Racha-Lechkhumi** is rich in unique natural and recreational resources, which allows the development of ecotourism and health and wellness tourism.
- ✓ **Mtskheta-Mtianeti** is distinguished by cultural, historical, religious monuments, which allows the development of pilgrimage tourism. This region includes the mountain resort of Kazbegi, which is in high demand among foreign tourists, both in winter and in summer.
- ✓ **Kartli region** is rich in farming enterprises - floriculture, horticulture and dairy production are developed.

- ✓ **Samtskhe-Javakheti region** is rich in cultural, historical and religious monuments. In addition, this region is famous for its balneological resort Borjomi and the mountain resorts of Tsemi, Tsaghveri, Bakuriani, which have an amazing climatic healing resource.
- ✓ **Adjara region** is mainly famous for its seaside resorts. However, in order to develop new tourist markets, especially to attract European tourists, it is very important to develop rural tourism and recreational capacity. The villages of Adjara are distinguished by interesting natural conditions, which allows the development of adventure ecotourism. A new direction is being developed - ski tourism, which is coupled with rural tourism and serves to strengthen the rural economy.
- ✓ **Guria region**, like Adjara, allows the development of both sea and mountain tourism. The resort of Bakhmaro, which is a mountain resort, is very attractive. And sea lovers are attracted by Ureki and Shekvetili resorts.
- ✓ **Samegrelo region** stands out with its ancient Kolkhian culture, Kolkheti National Park provides ample opportunity for the development of ecological tourism. In addition, adventure tourism is actively developing in the region.
- ✓ **Imereti region** is distinguished by mineral waters and balneological resorts; Imereti also has many historical and cultural monuments.

The possibilities for sustainable rural tourism development mainly depend on different factors. The survey research involved tourism experts have knowledge and experience relevant to rural tourism. 85 tourism experts were asked to identify and measure the factors providing sustainable development of rural tourism in Georgia. Likert scale of five forces was used where 1 means very bad condition, score 2 – bad condition, 3 – average condition, 4 – very well and 5 excellent.

**Table 2. The Factors Providing Sustainable Development of Rural Tourism in Georgia**

Factor	Description	M
<b>Natural</b>	Suitable climatic conditions, preserved nature and protected areas, diversity of flora and fauna, beauty of landscape, usage of rivers, lakes, mineral water	<b>4,2</b>
<b>Infrastructure</b>	Tourist and supplementary infrastructure, road and transport infrastructure, Informational-communication infrastructure, Communal Infrastructure	<b>2,7</b>
<b>Culture and Cultural heritage</b>	Hospitality of local people, cross-cultural and cultural environment, cultivating folk traditions, preservation of rural architecture, local museums, events and festivals	<b>3,8</b>
<b>Opportunity of sport and recreation</b>	Sport facilities, recreation and sport activities, events and festivals	<b>2,1</b>
<b>Gastronomy</b>	Local culinary products, authenticity of local cuisine	<b>4,3</b>
<b>Safety and security</b>	Safe facilities and feeling security in the rural areas	<b>2,9</b>

Source: Compiled by the author.

### Recommendations and Conclusions:

1. The development of rural tourism is directly related to employment, income growth, and an increase in the level and quality of life.
2. One of the main directions of rural development is rural tourism, which is a stimulant of local production.
3. Based on the correlative-regressive analysis, it can be concluded that tourism income is a factor contributing to an increase in the standard of living of the rural population.

4. Rural tourism, in turn, combines various types of tourism activities that require the arrangement and development of an appropriate tourism infrastructure, and also involves the acquisition of entrepreneurial and other business skills by the local population. In this regard the role of governmental and also donor international is huge to support small and medium business in rural areas.
5. Nowadays stable development of rural tourism depends on natural, culture and cultural heritage, gastronomy factors, that attract tourists in Georgia, but other factors, such as opportunity of sport and recreation and infrastructure including touristic and supplementary infrastructure, communal, road and transport infrastructure needs improvement.
6. Rural tourism is one of the important ways to improve the quality of life of the local population.

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**HAKAN KOSE<sup>1</sup> AND OZLEM YASAR UGURLU<sup>2</sup>**

## **THE EFFECT OF NATIONAL CULTURE ON NATIONAL INNOVATIVENESS**

### **Abstract**

The aim of this study is to find out how national cultural characteristics affect innovativeness at the national level, and based upon national culture-organizational culture relationship to make inferences about cultural factors support or hinder innovativeness at the organizational level. In this respect, in order to reveal the relationship between innovativeness and culture at the national level were referred to Hofstede's cultural dimensions and to Global Innovation Index (GII) reports. In this regard, multiple linear regression analyses were performed by determining the six cultural dimensions scores of each country as independent variables and the innovativeness scores of these countries as dependent variables. The number of countries consist the sample of our study varies between 73 and 78 depending on mutual available data of two data sets between 2011 and 2017. Findings of the analyses showed that cultural characteristics have a considerable impact on innovativeness. It was found that cultural characteristics of individualism, long-term orientation, and indulgence affect innovativeness positively while large power distance's effect on innovativeness is negative. However, no significant relationship was found between innovativeness and characteristics of masculine and uncertainty avoidant cultures.

**Keywords:** Innovation, innovativeness, national culture, organizational culture, Hofstede's cultural dimensions

**JEL Codes:** O30, O35, M10, M20

### **1. Introduction**

Many researchers who aware of the importance of innovation have been searching answers to the question of "How to be more innovative?" for years. There are lots of studies in literature that investigate the factors can be effective on innovativeness either positively or negatively at the individual, organizational, and national level. There are lots of arguments about what these factors are. For example, Dakhli and De Clercq (2004) examine the effects of social capital and human capital on innovation at the national level. Varsakelis (2006) investigates how the quality of political institutions and education affects national innovation activity. Steel et. al. (2012) have shown the relationships between personal characteristics and innovation at the individual level. Bayram (2013) investigates the effects of leadership behaviors on innovativeness at organization level. Akmaz et. al. (2016) examine the impacts of technological and social capability components on innovation capacity. On the other hand, Jaffe (1989), George et. al. (2002), Motohashi (2005), Hanel and St-Pierre (2006), and Marotta et. al. (2007) point out to the impact of university-industry collaborations on innovativeness.

Because of innovation is the result of human action and culture is one of the most important factors shaping people's behavior, we thought that cultural characteristics must be one of the factors that affects innovativeness. In this respect, we aimed to determine whether the cultural characteristics are effective on innovativeness or not, and if so, to determine the level and direction of these cultural characteristics' effects. If we can determine which cultural characteristics influence innovativeness in which direction, we can identify the cultural characteristics which hampering innovativeness both at the national level for countries and at the organizational level for corporates.

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## 2. Literature Review

### 2.1. Innovation Concept

One of earliest definition for innovation which is widely accepted in the literature is had been made by Schumpeter in 1911. He defined the innovation as “the introduction of new goods which are not yet known by the customers or a new feature of an existing product; the introduction of a new method of production, the opening of a new market; the conquest of new sources of supply for raw materials or other inputs; or the carrying out of a new organization” (Vardarlier and Cakir, 2015).

After the description of Schumpeter, other studies emerged that dealt in a different way with innovation concept in terms of components and content. In some definitions, innovation was only considered as creating new products, while in others it is defined as the whole process of creation, development, and implementation of new ideas. However, the common point mentioned in all definitions is to put a new idea into practice that generates economic benefits.

OECD and Eurostat (2005:47) classifies the innovation into four main types. These are product innovations, process innovations, marketing innovations, and organizational innovations. Product innovations can be in the form of a new product or service idea that has not previously been available on the market, but can also be achieved by upgrading and adding various features to an existing product. Process innovation is the implementation of a new or significantly improved production or delivery method. Any innovation that is made in production methods such as techniques, equipment, and software used to produce goods or services or any innovation that is made in delivery method which intended to decrease unit cost of production or delivery, to increase quality, or to produce new or significantly improved products involves process innovations. Marketing innovation can be explained as the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing. Organizational innovation is defined as the implementation of a new organizational method in the firm’s business practices, workplace organization or external relations OECD and Eurostat (2005:47).

### 2.2. Culture, National Culture and Organizational Culture Concepts

One of the oldest and widely accepted definitions of culture is made by E. B. Tylor in 1871 (Guney, 2000:152). In his book "Primitive Culture", Tylor suggested that human behavior and thought systems do not occur randomly and therefore culture can be examined scientifically. He defined culture as “a complex whole which includes knowledge, beliefs, arts, morals, law customs, and any other capabilities and habits acquired by a human as a member of society” (Icli, 2002:80).

When the literature is reviewed, we see that the concept of culture is defined in different ways according to certain perspectives, Sisman (2007:13-14) summarize them as following:

- Culture, from the mental point of view, is the whole of learned habits and thoughts that distinguish humans from animals.
- Culture, from structural perspective, is interrelated opinions, symbols, and behavior patterns.
- Culture, from functional point of view, is a way of solving the problems that people face in adapting to the environment they live in.
- Culture, from symbolic perspective, is system of shared meaningful symbols.
- Culture, from historical point of view, is tradition or social heritage passed down from generation to generation.
- Culture, from behavioral perspective, the sum of learned and shared human behaviors through life.

- Culture, from normative point of view, the whole of ideals, values, and rules about how people should act.

National culture can be expressed as the values developed, embraced, and shared by people living within a certain political border. In this regard, Robbins (1990) defines national culture as fundamental values and practices that characterize a country. Similarly, Hofstede (1981:24) describes culture as “the collective mental programming of the human mind that distinguishes the members of one human group from those of another”. In this sense we can say that national culture is a system of collectively shared values within a country that helps programming of people’s minds by shaping their attitudes, competencies, behaviors, and perceptions.

When the management and organization literature is reviewed, it is seen that the concept of organizational culture is not introduced suddenly in the literature. Although the concept of organizational culture has been widely used in the management science since the early 1980s, works carried out in the context of organizational culture is date back to 1930s.

Williams et. al. (1993) defined the organizational culture as “the commonly held and relatively stable beliefs, attitudes, and values that exist within the organization”. As reported by Scholz (1987:80) organizational culture is “the implicit, invisible, intrinsic, and informal consciousness of the organization which guides the behavior of the individuals and which shapes itself out of their behavior”. Pacanowsky and O'Donnell-Trujillo (1982) stated that “organizational culture is not just another piece of the puzzle, it is the puzzle. From their point of view, a culture is not something an organization has; a culture is something an organization is” (Brown, 1998:7).

In other respects, Schein (1984:3) defines organizational culture as “the pattern of basic assumptions that a given group has invented, discovered, or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”.

### **2.3. The Relationship Between Culture, National Culture and Organizational Culture**

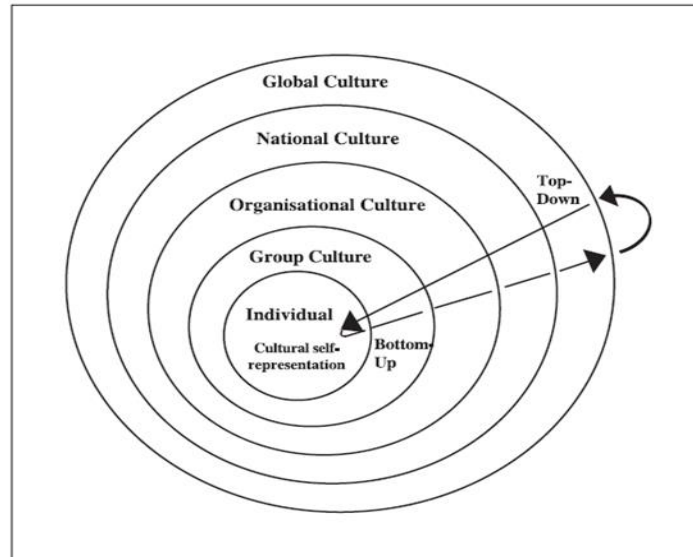
Organizations are structures and social facts that are created later by humans as an entity. Individuals who come together in an organization are primarily members of the national culture they live in. Therefore, when these individuals form an organization or become a member of an organization, they bring together with themselves the main characteristics and values of the culture they grow up in to the organization. Therefore, organizational culture is not a completely distinct culture from the culture of the society in which it is involved. Organizational culture is the sub-culture of national culture (Sisman, 2007:71-72), so the cultural characteristics of the organizations are in a sense a reflection of that community.

Different cultural characteristics of societies create differences in organizations such as expectations from institutions, the general operating system of institutions, the perception of management and manager concepts, etc. (Eginli and Cakir, 2011:40-41).

Based on the fact that the organizations are open systems and organizational culture is the sub-culture of the national culture, the relationship between national culture and organizational culture can be seen in figure 2.1.



**Figure 2.1. Multi-level Model of Culture (Erez and Gati, 2004:588)**



Source: Erez, M., and Gati, E. (2004). A dynamic, multi-level model of culture: from the micro level of the individual to the macro level of a global culture. *Applied Psychology*, 53(4):583-598.

In this sense, organizations are constantly in an interaction with their environment to be able to sustain their existence, and are affected by an upper system including them, or in other words, the culture of the country they are in: national culture. Organization, which is an open system, produces outputs for its environment by using the inputs provided by its environment. Inputs such as technology, knowledge, and workforce used within the organization carry the characteristics of the national culture in which they are involved (Caliskan, 2015:53).

Tayeb (2000:147-148) gives answer to the questions of “to what extent are the values, attitudes and patterns of behavior that managers and employees display in an organization rooted in their national cultural background?” as follows:

*“...Just as each individual member of a society shares some characteristics in common with others in the society, and yet retains unique personal traits, each individual organization has its own unique culture and 'personality', while at the same time it shares many characteristics in common with all other organizations in the country as a whole.”*

Lee and Barnett (1997) observed significant differences among organizational cultures of a Taiwanese-owned, a Japanese-owned, and an American-owned banks located in their respective countries, but found little difference between the Taiwanese-owned bank and an American-owned bank located in Taiwan. These findings highlight the powerful effect of national culture on values which are determine organizational cultural characteristics (House et al., 2004:78).

In their study, which consist of 51 international joint ventures implanted in Hungary, Meschi and Roger (1994) confirmed the strong influence of national culture on organizational culture by reporting a strong linear relationship ( $r = .71$ ) (House et al., 2004:78).

In a study of more than 800 participants from 10 countries, Van Oudenhoven (2001) found similarities between the concepts that individuals use to describe the organizations and their national culture. In their study which covers 24 countries, Schuler and Rogovsky (1998) findings showed that national cultural characteristics are highly influential on commonly accepted methods of human resources management practices across nations.

#### **2.4. Dimensions of Hofstede Cultural Model**

Hofstede (1980b) conducted a research between 1967 and 1973 with the participation of more than 116,000 IBM employees from 40 different countries through questionnaires prepared in 20 different languages in order to investigate the relationship between national culture and organizational culture.

Since factors such as the employee profile, organizational structure, rules and procedures of IBM almost same in every location, Hofstede concluded that any difference found between the different locations had to be resulted from the culture of the employees in a particular plant and by that, largely from the culture of the host country (Gillert, 2003:20).

Based on results of his study he determined four main criteria which he labeled as power distance, uncertainty avoidance, individualism-collectivism, and masculinity-femininity (Hofstede, 1980b:43). The results published in his book *Culture's Consequences* (Hofstede, 1980a).

Then, study has attracted attention of many researchers. Therefore, besides the extensive efforts of Professor Geert Hofstede, Gert Jan Hofstede and Michael Minkov, thanks to the contributions of many other scholars, replication studies, and collaborations of some other researchers, the research has been expanded to 76 countries and to six dimensions. These six dimensions are measured and described extensively and scored in the third edition of their book named "Cultures and Organizations: Software of the Mind" (Hofstede et. al., 2010). New findings obtained from the ongoing research after 2010 are continually updated at website: <https://www.hofstede-insights.com/product/compare-countries/>. It is now possible to access the data of 103 countries based on six dimensions. These dimensions are:

- Power distance,
- Individualism versus collectivism,
- Masculinity versus femininity,
- Uncertainty avoidance,
- Long-term versus short-term orientation,
- Indulgence versus restraint.

The definition of each dimension was made briefly and the reflections of these dimensions on the organizational culture were summarized in tables as follows.

Power distance dimension is defined as "the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally" (Hofstede et. al., 2010:61). The key differences of organizations between large and small power distance societies can be summarized as following.

**Table 2.1. Key Differences of Organizations Between Small- and Large-Power-Distance Societies**

<b>LARGE POWER DISTANCE</b>	<b>SMALL POWER DISTANCE</b>
Hierarchy in organizations reflects existential inequality between higher and lower levels.	Hierarchy in organizations means an inequality of roles, established for convenience.
Centralization is popular.	Decentralization is popular.
There are more supervisory personnel.	There are fewer supervisory personnel.
There is a wide salary range between the top and the bottom of the organization.	There is a narrow salary range between the top and the bottom of the organization.
Managers rely on superiors and on formal rules.	Managers rely on their own experience and on subordinates.
Subordinates expect to be told what to do.	Subordinates expect to be consulted.
The ideal boss is a benevolent autocrat, or “good father.”	The ideal boss is a resourceful democrat.
Subordinate-superior relations are emotional.	Subordinate-superior relations are pragmatic.
Privileges and status symbols are normal and popular.	Privileges and status symbols are frowned upon.
White-collar jobs are valued more than blue-collar jobs.	Manual work has the same status as office work.

Source: Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and Organizations: Software for the Mind*, (Third Edition). McGraw-Hill.

Another dimension that enables us to compare national cultural differences between countries is the dimension of individualism versus collectivism. Hofstede et. al. (2010:92) define the dimension as follows: “Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after him- or herself and his or her immediate family. Collectivism, as it’s opposite, pertains to societies in which people from birth onward are integrated into strong, cohesive in-groups, which throughout people’s lifetime continue to protect them in exchange for unquestioning loyalty”.

**Table 2.2. Key Differences of Organizations Between Collectivist and Individualist Societies**

<b>COLLECTIVIST</b>	<b>INDIVIDUALIST</b>
Employees are members of in-groups who will pursue the in-group's interest.	Employees are "economic persons" who will pursue the employer's interest if it coincides with their self-interest.
Hiring and promotion decisions take employee's in-group into account.	Hiring and promotion decisions are supposed to be based on skills and rules only.
The employer-employee relationship is basically moral, like a family link.	The employer-employee relationship is a contract between parties in a labor market.
Management is management of groups.	Management is management of individuals.
Direct appraisal of subordinates spoils harmony.	Management training teaches the honest sharing of feelings.
In-group customers get better treatment (particularism).	Every customer should get the same treatment (universalism).
Relationship prevails over task.	Task prevails over relationship.
The Internet and e-mail are less attractive and less frequently used.	The Internet and e-mail hold strong appeal and are frequently used to link individuals.

Source: Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and Organizations: Software for the Mind*, (Third Edition). McGraw-Hill.

Another dimension that enables us to compare national cultural differences between countries is the dimension of masculinity versus femininity. Hofstede et. al. (2010:140) describe the masculine and feminine societies as follows: "A society is called masculine when emotional gender roles are clearly distinct: men are supposed to be assertive, tough, and focused on material success, whereas women are supposed to be more modest, tender, and concerned with the quality of life. A society is called feminine when emotional gender roles overlap: both men and women are supposed to be modest, tender, and concerned with the quality of life".

**Table 2.3. Key Differences of Organizations Between Feminine and Masculine Societies**

<b>FEMININE</b>	<b>MASCULINE</b>
Management as ménage: intuition and consensus	Management as manège: decisive and aggressive
Resolution of conflicts by compromise and negotiation	Resolution of conflicts by letting the strongest win
Rewards are based on equality.	Rewards are based on equity.
Preference for smaller organizations	Preference for larger organizations
People work in order to live.	People live in order to work.
More leisure time is preferred over more money.	More money is preferred over more leisure time.
Careers are optional for both genders.	Careers are compulsory for men, optional for women.
There is a higher share of working women in professional jobs.	There is a lower share of working women in professional jobs.
Humanization of work by contact and cooperation	Humanization of work by job content enrichment
Competitive agriculture and service industries	Competitive manufacturing and bulk chemistry

Source: Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and Organizations: Software for the Mind*, (Third Edition). McGraw-Hill.

Another dimension that enables us to compare national cultural differences between countries is the dimension uncertainty avoidance. Hofstede et. al. (2010:191) define the dimension of uncertainty avoidance as “the extent to which the members of a culture feel threatened by ambiguous or unknown situations”.

**Table 2.4. Key Differences of Organizations Between Weak and Strong Uncertainty-Avoidance Societies**

<b>WEAK UNCERTAINTY AVOIDANCE</b>	<b>STRONG UNCERTAINTY AVOIDANCE</b>
More changes of employer, shorter service	Fewer changes of employer, longer service, more difficult work-life balance
There should be no more rules than strictly necessary.	There is an emotional need for rules, even if they will not work.
Work hard only when needed.	There is an emotional need to be busy and an inner urge to work hard.
Time is a framework for orientation.	Time is money.
Tolerance for ambiguity and chaos	Need for precision and formalization
Belief in generalists and common sense	Belief in experts and technical solutions
Top managers are concerned with strategy.	Top managers are concerned with daily operations.
More new trademarks	Fewer new trademarks
Focus on decision process	Focus on decision content
Intrapreneurs are relatively free from rules.	Intrapreneurs are constrained by existing rules.
There are fewer self-employed people.	There are more self-employed people.
Better at invention, worse at implementation	Worse at invention, better at implementation
Motivation by achievement and esteem or belonging	Motivation by security and esteem or belonging

Source: Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and Organizations: Software for the Mind*, (Third Edition). McGraw-Hill.

Another dimension that enables us to compare national cultural differences between countries is the dimension of the short versus long term orientation. The degree of long-term orientation demonstrates the extent to which a society exhibits a pragmatic future-oriented perspective rather than a conventional, historic short-time point of view (Reimann et al., 2008:64). In other word long-term vs. short-term orientation indicates the choice of focus for people’s efforts: the present or the future (Ayoun and Moreo, 2008:66). It relates to the degree to which people in a society gives importance and focus on the achievements in long-term, in spite of short-term achievements.

**Table 2.5. Key Differences of Organizations Between Short- and Long-Term Orientation Societies**

SHORT-TERM ORIENTATION	LONG-TERM ORIENTATION
Main work values include freedom, rights, achievement, and thinking for oneself.	Main work values include learning, honesty, accountability, and self-discipline.
Leisure time is important.	Leisure time is not important.
Focus is on the “bottom line.”	Focus is on market position.
Importance of this year’s profits	Importance of profits ten years from now
Managers and workers are psychologically in two camps.	Owner-managers and workers share the same aspirations.
Meritocracy, reward by abilities	Wide social and economic differences are undesirable.

Source: Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and Organizations: Software for the Mind*, (Third Edition). McGraw-Hill.

The dimension of Indulgence vs. Restraint defined as following “Indulgence stands for a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun. Its opposite pole, restraint, reflects a conviction that such gratification needs to be curbed and regulated by strict social norms” (Hofstede et al., 2010:280-281).

**Table 2.6. Key Differences Between Indulgent and Restrained Societies**

INDULGENT	RESTRAINED
Higher percentages of very happy people	Lower percentages of very happy people
A perception of personal life control	A perception of helplessness: what happens to me is not my own doing.
Higher importance of leisure	Lower importance of leisure
Higher importance of having friends	Lower importance of having friends
Thrift is not very important.	Thrift is important.
Loose society	Tight society
More likely to remember positive emotions	Less likely to remember positive emotions
Less moral discipline	Moral discipline
Positive attitude	Cynicism
More extroverted personalities	More neurotic personalities
Higher percentages of people who feel healthy	Lower percentages of people who feel healthy
Higher optimism	More pessimism

Source: Hofstede, G., Hofstede, G. J., and Minkov, M. (2010). *Cultures and Organizations: Software for the Mind*, (Third Edition). McGraw-Hill.

### 3. Material and Method

#### 3.1. Research Design and Sample

When an overall evaluation is made in terms of the number of countries covered, the number of cultural dimensions included, the number of indicators used to capture innovativeness, and the length of time period investigated, our study is the most comprehensive one among others, which investigates the relationship between innovativeness and national culture based on Hofstede’s cultural classification,

with 78 countries, 6 cultural dimension, 27 indicators to capture innovativeness and 7 years of time period.

The main reason for the examination of the relationship between innovation and culture at the national level is that we think that the best way to discover the relationship between culture and innovation is to examine this relationship at the national level. Then, based on national culture - organizational culture relationship, making inferences and give suggestions also for organizational culture characteristics which can contribute to innovativeness. Additionally, it is impossible for us to conduct a research based on primary sources in terms of possibilities, resources, and time. We had to make use of secondary sources and all available sources, which make it possible for us to investigate the relationship between culture and innovativeness is at the national level. However, in an analysis of organizational culture (micro culture) analyzing national culture (macro culture) is inevitable because there is a strong relationship between organizational culture and national culture. Organizational culture, which is subculture of national culture, is influenced significantly by society's norms, values, and behavior patterns. The value system that constitutes the cultural structures of organizations is greatly influenced by the culture of society. Therefore, one aspect of cultural analysis is the macro-micro culture relationship analysis.

Two different sets of data were used to achieve the specified research purpose. These data sets are widely accepted in the literature with proven reliability and validity. One of them provides the measurement of cultural characteristics at the national level and the other one provides the measurement of the innovation performance of the countries.

Data set, which provides measurement of national cultural characteristics based on 6 cultural dimensions of 78 countries was obtained from the <https://www.hofstede-insights.com/product/compare-countries/> website. On this web site the most up-to-date results of the on-going work of Hofstede and his colleagues are published regularly. Mentioned 6 dimensions are power distance (PDI), individualism versus collectivism (IDV), masculinity versus femininity (MAS), uncertainty avoidance (UAI), long-term orientation versus short-term orientation (LTO), and indulgence versus restraint (IND) which are consist the independent variables of our model. For detailed information about Hofstede's study and mentioned dimensions please refer to previous chapter of the study. For technical information about methodology of this measurement please refer to the Value Survey Module 2013 Manual (Hofstede and Minkov, 2013).

On the other hand, data set which provides levels of innovativeness of countries obtained from the annual Global Innovation Index (GII) reports (<https://www.globalinnovationindex.org/>). The reason why these reports were taken as the basis for the measurement of innovation levels of countries is that these reports are contain indicators which can most accurately capture the level of innovation of countries presently. The study is one of the most comprehensive studies in terms of both the number of innovation indicators included to capture innovativeness level of countries and the number of countries covered. Additionally, indices published by the Global Innovation Index are conceptually and statistically analyzed and approved by the European Commission Joint Research Center (JRC).

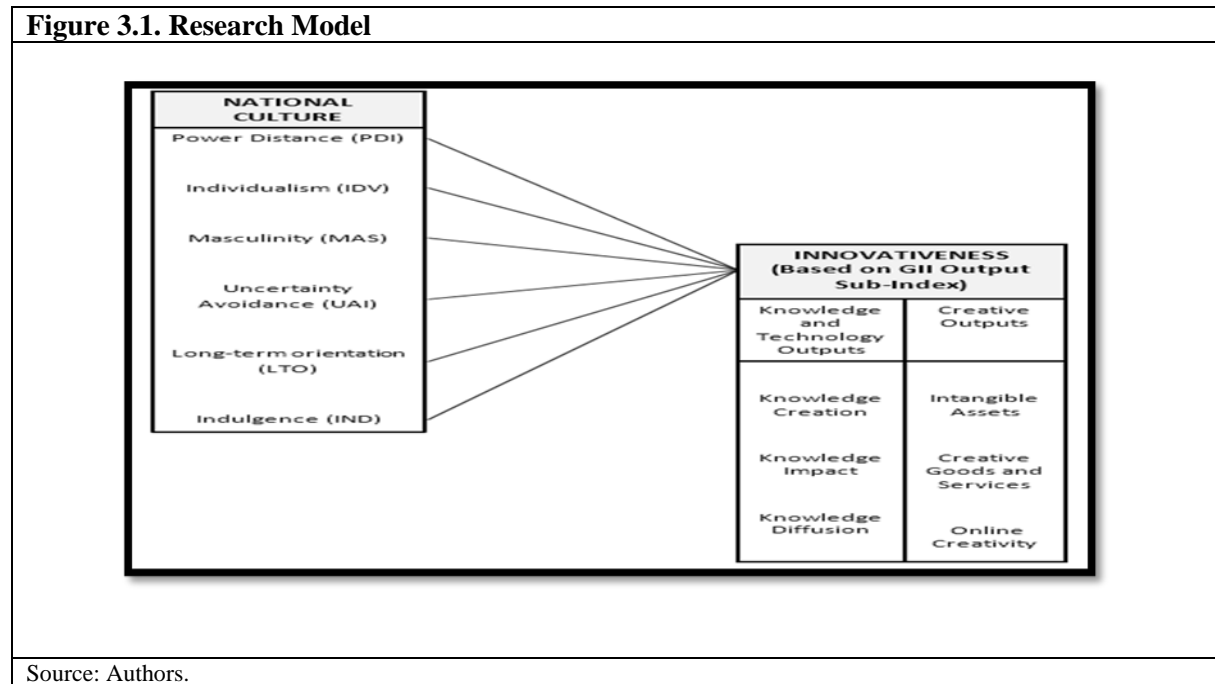
GII relies on two sub-indices: the innovation input sub-index and the innovation output sub-Index. The innovation output sub-index consists of two pillars which are capture the results of innovative activities within the economy. Since our aim is to find out which cultural characteristics influence in which direction the innovativeness, we only used the output sub-index of GII in our analysis in accordance with the purpose of our study. Output sub-index of GII consists of dependent variable in our model.

Innovation output sub-index is consisting of two outputs. These are knowledge and technology outputs, and creative outputs. Knowledge and technology outputs cover all those variables that are traditionally

thought to be the products of innovations. On the other hand, creative outputs cover the intangible assets, creative goods and services, and online creativity.

### 3.2. Hypothesis of the Study

Based on theoretical background expressed in the literature review and the past studies on the subject, research model of the study created as presented in Figure 3.1.



According to the model, independent variables are consisting of national cultural dimensions: power distance (PDI), individualism (IDV), masculinity (MAS), uncertainty avoidance (UAI), long-term orientation (LTO), and indulgence (IND). On the other side level of innovativeness of countries which is measured by GII output sub-index that includes knowledge and technology outputs and creative outputs consist the dependent variable of our model

Based on the developed model and theoretical background stated in literature review following hypotheses were developed:

- H1: Large power distance affects innovativeness negatively.
- H2: Individualism affects innovativeness positively.
- H3: Masculinity has no effect on innovativeness.
- H4: Strong uncertainty avoidance affects innovativeness negatively.
- H5: Long-term orientation affects innovativeness positively.
- H6: Indulgence affects innovativeness positively.

In order to investigate causality between dependent and independent variables in accordance with the hypotheses determined, multiple linear regression analyzes were performed separately for each year between 2011 and 2017.



## 4. Findings and Discussion

### 4.1. Findings

Findings of multiple linear regression analyses carried out for each year between 2011 and 2017 are presented in table 4.1. As can be seen multiple regression models conducted for each year with six predictors produced F values in the range of [20.596; 31.558] and for all p values at  $\alpha = .05$  significance level;  $p < \alpha$  indicating that all 7 models are meaningful. The  $R^2$  values of the regression models are in range of [.652; .730] indicating that the cultural characteristics (PDI, IDV, MAS UAI, LTO IND) are able to account for 65-73% of the variance in innovation scores between 2011-2017.

**Table 4.1. Regression Analysis Findings (A)**

Multiple Linear Regression Analysis Findings of the year 2017		Dependent Variable: Innovativeness (N = 74)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value	
PDI	-.191	.062	-1.908	.061	
IDV	.336	.054	3.445	.001	
MAS	.112	.046	-1.608	.113	
UAI	-.125	.040	-1.807	.075	
LTO	.561	.043	7.203	.000	
IND	.246	.046	3.029	.003	
Regression Model	R = .835 $R^2 = .697$ Adj. $R^2 = .670$ F=25,677    p= .000				
Multiple Linear Regression Analysis Findings of the year 2016		Dependent Variable: Innovativeness (N = 75)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value	
PDI	-.207	.062	-2.086	.041	
IDV	.372	.055	3.808	.000	
MAS	-.105	.045	-1.553	.125	
UAI	-.115	.039	-1.730	.088	
LTO	.515	.042	6.788	.000	
IND	.235	.044	3.056	.003	
Regression Model	R = .846 $R^2 = .715$ Adj. $R^2 = .690$ F=28.502    p= .000				

Source: Authors.

**Table 4.1. Regression Analysis Findings (B)**

Multiple Linear Regression Analysis Findings of the year 2015	Dependent Variable: Innovativeness (N = 77)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.230	.055	-2.456	.017
IDV	.338	.048	3.651	.001
MAS	-.119	.040	-1.832	.071
UAI	-.114	.036	-1.772	.081
LTO	.544	.039	7.239	.000
IND	.271	.039	3.604	.001
Regression Model	R = .852    R <sup>2</sup> = .725    Adj. R <sup>2</sup> = .702    F=30.802    p= .000			
Multiple Linear Regression Analysis Findings of the year 2014	Dependent Variable: Innovativeness (N = 77)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.193	.050	-2.082	.041
IDV	.393	.044	4.281	.000
MAS	-.106	.036	-1.646	.104
UAI	-.088	.033	-1.378	.173
LTO	.533	.035	7.154	.000
IND	.265	.035	3.563	.001
Regression Model	R = .854    R <sup>2</sup> = .730    Adj. R <sup>2</sup> = .707    F=31.558    p= .000			
Multiple Linear Regression Analysis Findings of the year 2013	Dependent Variable: Innovativeness (N = 78)			
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.197	.049	-2.029	.046
IDV	.392	.044	4.047	.000
MAS	-.061	.036	-.903	.370
UAI	-.081	.032	-1.215	.229
LTO	.507	.035	6.415	.000
IND	.286	.035	3.649	.000
Regression Model	R = .836    R <sup>2</sup> = .699    Adj. R <sup>2</sup> = .673    F=27.432    p= .000			

Source: Authors.

**Table 4.1. Regression Analysis Findings (C)**

Multiple Linear Regression Analysis Findings of the year 2012				
Dependent Variable: Innovativeness (N = 77)				
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.222	.054	-2.391	.019
IDV	.351	.048	3.813	.000
MAS	-.142	.039	-2.212	.030
UAI	-.108	.035	-1.697	.094
LTO	.546	.038	7330	.000
IND	.237	.038	3.185	.002
Regression Model	R = .854   R <sup>2</sup> = .730   Adj. R <sup>2</sup> = .706   F=31.489   p= .000			
Multiple Linear Regression Analysis Findings of the year 2011				
Dependent Variable: Innovativeness (N = 73)				
Independent Variables	Standardized Beta Coefficient	Std. Error	t value	p value
PDI	-.230	.053	-2.106	.039
IDV	.283	.046	2.677	.009
MAS	-.109	.039	-1.428	.158
UAI	-.196	.035	-2.616	.011
LTO	.490	.037	5.775	.000
IND	.249	.039	2.838	.006
Regression Model	R = .807   R <sup>2</sup> = .652   Adj. R <sup>2</sup> = .620   F=20.596   p= .000			

Source: Authors.

Hypothesis H1 states that large power distance affects innovativeness negatively. Table 4.1 shows that the values of PDI beta coefficients for analyzed years are in range of [-.191; -.230] and all p values for each year (except the findings of 2017) at  $\alpha = .05$  significance level;  $p < \alpha$ . For 2017  $p = .061$ , so hypothesis H1 is supported.

Hypothesis H2 states that individualism affects innovativeness positively. Table 4.1 shows that the values of IDV beta coefficients for analyzed years are in range of [.283; .393] and all p values for each year at  $\alpha = .05$  significance level;  $p < \alpha$ . So, hypothesis H2 is supported.

Hypothesis H3 states that masculinity has no effect on innovativeness. Table 4.1 shows that the values of MAS beta coefficients between 2011 and 2017 are [-.112, -.105, -.119, -.106, -.061, -.142, -.109]. Even though beta coefficients indicates that masculinity has a negative effect on innovativeness, this effect is such a low level that it is not worth to consider. Additionally, since all p values for each year (except the findings of 2012) at  $\alpha = .05$  significance level  $p > \alpha$ , hypothesis H3 is supported.

Hypothesis H4 states that strong uncertainty avoidance affects innovativeness negatively. Table 4.1 shows that the values of UAI beta coefficients between 2011 and 2017 are [-.125, -.115, -.114, -.088, -.081, -.108, -.196,] but all p values for each year (except the findings of 2011) at  $\alpha = 0.05$  significance level  $p > \alpha$ , so hypothesis H4 is rejected.

Hypothesis H5 states that long-term orientation affects innovativeness positively. Table 4.1 shows that the values of LTO beta coefficients for analyzed years are in range of [.490; .561] and all p values for each year at  $\alpha = .05$  significance level;  $p < \alpha$ , so hypothesis H5 is supported.

Hypothesis H6 states that indulgence affects innovativeness positively. Table 4.1 shows that the values of IND beta coefficients for analyzed years are in range of [.235; .286] and all p values for each year at  $\alpha = .05$  significance level;  $p < \alpha$ , so hypothesis H6 is supported. Table 4.2 demonstrates the hypothesis test results.

<b>Table 4.2. Hypothesis Test Results</b>	
Hypothesis	Result
H1: Large power distance affects innovativeness negatively.	Supported
H2: Individualism affects innovativeness positively.	Supported
H3: Masculinity has no effect on innovativeness.	Supported
H4: Strong uncertainty avoidance affects innovativeness negatively.	Rejected
H5: Long-term orientation affects innovativeness positively.	Supported
H6: Indulgence affects innovativeness positively.	Supported

Source: Authors.

**4.2. Discussion**

As a result, findings of the analyses, which consist of samples varies from 73 to 78 countries between 2011 and 2017 showed that the cultural characteristics have a strong influence on innovativeness. It is found that individualism, long-term orientation, and indulgence affects innovativeness positively while large power distance’s effect on innovativeness is negative. However, no meaningful relationship found between innovativeness and characteristics of masculine and high uncertainty-avoidance cultures.

Hypothesis H1 states that large power distance affects innovativeness negatively and findings of analyses supported this statement.

Characteristics of power distance societies such as formal rules and procedures, centralized power, presence of social hierarchy, formal vertical communication flows, and control from up to down are not expected to be associated with suitable environment in which innovation activities are maintenance successfully. Quite the contrary, success is expected to be associated with those characteristics defining limited emphasis on rules and procedures to control operations, less formal hierarchy of authority and control, exchange of information in both vertical and horizontal directions, greater decentralization of knowledge and responsibility. Characteristics large power distance such as excessive rules, rigid

stratification, top down control, and central power is generally believed to hinder innovation. Hierarchy constrains information sharing. However, innovation significantly depends on the spread of information. For cultures that exhibit lower power distances, communication across hierarchical or functional boundaries is more common and this makes possible to bring different perspectives, creative ideas, and thinking together which can lead to unusual combinations and even radical breakthroughs. Additionally, it is claimed that bureaucracy reduces creativity because with strict control and detailed instructions people become passive and this eliminates creative thinking (Shane, 1992, 1993; Herbig and Dunphy, 1998; Jones and Davis, 2000; Van Everdingen and Waarts, 2003; Kaasa and Vadi, 2010; Williams and McGuire, 2010).

When previous studies are investigated (Shane, 1992, 1993; Rhyne et al., 2002; Van Everdingen and Waarts, 2003; Kaasa and Vadi, 2010; Halkos and Tzeremes, 2013; Celikkol, 2015) all investigated studies' findings showed that power distance affects innovativeness negatively same as our findings. Only Vecchi and Brennan (2009) found a positive relationship and Lin (2009) and Efrat (2014) found no significant relationship between large power distance and innovativeness.

Hypothesis H2 states that individualism affects innovativeness positively and findings of analyses supported this statement.

Values that are dominant in individualist cultures such as independence, freedom, and autonomy are thought to contribute to innovative efforts. On the contrary, restricted personal autonomy and freedom characteristics in collectivist societies are to the detriment of innovation because initiating of innovation is usually seen as the act of individual. Although the support of the group has great importance at next steps, the idea of innovation first emerges in the head of individual. While individual initiatives are encouraged and rewarded in individualistic societies, in collectivist societies taken initiatives and efforts are group dependent and personal contribution rather belongs to group. Hence, individuals have more reasons to innovate in individualistic societies (Shane, 1992, 1993; Herbig and Dunphy, 1998; Jones and Davis, 2000; Waarts, 2003; Kaasa and Vadi, 2010; Van Everdingen and Williams and McGuire, 2010).

Findings of Shane (1992, 1993), Rossberger and Krause (2012), Efrat (2014) showed that individualism affects innovativeness positively. Vecchi and Brennan (2009) found that individualism affects innovativeness negatively while Celikkol (2015), Lin (2009), and Van Everdingen and Waarts (2003) found no meaningful relationship between individualism and innovativeness.

Hypothesis H3 states that masculinity has no effect on innovativeness and findings of analyses supported this statement.

When the previous studies investigated it is seen that usually no meaningful relationship was found between masculinity and innovativeness. While some characteristics of masculine cultures thought to be contribute to innovativeness, some of feminine cultural characteristics are also thought to be contributing to innovativeness. For example, according to Jones and Davis (2000) cultural characteristics of masculine cultures are more associated with innovation in regard to feminine cultures. They state that values pertain to masculinity such as success, achievement, competition, ambition, reward, acceptance of conflicts are usually associated with innovation. On the contrary Kaasa and Vadi (2010) states that values pertain to femininity such as giving emphasis on relationships, low conflict, group integration, warm environment, and trust are more supportive for innovation activities.

Studies of Shane (1993), Vecchi and Brennan (2009), and Celikkol (2015) found no meaningful relationship between masculinity and innovativeness. On the other hand, Van Everdingen and Waarts (2003) found a negative relationship.

Hypothesis H4 states that strong uncertainty avoidance affects innovativeness negatively. It is thought that there will be resistance to innovation in society where there is strong uncertainty avoidance when it is thought that innovations bring about changes and changes bring about uncertainty. To avoid uncertainty, these cultures adopt rules to minimize ambiguity. Rules and reliance on them, in turn, constrain the opportunities to develop new solutions (Kaasa and Vadi, 2010). But surprisingly, the results of our analyses showed that there is no meaningful relationship between uncertainty avoidance and innovativeness.

Studies of Vecchi and Brennan (2009) and Celikkol (2015) also found no meaningful relationship between uncertainty avoidance and innovation but the most of the studies investigated found negative relationship between uncertainty avoidance and innovation (Shane, 1993; Rhyne et. al., 2002; Van Everdingen and Waarts, 2003; Kaasa and Vadi, 2010; Rossberger and Krause, 2012; Halkos and Tzeremes, 2013).

Hypothesis H5 states that long-term orientation affects innovativeness positively and findings of analyses supported this statement.

The degree of long-term orientation demonstrates the extent to which a society exhibits a pragmatic future-oriented perspective rather than a conventional, historic short-time point of view (Reimann et al., 2008:64). In other word long-term vs short-term orientation indicates the choice of focus for people's efforts: the present or the future (Ayoun and Moreo, 2008:66). It relates to the degree to which people in a society gives importance and focus on the achievements in long-term, in spite of short-term achievements. One of the most emphasized personal characteristics in long-term oriented societies is persistence.

On the other hand, we know that innovation does not occur with the development of just a single idea. It does not provide success for once. Innovation is a cycle process with a more systematic approach consists of specific steps. The continuity of innovation activities in a sustainable way is important for successful results. (Hargadon and Sutton, 2000). Therefore, characteristics of long-term orientation societies thought to be more supportive for innovation activities.

When previous studies are investigated, it was found that there was not much analysis on the relation of this fifth dimension that Hofstede later added to his model and innovativeness. All encountered studies' findings (Van Everdingen and Waarts, 2003; Lin, 2009; Celikkol, 2015) showed that long-term orientation is affects innovativeness positively in line with our findings.

Hypothesis H6 states that indulgence affects innovativeness positively. We thought that the characteristics of indulgence cultures such as positive attitude, higher optimism, more extroverted personalities, and a perception of personal life control are more supportive for innovation activities. The findings of our analyses also supported this expectation. Results showed that after long-term orientation dimension, indulgence dimension is the second the most contributor characteristic to innovation performance in our regression models.

The sixth cultural dimension indulgence versus restraint is the latest dimension added to Hofstede's model. Except for Celikkol (2015) no study has been found to examine the relationship between this new dimension and innovation. However, Celikkol (2015) found no meaningful relationship between indulgence and innovation.

## 5. Conclusion and Suggestion

Some cultural characteristics of a society may incompatible with some new necessities of modern life. Like all social phenomena, culture is not static and it is in constant change. The cultural components that are incompatible with modern life will not be transferred to future generations and will disappear from social life over time.

We have determined which cultural characteristics influence innovation performance in which direction and examined the reflection of these cultural characteristics on organizational culture. Results showed that cultural characteristics such as large power distance, collectivism, short-term orientation, and restraint affect innovativeness negatively; on the contrary, cultural characteristics such as small power distance, individualism, long-term orientation, and indulgence affect innovativeness positively.

If countries wish to increase their rates of innovation, public policies that increase the amount of money spent on research and development or industrial infrastructure may not be enough. Countries also may have to change the attitudes of their citizens. Societies in which people do not have values associated with high national rates of innovation may spend money on research and development and industrial infrastructure, but still fail to achieve the desired results in terms of rates of innovation because of the beliefs of their citizens (Shane, 1993:67).

If the influence of cultural features that affect innovativeness negatively is reduced, and cultural features that affect innovativeness positively is supported, can be more innovative at the national level. Because of the greatest share of innovations made at the national level consists of innovations made at the organizational level, reducing the effects of national cultural characteristics which affect innovativeness negatively on organizational culture of companies will bring out more innovative companies, consequently, more innovative countries. More innovative commercial enterprises mean production of higher value-added products. Production of higher value-added products means increase in welfare at the national level and to gain sustainable competitive advantage at the organizational level.

Therefore, we suggest to senior officials who develop strategies, make policies, programs, and plans in both private and public sectors at national, regional, or organizational levels and to who execute international companies to take the effects of cultural characteristics into consideration.

We suggest people who are in decision making mechanism of companies to create an organizational culture in which the influence of cultural characteristics that affect innovativeness negatively is reduced to minimum, and in which the influence of cultural characteristics that affect innovativeness positively is supported for more innovative companies.

At this point, our mind may come up with the following questions. In addition to the difficulty of changing some of the existing cultural characteristics that affect innovation negatively in organizational culture, is it right to try to create an organizational culture that contradict with the national culture? How the organizational culture, as a subculture of national culture, can have characteristics that contradict with the national culture which is an upper culture?

Although ever-changing conditions force managers to change in their management philosophy, it is true that change cannot be realized easily due to social tendencies. But Peter Drucker states that in order for an enterprise to contribute to society, its culture should go beyond of the culture of the society and companies cannot put themselves under the command of society. Rapid alignment with new values can only be achieved by overcoming cultural barriers (Erdem, 1996:147).

Finally, our last suggestion is for researchers. Because of Hofstede's cultural dimension scores measured values at one point in time, and his study did not show differences in rankings of cultures across time, our suggestion for researchers is to examine culture and rates of innovation dynamically by looking at the relationship between changes in cultural values and changes in rates of innovation in further studies. This would tell if countries can increase their rates of innovation by changing their values.

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**BADRI GECHBAIA<sup>1</sup> AND LEVAN GVARISHVILI<sup>2</sup>**

**MODERN TRENDS OF REGIONAL DEVELOPMENT OF GEORGIA AND COMPETITIVENESS OF REGIONS**

**Abstract**

The main vector of ensuring a high level and quality of life of the population is the raising of the country's competitiveness, which includes the determination of competitive advantages of individual products and regions, their rational realization. One of the directions of the mentioned task is the analysis of the main indicators of the development of the regions, the determination of the main development trends. In addition, the methods of calculating the main indicators of socio-economic development of the regions have not been established, and the existing statistical data cannot always reflect the existing reality.

In order to discuss some trends in regional development, our article presents an analysis of indicators such as gross regional product, average monthly wages, economically active areas, the structure of economic activity density in economically active areas. The analysis of the mentioned indicators shows that there are significant disproportions in the socio-economic development of the regions.

In the process of solving the tasks of prospective development of Georgian regions and equalization of their levels, the problem of optimal location of industrial enterprises should occupy an important place. We have in mind justification of rational specialization of regions, structural transformations, development of interregional relations, study of domestic and world market conditions, etc. When analyzing this direction, it is interesting to get acquainted with the main indicators of the industry according to the regions of Georgia, which we will discuss in detail in the article. The paper also properly calculates the indices of the economic utilization of the development features of the regions.

In conclusion, based on the current state of socio-economic development of the regions of Georgia analyzed by us above, regional asymmetry can be recognized as a factor negatively affecting the economic, social and political security of the country. Thus, the leveling of disproportions between the levels of development of regions, the representation of regional diversity as one of the factors of development should be defined as an important direction of regional policy in order to ensure the balanced economic and social development of territorial units.

**Keywords:** Georgia, socio-economic, regional

**JEL Codes:** R10, R13

**1. Introduction**

The recent development of economic science promoted the incentive for the thorough research and study of spatial aspects of social reproduction. In current conditions, economic science is very rich in existing theories and concepts regarding the functioning of regional markets. The development of theories was attained by the formation of different schools and trends.

In the process of developing and implementing an effective regional economic strategy of the country, considering the peculiarities of the regional potential based on natural resources is an undoubted priority,

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since the degree of its influence on the distribution of productive forces by territory is of a solid nature. In particular, the quantity, quality, and combination of resources determine the natural resource potential of the territory (region), which in turn is a defining factor in the distribution of population and economic activity. Utilization of rich sources of natural resources contributes to the formation of large industrial centers, the establishment of economic complexes, and economic districts. The natural resource potential of the regions has a significant impact on their market specialization and competitiveness. In addition, the nature of extraction and use of natural resources affects the rates of regional development, since economic indicators differ significantly by regions.

The primary vector of ensuring a high level and quality of life for the population is the increase of the country's competitiveness including the determination of competitive advantages of individual products and regions, and their rational realization. One of the directions of the indicated task is the analysis of the basic indicators of the regional development, the determination of the main development trends. In addition, the methods of calculating the basic indicators of socio-economic development of the regions have not been established, and the existing statistical data cannot always reflect the existing reality.

In order to discuss some regional development trends, our article provides the analysis of indicators such as gross regional product, average monthly payments, economically active areas, structure of economic activity in economically active areas. The analysis of the mentioned indicators reveals that there are significant disproportions in the socio-economic development of the regions.

### **Revision of Literature**

In the conditions of globalization, regional development is considered to be one of the primary problems of the economy, which is especially relevant in developing countries. The principal means for the problem solution is the regional development.

To achieve the goal and to evaluate the policies of Georgia and developed countries, the article provides discussion based on the articles and works of the prominent scientists and researchers.

In the research process, we studied the article by Roberta Capello, Andrea Caragliu, and Ugo Fratesi "Modeling Regional Growth between Competitiveness and Austerity Measures: The MASST3 Model", providing details on the issues of ensuring an effective regional development policy. They contain novelties covering two basic supranational regulations by which the European Union connects the decision-making process to the national economy. These are, on the one hand, public budget restrictions and austerity measures, and on the other hand, strict measures increasing competitiveness. Professor Giorgi Abuselidze, in his article "Competitiveness Analysis of the Georgian Transport and Logistics System in the Black Sea Region: Challenges and Perspectives" considers the transit potential as one of the important actors of regional development.

### **Methodology**

- Collecting and comparative methods are applied to determine the data accuracy;
- Via statistical methods, the indicators of the economic development of the regions are calculated, and the characteristic trends are determined;
- To determine regularities between analytical and statistical assessments, publications of the National Statistical Service of Georgia were applied, and statistical data were studied;
- Quantitative and qualitative research was conducted to determine quantitative and qualitative indicators;
- Quantitative (questionnaire survey) and qualitative research (semi-structured in-depth interviews and focus group meetings) were conducted.

## Results

In the process of trying to find the ways of prospective development of Georgian regions and equalization of their levels, the problem of optimal location of industrial enterprises should occupy an important place. We take into consideration the justification of rational specialization of regions, structural transformations, development of interregional relations, and the study of domestic and world market conditions, among others. When analyzing this direction, it is interesting to acquire knowledge of the basic indicators of the industry according to the regions of Georgia, which are discussed in detail. In the article, the indices of economic utilization of the features of the regional development are also properly calculated.

During the analysis of the methodological approach to the assessment of regional competitiveness, the following factors are distinguished: the formation of a system of various indicators reflecting the competitive advantages of the region in every way and are united in the overall final index of competitiveness through ranking and expert evaluations; separation of the basic indicators of competitiveness (quality and prices of goods, investment attractiveness and standard of living of the population) and calculation of a complex index according to the nature of their impact on competitiveness based on their logical combination.

Impact of the characteristic positions of the region according to their location in the evaluation matrix of the characteristic indicators of competitiveness. In foreign practice, non-parametric methods of statistical analysis are applied for the synthesis of integral indicators of competitive advantages of the region.

The basic advantage of using non-parametric methods is reducing the dimension of the initial data matrix by "compressing" the initial information. At the same time, non-parametric methods of multidimensional statistical comparisons undergo insignificant sensitivity to changes in statistical data and do not require comparability of private indicators measurement units.

These shortcomings can be eliminated by means of multivariate non-parametric methods applying comparative estimates, such as the method of relative differences.

The method of relative differences involves obtaining an estimation based on private indicators with the help of normalization of the formula. That is, the increase of the private index of  $j$  according to the  $i$  region will be related to the variation of the  $j$  index according to the whole order.

$$t_{ij} = \frac{x_{ij} - x_{jmin}}{x_{jmax} - x_{jmin}} . \quad (1)$$

The value of the integral coefficient can be obtained through the arithmetic mean of the private coefficients [1]. The value of the coefficient  $T_i$  belongs to  $[0; 1]$  interval,  $T_i = 1$  can be reached only if region  $i$  has the best value among all private indicators.

$$T_i = \frac{\sum_{j=1}^n t_{ij}}{n} . \quad (2)$$

This method allows to get an estimation of private indicators by comparing the actual values with the best values. The value of the integral coefficient is determined by the formula:

$$t_{ij} = \frac{x_{ij}}{x_{\max}} . \quad (3)$$

The performed calculations allow us to group the regions according to the level of competitiveness. If  $IK$  can take a value from 0 to 1, then it is necessary to distinguish five groups of regions with equal integrals:

- Group 1 - high level of competitiveness  $< IK < 1$ ;
- Group 2 - sufficiently high level:  $0.6 < IK < 0.8$ ;
- Group 3 - average level:  $0.4 < IK < 0.6$ ;
- Group 4 - low level:  $0.2 < IK < 0.4$ ;
- Group 5 - non-competitive (uncompetitive) regions:  $0 < IK < 0.2$ .

The indicated problem in the economic literature is considered based on the classification of regions of the country according to their economic development. Authors distinguish various signs of such classification. For instance, M.I. Muratov considers that it is possible to rank the competitiveness of regions not based on a single value, but applying a joint assessment, using multidimensional groupings. The regions of Georgia are divided into six homogeneous groups (clusters) in the table - according to the state of the region's economy: prosperous regions; above-average regions; middle-level regions; regions of below-average level; extremely poor (vulnerable) regions.

However, it is not always possible to separate these six clusters according to the actual signs. Therefore, it will be more appropriate to divide conditionally the entire set of regions of Georgia into four groups:

- 1) Groups with a high level of competitiveness (regions belonging to the first and second clusters in M.I. Muratov's classification);
- 2) A group with an average level of competitiveness (regions belonging to the 3rd cluster);
- 3) A group with a lower than average level of competitiveness (regions belonging to the 4th and 5th clusters);
- 4) A group with a low level of competitiveness (regions belonging to the 6th cluster).

Other economists believe that a region's competitiveness can be measured by the size of its resource potential. According to them, the size of the region's resource potential means the size of the final product (goods) or national income, which can be obtained in the conditions of the actually existing resources of the region and in the conditions of using the relevant resources as efficiently as possible. However, the use of resource potential cannot be considered the basis for assessing the competitiveness of the region, because competitiveness itself reflects the process of its realization, that is, it implements economic processes.

In the normative approach, determining the competitiveness of the region, the integrated indicator of the level of socio-economic development is determined by the average deviation of the regional ranks from the ranks of the average Georgian values of the following indicators of the regional development:

In the normative approach, determining the competitiveness of the region, the integrated index of the level of socio-economic development is defined by the average deviation of the regional ranks from the ranks of the average Georgian values of the following indicators of the regional development:

- Gross regional product (taking into consideration the level of purchasing power) per capita (thousand GEL);
- Volume of investments in fixed capital/per capita (thousand GEL);
- Volume of external trade turnover, per capita (US dollars);
- Financial provision of the region, taking into consideration the level of purchasing power, per capita (thousand GEL);
- The share of the average number of workers employed in small enterprises in the total average number of workers employed in enterprises and organizations (in %);
- Registered unemployment level (% of economically active population);
- The ratio of cash income and subsistence minimum per capita;
- The share of the population with monetary incomes less than the subsistence minimum (% of the total population);
- Total turnover of retail trade, public catering, and paid services per capita (taking into consideration the level of purchasing power), per capita (thousand GEL);
- Basic funds of economic sectors (total balance sheet value in the average annual accounting with residual balance sheet value, taking into consideration the growth of capital costs), per capita (thousand GEL);
- Highway density coefficient (Engel's coefficient);

An indicator of the level of development of social infrastructure, which includes:

1. Provision of places for children in pre-school institutions (places for 1000 pre-school children);
2. Production of specialists by higher and state secondary educational institutions (specialists per 10,000 people);
3. Providing the population with doctors and medical staff (per 10,000 people (total population));
4. Providing the population with ambulatory-polyclinic institutions (the number of visits in one shift per 10,000 total population).

The calculation of the integral index is carried out through the implementation of the following sequence of separate repetitions. There are other methods of assessing regional competitiveness. We consider that a complex indicator of regional competitiveness is the purchasing power of the population consisting of two groups:

$$RC = f(Y;I), \quad (4)$$



where  $Y$  is the standard of living indicator;  $I$  – investment attractiveness of the region. Accordingly, each of them includes:

$$Y = PC + G + L \quad (5)$$

where  $PC$  is the purchasing power of the population;  $G$  – is the income concentration coefficient (Gini coefficient);  $L$  – unemployment rate.

$$I = I_p + I_r + I_q + Q \quad (6)$$

where  $I_p$  – is the investment potential of the region;  $I_r$  – investment risk;  $I_q$  – real volume of investments;  $Q$  – the number of unprofitable enterprises in the region.

In the literature, a method similar to the method of determining the ranking of countries is used to evaluate the competitive positions of regions. Its essence lies in the aggregation of a series of private indicators into a common indicator that characterizes the position of the region according to the given indicator.

The first group of factors characterizes the state of the economy of individual subjects of Georgia (10 indicators). The second one reveals the conditions for entering the region's economic entities to foreign markets.

The conducted research allowed us to group approaches to the assessment of the competitiveness of the region. It should be noted that the indirect evidence of the insufficient methodological development of the issues assessing the competitiveness of the regions of Georgia today is the fact that there is no attempt to move from determining the current state of affairs to forecasting.

## Conclusion

According to the current state of socio-economic development of the regions of Georgia analyzed by us above, regional asymmetry can be recognized as a factor negatively affecting the provision of economic, social and political security of the country. Thus, regulating the existing disproportions between the levels of development of the regions, representing regional diversity as one of the factors of development should be defined as an important direction of the regional policy in order to ensure the balanced economic and social development of the territorial units.

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*(Endnote style)*

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**IRINA VASHAKMADZE<sup>1</sup> AND IRINE TAVADZE<sup>2</sup>**

**THE ROLE OF THE NATIONAL BANK REGULATIONS IN THE STABILITY OF THE GEORGIAN ECONOMY AND THE ASSESSMENT OF ITS INFLUENCE TO THE BANKING SECTOR**

**Abstract**

The actuality of the topic is conditioned by the fact that the banks had to deal with a new global level threat - a pandemic, which had no precedent, the response of the financial system, including the banking sector, to the pandemic was quite visible, accordingly, the banks met the shock caused by the pandemic prepared. Structural challenges characteristic of the economy of Georgia, such as a high rate of dollarization, an increased current account deficit, and a growing dependence on international financial flows, further intensified the negative impact of prolonged external shocks caused by the pandemic on the economy of Georgia. The topic deals with the impact of the main regulations and their evaluation that led to the stability of the economy, as well as presents the evaluation of vulnerabilities and risks in the financial system on the structural characteristics of the financial sector, which are important for financial stability. It evaluates the measures and extraordinary steps taken by the National Bank of Georgia in various directions, which should ultimately contribute to the stimulation of the country's economy.

**Keywords:** National Bank, banking sector, banking regulations, stability of the economy

**JEL Codes:** G10, G11, G21, G22, G31

**Introduction**

A financial system is stable when it is able to provide services to market participants under both normal and stressed conditions. It is the main cornerstone of the sustainable development of the economy. The National Bank of Georgia, in accordance with the Organic Law of Georgia on the National Bank of Georgia, promotes the safe and sound functioning of the financial system. As a result of the regulations of the National Bank before the pandemic and the financial stability policy developed after the start of the pandemic and the Russia-Ukraine war, it can be said that the financial sector maintains stability and successfully continues giving credit to the economy. The majority of banks have already restored the buffers released during the shock of the pandemic and faced the threats related to geopolitical tensions in the region with solid buffers. The readiness of the financial sector was also supported by the stability of the quality of banks' assets, which was significantly contributed to by the measures taken in the pre-crisis period to reduce the excess of households and the dollarization of loans. In addition, in order to promote the growth of borrowers' solvency, the National Bank updated the separate requirements of the Responsible Lending Regulation this year. On the background of the implemented measures, the financial indicators have been improved, which indicates the stability of the country's banking system.

**Research Results and Discussion**

Let's discuss the special steps taken by the National Bank in different directions,  
In particular:

- ✓ Unhindered supply of liquid monetary resources to various sectors of the economy,
- ✓ Developing a temporary supervisory plan,

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- ✓ Expanding the program of the International Monetary Fund (IMF) and launching a new mechanism of currency interventions.
- ✓ In order to provide the banking system with liquid funds, the National Bank launched swap operations, thus providing the system with GEL liquidity. The purpose of these operations is to reduce the liquidity risk in the system, so that the liquidity risk does not become an obstacle to lending to the economy.

Since June 1, 2020, the National Bank has launched a liquidity provision tool to promote lending to small and medium-sized businesses, which consisted of two components:

- ✓ The first one was intended for commercial banks, which had the opportunity to receive liquidity support from the National Bank in exchange for pledging the loan portfolio;
- ✓ The second tool was for microfinance institutions, which, with the support of the National Bank, would be able to attract loan resources from commercial banks within the scope of the loan portfolio corresponding to the criteria established by the National Bank.

In the second half of 2021, on the background of economic recovery, tightening the monetary policy and strengthening the national currency exchange rate, the growth rate of foreign currency mortgage loans increased sharply. In response to this dynamics, according to the decision of the Financial Stability Committee, in order to reduce the currency risk of borrowers, the maximum term of foreign currency mortgage loans was reduced from 15 years to 10 years this year, as well as changes were applied to variable rate loans. At the time of issuing variable-rate loans, commercial banks should take into account an additional interest rate shock of 3 percentage points along with the existing loan service ratio requirement. As it was expected, the mentioned regulation did not have much effect on lending activity as the PTI distribution was healthy and most borrowers had a buffer to overcome the interest rate shock. Accordingly, the weighted up average indicator of the loan service ratio in the second quarter of 2022, both compared to the first quarter of 2022 and compared to the indicator of the corresponding period of the previous year, decreased slightly.

Since August 16, 2022, in order to reduce the additional pressure on inflation from the excess growth of consumer loans, the maximum term of consumer loans was reduced from 4 to 3 years<sup>3</sup>.(1)

As a result, the financial sector has maintained its stability and continues to successfully give credit to the economy today. The majority of banks restored the buffers released during the shock of the pandemic and faced the threats related to geopolitical tensions in the region with solid buffers. On the background of high economic growth and strengthening the exchange rate, the loan-to-GDP ratio remains below the sustainable level, although it is expected that the growth of the credit portfolio for the next year will be commensurate with the nominal economic growth. Therefore, at this stage, there is no need to change the countercyclical buffer, and the NBG left it unchanged at 0 percent.

With the data of September 2022, the total assets of 14 commercial banks operating in Georgia amounted to 68 billion GEL, compared to the previous month, the assets of banks increased by 109 million GEL. The increase of assets was caused by the change in the amount of loans and deposits, in particular, the amount of net loans was 41.1 billion GEL, and the amount of non-bank deposits was 42 billion GEL.

The share capital of the banking sector is 8.8 billion GEL. The total liabilities of the commercial bank became 68 billion GEL.

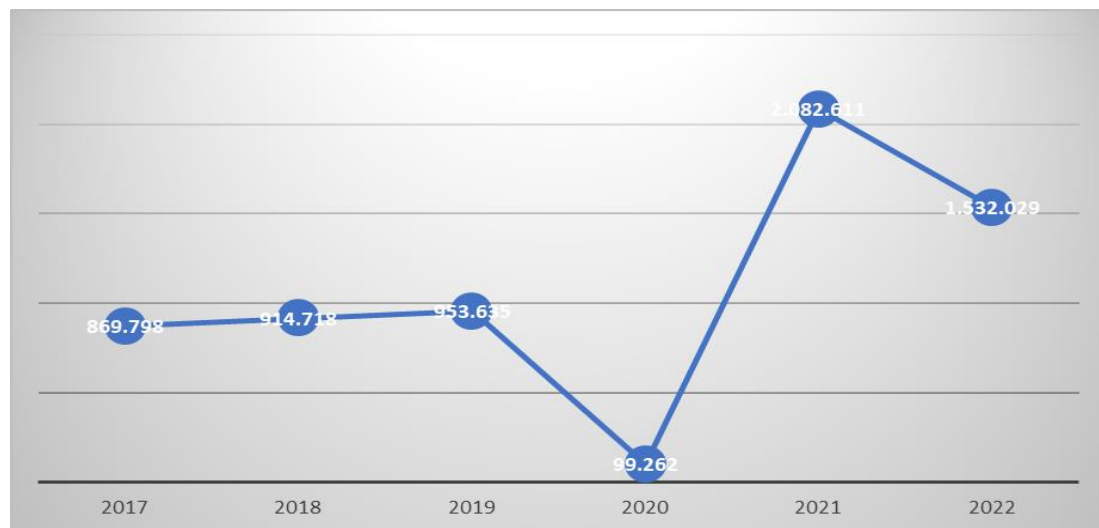
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<sup>3</sup> Financial Stability Report 2022 | National Bank of Georgia.

During 2021, the quality of assets, profitability, capital and liquidity indicators of the banking sector have improved, according to the data of the first half of 2022, banks maintain healthy indicators of capital and liquidity, and the quality of assets, compared to the previous year, has improved. Solid profitability of banks is conditioned by the high credit activity and small credit losses.

Financial sector profitability of the banking system (Diagram 1) It remains at a solid level in 2021-2022, which is mainly conditioned by low credit losses. Following the recovery of the economy, the profitability of the banking system has reached a solid level. This was mainly due to lower credit losses and an increase in net interest income, which, in turn, was due to the preliminary creation of a reserve for possible loan losses, increased credit activity and an increase in the interest margin in 2020. If the current trend of profitability from the beginning of the year is maintained, it is expected that the return on capital will be within 20 percent at the end of 2022. Strong profitability is the main source of capital replenishment for banks and is an important buffer against potential shocks.

**Diagram 1. Profitability of the Banking Sector (2017-2022 Year), (Million GEL)**



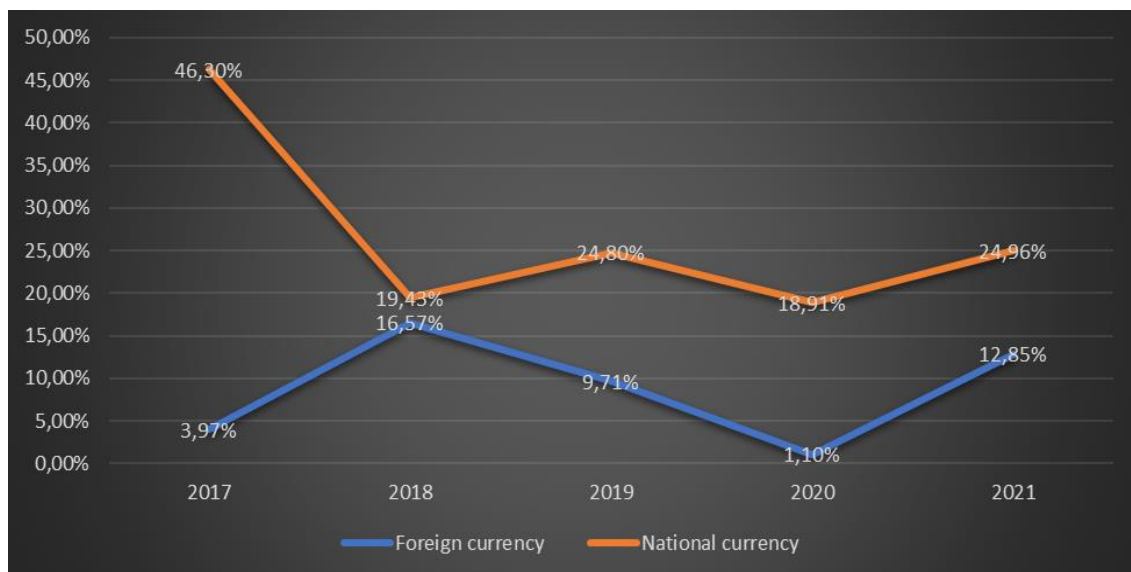
Source: National Bank of Georgia, Compiled by the author.

In 2021, the quality of assets, profitability, capital and liquidity indicators in the banking system improved, which was reflected in the reduction of the financial stress index. The ratio of debt to gross domestic product exceeded its long-term trend during 2021, however, on the background of high economic growth and strengthening the exchange rate, the loan to GDP ratio gap narrowed significantly, and in the second quarter of 2022, the loan to GDP ratio slightly lagged behind its long-term trend. Strong profitability is the main source of capital replenishment for banks and is an important buffer against potential shocks. However, it is important that financial institutions do not accumulate excessive risk in order to make short-term profits.

As for the growth dynamics of loans, from 2021, the growth rate can be noted (Diagram 2) both in foreign and national currency. From the second half of 2021, the loan growth rate, excluding the exchange rate effect, was slightly behind the nominal GDP growth rate. It should be noted that business loans make a significant contribution to credit growth in the recent period. However, the growing dynamics of consumer loans is also worth noting. The loan to GDP ratio exceeded its long-term trend in 2021, however, on the background of high economic growth and the strengthening of the exchange rate, the loan to GDP ratio gap decreased significantly, and in the second quarter of 2022, the loan to

GDP ratio slightly lagged behind its long-term trend. Despite the recent trend, the ratio of Georgia's loans to GDP is still high compared to similar countries. An increase in the credit portfolio is expected, on the background of measures taken by the National Bank, dollarization has significantly decreased, although the latter and related structural risks remain one of the main challenges for the financial sector. A loan denominated in foreign currency is accompanied by exchange rate risk on the one hand, and interest rate risk on the other hand.

**Diagram 2. Annual Growth Rate of Bank Loans (2017-2022 Year)**



Source: National Bank of Georgia, Compiled by the author.

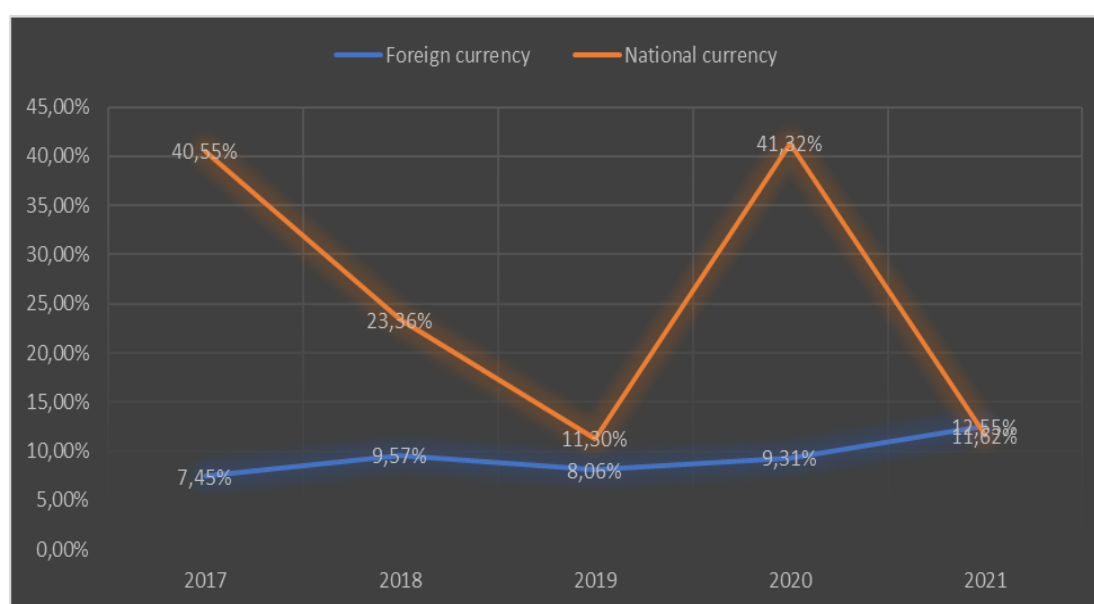
Particularly noteworthy is the reduction of the maximum term of loans from 15 to 10 years due to the high share of loans in foreign currency and increased volatility of the exchange rate.

In the second half of 2021, on the background of economic recovery, toughening monetary policy and strengthening the national currency exchange rate, the growth rate of foreign currency mortgage loans increased sharply. Due to the fact that most of the borrowers are unhedged, and the main part of the mortgage loans have variable installment rates, the loans are accompanied by an interest rate risk along with the exchange rate. Depending on the size of the portfolio, the abovementioned vulnerability in the financial sector may be a prerequisite for the accumulation of systemic risks. Right in response to this dynamic and to mitigate the mentioned risk, the National Bank reduced the maximum term of foreign currency mortgage loans to 10 years.

In order to promote the growth of borrowers' solvency, the National Bank updated the separate requirements of the responsible lending regulation. Maximum loan service ratios are determined according to a borrower's income. According to the previous version of the regulation, the mentioned coefficient was set differently up to 1000 GEL, and for persons with income above 1000 GEL, this limit was increased to 1500 GEL. Moreover, an additional requirement was established, which serves to mitigate the interest rate risk. In particular, from May 2022, while assessing a borrower's solvency, commercial banks are obliged to take into account the interest rate shock. The mentioned changes serve to increase a borrower's solvency and, therefore, contribute to financial stability.

A large part of financing of Georgian banks is long-term and the main share comes from parent companies or international financial institutions, which reduces liquidity risks. In the case of foreign currency, the ratio of loans to deposits is stable within the frames of 100 percent. Accordingly, the financing of these loans is carried out with a relatively stable source, and in this regard, the risks of foreign currency liquidity are small. Considering that the National Bank has more flexibility in providing GEL liquidity, the stability of foreign currency funding is important. In the current period, the share of deposits in national and foreign currency has almost equalized (Diagram 3) Since these deposits are diversified according to the countries of origin, an additional liquidity requirement is imposed for this type of deposits, and the share of fixed-term deposits in this type of deposits is high, the liquidity risks for banks are minimal in this regard.

**Diagram 3. Growth Rate of Bank Deposits (2017-2022)**



Source: National Bank of Georgia, Compiled by the author.

For a sustainable growth of GEL loans, it is necessary to attract more GEL deposits in the banking sector in order to reduce dependence on other sources of financing.

Recently, the ratio of GEL loans to deposits has been increasing and remains at a high level.

According to the data of June 2022, the banking system of Georgia operates with deposit resources of 38.7 billion GEL. In 2018-2019, bank assets and total deposits grew at a more or less equal rate, and in 2020, a 30% annual increase in deposits was recorded due to the pandemic. The growth of deposits is mainly determined by the savings of individuals.

Despite NBG's repeated attempts, the system is unable to Georgia Lari deposits. The reason can be named the recurring and leaping fluctuations of the Lari during the year 2020-21, the significant deviation of the current rate of inflation from the target rates, the increased rate of unemployment and the ambiguity of the body responsible for the stability of the national currency.

Individuals are active in placing deposits in the banking system of Georgia. Individuals account for 51.43% of deposits in the banking system. In the deposit market, rates in foreign currency increased



slightly in 2022, which was facilitated by the increase of rates by the FED and the increase in the price of dollar resources, which in turn may make it more difficult for representation offices of banks operating in the foreign market to attract deposits from non-resident individuals and legal entities.

### **Recommendations and Conclusions:**

Finally, to sum up, as a result of the measures taken by the National Bank before the pandemic and the financial stability policy developed after the start of the pandemic, the financial sector went through a particularly severe stage of shock caused by the pandemic. In previous years, the imposition of additional capital requirements by the National Bank and the profits made by commercial banks allowed banks to accumulate sufficient capital buffers to deal with the abovementioned shock. Accordingly, the banks met the shock caused by the pandemic prepared.

- ✓ The slower pace of recovery of the global economy than it was expected is especially noteworthy. On the background of the improvement of the economic situation in 2022, compared to the previous year, the credit risk of households decreased. During the pandemic, the worsened solvency of households was reflected in the increase in the share of non-performing loans, however, with the recovery of the economy, the share of non-performing loans decreased, and the quality of loans, especially in the case of foreign currency, improved significantly. Despite the positive trend, the high growth rate of consumer loans and inflation are noteworthy. The latter has a negative impact on the real incomes of households. Households with low income and high debt service load are particularly vulnerable to this risk.
- ✓ On the background of globally increased inflation, the increase in foreign currency interest rates is also noteworthy, which also affects the load of household loan servicing. Despite the declining trend, dollarization of loans remains one of the main challenges. However, the policy pursued by the National Bank in the direction of responsible lending and de-dollarization hinders additional accumulation of this type of risks.
- ✓ The effect of the economic recession caused by the spread of COVID-19 has already been reflected to a large extent on the quality of loans, and commercial banks have created a reserve for corresponding losses. In the first half of 2020, the increased financial stress index due to COVID-19 started to stabilize from the second half of 2020 and it started to decrease in 2021, which is conditioned by the improvement of asset quality, profitability, capital and liquidity indicators in the banking system.

As for the growth ability of economic increase forecast, it is conditioned by the significant increase in migration flows in Georgia as a result of the Russia-Ukraine war and the accompanying sanctions, which stimulated the joint demand, as a result, the inflationary risks arising from the demand intensified, despite the fact that this is partially balanced by the exchange rate of the GEL strengthened as a result of foreign inflows. Considering right these events, the forecasts of economic growth made by international financial organizations are changing. Despite the existing challenges, along with the improvement of the foreign sector, the recovery of foreign demand and financial inflows of Georgia is expected, which will promote economic growth and will have a positive influence on the stability of the economy. However, high dependence on financial flows, in shock conditions, creates risks of rapid outflow of capital, which was also proven during the pandemic. Such risks as a prolonged war situation in the region, a slower than expected pace of recovery of the global economy, and a revision in the direction of increasing the risk premium in developing countries are of great importance.

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**FEYZA OZDINC<sup>1</sup>**

## **BEHAVIORAL INSIGHTS TO THE CENTRAL BANK OF THE REPUBLIC OF TURKEY'S INFLATION TARGETING POLICY**

### **Abstract**

The purpose of this study is to analyze the Central Bank of the Republic of Turkey (CBRT)'s inflation targeting policy by employing Annual Change in Consumer Price Index (ACPI) as the dependent variable and Monthly Change in Consumer Price Index (MCPI), Real Sector Confidence Index (RSCI), Economic Confidence Index (ECI), Consumer Confidence Index (CCI), and Expectation of Annual Consumer Price Index-12 Months Ahead (E(12)), Expectation of Annual Consumer Price Index-24 Months Ahead (E(24)) as independent variables.

The source for Annual Change in Consumer Price Index (ACPI), Monthly Change in Consumer Price Index (MCPI) is the CBRT website; and for Real Sector Confidence Index (RSCI), Economic Confidence Index (ECI), Consumer Confidence Index (CCI) the source is TURKSTAT (Turkish Statistical Institute) while Expectation of Annual CPI-12 Months Ahead (E(12)) and Expectation of Annual CPI-24 Months Ahead (E(24)) are from The Survey of Market Participants, which is a survey that CBRT conducts since August 2001.

By using linear regression model, it has shown that the CBRT should consider expectations of the market while determining its inflation target. Since, currently this is not the case I argue that it is a result of some Behavioral Economics Concepts such as Availability Heuristic, Representativeness Bias, Status Quo Bias, Loss Aversion, Overconfidence, Confirmation Bias, and Anchoring and Adjustment.

**Keywords:** Behavioral Economics, Monetary Policy, Inflation Targeting, homo-economicus

**JEL Codes:** E70, E52, E58, E31

### **1. Introduction**

Since the 1975s, Behavioral Economics has started to find its way around traditional/mainstream economics. While it has started to impress some of the economists with microeconomic aspect to it, nowadays, since 2015s to be specific, macroeconomic aspect to the behavioral economics has started to catch growing attention. There is no doubt when psychological insights adopted into the marketing, finance, and economy bringing undeniably remarkable results.

The paradigm of "homo-economicus" has shattered for a while now. Even though we continue to teach in classrooms, everyone-including the Neo-classical economists-accepts that people are not rational. The point is to use this information to serve and benefit the human race. With this purpose in mind, it is inevitable to discuss and argue the in-use/ongoing methods of institutions and governments to have a better economic environment.

Thus, the purpose of this study is to provide a behavioral economics approach to the monetary policy and argue that if the Central Bank of the Republic of Turkey replace their inflation targeting method

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This paper is one of the articles of the author's Ph.D. Thesis.

with a behavioral economics inflation targeting method the aimed and achieved results are going to be more accurate in a comparison with the current results.

To achieve this goal, first of all, a brief history of the Central Bank of the Republic of Turkey is going to be included. Secondly, Inflation Targeting is going to be defined and the implication of Inflation Targeting in Turkey is going to be explained as well as the other countries that adopted this method. Thirdly, basic behavioral economics concepts that are considered helpful in terms of monetary policy, central banks, and inflation targeting are going to be described. Then, data and analysis are going to be explained with derived results, and lastly conclusion and discussion will be included.

## **2. A Brief History of the Central Bank of the Republic of Turkey**

After the WWI, the need to establish a central bank in Turkey was fatal in order to issue money, formulate monetary policies, and support the political independence with economic independence. The idea of having a central bank first issued at İzmir Economic Congress in 1923; and in 1927, a draft bill was submitted and accepted that allows to establish a national state bank. The Central Bank of the Republic of Turkey (CBRT) was found officially on 11 June 1930 after exchanging views with other countries' central banks such as Italy and Netherlands.

Duties and responsibilities of CBRT as follows:

1. Maintaining the price stability,
2. Maintaining the financial stability,
3. Designing and implementing the exchange rate regime,
4. Printing and issuing the banknotes of the national currency,
5. Establishing the securities, settlement systems and payment systems.

In order to maintain price stability central banks use a myriad of monetary policy tools such as open market operations, reserve requirement, discount rate and interest rate on excess reserves. In addition to these four tools central banks also use another modern tool called 'inflation targeting'.

## **3. Inflation Targeting**

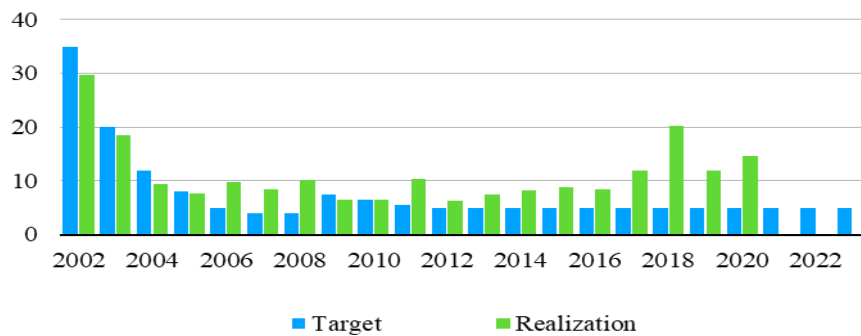
Inflation targeting is one of the tools that central banks use to maintain price stability. It has been used by central banks since 1970s after the collapse of the Bretton Woods System. The first central banks that used the inflation targeting policy were the central banks of Germany and Switzerland; and during the 1990s more central banks of developed countries adopted the inflation targeting such as New Zealand, Canada, the United Kingdom, Sweden, Finland, Australia, Spain and Israel (Bernanke & Mishkin, 1997). The intuition behind the inflation targeting tool being adopted by the developed countries first is that because they need to give a message (signaling) to the citizens of their countries is that inflation is not zero so their economy will continue to grow; therefore, people continue to produce because they would know that they can sell their products from a higher price in the future. Since they continue to produce they hire more people, and thus, the unemployment rate would decrease. It, also, derives the consumer demand as well. Knowing that prices will be higher in the future people try to make their purchases before prices went higher.

After seeing its success, emerging countries such as Czech Republic and Korea (1998), Colombia, Chile and Brazil (1999), Thailand and South Africa (2000), Mexico and Hungary (2001), Philippines and Peru (2002) and finally in 2006 Turkey have started to use inflation targeting strategy (Martinez 2008).

## Inflation Targeting in Turkey

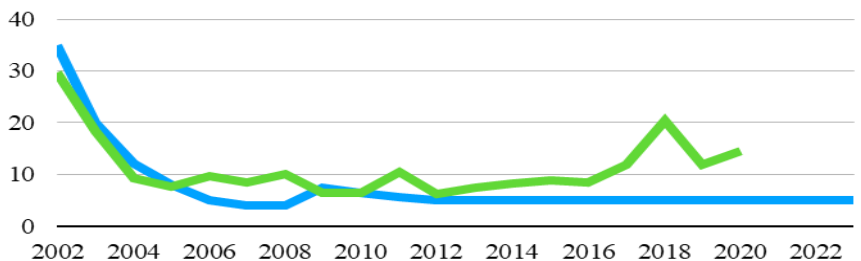
In Martinez's study it is mentioned that Turkey has started to use inflation targeting in 2006 (Martinez, 2008). While it is true in a sense, Turkey has started to use inflation targeting in 2002. After 2001 economic crisis between the period of 2002-2005 the CBRT had used inflation targeting implicitly. After 2006, it has started to use inflation targeting explicitly.

**Chart 1. Annual Inflation Target and Inflation in Turkey**



Source: CBRT Website.

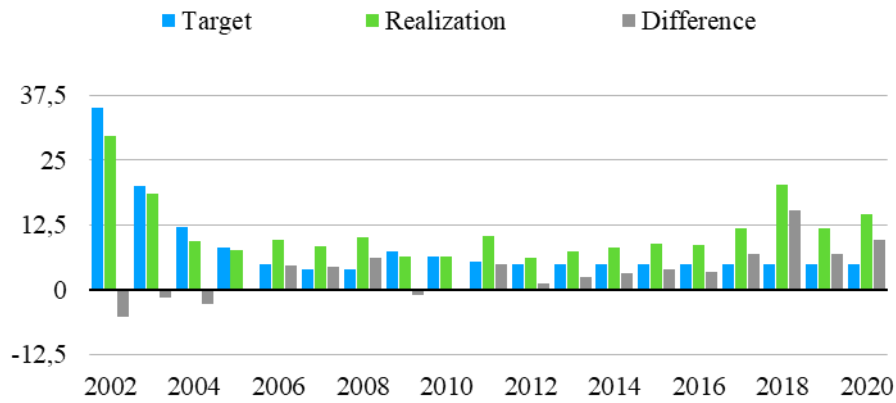
**Graph 1. Annual Inflation Target and Inflation in Turkey**



Source: CBRT Website.

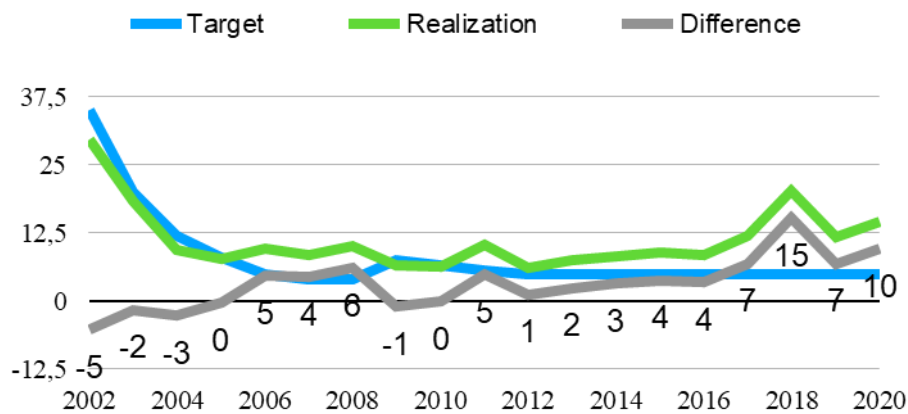
In Chart 1 and Graph 1, we see the comparison of Turkey's target inflation and the inflation rate in real life. The CBRT has an uncertainty band of 2(+/-) points around the target inflation. As we can see from Chart 2 and Graph 2 below, during the eighteen year period between 2002 and 2020 even with an uncertainty band the CBRT could not make the inflation target most of the time.

**Chart 2. Annual Inflation Target, Inflation in Turkey and Difference**



Source: Authors.

**Graph 2. Annual Inflation Target, Inflation in Turkey and Difference**



Source: Authors.

#### 4. Basic Behavioral Economics and Monetary Policy

In this section I argue that since the workers of central banks are human it is unavoidable for them to make mistakes. Certainly, the CBRT is no exception. In order to persuade to use not neoclassical but behavioral economics methods in terms of inflation targeting, firstly I will explain some of the behavioral economics terminology and then I will explain how they can be related to behavior of monetary policy making.

The term ‘human error’ is no mistake. Because we are all humans as much as the government workers even if they are experts or in other words even if they are very good at their jobs.

Daniel Kahneman, in his book *Thinking, Fast and Slow* (2011), explains that algorithms are more successful than human beings when it comes to making decisions or solving serious problems (i.e. hiring a person). Kahneman divides human mind/brain into two parts as System I and System II. Once we are using System I our brain makes short cuts in other words we use heuristics when we are making our

decisions. Heuristics take action when we decide in the blink of an eye, we think without actually thinking. We use System I 98% of the time; and, it is automatic and fast. System II, on the other hand, is slow but more rational, logical, and skeptical. Unfortunately, we use System II only 2% of the time. Since we are using 'lazy' part of our brain most of the time (System I) we ought to make mistakes or so-called irrational choices (Kahneman, 2011, pp. 223-234).

Considering that institutions and cooperations are consist of human beings, it is quite acceptable and predictable that however the people are smart or experts there will be irrational decisions and therefore mistakes will be made. In order to avoid this situation behavioral methods should be used by these institutions and thus, central banks should use behavioral methods when they are making monetary policy decisions in order to promote monetary and financial stability.

## **5. Behavioral Economics Concepts for Monetary Policy**

### **Availability Bias/Heuristic**

Availability Bias stems from tendency of human beings to use System I more than System II in Kahneman's classification. It simply means that we lean toward using the information that comes to mind easily. Studies show that we make the mistake of overestimating and underestimating. When it comes to historical events we tend to overestimate the importance of some historical events just because they are most famous or recent than others even though they have less meaning and relevance to the current occurring. For example, after a natural disaster such as a hurricane, people purchase more insurance than before even if they did not experience the hurricane but the people they know did.

In terms of monetary policy, some events such as Great Depression and break down of the Bretton Woods system are more likely to be remembered than others. Since, policy makers often need to make fast decisions in order to act fast it is inevitable for them to operate with availability bias.

### **Representativeness Bias/Heuristic (Subjective Probability Heuristics)**

Representative Bias is reaching to a conclusion and judging the probability of an event even if it is uncertain by comparing recent or -what we think- similar events (Kahneman & Tversky, 1972). For example, if we know somebody from a foreign country or city we think that all people from that country or city will be like the person we know regardless of good features or the bad ones.

One possible example of representativeness bias in terms of economic policy is the IMF's attempt to make all the countries to apply the same economic policies for countries that are struggling with economic crisis. When they see that it is an economic crisis they believe that regardless of the different countries' different aspects or structural problems one solution is going to fit them all and all countries should follow the IMF's way. Hence, history thought us that one-size-fits-all solutions do not fix the problems of different countries as they are expected to. Thus, they have to be tailored according to a specific country's needs because there are a lot of different parameters when we are dealing with different countries.

### **Status Quo Bias**

People tend to stick to their choices instead of taking new actions. This is the reason why we do not cancel some of our memberships to some magazines even though we do not read them. This lack of action is what salesmen lean on because they know once you are hooked it is unlikely that you are going to cancel that purchase or membership.



There is a saying in English ‘If it is not broken, do not try to fix it.’, but what we do is we do not try to fix anything even if it is broken in terms of implementing the inflation targeting policy in Turkey. Kahneman and Tversky (1982) states that even if we know the current outcome is bad we do not take a new action because we are afraid that the new outcome will be worse than the current situation.

Since policy makers try to maintain their credibility it is more likely for them to take action under status quo bias. Because changing economic policies every so often cause a damage in their credibility. Also, since there is a myriad of parameters in terms of economic policy making decisions it is often not certain whether a better result than previous set of actions is going to be gained or not.

### **Loss Aversion**

Loss aversion is one of the reasons of status quo bias. We choose to stay put because we are afraid that new outcomes will not be more satisfactory than the current outcomes. Also, studies show that people tend to overestimate their losses rather than gains (Kahneman & Tversky, 1979).

Each of every action and decision in terms of economics have different consequences. Policy makers want to avoid losses and therefore they tend to stay unchanged in their current position or are late to take the right action.

### **Confirmation Bias**

Confirmation bias is holding onto the information that confirms our beliefs and thoughts more than the information that challenges or contradicts them. P.C. Wason (1960), a cognitive psychologist, shows that young adults tend to search out or interpret the facts in a way that matches their current thoughts and/or preconceptions even after given the correct facts or information. This phenomenon explains how political polarization is getting deeper with increasing social media interactions. Whatever the ideas or information are we are looking for out there for us to find and it is easier to find not only the information but the people who think just like us as well on social media platforms.

Therefore, whatever the reason is, we always see experts want to show the public that they are successful and made the right decisions in the past especially if their duty as important as the country’s economy. Hence, they continue to keep their decisions such as inflation targeting at the rate they decided before even though it is not possible to reach that goal in the foreseeable future. Mostly they try to embrace and focus on the hope and data showing that the target inflation is still doable and achievable. Thus, this skewed perspective causes overconfidence, which is going to be explained next.

### **Overconfidence Bias**

By definition, overconfidence is a tendency to make judgments about ourselves and our abilities that are misleading and untrue. According to Moore and Healy (2008), one tends to overestimate their talent and intellect. Additionally, one believes that they are better than average people (Moore & Healy, 2008). Since they are more educated and experienced it is expected people to be more rational at the professional level. Yet, studies show that even executive-level professionals tend to show behavioral biases. Even though more experienced people show less overconfidence on average they are still significantly overconfident (Sandroni & Squintani, 2007; Menkhoff et al., 2013).

Considering that central bank workers are human-beings even though they are presumably smartest, best-educated, and more experienced than more people in their fields it is safe to say that despite the fact that they have all these qualities, just because they possess all these characteristics they will be more overconfident.

## **Anchoring and Adjustment Heuristic**

Anchoring means that when people were given a particular reference point they unintentionally place their next decision according to that number (Tversky & Kahneman, 1974). In other words, we adjust ourselves according to a given parameter. For example, if we were asked to guess the price of a certain type of merchandise after writing down our ages we start to take our age as an anchoring point and we adjust our guesses according to that number.

Since some inflation is needed in the economy to prolong the production process and other economic activities, the rule of thumb is to target an inflation rate of around 2% even though there is no scientific explanation why it is 2% instead of 4% for example. On the other hand, if it is a high inflation experiencing country they use the inflation rate and use that as an anchor and aim to lower their inflation and adjust their expectations according to this number.

## **6. The Data, Method, and Model**

To show the CBRT does not need to go very far to see what went wrong, the survey data which is conducted by the CBRT itself is going to be used in this study.

The Survey of Market Participants was introduced to the public in August 2001 for the first time. The Survey had been conducted twice a month from August 2001 to December 2012, after January 2013 it has been started to issue once a month. Intend of the survey is to monitor the expectations of experts and decision makers from financial and real sectors. The data indicates consumer inflation rate, exchange rates, interest rates, current account balance and GDP growth rate. For the purpose of this study only the expectations on inflation rate are going to be used. To give a clearer idea to the reader, the questionnaire is included at the end of the paper as Appendix I (CBRT).

On the other hand, not only to increase the explained part of the dependent variable but also to see how the confidence of the real sector and the individuals the real sector confidence index, the consumer confidence index, and the economic confidence index are added to the model.

The data set in this study covers the time period from January 2013 to May 2022. In the model the dependent variable is Annual Change in Consumer Price Index (ACPI), and the independent variables are Monthly Change in Consumer Price Index (MCPI), Expectation of Annual CPI-12 Months Ahead (E(12)), Expectation of Annual CPI-24 Months Ahead (E(24)), Real Sector Confidence Index (RSCI), Economic Confidence Index (ECI), Consumer Confidence Index (CCI) and time(t). In this study the effect of expectations and the confidence indices on the annual change in CPI is investigated. The hypothesis is the annual change in the CPI is going to be affected by the expectations and confidence indices.

With this kind of time-series data it is important to see if the variables are stationary. Therefore, to check if there is unit root ADF test was employed and it was concluded that the variables are, in fact, stationary at level.

## **7. Results**

The purpose of this study is to show that the CBRT is making mistakes even though it has a very-well educated and clever staff and rulers since they are human-beings not homo-economicus like they are expected to. To remedy this issue my suggestion is to the CBRT accepting this fact and taking into account other tools such as the Survey they are conducting other than their calculations. This way, it would be more beneficial for them to build more trust in the market agents.

To show how it can be useful for the CBRT to use expectations in their inflation targeting policy to adjust the target according to expectations. For this purpose, I used the regression of expectations and confidence indices.

The Table 1 below shows the regression output results. As we can see from the Table 1 predictor variables are statistically significant because their p-values equal 0 (zero) or very close to 0 (zero). On the other hand, it can only be said that the Consumer Confidence Index is statically significant at 10% significance level since its p-value (0.0903), which is greater than the usual significance level of 0.05.

ACPI	Coef.	SE	t	p-value	95% lower bound	95% upper bound
MCPI	1.780	0.366	4.86	0.0000	1.052	2.507
E (12)	-1.082	0.301	-3.59	0.0006	-1.681	-0.483
E (24)	-4.903	0.823	-5.96	0.0000	-6.541	-3.265
RSCI	1.438	0.494	2.91	0.0047	0.454	2.421
ECI	-1.395	0.538	-2.59	0.0113	-2.465	-0.325
CCI	0.231	0.135	1.71	0.0903	-0.037	0.498
t	0.423	0.070	6.06	0.0000	0.284	0.562

Source: Author.

It is also useful to report that R-squared and Adjusted R-squared values for this regression are 0.9145 and 0.9071, accordingly; which mean that explanatory rate for this model is very satisfactory. When we look at the coefficients we see that as Monthly Change in Consumer Price Index (MCPI) increase Annual Change in Consumer Price Index (ACPI) increases; as Expectation of Annual CPI-12 Months Ahead (E (12)) decrease ACPI decreases; as Expectation of Annual CPI-24 Months Ahead (E(24)) decreases ACPI decreases; as Real Sector Confidence Index (RSCI) increases ACPI increases; as Economic Confidence Index (ECI) decreases ACPI decreases; and lastly as Consumer Confidence Index(CCI) and time(t) increase ACPI increase.

## 8. Conclusion and Discussion

In conclusion, it can be said that inflation is affected by expectations and confidence of the economic agents in the economy. Therefore, employing Behavioral Economics (BE) to the CBRT's policies mean that accepting the fact that they are only human beings and therefore can make mistakes. Adding new perspectives and employing new methods only increase the CBRT's credibility since it has a great deal of importance for the market and foreign investors to have a trustworthy economic environment and Central Bank.

Thus, following the analysis results, it can be concluded and suggested to the CBRT and other economic decision makers of the country that the CBRT should adjust their inflation target according to

expectations. This way it would increase their credibility leading a better and confidential economic environment.

Addition to Homes et al. (2017), which concludes that behavioral modeling can lead to less volatile inflation, this paper contributes that behavioral modeling also can lead to more accurate policy making. Since we learn from Kumar et al. (2015) inflation targeting does not anchor inflation targeting it is unnecessary to argue if expectations and inflation targeting otherwise related.

In my opinion, the CRBT has currently fallen into the trap of Availability Heuristic, Representativeness Bias, Status Quo Bias, Loss Aversion, Overconfidence, Confirmation Bias, and Anchoring and Adjustment which are some of the many Behavioral Economics Concepts that are explained above.

For future studies it can be suggested that to see if other countries that employ inflation targeting policy have a similar situation that expectations effect the annual inflation rate. By doing this, it can be seen if it is the same for other countries as well.

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## Appendix 1

Data Governance and Statistics Department  
 Surveys and Indices Division

**TÜRKİYE CUMHURİYET  
 MERKEZ BANKASI**

### SURVEY OF MARKET PARTICIPANTS

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**Monthly Inflation**

Current Month    Next Month    2-Month Ahead

**Annual Inflation**

End of the Year (January-December)    End of the Next 12 Months (\*)    End of the Next 24 Months (\*)    End of the Next 5 Years

**What is your expectation of the CPI?(%)**

(\*)The probability distributions for expectations of consumer inflation for the next 12 months and 24 months are also asked while filling out the questionnaire.

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**What is your expectation of the US Dollar rate in the interbank foreign exchange market?**

(Turkish Lira-TRY) (Please indicate in four decimals.)

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**What is your expectation of the annual current account balance? ((+) Surplus, (-) Deficit) (\$ Billion)**

Current Year (January - December)    Next Year (January - December)

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**What is your expectation of the GDP growth rate? ((+) Increase, (-) Decrease) (%)**

Current Year (January - December)    Next Year (January - December)

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**What is your expectation of the Borsa Istanbul (BIST) Repo and Reverse Repo Market overnight interest rate? (%)**

End of the Current Month

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**What is your expectation of one-week CBRT repo auction interest rate? (%)**

End of the Current Month    3-Month Ahead    12-Month Ahead    24-Month Ahead

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**SAMANEH RAISS SHAGHAGHI<sup>1</sup>**

## **ACCOUNTABILITY AUDITING IN CHINA'S FIGHT AGAINST CORRUPTION**

### **Abstract**

Politicians in China are subject to intense scrutiny as a result of anti-corruption efforts run by the Central Commission for Discipline Inspection (CCDI). President Xi Jinping of China became well-known and well-liked among the Chinese people as a result of his anti-corruption campaign from 2012 to 2017. Xi's determination to find and get clear of dishonest officials is unrelated to his morality. According to Boomerang Report, Xi's family has in fact mysteriously amassed more than \$1 billion in riches (Skidmore, 2017). Instead, it depends on Xi's and the Party he heads' willingness to expand their influence. Good governance and auditor's quality partially mitigate the manager's incentives to suppress negative news.

In addition to providing a general overview of the notion of corruption in China, the research intends to explain and illustrate the role of China's National Audit Office (CNAO) under the fight against corruption in Xi's anti-corruption campaign.

**Keywords:** Accountability audit, corruption, anticorruption, China

**JEL Codes:** D73, D78, M42

### **1. Introduction**

Corruption has become a widespread problem for most countries with weak legal systems and is known to be one of the World's most significant challenges. It is the most critical problem on the way to the sustainable development of a country (Rose-Ackerman, 2004). Corruption has generally been seen as the primary barrier to economic and political development in any country where it exists. Corruption obstructs not only long-run economic development or growth but also causes social problems. That is because corruption misuses economic incentives to invest and undermines public institutions, redistributes wealth and power to the undeserved people, and eventually generates distrust in the society. Corruption has a wide-ranging impact on poor communities. In this matter, corruption prevention has always been a hot topic and an important issue at all times in all countries. Besides, in the age of information, corruption tends to be hidden and very hard to detect.

Corruption, defined as the abuse of government positions for personal benefit, becomes more likely when the government plays a significant role in the economy by owning or controlling the resources required to support profitable operations (Huang, 2015). This is true in China, but corruption may be just as damaging in other economies with less government participation. Corruption is on the rise in China, despite the expanding participation of the private sector.

In China, the Communist Party China and the Chinese government have also made measures to adjust and manage the corruption problem based on China's national conditions. Since the 18th National Congress of the Communist Party of China in 2012, the Chinese government has implemented different anti-corruption policies and measures. Chairman Xi Jinping proposed the concept of "Cracking down on both Tigers and flies" for the first time. Xi's anti-corruption campaign is not by chance focused on enforcement. One obvious rationale for following this technique is that the Chinese party-state has a capability for enforcement that few middle-income nations can match. The bigger reason, however, why

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Xi and his allies have chosen this policy is not its efficacy or durability, but rather its enormous political payoffs. Scholars specializing in anti-corruption measures have long recognized that combatting corruption by fighting corruption is a mistake, focusing on punishment while ignoring prevention (Pei, 2018).

It has been underlined that corruption has become more widespread in China since economic reform was launched in 1978(Dong & Torgler,2010). China's leaders emphasized that corruption will ruin the Party, and ever since China has launched periodic anti-corruption campaigns against the party and government officials. These campaigns have all followed a similar example.

Unlike past anti-corruption policies, China's current crackdown is wide-ranging. President Xi Jinping, current China's leader, has declared that China will go after "'tigers' and 'flies,'" meaning both higher and lower-level officials. In the past, Chinese crackdowns on public corruption were mainly concentrated on lower-level officials ("flies") to establish seriousness about corruption but have not pursued higher-level officials.

The Corruption of Tigers refers to the corruption occurring at the highest levels of the national governments. This type of corruption can significantly influence the political, legal, and economic systems. In authoritarian countries or countries with no robust policing of corruption, grand corruption can be commonly found (Sommer, 2017). The so-called "tiger" is an image indicating those who have high positions in the government. These "tigers" have significant negative influences on the political, legal, and economic systems in China. They are greedy about money who have a very bad influence on the whole Chinese society. The quantities of "tigers" are small, but their influences on the whole society are severe due to their power and high status (Guo, 2014). They are the significant cases that need to be mainly investigated by the Chinese government.

In the fight against the tiger, you can't shrink your hand. Look after the situation and fear it. It means a decisive attitude toward anti-corruption without compromise. That is, the leaders of the Chinese Communist Party often talk about anti-corruption, all coverage and zero tolerance, never set limits and indicators, always on the road. The anti-corruption in Mainland China must have this spirit. Otherwise, in the face of the massive stock of corruption accumulated over decades, this corruption will be unmovable. So far, the authorities' actions against Tigers and flies have indeed given this feeling to people (Discipline Inspection and Supervision Team of the National Supervision Commission , 2017).

Even during NPC (National People's Congress) & CPPCC (Chinese Political Consultative Conference) are so busy, the CCDI has not forgotten to fight tigers. Therefore, it has won the support of the majority of the people and an excellent reputation for the leaders.

Corruption of flies, on the other hand, happens when a person or government is highly conscious of the dangers of power and thus awe in power, of course, it is good, but unfortunately, there are too few such people. Although most people know the harm of power, once they taste the sweetness of power, it is like opium users. It will be corroded by power. Forgetting it, it is difficult to determine the right to use. Many corruptions are caused by this. At first, they think they could resist the temptation but slowly lost their vigilance against corruption. The greed will be bigger and bigger.

It occurs at a smaller scale than the grand corruption. When public officials meet the public, there may be petty corruption. The places are at the end of the services, such as registration offices, police stations, and other private government (Senior, 2006). In the policy of "Cracking down on both Tigers and flies," "flies" refers to more minor cases and the grafters on the lower social positions, which can be regarded as petty corruption. However, many of the powers controlled by "flies" are closely related and directly related to people's livelihood. Therefore, illegal and criminal acts of "flies" occur in the fields of social

security, poverty alleviation, employment, housing, education, social management, medical and health, agriculture, rural areas, environmental protection, and cultural construction. These areas will directly harm the vital interests of the mass people (Guo, 2014).

Now the "tiger" and "flies" together as a strategy slogan solemnly proposed in the anti-corruption process. The concept of "Tigers and Flies" is based on the primary judgment of the current anti-corruption situation. At present, regardless of the "quality" and "quantity" of corruption, the current corruption in China is in a relatively high position compared with the whole of Chinese history (Yang et al., 2016).

Widespread corruption has caused severe outcomes in China. According to Hu (2001), the economic performance suffered a loss because of China's corruption in the late 1990s was approximately between 13.2 and 16.8% of Chinese's GDP. While many papers have emerged about corruption in China, there is still a lack of systematic analysis of corruption's reasons and consequences. Such a shortcoming reduces the possibility for policymakers to assess the precise magnitude of the harmfulness of corruption in China and, therefore, develop anti-corruption strategies suitable for China.

This paper aims to show the characteristics, strategies, and procedure of audits in combating corruption in China and their recent achievements.

## 2. Study Background

To combat corruption and build a clean government, China has established an anti-corruption strategy that includes establishing and perfecting a system of corruption punishment and prevention, which includes a Leadership System and Working Mechanism, Legal Framework, Power Restraint, and Supervisory System, and Education. China's Efforts to Combat Corruption and Build a Clean Government, published by the State Council in 2010, was the first anti-corruption white paper. The implementation of the national strategy is extremely important to China. On the one hand, it highlights the need of investigating and punishing any infractions of the law and discipline, particularly those involving top authorities. On the other hand, it is making significant efforts to enhance laws and processes, as well as to undertake a series of reforms aimed at eliminating corruption in various areas.

Simultaneously, there was an action plan for the anti-corruption policy. Measures, specific institutions for execution, and institutions accountable for cohesion, implementation, and reporting are all required components of an anti-corruption strategy. The time criteria and money are all important, but they are not the most important aspects in carrying out the action plan efficiently.

China has made public several anti-corruption laws, regulations, and other documents, such as The Guidelines of the Communist Party of China for Party-member Leading Cadres to Perform Official Duties with Integrity, The Regulations on Executives of State-owned Enterprises to Perform Management Duties with Integrity, etc. All the materials mentioned above are critical in the fight against corruption.

China places a high value on anti-corruption legislation and policies. In the case of criminalizing corruption, The Criminal Law of China defined various corruption-related acts, such as embezzlement, bribery, dereliction of duty, holding a large amount of property from an unknown source, etc., which serves as the legal foundation for penalizing corruption. In addition, some other rules and disciplines act in tandem with criminal law, such as the Communist Party of China's Disciplinary Sanctions. For instance, under Articles 389, 390, 390A, and 393 of the Criminal Code, "bribery" means giving money or property to an incumbent or former public official, or the person related to the public official (i.e., a close relative or any other person closely related to the incumbent or former public official) to secure



illegitimate benefits. Moreover, it explains the different ends of a bribery act at the domestic (private to public/private) and International (foreign public officials) levels (VandePol, Hui, & Wu, 2021).

There are several codes of conduct and ethical rules for Party members and leading officials to prevent corruption activities. For example, in 1997, China enacted the Guidelines of The Communist Party of China for Party-Member Leading Cadres to Perform official duties with integrity; in 2007, China released Regulations of the Central Commission for Discipline Inspection of the Communist Party of China on the Strict Prohibition of Seeking Illegitimate Gains by Misuse of Office, etc. To further regulate leading officials' performance of duties, China has enacted the Regulations on Leading Cadres' Report of Relevant Personal Matters, which requires leading cadres to honestly report their incomes, housing and investment owned or made either by themselves or together with their spouses and children living with them.

The National Bureau of Corruption Prevention of China (NBCP)(subordinate to the State Council) is an organ that the Chinese government has specially set up to carry out the work of corruption prevention. Other major functional bodies include the Party's organs for discipline inspection, judicial organs of the state, supervisory and auditing organs of the government, etc. (Xinhua News Agency, 2007).

The responsibilities of NBCP cover all the mentioned areas, with monitoring and evaluating the implementation of anti-corruption strategy as the core, all other tasks being carried out simultaneously. It also performs the duty of coordinating and directing the work of corruption prevention in enterprises, public institutions, social organizations, and takes charge of international cooperation.

Since the beginning of the 21st century, China has made great efforts in improving the mechanism of the anti-corruption strategy. Through actively re-evaluating the major fields and activities likely to breed corruption, a series of improvements and reforms have been made and has to yield notable results. In addition to the regular organs of handling letters and calls of complaints, China has opened up hotlines and set up websites to take reports of misconduct and complaints from the people and stipulates that information about the informants must be kept confidential.

With China's efforts in deepening the reforms of the fiscal management system, several laws and regulations were made to better govern the financing and expenditure of political parties, such as separated management of revenue and expenditure, included revenues from administrative fees into the budget, etc. All these measures increased the transparency of fiscal funds

One major responsibility of the National Audit Office of China (CNAO) is to supervise through auditing revenues and expenditures of all departments under the State Council, local governments, and other state organizations, and to guarantee the enforcement of the law. China has established comprehensive accounting and auditing standards for both the public and private sectors.

Government audit institutions in China have attached great importance to the full play of the role of supervision through auditing in combating corruption. Over twenty years, to cover the need of fighting corruption of the State, audit institutions at all levels have strengthened the supervision through auditing over key areas, key institutions, and key funds, and about 25,000 clues of economic crime cases have been detected and referred to judicial authorities.

Audit institutions in China are subordinated to the people's governments as a part of the executive branch of the state. In March 2018, the Communist Party of China (CPC) Central Committee decided to conduct the reform of the auditing management system and to form the central auditing committee. The reform of the auditing management system and the formation of the central auditing committee are both important measures to strengthen the CPC's leadership in auditing. The office of the central auditing

committee is located in CNAO (Gong, 2009) (Han, 2019).

The legal status of auditing and supervision in China has been explicitly written in the Constitution of the People's Republic of China. Article 91 of the Constitution stipulates that: The State Council shall establish an audit institution who will take charge of auditing revenues and expenditures of public finance of departments of the State Council and local governments at various levels, revenues, and expenditures of state banking institutions, state enterprises, and undertakings. The audit institution shall be under the direct leadership of the Premier of the State Council and exercise its power of supervision through auditing independently in accordance with the law and subject to no interference by any administrative organ or public organization or individual (Discipline Inspection and Supervision Team of the National Supervision Commission , 2017).

Regarding CNAO's roles and responsibilities on anti-corruption, it is well embedded within Article 2 of the Audit Law. There is also no specific "anti-corruption strategy" implemented in accordance with the national anti-corruption strategy, however, the promotion of the construction of the national anti-corruption system is set as one of the strategic goals of CNAO. Detection of the corruption will be embedded in the regular audit service, normally it will be an audit objective stated in the audit program, and all departments conducting audits are mandated to prevent, detect and investigate corrupt activities and transactions. Both proactive and reactive approaches will be adopted to detect corruption. Before the field audit, high-risk areas of corruption will be targeted, and major works will be implemented in these areas. Whistleblowing is also an important source of criminal clues. After the discovery of the red flags or symptoms, National Audit Office will conduct further investigation before referring to other agencies (Han, 2019).

Available facilities or mechanisms to promote and intensify prevention and detection of corrupt activities and transactions in the government including hotline devoted solely to corruption complaints, anti-corruption research, anti-corruption educational/training programs, and updated publication of audit reports through the CNAO's website.

As for the reporting mechanism, CNAO will not issue a special audit report specifying the audited corrupt activities and transactions. But vital corruption cases will be sent directly to the Premier in a special form of a report, named " Significant Audit Findings", which include the corrupt activities and transactions, the pecuniary loss suffered by the government, the persons responsible/liable, and the laws and rules violated. Then this report will be referred to different executive and law enforcement bodies according to the ranks of the responsible person and losses they caused. CNAO has the result feedback mechanism to ensure the audit findings and recommendations contained in the audit reports are properly acted upon by the concerned body.

### **3. Recent Achievements in Anti-Corruption of National Audit Office of China (CNAO)**

China's government audit institutions as a whole are an important part of the supervision system, as well as a crucial institutional arrangement to supervise and restrict power as mandated by law. In 2018, audit institutions in China audited more than 75000 entities, which helped realize revenue-increase, expenditure-cut, and loss-recovery totaling nearly RMB 270 billion yuan (China File, 2018). Anti-corruption of China's audit institutions is characterized by features of standing higher, covering wider, focusing closer, and digging deeper.

#### ***Standing higher to have a bigger picture:***

In March 2018, the Communist Party of China (CPC) Central Committee decided to conduct the reform of the auditing management system and to form the central auditing committee. The reform of the

auditing management system and the formation of the central auditing committee are both important measures to strengthen the CPC's leadership in auditing. The office of the central auditing committee is located in CNAO. The first meeting of the central auditing committee was held in May 2018. Mr. Xi Jinping, general secretary of the Communist Party of China (CPC) Central Committee, attended the meeting and stressed the vital role of auditing in the Party and state supervisory system (Han, 2019).

In this regard, China's audit institutions are putting efforts in standing higher, to plan and arrange audits under the overall economic and social development. In the work of anti-corruption, Auditors are gradually focusing on both supervision and service rather than supervision merely. They prioritized audit subject matters against the bigger picture of economic and social development and viewed specific audit findings in the overall institution and development trends. In 2018, audit reports and briefings were accumulated to over 150000 nationwide, including 160000 strong audit recommendations, and accordingly, more than 3400 items of regulations were established or improved.

#### ***Full coverage of Audit:***

In recent years, government audit institutions in China focus on audit supervision over the operation of public power, the use of public funds, public resources transactions, the operation of public assets, and the construction of public works to achieve full audit coverage. They aim to conduct the audit supervision wherever the public funds are used and wherever the public power runs, more effectively playing the deterrent role of auditing in anti-corruption.

#### ***Focusing closer on the key points:***

Key areas and crucial links have been highlighted, such as funds allocation, state-owned assets disposal, public resources transaction, as well as small-amount corruption and small officials, big corruption, to reveal violations of laws and regulations. Some clues were transferred to the discipline inspection, supervision, and judicial authorities.

#### ***Digging deeper.***

Auditors pay more attention to the depth of auditing and strive to thoroughly examine the issues most prominent and critical, continuously improving audit effectiveness. In 2018, in terms of targeted poverty alleviation, CNAO conducted special audits of corruption and conduct, which exposed more than 400 problems of various kinds and helped improve more than 100 items in systems and mechanisms. They focused on areas of extreme poverty and audited accumulatively 92% of poor counties. As a result, billions of Yuan have been recovered or put to use.

### **4. Characteristic of Audit in Combating Corruption in China**

#### ***Playing advantage of professionalism***

As an important part of the party and state supervision system, auditing has the unique advantage of professionalism and shoulders important supervisory duties. Auditors have conducted an accountability audit, which is an auditing system with distinctive Chinese characteristics, to promote power regulation and anti-corruption. Auditors focused on economy-related issues, power exercise, and responsibility, encouraging officials to perform law-based administration in an active effort (Han, 2019).

The "Regulations on the Selection and Appointment of Leading Officials of the Party and Government" stipulates that for the leading officials to be promoted and to be audited, the organization department shall entrust the auditing department to conduct audits in accordance with relevant regulations.

In 2018, 18000 officials were audited all over the country, with a total amount of billions of Yuan held direct responsibility.

The accountability audit has become an important means for selecting and appointing leading officials by providing a basis for the appointment and removal of officials. While promoting the power exercise, auditors pay more attention to separate the problems caused by the lack of experience, exploratory experiments, and not clearly restricted by superiors.

### ***Establishing a synergistic mechanism***

In recent years, government audit institutions and other anti-corruption departments in China have established a coordination mechanism to enhance the effectiveness of supervision of the government. CNAO and the Central Commission for Discipline Inspection of the CPC have established a system to strengthen cooperation in the investigation stage, and a consultation mechanism for case transfer and coordination has been established with the Ministry of Public Security. A new coordination mode focusing on routines and standards has been established, facilitating audit institutions with more effective external support in investigating, verifying, and dealing with corruption clues. At the same time, China's audit institutions have established coordination mechanisms for the use of audit results with departments of the organization, discipline inspection and supervision, public security, and other relevant competent authorities. The audit results and rectification of problems found in the audit have become an important basis for assessment, appointment and dismissal, and reward and punishment of leading officials (Han, 2019).

### ***Strengthening defensive functions***

During Sui and Tang dynasties of China, there was a famous traditional Chinese medicine doctor, named Sun Si Miao. He was titled China's King of Medicine for his significant contributions to Chinese medicine and tremendous care to his patients. He advocated preventative treatment, which lays great emphasis on prevention before a disease arises, guards against pathological changes when falling sick, and protects recovering patients from relapse. The role of Chinese auditing in combating corruption is just like "economic examination", which focuses on treating minor illnesses and preventative treatment while treating the illness that has occurred. Through auditing, Auditors promote prevention by finding signs of problems and reminding at the early stage. In recent years, they shifted the subsequent supervision to process control and conducted the real-time audit of the implementation of major policies in various fields such as public finance, financial system, enterprises, people's livelihood, resources, and environment. The Auditors' efforts have helped to safeguard national economic security, by making sure that major risks are well prevented, defused, and settled (Han, 2019).

## **5. Accountability Audit and the Audit Implementation**

Accountability refers to the duties and obligations of top officials, as mandated by law, for government and financial revenue and spending, as well as relevant economic activities of the regions, departments (sectors), and units they oversee throughout their term and Accountability auditing refers to the monitoring, evaluation, and verification of party leaders, governments, and state-owned corporations by auditing institutions in accordance with the law.

As for the general criteria for accountability audit, it should focus on the scientific growth of a region, department, or system, the authenticity, legitimacy, and effectiveness of financial income and expenditure, and associated economic activities, and the law-abiding, compliance, and conscientious actions of officials.

Currently, China's legal system of accountability audit has largely been established, with the Audit Law serving as the foundation, the Regulations issued by the two General Offices and its Implementation Rules serving as the core, and auditors' guides, operating methods, and so on serving as supplements.

Firstly, accountability audit is a statutory role given to audit institutions by the *Audit Law of the People's Republic of China*. Article 25 of the *Audit Law* revised in 2006 stipulated that: "As for the persons in charge of state organs and other units within the scope of audit objects of audit institutions according to the law, audit institutions should supervise their performance of accountabilities for fiscal revenues and expenditures, financial revenues and expenditures and relevant economic activities of the region, their departments or their units during their tenure by audit in accordance with the relevant provisions of the state", which clarified the legal status of accountability audit (Discipline Inspection and Supervision Team of the National Supervision Commission, 2017).

Secondly, In October 2010, the General Office of the CPC Central Committee of the Communist Party and the General Office of the State Council issued the Regulations for Audit of Economic Accountability over Principal leading officials of the Party, the Government, and State-Owned Enterprises. On July 27, 2014, the Central Commission for Discipline Inspection, the Organization Department of the CPC Central Committee, the State Commission Office for Public Sector Reform, Ministry of Supervision, the National Audit Office, Ministry of Human Resources and Social Security, and State-owned Assets Supervision and Administration Commission jointly issued the Implementation Rules for Regulations for Audit of Economic Accountability over Principal leading officials of the Party, the Government and State-Owned Enterprises (Han, 2019). The regulations and their implementation rules have become the programmatic documents of accountability audit.

Thirdly, the auditors' guide, operating methods, professional guidelines, etc. As you can see, these are some documents the National Audit Office has issued, like the Measures for the Audit of economic accountabilities over principal leading officials of Provincial Party Committees and Governments, Measures over principal leading officials of Central Departments, Measures over principal leading officials of State-owned Key Enterprises, Guide for the Analysis of accountability audit Data.

## **6. Accountability Audit Implementation**

In general, accountability audit implementation involves setting up management institutions, making plans for accountability audit, organizing the program, determining the audit content, evaluating and defining responsibility, and writing the reports.

### ***Setting up management institution***

Accountability audit is a statutory task to audit institutions, but it can never be accomplished just by audit institutions but jointly completed by many relevant departments. Therefore, it is crucial to strengthen the leadership for audit of economic accountability and establish a mechanism of joint conference or the leadership group. According to the Regulations issued by the two General Offices, every region is required to set up the mechanism of the joint conference, which should be launched by audit institutions, organization departments, or discipline inspection departments, at the same time be composed of representatives from departments of discipline inspection, organization, audit, human resources and social security, supervision, state-owned assets supervision, and administration and other departments approved by the joint meeting according to the requirements. The joint conference requires the establishment of a regular work office in the same location as the functional unit. The office's director should be the deputy head or an official of the same status as the audit institution of the same level.

Every year, the joint conference at the central level organizes a joint meeting on accountability audit to deliberate and put forward working ideas for the following year in accordance with the current actual situation, playing an important role in promoting the continuous and in-depth development of accountability audit.

### ***Making Plans***

Audit of economic accountability shall be conducted in a planned way. According to the Regulations and its Implementation Rules, accountability audit is required to the key areas, departments, and positions at least once during the term according to the nature, importance, size, etc., namely the rolling audit. To realize the aim of rolling audit, audit institutions should make up the scientific and reasonable annual plan and long-term plan of accountability audit considering the factors of nature, importance, size, and so on.

Each year the department of organization shall put forward a proposal of authorization related to the audit of economic accountability for next year. The joint conference office shall deliberate and develop an annual plan (draft) for audit of economic accountability, which shall be submitted by audit institution to the administrative leader of the government at the corresponding level for approval. The approved plan shall be incorporated into the annual plan for audit work of audit institutions and implemented accordingly. Audits can be carried out when leading officials are still in office, or when the leading officials no longer hold the positions.

In some regions, the auditees are divided into A/B/C/D according to types, nature, economic activity scale, etc., to formulate long-term and annual audit plans. A refers to audit once at least during the term, audit again after the term as a supplement. B refers to audit if necessary, during the term, choose some to audit after the term. C refers to audit random during the term, audit after the term. D refers to implementing economic matters handover, audit when needed.

### ***Organizing Audit Procedure***

The procedures of the audit program generally include forming an audit team and group, soliciting comments, delivering an audit notification, convening the first meeting, publicity, collecting relevant materials, having conversations, formulating the work plan, requesting assistance, and making records. The first thing to do is to form the audit team which should consist of members and the team leader in charge. The team leader and the vice team leader are designated by the audit institution. The team leader appoints the lead auditor from the team members under the necessity of the audit work. The lead auditor shall perform his or her duties as required and other responsibilities as entrusted by the audit team leader.

Later, to master the comprehensive information, the audit institution shall solicit comments from the Party committee and the government of the same level, relevant leaders of the unit where the audited leading cadre serves, and relevant member units of the joint conference.

Next, 3 days before the execution of the audit, the audit institution should deliver an audit notification to the leading officials to be audited and their working units or their former working units, as well as the relevant supervisory departments. An audit notification shall mainly include the name of the audited entity, audit basis, audit scope, starting time of the audit, the name list of audit team leader and other members, and the requirements on how the audited entity should cooperate in the audit. Meanwhile, the audited entity shall be informed of the disciplinary requirements for the audit team. Under special circumstances, an audit institution may start the audit with an audit notification without prior notice with the approval of the government at the corresponding level.

Before an audit institution carries out an accountability audit, it shall call a meeting with the participation of major members of the audit team, leading cadre to be audited and relevant personnel of his/her working unit. At the meeting, audit-related arrangements shall be made. If necessary, relevant personnel of member units of the joint conference may be present.

During the term of the audit, the publicity of the audit should be made in a proper way such as putting up posters, making announcement on the local area network, etc. The information of the publicity contains the auditee, the legislative authority, the implementation time, the content of the audit, as well as the telephone, the discipline of the audit team, and so on. Additionally, as the basis of the audit, the leading cadre and the unit where he/she serves, and other relevant units shall provide both papyery and electronic materials related to the performance of the economic accountability of the audited leading cadre. including:

- 1.. Materials related to fiscal and financial revenue and expenditures.
2. Work plans, summaries of work, meeting minutes, meeting summaries, economic contracts, results of examination and inspection, professional work files, etc.;
3. The audited leading cadre's work report;
4. Other relevant materials.

The audited leading cadre and the unit where he/she serves are responsible for the authenticity and completeness of the materials provided. They are required to present a written commitment.

Next, the audit team should draw up the work plan of the audit considering factors such as the known information, the target, the needs of cadre management and supervision, audit resources, technical methods, efficiency, and the actual reality of the audited leaders and the regions (departments, enterprises), etc. The content of the work plan normally consists of the target, the scope of the audit, the content and the key points of the audit, as well as the arrangement of audit resources and the requirement for the auditors.

Following, when an audit institution carries out an audit, it may ask for assistance in accordance with law from relevant departments and units, which, in turn, shall actively respond.

During the Audit, auditors shall record truthfully and completely the process of audit implementation, audit conclusions, and important management issues relating to audit assignments. It is to achieve the objectives like to support auditors' compilation of audit programs and audit reports, or to prove auditor's compliance with relevant laws, regulations, and these standards, and facilitate guidance, supervision, and inspection on auditors' work. Records made by auditors shall enable an experienced auditor o has no involvement in the audit to understand the audit methods used, audit evidence obtained, professional judgments developed, and audit conclusions are drawn. Audit records shall include records of the investigation into the audited entity, working papers, and records of important management issues. Audit evidence materials shall be attached as annexes to the investigation records and audit working papers (Han, 2019) (Discipline Inspection and Supervision Team of the National Supervision Commission , 2017).

### ***Determining the Key Audit Content***

The contents of the audit shall be strictly defined in accordance with the law based on the authenticity, legitimacy, and performance of government and financial revenue and expenditure and other economic activities of their regions, departments (sectors), and units during the tenure of leading officials. Audit content will be determined by dividing leaders into four categories, namely principal leading officials of local Party committees, principal leading officials of local governments, principal leading officials

Party and government departments, and principal leading officials of state-owned enterprises (Han, 2019).

### *Audit Assessment*

The audit institution shall make an objective, fair and truthful assessment of the performance of the economic accountability of the audited leading cadre, based on the evidence and confirmed facts; laws, relevant regulations, and policies of the state; and examination targets for economic accountability and industry standards. . The following principles should be upheld in the audit:

The first principle is consistency between power and responsibility. Responsibility should be defined according to the law and based on the principle of reciprocity of power and responsibility, and attention should be paid to distinguishing between collective and individual, between predecessor and successor, and other relationships. Assessment content should be consistent with the audit content.

The second principle is seeking truth from facts. During making assessments, it is better to use audited data and facts. For example, when describing main achievements, auditors should reflect problems by enumerating their specific measures and index data and making a horizontal or vertical comparison, and they should indicate the source when quoting unaudited data and should avoid empty words and stereotypes.

The third principle is highlighting the key points. Audit assessment should focus on the quality, efficiency, and sustainability of economic and social development and the development of undertakings; focus on the economic benefits, social benefits, and environmental benefits of the management decisions and other activities related to the leaders' performance of economic accountabilities; focus on important issues during their tenure, and focus on the issues for which leaders should bear direct responsibility.

Specific assessment methods include the longitudinal and transverse comparison of performance, quantitative analysis, objective analysis such as putting the problem back in the original surroundings. As for the Evaluation index, it is recommended to set qualitative and quantitative evaluation index combinations. In some regions, audit institutions use the quantitative rating method to evaluate the accountability fulfillment level of officials (Han, 2019).

### *Identifying responsibilities*

Identifying responsibilities is the focus as well as a difficult part of accountability audit. The audit institution shall identify, different responsibilities that the audited leading cadre should take, which are direct, management, or leadership responsibilities, according to different situations of each problem that happened in the process of performing economic accountability.

In order to define the responsibility accurately, it is necessary to carry out a whole-process scanning audit of important matters. For example, during the audit over the decision-making process and implementation results of a major decision, it is needed to obtain an appropriate and adequate basis for the definition of responsibility and strengthen the link between audit results and the economic responsibilities of main leaders. From the adequacy of the decision-making basis, the normative degree of procedures and the legitimacy of content in the initial links to the timeliness and effectiveness of implementation promotion and follow-up inspection in the intermediate links and the degree to which the expected purpose of the decision is achieved in the final links, it should be audited and define the responsibility of each link one by one and trace the problems found in the final links back to the initial links to find out whether the initial decision is scientific and reasonable, whether there are obstacles to institutional mechanisms, etc., and lay a solid foundation for the definition of leaders' economic



responsibilities.

### *Writing the Reports*

The audit report is the most important mean of audit results. The elements of the audit reports include basic information, audit assessment main problems and responsibilities, audit opinions and suggestions, and other necessary content. When referring to a serious issue, it can be directly submitted to the Party committee, governments, or relevant departments, not (Gong, 2009)reflected in the audit report, and no need to solicit opinions of the auditee. The audit institution shall deliver the audit report on the economic accountability to the audited leading cadre and the unit where he/she serves.

After an audit, the written audit report by the auditing team shall solicit comments from the audited leading cadre and the unit where he/she serves. If necessary, comments may be solicited from relevant leaders of the Party committee and the government of the same level and relevant member units of the joint conference.

The audited leading cadre and the unit where he/she serves shall come up with their written comments within 10 (ten) days after they receive the audit report; If there is no written comment within 10 days, the report is considered fully accepted. The audit institution shall examine and deliberate the audit report of the audit team in accordance with the Audit Law and procedures stipulated by relevant laws and statutes, and then issue an accountability audit report and a report of audit results.

The report of audit results is based on the audit report, which refines the audit findings. The audit institution shall submit the report on the results of the accountability audit to the administrative head of the government of the corresponding level. If necessary, it shall also be submitted to the chief responsible person of the Party committee and the organization department that commissioned the audit.

### *Audit Finding Application*

Audit finding application is the last procedure and one of the most important procedures of the accountability audit. Party committees and government of all levels shall set up and improve systems for audit finding application, such as accountability audit results circulation, audit rectification, and accountability pursuing, and gradually explore and implement a public announcement system for accountability audit results.

Relevant departments and units shall, in accordance with relevant requirements on management and supervision of leading officials, apply accountability audit findings as an important reference for examining, appointing, removing, awarding, or penalizing audited leading officials and feedback in a proper way to the audit institution how audit findings have been applied.

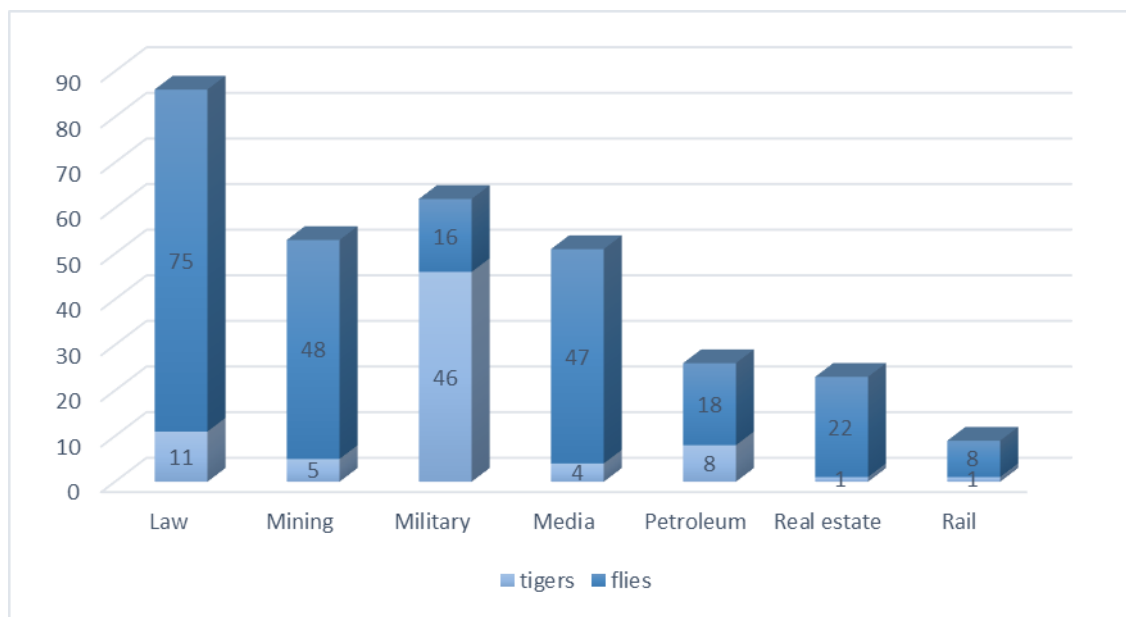
Currently, China has established more than 1,000 systems for the application of accountability audit results, including admonishing (warning) conversation, outgoing economic matters handover, personal records, and clean governance records of leaders and other systems, and has achieved good results.

## **7. Conclusion**

Since 1978, when China began its transition to a market economy, the situation has deteriorated in terms of corruption. During the transition era, corruption took on its own distinct shapes and patterns. To date, three waves of corruption have had serious ramifications for political, economic, and social life, posing a serious challenge to the regime's existence. The Chinese authorities have clearly recognized the gravity of both corruption and its consequences, and as a result, they have increased their anti-corruption

operations. According to publicly provided figures, the number of investigations has continuously increased: 172,000 in 2013, 330,000 in 2015, 527,000 in 2017, and 302,000 in just the first half of 2018. (China File, 2018). The most corrupted sector was Law, Military, Mining, and Media.

**Table 1. Corruption in Different Sectors**



Source: China File. (2018, August 15).

Furthermore, Guangdong, Beijing, and Hubei have the greatest case counts. Beijing is the most corrupted province, with 4,008,807,381 Chinese Yuan of the total amount of funds and assets misused or embezzled (13,158,028,581 Chinese Yuan).

Despite some achievements, it has now become clear that the current anti-corruption campaign is completely insufficient in eliminating corruption, due in large part to the nature of the existing political system. More political change and progress toward democracy are required if China is to effectively manage corruption.

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