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UVODNA RIJEČ UREDNIKA

Dragi čitaoci,

Pred Vama je 31. broj časopisa Ekonomski izazovi, koji je ušao u petnaestu godinu kontinuiranog izlaženja. U ovom broju donosimo vam zanimljive radove iz različitih disciplina, kako ste već navikli. Uvjeren sam da ćete uživati u čitanju i da ćete naučiti važne stvari o savremenim trendovima u nauci i poslovanju.
Od prošle godine časopis je počeo da izlazi tri puta godišnje što će povećati kvalitet i atraktivnost samih radova. Posebno nam je zadovoljstvo da istaknemo kako je naš časopis kategoriziran kao M52 od strane Ministarstva nauke, tehnološkog razvoja i inovacija Republike Srbije, što nas svrstava među nacionalne časopise za 2026. godinu velikog značaja. Takođe ponosni smo što je Ministarstva nauke, tehnološkog razvoja i inovacija Republike Srbije odlučilo da sufinansira časopis u 2026. godini. Zajedničkim snagama možemo postići još više.

Do sljedećeg čitanja, želim vam svako dobro.

Glavni urednik: doc. dr Dženis Bajramović

FOREWORD BY THE EDITOR

Dear Readers,

We are pleased to present the 31st issue of the journal Economic Challenges, which has now entered its fifteenth year of continuous publication. This issue features a selection of insightful papers from a range of disciplines, in line with the standards you have come to expect. We trust that you will find the content both engaging and informative, offering valuable perspectives on contemporary trends in science and business.
Since last year, the journal has been published three times annually, a development that is expected to further enhance the quality and scholarly value of the published contributions. We are particularly pleased to note that the journal has been classified as M52 by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia, thereby positioning it among nationally significant journals for 2026. We are also proud that the Ministry of Science, Technological Development and Innovation of the Republic of Serbia has decided to co-finance the journal in 2026. We remain confident that, through continued collaboration and commitment, even greater achievements lie ahead.

Until the next issue, we extend our best regards.

Editor-in-Chief: assis. prof. Dženis Bajramović

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SYNERGIES FOR SUSTAINABILITY IN ALGERIA: A DYNAMIC ARDL AND KRLS ANALYSIS OF RENEWABLE ENERGY AND GREEN GROWTH

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Abstract
This study examines Algeria's green economy and renewable energy sources. The dynamic correlation over time shows people's renewable energy consumption habits, which indicates that the rise in GDP, including the rise in per capita income, reinforces the idea that individuals in Algeria tend to increase the consumption of non-renewable energies and therefore the societal preferences for the consumption of renewable energies decrease, and this is what decision makers should take into account in enhancing the effectiveness of the green economy. Between 2000 and 2021, dynamic ARDL and KRLS models were used to analyze Algeria's GDP per capita in relation to its consumption of renewable energy as a proportion of total energy usage. The results indicate a projected rise in Algeria's per capita GDP that affects negatively renewable energy use in the short-run. By introducing the benefits resulting from the use of renewable energies, especially through various audio-visual means and advertising, Algeria might potentially reduce its dependence on fossil fuels for consumer energy and encourage investment in renewable energy sources.
Keywords: Social behavior, Renewable energy, KRLS, Dynamic interactions, Algeria.

SINERGIJE ZA ODRŽIVOST U ALŽIRU: DINAMIČKA ARDL I KRLS ANALIZA OBNOVLJIVE ENERGIJE I ZELENOG RASTA

Apstrakt
Ova studija istražuje zelenu ekonomiju i obnovljive izvore energije u Alžiru. Dinamička korelacija tokom vremena pokazuje obrasce potrošnje obnovljive energije među stanovništvom, pri čemu rezultati ukazuju da rast bruto domaćeg proizvoda (BDP), uključujući i rast BDP-a po glavi stanovnika, podstiče veću potrošnju neobnovljivih izvora energije. Posledično, društvene preferencije prema korišćenju obnovljivih izvora energije opadaju, što donosioci odluka treba da uzmu u obzir kako bi unapredili efikasnost zelene ekonomije. U istraživanju su za period od 2000. do 2021. godine primenjeni dinamički ARDL model i KRLS model radi analize odnosa između BDP-a po glavi stanovnika u Alžiru i potrošnje obnovljive

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energije kao udela u ukupnoj potrošnji energije. Rezultati pokazuju da rast BDP-a po glavi stanovnika u kratkom roku negativno utiče na upotrebu obnovljivih izvora energije. Promovisanje koristi od korišćenja obnovljivih izvora energije, naročito putem različitih audio-vizuelnih medija i reklamnih kampanja, moglo bi doprineti smanjenju zavisnosti Alžira od fosilnih goriva u sektoru potrošnje energije i podstaći ulaganja u obnovljive izvore energije.
Ključne reči: Društveno ponašanje, obnovljiva energija, KRLS, dinamičke interakcije, Alžir.

INTRODUCTION

It is becoming increasingly difficult for the global economy to deal with the difficulties of climate change, environmental degradation, and resource depletion, which is leading nations to investigate different models of sustainable development. The green economy is one such paradigm that is gaining momentum. Its goal is to support economic growth while simultaneously minimizing environmental dangers and carbon footprints. In the same way that countries all over the world are working to transition away from their dependency on fossil fuels and toward renewable energy sources, Algeria, a country that has traditionally been dependent on oil and gas, is also beginning to see the significance of this change. In this sense, the authorities have been quite vocal about the significance of sustainable energy as a supplement to sources of energy that are not renewable. Renewable sources of energy play an important part in the manufacturing processes, which are necessary for a cleaner environment. In light of this, numerous nations have initiated the process of channeling funds towards the development of technologies that facilitate the transition to renewable energy sources in order to alleviate environmental concerns(Taskın, Vardar, & Okan, 2020, p. 772).

The Algerian energy sector is undergoing substantial changes in the context of global trends towards sustainability. The Algerian government has set ambitious aims to develop renewable energy sources such as solar, wind, and geothermal power. These developments are taking place in the framework of Algeria's energy sector. In contrast to nations like Egypt and Libya, Algeria makes a unique case in the MENA area. Furthermore, Algeria is a crucial case for investigating the connection between the growth of renewable energy and the convergence of the green economy.

The purpose of this study is to analyze the nature of the dynamic link that exists between the rate of GDP per capita in Algeria and the amount of investment in the field of renewable energies that are implemented in Algeria. Due to the fact that the idea of a green economy is connected to the degree to which the standard of living of individuals improves, and the degree to which it is feasible to implement a program in their lives that has a positive impact on the accomplishment of a green economy, the notion of a green economy depends on both of these factors. When it comes to the execution of programs that support investments in a variety of activities that contribute to the sustainability of the green economy, per capita income is another factor that adds further. In our research, we will be relying on the approach of assessing the economy that is characterized by modernity and is represented by DYNAMIC ARDL and KRLS. The social role is manifested through (Deshuai, Hui, & Ullah, 2022)'s study, which illustrated the contribution of renewable energy

consumption, higher education, and the roles of information and communication technology in enhancing environmental quality and green growth in China. The results indicated that, in the long term, renewable energy and higher education significantly reduce carbon dioxide emissions and promote green growth, while the impact of information and communication technology on emissions is mostly negligible. As a result, the social component of individuals or economic actors is closely tied to their spending habits and how they are directed based on their diverse economic needs. Based on this, we can ask the following question: How does individual behavior resulting from their share of the GDP affect the relationship between the green economy and renewable energy consumption in Algeria?

To answer the question, we split our work into three major axes: the first is a description and discussion of many works that addressed the concept of interaction between the green economy and the consumption of renewable energy. With greater specificity, we examined works that addressed both social and economic issues within the context of past literary research. In the second axis, we specified the path of the study's primary variables over the study period. Finally, we used the usual technique to investigate the dynamic connections between per capita GDP and the proportion of renewable energy consumed in Algeria.

Literature review

An investigation by(Bina, 2013) demonstrated the rise of the 'green economy' in reaction to the global economic crisis, with a particular emphasis on its role in sustainable development. The results indicate a polarization of discourses, a tenuous understanding of sustainable development, and persistent discussions over the need to change or radically alter current economic paradigms.

Zeb, Salar, Awan, Zaman, & Shahbaz (2014) examine the causal links between renewable energy output, carbon emissions, resource depletion, GDP, and poverty in SAARC nations from 1975 to 2010. Significant findings reveal bidirectional causality between emissions and resource depletion in Nepal, as well as between energy and poverty in Pakistan. Energy generation alleviates poverty in Bangladesh and India, but poverty propels energy production in Sri Lanka. Panel results indicate that GDP and poverty enhance energy output, which reduces emissions but exacerbates resource depletion and GDP, ultimately elevating emissions in the region. The Green Economy (GE) seeks to harmonize environmental and socio-economic objectives, with renewable energy (RE) regulations serving a pivotal function. Pahle, Pachauri, &Steinbacher(2016) concluded that although renewable energy deployment can provide immediate socio-economic advantages such as job creation and energy accessibility, these benefits may not be sustainable in the long term. Effective GE policies necessitate explicit objectives, rigorous monitoring, and innovative approaches for analyzing multi-objective policies integral to the GE framework.

Tien, Phuc, Thoi, Duc, &Thuc, (2020) discussed the green economy as a response to climate change, rising sea levels, and the global economic recession. Following the 2011 climate change conference in South Africa, which established a Green Climate

Fund, countries have focused on reducing greenhouse gas emissions and transitioning to low-carbon economies. The paper highlights the need for renewable energy sources, such as wind, solar, geothermal, and biomass, to meet global energy demands. It explores the opportunities for Vietnamese businesses in promoting renewable energy development and identifies key challenges hindering the exploitation of these resources in Vietnam.

Another study by (Taskın, Vardar, & Okan, 2020) uses multivariate panel data to investigate renewable energy usage, trade openness, and green economic growth in OECD nations from 1990–2015. Renewable energy usage and trade openness both boost green economic growth, but trade openness has a longer-term effect. Bidirectional causality between renewable energy and green economic growth fosters feedback. The findings urge governments to encourage renewable energy markets with laws and regulations that minimize environmental damage to achieve sustainable economic growth. The analysis of the criteria for balancing endeavors for green economic development between pollution reduction, efficiency, and growth reveals their connection to renewable energy through technological reliance. The findings of (Xie, Liu, Guan, & Wang, 2020)'s study revealed an inverse link in the form of the value of renewable energy benefits on green growth falling between 0.67% and 10.87% of total energy consumption. The emergence of new technology reinforces this relationship, while current advancements fail. Policies that encourage innovation, ecologically benign transformations, and reduced reliance on fossil fuels are critical. The function of financial regulation in attaining a sustainable green economy was examined in another study by (Cigu, Petrisor, Nută, Nută, & Bostan, 2020). It examines the literature on the value of regulation using a conventional method, in which a linear regression model covering pre-, during-, and post-crisis periods was created in order to analyze the effects of financial regulation in 25 EU nations (2000–2018). The findings demonstrated how sound financial regulation may support sustainable and growth-oriented green economies. Ye et al (2022) explored the impact of green finance (green credit, investment, and securities) and corporate social responsibility on renewable energy investment in the rising economy (1976-2020) using econometric measurement via the error correction model. The findings revealed strong positive connections between these parameters and renewable energy investment, providing policymakers with insights into green financing and sustainable energy in developing countries.

Using panel ARDL analysis (Younas, Shoukat, Awan, & Arslan, 2023) explore the impact of renewable energy, green innovations, employment, and technology on South Asia's Green Economy (GE) from 1972 to 2021. Green inventions, employment, and technology have limited impact owing to cost and awareness hurdles; however, renewable energy has a favorable effect on GE. Training, education, and awareness initiatives are among the policies that have been proposed to promote long-term economic expansion. (Gorji & Martek, 2023) Examined the problems of the impacts of renewable energy technologies on green growth in 20 developed and 20 developing countries from 2010 to 2021, utilizing the team's data estimators. The findings indicate varied contributions: solar, wind, and biomass energy facilitate growth in developed nations, whereas hydropower does not; in

developing nations, most sectors, excluding wind, also provide contributions. Moreover, effective policies promote innovation and sustainability. Nejad (2023) introduced the Green Economy Index and examined the significance of renewable energy in Egypt's green transformation. The primary findings indicate that renewable energy fosters the advancement of the green economy, but non-renewable energy exerts a detrimental impact. Augmented capital expenditure and employment enhance the green index. Furthermore, governmental policies ought to incentivize investment in renewable energy and engage corporations to propel the expansion of the green economy. To fight environmental challenges, the globe requires renewable energies. Furthermore, the involvement of vocational and university programs in training skilled people is critical to achieving a green workforce, as is the establishment of legislation to create jobs in the renewable energy sector(Karakul, 2016).

In their paper (Ashfaq, et al., 2024) focused on the renewable energy-green growth nexus in G-20 countries, demonstrating long-term cointegration, emissions persistence, and the need for effective policies that promote sustainability, green jobs, innovation, and climate change mitigation. A recent study by(Murshed, 2024) examined green growth, focusing on renewable energy transition, governance, and other factors. The results showed that renewable energy alone does not drive green growth without improved governance, which mediates the relationship. Urbanization, industrialization, trade, and financial development hinder green growth, while financial globalization has no effect. This investigation also highlights differences between lower-middle and upper-middle income countries and suggests tailored policies to promote green growth. Phan (2024) assessed the impact of clean energy, green bonds, and green economic progress on environmental, social, and cultural governance practices, as well as sustainable development goals in Asian economies from 2011 to 2020. The main findings illustrate that these factors are the primary determinants of environmental, social, governance, and sustainable development practices. The linkages remain stable when accounting for variables such as FDI and GDP, offering valuable insights for stakeholders and policymakers in the promotion of sustainable business practices. The existence of varied effects in terms of geography and resource utilization was proven by (Hwang & Diez, 2024)'s study on the influence of renewable energy transition on green economic growth in 14 Latin American nations (2003-2020). These effects may be categorized into five intermediary factors: capital investment, dependence on hydropower, per capita electricity consumption, human capital, and employment development. This research validates the complex characteristics of renewable energy transitions in enhancing green development.

While a growing body of literature has explored the relationship between renewable energy and the green economy at the global and regional levels, limited attention has been paid to this relationship in the Algerian context, particularly from a socio-economic perspective. Most current studies tend to focus on the environmental or technical dimensions, often ignoring the broader socio-economic implications of renewable energy adoption. Moreover, few studies use advanced econometric techniques that can capture the dynamic and asymmetric nature of this relationship over time. So far, no study has used DYNAMIC ARDL and KRLS models to analyse

how renewable energy can contribute to Algeria's transition towards a green economy, taking into account the country's unique structural, institutional and developmental characteristics. This study aims to bridge this gap by providing an accurate understanding of the socio-economic interaction between renewable energy and the green economy in Algeria.

THEORETICAL BACKGROUND

GREEN ECONOMY AND RENEWABLE ENERGY STATUS IN ALGERIA.

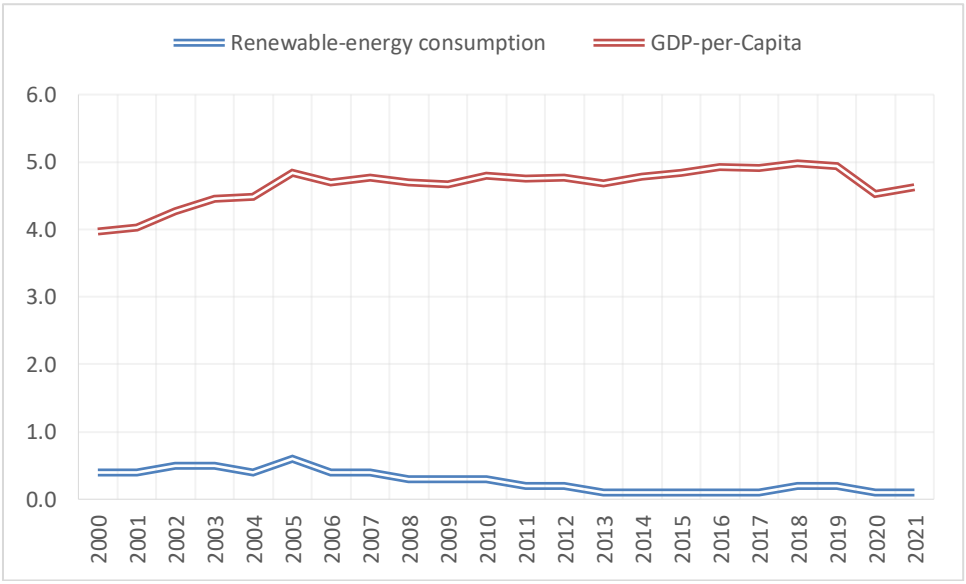
The concept of a global transition towards a green economy has emerged as a strategic response to growing environmental challenges, resource depletion, and socio-economic inequality. The green economy, in essence, promotes economic growth and reduces environmental risks and ecological scarcity, and this is considered one of the most important statements of the United Nations Environment Program for the year 2011. More than that, green economics emphasizes low-carbon development, efficient use of resources, social inclusion, and offering renewable energy as a cornerstone of sustainable economic transformation. Renewable energy technologies such as solar, wind, biomass, and hydropower, for example, have a very positive role not only in mitigating the effects of climate change, but also in stimulating job creation, energy security, and economic diversification, especially in resource-dependent countries such as Algeria.

In the framework of Algeria's hydrocarbon-dominated economy, the move to renewable energy is both a necessity and an opportunity. Algeria has significant solar potential, but green energy adoption is restricted owing to institutional, organizational, and financial impediments(Boudghene Stambouli, Khiat, Flazi, & Kitamura, 2012).

In this section, we will discuss the theoretical foundations of two key variables related to the situation of the green economy and renewable energy paths in the Algerian economy. We will discuss per capita production based on the available statistics, and these variables are the proportion of renewable energy consumption each year from 2000 to 2021. Figure 01 analyzes the paths of Algeria’s per capita output and the proportion of its energy consumption that originates from renewable sources.

Figure 1

Algeria renewable energy consumption (% of total energy consumption) and GDP per capita (thousand U.S. dollars) during 2000-2021.



Source: tradingeconomics.com (seen on 25/05/2025).

The use of renewable energy in Algeria has demonstrated a declining tendency from the year 2000 to the year 2021, which indicates that the country has not made significant progress in diversifying its energy portfolio. At the beginning of the twenty-first century, the percentage of total final energy consumption that was comprised of renewable energy was roughly 0.6%. This number, on the other hand, experienced a major decline after the year 2008 and has remained at values lower than 0.2% following the year 2010. Because of this impasse, Algeria's renewable energy infrastructure has made very limited progress, despite the fact that the world is moving toward more sustainable energy sources.

Algeria's gross domestic product (GDP) per capita exhibited a variety of trends over the same period. As a result of robust hydrocarbon exports and cheap oil prices, the gross domestic product (GDP) per capita increased consistently between the years 2000 and 2014. Nevertheless, the oil price fall that occurred after 2014 introduced an element of uncertainty into the economy, resulting in a significant shift in GDP per capita. Algeria's dependence on fossil fuels and its susceptibility to shocks from the international oil market were brought into sharper focus by the fact that this economic crisis occurred at the same time as the rise of renewable energy did not progress.

When the use of renewable energy is not considered in conjunction with the expansion of GDP, significant policy and structural deficiencies are revealed. It would appear that there was a failure to diversify the energy sector by spending only a small amount on renewable energy throughout times of economic expansion. Inadequate funding, outdated infrastructure, and weak regulatory frameworks that inhibit the expansion of renewable energy sources are some of the factors that have contributed to this situation.

THEORETICAL PILLARS OF THE NEXUS BETWEEN GREEN ECONOMY AND RENEWABLE ENERGY CONSUMPTION

Green investments in renewable energy, as viewed through the lens of internal growth theory, may be significant engines of innovation and technological advancement. Classical growth models, on the other hand, consider technological change external. Internal models propose that governmental policies and R&D spending have a direct impact on economic growth trends (Romer, Oct.1990). More than that, renewable energy sectors, especially in emerging economies like Algeria, represent great potential for knowledge spillovers, green job creation, and industrial diversification. Because of the above, it has a great role in promoting sustainable growth. Thus, the transition to a green economy is not only an environmental necessity, but also a strategic tool for economic progress, especially in countries seeking to reduce dependence on limited natural resources such as oil and gas (Bibri, 2018).

Renewable energy, according to the United Nations Environment Program's (2011) green economy model, is not simply a technology, but also a catalyst for systemic transformation that improves resource efficiency, lowers carbon emissions, and promotes equitable economic growth(UNEP, 2011).The connection between the green economy and renewable energy is rooted in the larger context of sustainable development theory, which emphasizes the importance of balancing economic growth, environmental protection, and social justice. Renewable energy also plays a crucial part in attaining this balance by providing clean and sustainable alternatives to fossil fuels, therefore lowering environmental degradation and helping to long-term economic stability(Brundtland Report, 1987) .

Furthermore, the Environmental Kuznets Curve (EKC)hypothesis sheds light on the dynamic relationship between income levels, environmental deterioration, and green energy uptake. According to the Environmental Knowledge Center, economic expansion is initially associated with a rise in environmental pollutants. However, beyond a certain wealth level, societies begin to invest in cleaner environmental technology and policies, resulting in better environmental outcomes (Grossman and Kruger, 1995). That concept may be applied to Algeria's economy. Because they believe that economic expansion, along with deliberate political interventions and the deployment of renewable energy, may eventually lead to the decoupling of growth from environmental degradation. As a result, the theoretical underpinning for this connection underlines the importance of integrated policy frameworks that support green economic goals while also accelerating the deployment of renewable energy technology.

Socio-Economic Implications

The shift to renewable energy promotes the establishment of green jobs as well as social integration by offering opportunities based on skill level and geographic location. Furthermore, green occupations like solar panel installation and energy efficiency services boost local economies and eliminate inequities between urban and

rural regions (La Camera & Ryder, 2021). Furthermore, investment in human capital and vocational training related to clean technology fosters broad economic involvement. These dynamics also reflect an equitable transition framework, ensuring that they do not exacerbate social inequities and, instead, support equitable development(UNDP, 2022).
From the lens of Income Redistribution and Energy Poverty Reduction, Renewable energy deployment is critical for eliminating energy poverty and fostering wealth redistribution, particularly in low-income and neglected communities. Distributed solar energy systems and off-grid solutions cut home energy expenses, enhance living conditions, and free up revenue for other essential requirements (Pachauri, et al., May 2013). Renewable energy programs serve as tools for economic empowerment and long-term poverty alleviation by democratizing energy access and supporting small-scale entrepreneurship.

Model specification

Model Description

This section lays out the methodology of the study, including the steps taken to collect, analyze, and interpret data in a way that guarantees the reliability and validity of the study's findings. We aim to provide a strong basis for our findings by meticulously selecting and employing these strategies.
Furthermore, we shall assess the impact of GDPPERCAPITA on REC (renewable energy consumption) in Algeria. At its heart, the standard process is based on three primary variables that use dynamic ARDL, a novel standard method that lets us apply various shocks to independent variables and monitor their evolution through simulation models given and created by the "Dynardl program" developed by(Philips, january 2018); (Jordan & Philips, 2018). This method accurately depicts the REC path in the event of GDP per capita shocks to the economy. Table No. 01 shows the various variables, their sources, and nature

Table 1

Variables characteristics

variables	Designation	Type	Data type	source
GDPPERCAPITA	Annual per capita GDP according to the US dollar	Independent (Regressor)	Annual	**https://tradingeconomics.com**
REC	The ratio of consumption of renewable energies to total energy consumption	Dependent	Annual	**https://tradingeconomics.com**

Source: made by authors.

The ARDL model in error correction form could be written as follows: (Jordan & Philips, 2018, p. 904)

$$\Delta y_t = \alpha_0 + \theta_0 y_{t-1} + \theta_0 x_{1,t-1} + \cdots + \theta_k x_{k,t-1} + \sum_{i=1}^{q} \alpha_i \Delta y_{t-1} + \sum_{j=0}^{q1} \beta_{1j} \Delta x_{1,t-j} + \cdots + \sum_{j=0}^{q_k} \beta_{kj} \Delta x_{k,t-j} + \epsilon_t \ldots (1)$$

in which the change of the dependent variable is associated with a constant, its value at t-1 (which is presented in levels), the values of all regressors at t-1 (which is also presented in levels), and the first differences between the dependent variable and the regressors up to p and q_k lags, respectively.

y_t : Dependent variable.

x_k: Regressors (independent variables).

α_0: Constant.

The following is a reformulation of the equation for the study model that takes into account the factors included in the study:

$$\Delta REC_t = \alpha_0 + \theta_0 REC_{t-1} + \theta_0 GDPPERCAPITA_{1,t-1} + \cdots + \theta_k GDPPERCAPITA_{k,t-1} + \sum_{i=1}^{q} \alpha_i \Delta REC_{t-1} + \sum_{j=0}^{q1} \beta_{1j} \Delta GDPPERCAPITA + \cdots + \sum_{j=0}^{q_k} \beta_{kj} \Delta xGDPPERCAPITA_{k,t-j} + \epsilon_t \ldots (2)$$

In order to simulate the dynamic link between the percentage of renewable energy consumption in Algeria and the GDP per capita as an indicator of an individual's potential to contribute to the achievement of a green economy, we will explore various tests and models using equation No. 02, which gives us the opportunity to study the dynamic relationship.

The descriptive data analysis is shown in Table 2:

Table 2

Data descriptive analysis

Variables	REC	GDPPERCAPITA
Mean	0.2727	4.3822
Median	0.25	4.46
Maximum	0.6	4.83
Minimum	0.1	3.57
Std. Dev.	0.1579	0.3732

Skewness	0.3873	-0.8644
Kurtosis	1.9628	2.7792
Jarque-Bera	1.5360	2.7844
Probability	0.4639	0.2485
CV	0.5790	0.0851
Sum	5.9999	96.4099
Sum Sq. Dev.	0.5236	2.9257
Observations	22	22

Source: calculated by authors.

Data indicate an average renewable energy consumption (REC) of 0.2727, accompanied by a standard deviation of 0.1579 and a coefficient of variation of 0.579. This trend indicates significant annual volatility. The mean GDP per capita is 4.3822 (thousands of USD), accompanied by a standard deviation of 0.3732 and a coefficient of variation of 0.085. This aligns with Algeria's relatively stable per capita income trajectory during this era. The distribution of REC is somewhat right-skewed (skewness 0.3873) and slightly platykurtic (kurtosis 1.9628), indicating a prevalence of years with moderate to high uptake over those with dramatic spikes. The Jarque–Bera statistic of 1.536 with a p-value of 0.4639 fails to reject normalcy, hence endorsing conventional inference in regressions utilizing REC. The GDP per capita distribution exhibits left skewness (skewness −0.8644), with a kurtosis of 2.7792 and a Jarque–Bera statistic of 2.7844 (p=0.2485), indicating a general compatibility with normality. Economically, this left tail corresponds to the oil-cycle dynamics from the mid-2000s to 2014 and subsequent downturns that resulted in several years falling below the median of 4.46, despite a maximum of 4.83 and a minimum of 3.57, reflecting Algeria's hydrocarbon-related income fluctuations as documented in the World Bank/TE series. The data indicates that REC increased but remained a minor, fluctuating proportion (from 0.1 to 0.6), but living standards exhibited greater stability. From a policy perspective, the relative stability of GDP per capita in comparison to REC is noteworthy. Indicating that REC shocks likely do not significantly affect overall well-being immediately. Nevertheless, expanding renewable energy sources could assist in decoupling revenue from the fluctuations of oil prices, which are crucial for Algeria's economic development.

DYNAMIC ARDL steps and tests

This model requires the dependent variable to be at Level I (1) and the independent variables to be no more stable than Level 1 (I (0) or I (1)). A series' sequence of integration can be determined by unit root tests like Kwiatkowski-Phillips-Schmidt-Shin, Elliott-Rothenberg-Stock, Dickey-Fuller, and Phillips-Perron. Cointegration requires a non-stationary dependent variable(Jordan & Philips, 2018, p. 903). The results of the unit root tests (see Table 3) show that the independent variable REC is stable of degree I(0) (PP test p-value 0.01;DF test 0.02) and the dependent variable is independent of the first degree I(1) (PP test p-value 0.82;DF test 0.29).Therefore, we can apply dynamic simulations to the ARDL model.

Table 3

Phillips-Perron and dicky-fuller tests for unit root

Phillips perron test for unit root — Number of Obs= 21
Variable : ln-GDPPERCAPITA Newey-West lags = 3
H0 : Random walk without drift, d = 0

Critical values	Dickey-Fuller	
	z (rho) test statistic =-3.366	z (t) test statistic = - 3.311
1% critical value	- 17.200	- 3.750
5% critical value	- 12.500	- 3.000
10% critical value	- 10.200	- 2.630

DF-GLS test for unit root — Number of Obs = 17
Variable : ln-GDPPERCAPITA
Lag selection : maximum 4 lags

Lags	DF-GLS tau	Critical values		
		1%	5%	10%
4	-0.837	- 3.770	- 3.043	- 2.654
3	-1.250	- 3.770	- 3.188	- 2.805
2	-1.179	- 3.770	- 3.349	- 2.963
1	-0.843	-3.770	-3.498	-3.103

Opt Lag (Ng-Perron seq t) =0, option max lag (0)
Min SIC =- 7.23453 at lag 1 with RMSE = 0.0227333
Min MAIC =- 7.309366 at lag 1 with RMSE = 0.0227333

Phillips-Perron test for unit root — Number of Obs= 21
Variable : ln-REC — Newey-West lags = 3
H0: Random walk without drift, d = 0

Critical values	Dickey-Fuller	
	z (rho) test statistic =-1.677	z (t) test statistic = - 0.778
1% critical value	- 17.200	- 3.750
5% critical value	- 12.500	- 3.000
10% critical value	- 10.200	- 2.630

DF-GLS test for unit root — Number of Obs= 17
Variable : ln-REC
Lag selection : maximum 4 lags

Lags	DF-GLS tau	Critical values		
		1%	5%	10%
4	-2.340	- 3.770	- 3.043	- 2.654
3	-2.213	- 3.770	- 3.188	- 2.805
2	-1.896	- 3.770	- 3.349	- 2.963
1	-1.871	-3.770	-3.489	-3.103

Opt Lag (Ng-Perron seq t) =0, option max lag (0)
Min SIC =- 2.107241 at lag 1 with RMSE = 0.2951474
Min MAIC =- 1.727981 at lag 1 with RMSE = 0.2951474

Source: calculated by authors using stata17.

Attributes of the ARDL model:

Based on the data presented in Table 4, the results from the P-tests indicate that the p-value is less than the critical values at the 1%, 5%, and 10% significance levels. Consequently, this suggests that the model demonstrates statistical quality. Therefore, there are no issues related to cointegration in the short-run. More than that, Table 05 and Table 06 indicate the power of the nexus between the two variables; this is where it reached 30% in the model with a constant and 32% in the model with absence of the constant.

Table 4

Pesaran, Shin and Smith (2001) cointegration test.

PESARAN, SHIN AND SMITH (2001) cointegration test Obs : 21 No. Regressors (K) : 1 Case : 3		
F-test		
	I (0)	I (1)
10% critical value	4.290	5.080
5% critical value	5.395	6.350
1% critical value	8.170	9.285
F-stat = 3.570		

Source: calculated by authors using Stata 17.

DYNAMIC ARDL simulations

In our study, we run a simulation to assess the impacts of GDP per capita changes on renewable energy consumption in Algeria using DYNAMIC ARDL, analyzing short, medium, and long-term shocks (20, 50, 80 years) within a 100-year range. This study aims to examine the compatibility pattern between the two variables over a 100-year simulation range.

Model01:

The initial model articulates the regression outlined in tables5 and 6. This model will involve the creation of negative shocks (- 1) for the independent variable. We will use a simulation capacity of 100 periods (results shown in table06) and implement shocks at various intervals (20, 50, and 80). The two independent variables and the dependent variable are lagged by one period, and the first differences of the independent variables are presented. The subsequent equation represents the model:

$$\boldsymbol{\Delta ln - REC_t = ln_REC_{t-1} + \Delta ln_GDPPERCAPITA_t + ln_GDPPERCAPITA_{t-1}} \ldots (3)$$

Table 5

Regression test with constant

Source	SS	df	MS	Number of Obs =	21
Model	0.6180	3	0.2060	F (3.18) =	2.49
Residual	1.4073	17	0.0827	Prob > F =	0.0953
Total	2.0253	20	0.1012	R-squared =	0.3052
				Adj R-squared =	0.1825
				Root MSE =	0.2877
dln-REC	Coefficient	Std.err	T	P>| t |	[95%conf, interval]

ln- REC					
L1.	-0.2653	3.3863	-1.74	0.099	-0.58 - 0.055
ln- GDPPERCAPITA					
D1.	5.3636	3.3863	1.58	0.132	
L1.	-0.9266	1.2625	-0.73	0.473	-1.78
-cons	0.8548	1.7330	0.49	0.628	12.50
					-3.59
					1.73
					-2.80
					4.51

With constant.

Source: calculated by authors using Stata 17.

Table 6

Regression test without constant

Source	SS	df	MS	Number of Obs =	21
Model	0.6894	3	0.2298	F (3.18) =	2.90
Residual	1.4274	18	0.0793	Prob > F =	0.0635
				R-squared =	0.3257
Total	2.1169	21	0.1008	Adj R-squared =	0.2133
				Root MSE =	0.2816

dln-REC	Coefficient	Std.err	t	P>| t |	[95%conf, interval]	
ln- REC						
L1.	-0.2171	0.1141	-1.90	0.073	-0.45	-0.022
ln- GDPPERCAPITA						
D1.	6.3701	2.6451	2.41	0.027	0.81	11.92
L1.	-0.3072	0.1271	-2.42	0.027	-0.57	-0.04

No constant.

Source: calculated by authors using Stata 17.

By applying a simulation (see Figure 02), we can track the trend of the dependent variable behavior at specific points. Shaded lines show the 75%, 90%, and 95% confidence intervals, from darkest to lightest; dots show the average predicted values.

Table 7

DYNAMIC ARDL simulation 1000 real change

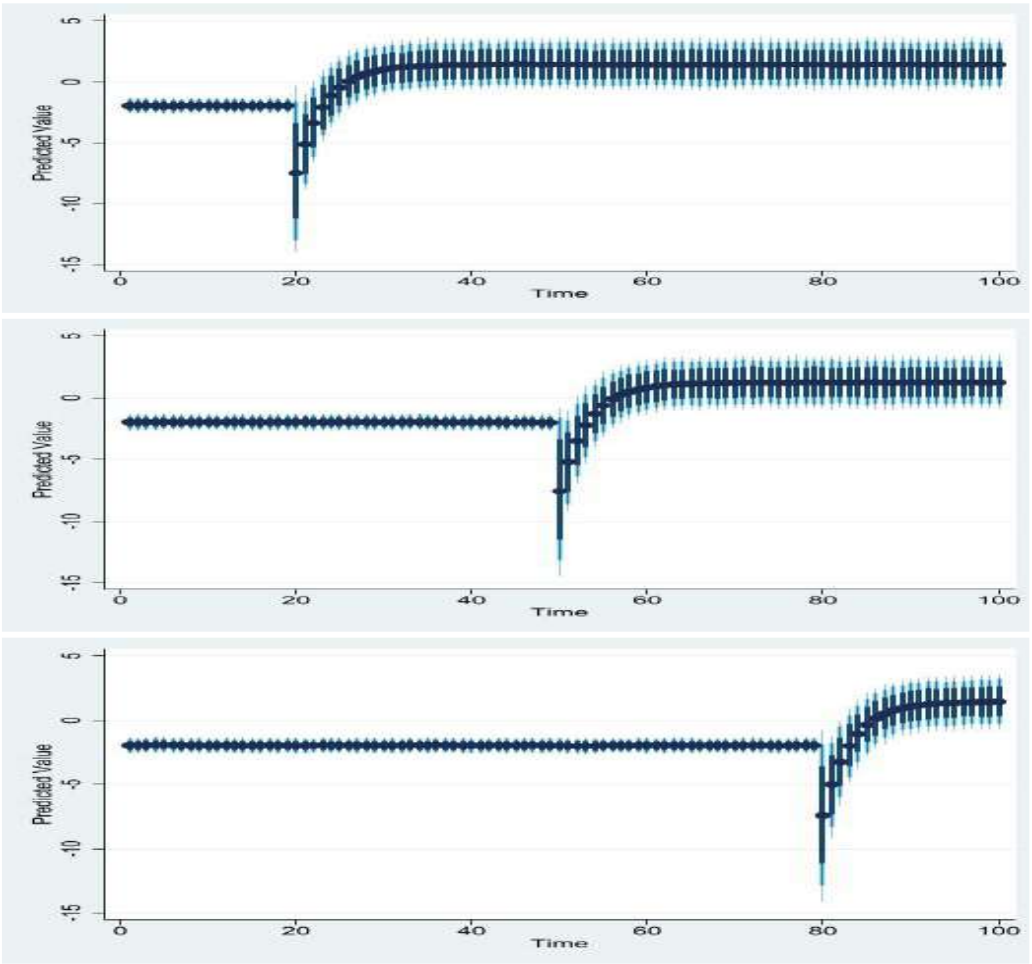
Source	SS	Df	MS	Number of Obs =	17
Model	0.6180	3	0.2060	F(3.17) =	2.49
Residual	1.4073	17	0.0827	Prob> F=	0.0953
				R-squared =	0.3052
Total	2.0253	20	0.1012	Adj R-squared =	0.1825
				Root MSE =	0.2877

dln-REC	Coefficient	Std.err	t	P>| t |	[95%conf, interval]
L1-ln- REC	-0.2653	0.1522	-1.74	0.099	-0.58 -
D-ln- GDPPERCAPITA	5.3636	3.3863	1.58	0.132	0.05
L1- ln- GDPPERCAPITA	-0.9266	1.2625	-0.73	0.473	-1.78
-cons	0.8548	1.7330	0.49	0.628	12.58
					-3.59
					1.73
					-2.89
					4.51

(1.000 real changes made) ; dependent variable to be run in differences

Source: calculated by authors using stata17.

Figure 2: ***Shocks (-1) on GDPPERCAPITA "periods 20; 50; 80" 1 lag for each variable.***



Source: stata17 outputs.

Model02:

Various scenarios that can be applied by Dynardl can be utilized to evaluate economic results. The model will be adjusted for scenarios that are more complex in this second model. So, it requires more dynamics to be developed and simulated. As shown in Figure 03, this model's characteristics indicate that the dependent variable REC appears as a lagged first difference alongside its lagged-level form at t−1. GDPPERCAPITA now manifests at the first, second, and third lags rather than contemporaneously. Equation (4) delineates model No. 02.

$$\Delta ln_REC_t = ln_REC_{t-1} + \Delta ln_REC_{t-1} + ln_GDPPERCAPITA_{t-1} + ln_GDPPERCAPITA_{t-2} + ln_GDPPERCAPITA_{t-3} \ldots \textbf{(4)}$$

Table 8

DYNAMIC ARDL simulation 5000 real change

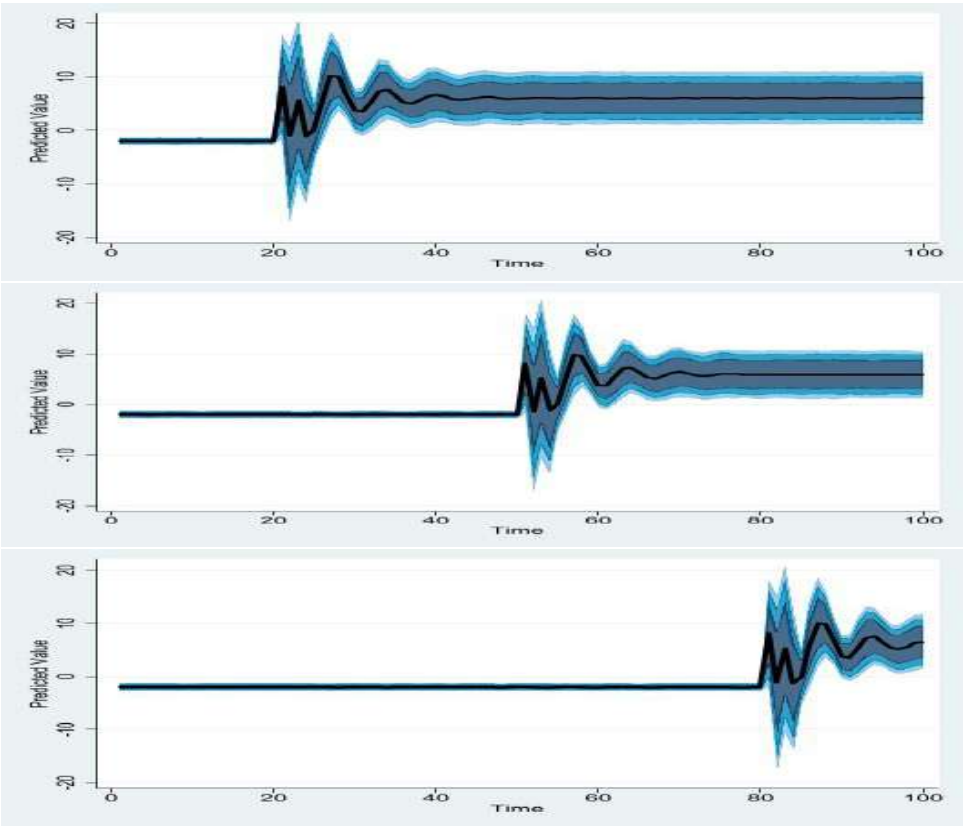
Source	SS	Df	MS	Number of Obs =	18
Model	1.2185	7	0.1740	F(7.9) =	2.28
Residual	0.6856	9	0.0761	Prob >F =	0.1235
				R-squared =	0.6399
Total	1.9042	16	0.1190	Adj R-squared =	0.3599
				Root MSE =	0.2760

dln-REC	Coefficient	Std.err	t	P>| t |	[95%conf,interval]	
L1-ln- REC	-0.8145	0.3126	-2.61	0.028	-1.52	-0.10
L1D-ln- REC	0.7178	0.3916	1.83	0.100	-0.16	1.60
L1- ln-GDPPERCAPITA	-10.1039	4.9532	-2.04	0.072	-21.30	1.10
	18.3405	9.0012	2.04	0.072	-2.02	38.70
L2- ln-GDPPERCAPITA	-22.1665	10.7130	-2.07	0.068	-46.40	2.06
	8.2781	5.7044	1.45	0.181	-4.62	21.18
L3- ln-GDPPERCAPITA						
-cons						

(5.000 real changes made) ; dependent variable to be run in differences

Source: calculated by authors using stata17.

*Figure 3**: Shocks (-1) on GDPPERCAPITA (5lags) "periods 20; 50; 80" 1 lag for dependent variable REC.***



Source: Stata 17 outputs.

5-ApplyingKernel-Based Regularized Least Squares (KRLS): The application of KRLS, a machine learning technique introduced by Hainmueller & Hazlett(2014), will reduce parametric constraints and uncover nonlinearities, interactions, and heterogeneous effects. This may offer additional validation and improved comprehension of causal relationships.

Table 9

Krls iteration

Iteration	Looloss
1	2.09282
2	1.781646
3	1.508485
4	1.304857
5	1.178082
6	1.115514
7	1.103107
8	1.100933

Source: Computed by authors

The KRLS iteration results (see table 9) show a consistent and substantial decrease in Leave-One-Out loss (Looloss) from 2.09 in the first iteration to 1.10 by the eighth iteration, indicating that the model is effectively minimizing prediction error and converging well. In addition, most of the improvement occurs in the first few iterations, with loss reductions becoming marginal after the sixth iteration. All demonstrating that the model has reached a stable solution and further iterations would yield little additional benefit. This pattern suggests successful optimization and good generalization capability.

Table 10

krls summary

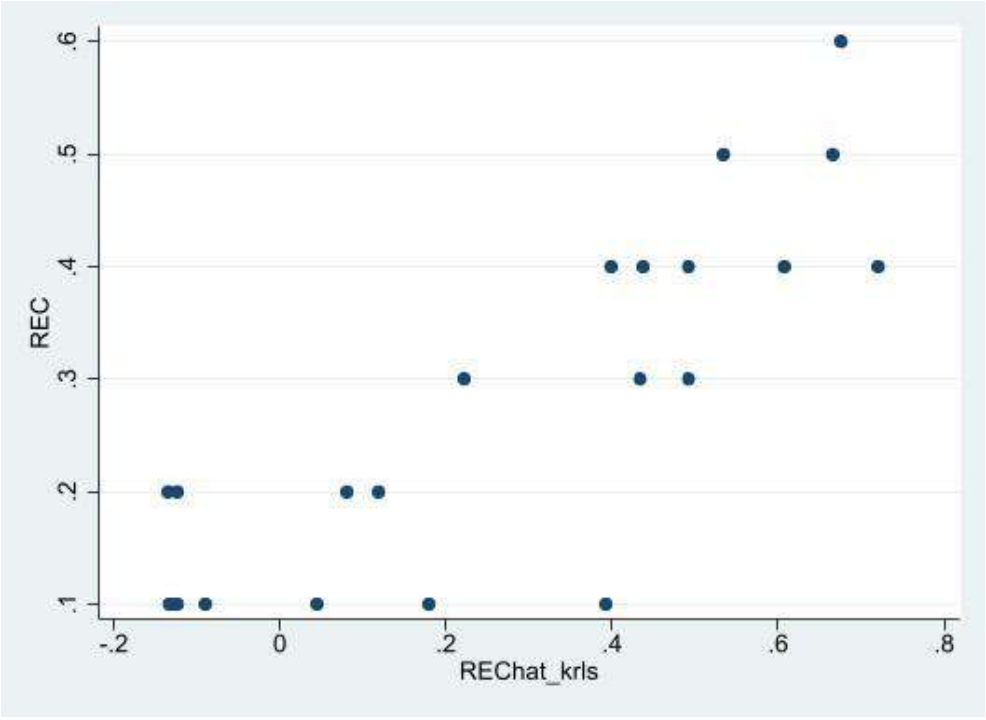
Pointwise Derivatives					**Number of Obs**	22
					Lambda	0.5305
					Tolerance	0.022
					Sigma	1
					Eff. Df	4.124
					R-square	0.775
					Looloss	1.097
REC	**Avg**	**SE**	**t**	**P>|t|**	**P25**	**P50**	**P75**
GDPPERCAPITA	-0.2873	0.0488	-5.880	0.00	-0.7310	-0.2657	0.1493

Source: Computed by authors

The KRLS summary output in Table 09 indicates a strong and statistically significant negative relationship between GDP per capita and REC, with an average marginal

effect of -0.2873 (SE = 0.0488, t = -5.88, p < 0.01), meaning that, on average, a one-unit increase in GDP per capita is associated with a 0.29 unit decrease in REC, holding other variables constant. The 25th, 50th, and 75th percentiles of the marginal effects (-0.7310, -0.2657, and 0.1493, respectively) reveal some heterogeneity in the effect across observations, though the negative association predominates. Model fit is high, with an R-squared of 0.775, indicating that approximately 78% of the variance in REC is explained by the model, and the low Looloss (1.097) further supports good predictive performance. Overall, the results are robust and suggest a meaningful, reliably estimated impact of GDP per capita on REC in the sample.

*Figure 4**: KRLS Scatter Plot Results.***



Source: Stata 17 outputs.

The scatter plot displays the relationship between the observed values of REC (on the y-axis) and the predicted values from the KRLS model (REChat_krls, on the x-axis). This plot is useful for diagnosing model fit. If the points were randomly scattered with no pattern, it would suggest poor predictive power. The observed positive trend supports the model's validity.

Figure 4 reveals the Principal Insights of the krls scatter are as follows:

- ✓ **Positive Association**: The anticipated and observed values are usually related in a good way. The observed values of REC also tend to go up when the anticipated values (REChat_krls) go up. This means that the KRLS model is picking up on the data's rising trend.

- ✓ **Spread and Fit**: The data points are not exactly aligned along a 45-degree line, which would signify flawless prediction; nonetheless, they exhibit a tendency to cluster, indicating that greater forecasts correlate with higher observed values.
- ✓ **Potential Outliers**: There are certain points where the actual value of REC is higher than the anticipated value, and there are other points where the opposite is true. This shows that the model's predictions and the real data don't always match up, which is normal in real life.
- ✓ **Range of Predictions**: The projected values (REChat_krls) span from just below zero to around 0.8, but the observed REC values span from approximately 0.1 to 0.6, with a particularly high value at 0.6.

RESULTS AND DISCUSSION

Dynardl model results

A simulation was conducted to analyze the dynamics of renewable energy consumption in Algeria, focusing specifically on REC and GDPPERCAPITA. The findings suggest that renewable energy consumption (REC) is negatively affected by the shock impacting GDPPERCAPITA in the initial model. The simulation initially indicated a reduction in renewable energy consumption (REC) (refer to Figure 1). The shape of the shock curve suggests a high level of confidence in the field. The anticipated values of renewable energy consumption stabilize within a defined range. Additionally, the correlation strength between the two variables is 30.52%, with a correlation coefficient of -0.26% at the initial divergence, which subsequently returns to 5.36% after this divergence. A 75% confidence interval can be established. Refer to Table 05.

The first model's output agrees with the second model's outcomes, as shown by the second model's simulations. This model seems more realistic since it incorporates the idea of five lags of the independent variable. That is to say, the effects of the GDP per capita shock will take some time to materialize. The reality that people can always fall back on their savings when times get tough. This is why the second model's explanation of individual behavior's actuality helps to explain its realism.

After performing 5000simulations (see Table 8) of the GDPPERCAPITA shocks in the framework of 3 lags, the correlation strength between the two variables in this model became equal to 63.99%. The correlation coefficients between the two variables also became larger than the previous one, reaching -10.10 at the first slowdown period, then 18.34% at the 02 period, and then -22.16 at the 3rd slowdown period. Then it becomes 19.16% in period 04, to decrease slightly at period 05 with a value of -11.76%. In the end, the final impact on the consumption of renewable energies remained negative with a value of -22.1665% in the forecast values of the second model.

Krls model results

- ✓ **Model Performance**: The KRLS model seems effective as it illustrates the general trend of the relationship between the independent variables and

REC. However, the dispersion indicates that there remains unexplained variance, since not all points are proximate to a singular line.

- ✓ **Nonlinearity and Flexibility**: KRLS is designed to manage nonlinear and intricate interactions. The distribution of the points indicates that the model may be reflecting some subtleties; yet, there is potential for improvement, either via the incorporation of further predictors or by further optimization of the model.

CONCLUSIONS

This work combines the KRLS model with dynamic ARDL simulations to not only validate the strength of the predicted linkages, but also to provide deeper policy-relevant insights into how economic development and renewable energy use affect each other in Algeria in the short-run. This hybrid method makes sure that both linear and nonlinear patterns are included, which gives a complete and more dependable basis for future choices on energy and economic policies. The main findings reveal:
Negative shocks in per capita GDP in Algeria have an immediate negative impact, which then influences individuals' behavior, leading them to increase their consumption of renewable energy.
The reality reflected by the second model further clarifies that individuals, in light of the shocks affecting their share of the GDP in Algeria, will behave in a manner that reflects their interest in staying towards the consumption of non-renewable energy, which poses obstacles to supporting the green economy in Algeria. Algeria has to make use of its great renewable energy potential, especially solar and wind power, to overcome these obstacles. With over 2,500 hours of sunshine annually, the country finds solar energy to be a viable option for both small and major projects. Encouraging private and international investment depends on policy changes, including feed-in tariffs, tax benefits, and streamlined licensing processes. Moreover, Algeria might use climate funds and create international collaboration to address technological and budgetary limitations.
Algeria is poised to gain from the integration of its renewable energy into regional and worldwide markets. Closeness to Europe presents a chance to export renewable energy to the EU, which is progressively pursuing sustainable energy sources. Concurrently, domestic public awareness initiatives and workforce development programs could enhance acceptance and capacity building within renewable energy sectors.
In conclusion, while Algeria has ambitious renewable energy goals, there exists a significant gap between policy formulation and implementation. Algeria can transition to a more diverse and sustainable energy future by prioritizing investments, strengthening legislation, and engaging in international collaboration, thereby reducing its dependence on hydrocarbons and enhancing economic resilience. More specifically:

- ✓ Introducing the benefits resulting from the use of renewable energies, especially through various audio-visual means and advertising

- ✓ Incorporate renewable energy into national resilience and economic planning.
- ✓ Introduce targeted incentives and reform energy subsidies.
- ✓ Establish a National Green Investment and Innovation Fund.
- ✓ Simplify Regulatory Systems for Renewable Deployment.
- ✓ Increase both local and international green energy cooperation.
- ✓ Start a National Awareness & Skills Development Program.
- ✓

Limitations of the study:

In the framework of our study, we were unable to obtain a larger sample of data on the variables. But this did not prevent us from applying the DYNAMIC ARDL approach, which is considered a sophisticated measurement method.

Future research recommendations:

For future research, it is possible to apply study variables with larger samples that may add to our results and provide a larger analysis.

Declaration of competing interests:

The authors declare that any known competing financial interests or personal relationships could have influenced none of the work reported in this study.

Contribution of authors:

Each author has made an equal contribution to the research planning, idea or design of studies, data gathering and computation, and paper writing. The final manuscript was read and approved by every author.

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REFERENCES

1. Aßhoff, S., Belke, A., & Osowski, T. (2021). Unconventional monetary policy and inflation expectations in the Euro area. Economic Modelling, 102, 1-15. doi:https://doi.org/10.1016/j.econmod.2021.105564

2. Bibri, S. (2018). Smart Sustainable Cities of the Future: The Untapped Potential of Big Data Analytics and Context–Aware Computing for Advancing Sustainability. springer.

3. Bina, O. (2013). The green economy and sustainable development: an uneasy balance? Environment and Planning C: Government and Policy, 31, 1023-1047. doi:doi:10.1068/c1310

4. Boudghene Stambouli, A., Khiat, Z., Flazi, S., & Kitamura, Y. (2012). A review on the renewable energy development in Algeria: Current. Renewable and Sustainable Energy Reviews, 16, 4445-4460. doi:http://dx.doi.org/10.1016/j.rser.2012.04.031

5. Brundtland Report. (1987). our common future. The World Commission on Environment and Development.

6. Cigu, E., Petrisor, M.-B., Nută, A.-C., Nută, F.-M., & Bostan, I. (2020). The Nexus between Financial Regulation and Green Sustainable Economy. Sustainability, 12, 1-15. doi:http://dx.doi.org/10.3390/su12218778

7. Čizmić, V., Pančocha, Ashfaq, S., Liangrong, S., Waqas, F., Gulzar, S., Mujtaba, G., & Muhammad Nasir, R. (2024). Renewable energy and green economic growth nexus: Insights from simulated dynamic ARDL. Gondwana Research, 288-300.

8. Deshuai, M., Hui, L., & Ullah, S. (2022). Pro-environmental behavior–Renewable energy transitions nexus: Exploring the role of higher education and information and communications

technology diffusion. Frontiers in Psychology, 13, 1-11. doi:https://doi.org/10.3389/fpsyg.2022.1010627
9. Gorji, A., & Martek, I. (2023). The Role of Renewable Energy as a 'Green Growth' Strategy for the Built Environment. Buildings, 13, 1-21. doi:https://doi.org/10.3390/buildings13051356
10. Hainmueller, J., & Hazlett, C. (2014). kernel Regularized Least Squares: Reducing Misspecification Bias with a Flexible and Interpretable Machine Learning Approach. Political Analysis, 22(2), 143 - 168. doi:https://doi.org/10.1093/pan/mpt019
11. Hwang, Y., & Diez, A. (2024). Renewable energy transition and green growth nexus in Latin America. Renewable and Sustainable Energy Reviews, 198, 1-28. doi:https://doi.org/10.1016/j.rser.2024.114431
12. Jordan, S., & Philips, A. (2018). Cointegration Testing and Dynamic Simulations of Autoregressive Distributed Lag Models. The Stata Journal, 18(4), 902-923.
13. Karakul, A. (2016). Educating labour force for a green economy and renewable energy jobs in Turkey: A quantitave approach. Renewable and Sustainable Energy Reviews, 63, 568-578. doi:https://doi.org/10.1016/j.rser.2016.05.072
14. La Camera, F., & Ryder, G. (2021). Renewable Energy and Jobs. International Renewable Energy Agency (IRENA), SPECIAL EDITION Labour and Policy Perspectives.
15. Murshed, M. (2024). Can renewable energy transition drive green growth? The role of good governance in promoting carbon emission-adjusted economic growth in Next Eleven countries. Innovation and Green Development, 3, 1-16. doi:https://doi.org/10.1016/j.igd.2023.100123
16. Nejad, R. (January 2023). Renewable Energy Consumption and the Transition to a Green Economy in Egypt. 7(1), 147-179. doi:https://doi.org/10.22059/wsps.2023.365940.1384
17. Pachauri, S., Ruijven, B., Nagai, Y., Riahi, K., Vuuren, D., Brew-Hammond, A., & Nakicenovic, N. (May 2013). Pathways to achieve universal household access to modern energy by 2030. Environmental Research Letters, 8(2), 1-7. doi:DOI 10.1088/1748-9326/8/2/024015
18. Pahle, M., Pachauri, S., & Steinbacher, K. (2016). Can the Green Economy deliver it all? Experiences of renewable energy policies with socio-economic objectives. Applied Energy, 1-11. doi:http://dx.doi.org/10.1016/j.apenergy.2016.06.073
19. Phan, T. (2024). Impact of green investments, green economic growth and renewable energy consumption on environmental, social, and governance practices to achieve the sustainable development goals: A sectoral analysis in the ASEAN economies. International Journal of Engineering Business Management, 16, 1-12. doi:https://doi.org/10.1177/18479790241231725
20. Philips, A. (january 2018). Have Your Cake and Eat It Too? Cointegration and Dynamic Inference from Autoregressive Distributed Lag Models. American Journal of political science, 62(1), 230-244. doi:DOI: 10.1111/ajps.12318
21. Romer, P. (Oct.1990). Part 2: The Problem of Development: A Conference of the Institute for the Study of Free Enterprise Systems.Endogenous Technological Change. The Journal of Political Economy, 98(5), S71-S102. Récupéré sur http://links.jstor.org/sici?sici=0022-3808%28199010%2998%3A5%3CS71%3AETC%3E2.0.CO%3B2-8
22. Taskın, D., Vardar, G., & Okan, B. (2020). Does renewable energy promote green economic growth in OECD countries? Sustainability Accounting,Management and Policy Journal, 11(04), 771-798. Récupéré sur https://www.emerald.com/insight/2040-8021.htm
23. Tien, N., Phuc, N., Thoi, B., Duc, L., & Thuc, T. (2020). Green economy as an opportunity for Vietnamese business in renewable energy sector. International Journal of Research in Finance and Managemen, 3(1), 26-32.
24. UNDP. (2022). Just Transition: A Framework for Inclusive Green Recovery. United Nations Development Programme.

25. UNEP. (2011). Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication.
26. Xie, F., Liu, Y., Guan, F., & Wang, N. (2020). How to coordinate the relationship between renewable energy consumption and green economic development: from the perspective of technological advancement. Environmental sciences europe, 32(71), 1-15. doi:https://doi.org/10.1186/s12302-020-00350-5
27. Ye, J., Al-Fadly, A., Huy, P., Ngo, T., Hung, D., & Tien, N. (2022). The nexus among green financial development and renewable energy: investment in the wake of the Covid-19 pandemic. Economic Research-Ekonomska Istraživanja, 35(1), 5650-5675. doi:https://doi.org/10.1080/1331677X.2022.2035241
28. Younas, S., Shoukat, S., Awan, A., & Arslan, S. (2023). Comparing Effects of Green Innovation and Renewable Energy on Green Economy: The Metrics of Green Economy as Nucleus of SDGs. Pakistan Journal of Humanities and Social Sciences, 11(02), 1035-1051. doi:https://doi.org/10.52131/pjhss.2023.1102.0415
29. Zeb, R., Salar, L., Awan, U., Zaman, K., & Shahbaz, M. (2014). Causal links between renewable energy, environmental degradation and economic growth in selected SAARC countries: Progress towards green economy. Renewable Energy, 71, 123-132. doi:http://dx.doi.org/10.1016/j.renene.2014.05.012

REZIME

Cilj istraživanja jeste da ispita dinamički odnos između ekonomskog rasta i potrošnje obnovljive energije, kao i da utvrdi na koji način promene u ekonomskim pokazateljima utiču na obrasce potrošnje energije u zemlji. Posebna pažnja posvećena je promenama u ponašanju potrošača i društvenim preferencijama u pogledu korišćenja obnovljivih i neobnovljivih izvora energije, kako bi se obezbedila pouzdana osnova za kreiranje efikasnijih javnih politika u oblasti energetske tranzicije. Empirijska analiza zasniva se na podacima za period od 2000. do 2021. godine, pri čemu su za ispitivanje kratkoročnih i dugoročnih odnosa primenjeni dinamički autoregresivni model sa distribuiranim vremenskim docnjama (Dynamic ARDL) i metoda Kernel Regularized Least Squares (KRLS). Analizirana je povezanost između bruto domaćeg proizvoda (BDP) po stanovniku i potrošnje obnovljive energije izražene kao udeo u ukupnoj potrošnji energije. Primena ova dva metodološka pristupa omogućila je detaljnije sagledavanje složenih i nelinearnih odnosa između ekonomskog razvoja i energetske potrošnje. Rezultati istraživanja pokazuju da rast BDP-a po stanovniku u kratkom roku negativno utiče na potrošnju obnovljive energije. Povećanje dohotka stanovništva povezano je sa većom potrošnjom energije iz fosilnih goriva, što ukazuje na to da ekonomski rast sam po sebi ne podstiče prelazak na održivije izvore energije. Pored ekonomskih podsticaja i regulatornih mera, značajnu ulogu mogu imati informativne i edukativne kampanje, posebno putem audio-vizuelnih medija, digitalnih platformi i drugih oblika javne komunikacije, koje bi povećale svest građana o ekonomskim, ekološkim i društvenim koristima obnovljive energije. Takve mere mogle bi doprineti smanjenju zavisnosti Alžira od fosilnih goriva, povećanju investicija u sektor obnovljivih izvora energije i ubrzanju tranzicije ka održivijem i otpornijem modelu ekonomskog razvoja.

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MACROECONOMIC DETERMINANTS OF HEDGE FUNDS – EXAMPLE OF MAN GROUP

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Abstract
The macroeconomic environment affects financial markets as well as their institutions on a global level. Therefore, it is of great importance to keep up to date with trends of certain macroeconomic factors. This research questions whether certain macroeconomic determinants influence hedge fund performance by introducing consumer price index (CPI), 12M USD Libor, interest rate on long-term bonds, and unemployment rate as independent variables, whereas the dependent variable is annual return. In this study, hedge fund performance covers the annual return of hedge fund Man Group, which is situated in the United Kingdom, and the data set covers the years from 2015 to 2024. In addition to annual return, macroeconomic determinants also cover the same period. By using a log-log regression model, results show that CPI, 12M USD Libor, and interest rate on long-term bonds positively affect return, whereas the unemployment rate does not have an impact on return.
Keywords: hedge funds, CPI, Libor, interest rate, unemployment rate, multivariate regression

MAKROEKONOMSKI INDIKATORI USPEŠNOSTI HEDŽ FONDOVA – PRIMER MAN GROUP

Apstrakt
Makroekonomska dešavanja imaju uticaja kako na finansijska tržišta, tako i na njegove institucije širom sveta. Zbog toga je bitno biti u toku i redovno pratiti određene makroekonomske faktore. Ovo istraživanje ispituje da li određene makroekonomske determinante utiču na poslovanje hedž fondova uvodeći indeks potrošačkih cena, 12-mesečni USD Libor, kamatnu stopu na dugoročne obveznice i stopu nezaposlenosti kao nezavisne varijable; sa druge strane zavisna varijable je godišnji prinos. U ovoj studiji poslovanje hedž fonda obuhvata godišnji prinos hedž fonda Man Group, koji je lociran u Ujedinjenom Kraljevstvu i podaci pokrivaju period od 2015. do 2024.godine. Makroekonomski podaci, takođe, pokrivaju isti period. Koristeći log-log regresioni model, rezultati pokazuju da indeks potrošačkih cena, 12-mesečni USD Libor i kamatna stopa na dugoročne obveznice pozitivno utiču na prinos, dok stopa nezaposlenosti nema uticaja na prinos.
Ključne reči: hedž fondovi, indeks potrošačkih cena, Libor, kamatna stopa, stopa nezaposlenosti, multivarijaciona regresija

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INTRODUCTION

Hedge funds are regarded as a special type of investment fund since they possess a number of qualities concerning investing. The hedge fund is one of a kind regarding private capital, but it is entirely different from mutual funds. First of all, these types of funds differ greatly in a way that hedge funds are not strictly regulated by the government, and as a result, they are more in favour of potential investors. Secondly, it is essential to mention that these kinds of investors do not have an aversion to risk, and also the investors have to be accredited and they are limited to a certain number. What is more, hedge funds are specialized for using strategies that are hardly ever seen to be used anywhere else in the sphere of private capital. The most common tools that are likely to be used are short-selling and leverage. Capocci (2013) puts forward a view that short-selling is a kind of strategy that makes the best of a bear market. In other words, short-selling is used in situations when stock prices appear to fall. It is obvious that this is a risk-based strategy. Along with that, there is leverage, which is even more prone to risk since it is a way of making profit by investing borrowed money (Lhabitant, 2006). Apart from these strategies, there is also a wide choice of strategies which are used to aggressively manage investment portfolios, e.g., convertible arbitrage, event-driven, long/short equity and so on. Thirdly, Shwarz (2007) claims that there are two types of fees that hedge funds are likely to earn. Hedge funds always receive management fees regardless of the amount of return. That fee is used to cover operational costs and employs around 2% (Schwarz, 2007). On the other hand, the percentage of an incentive fee employs around 20%, and it is received only if hedge funds succeed in making a profit out of invested capital. What is of great essence is the fact that hedge funds have to regularly follow the trends of macroeconomic variables because hedge funds are at risk of getting damaged by serious consequences. The only way to achieve stability on financial markets is to take a proactive approach. In order to be able to present which macroeconomic factors influence the annual return, the study consists of four parts. In the first part of the study, a literature review is given in order to present the list of research related to macroeconomic determinants and the return. This study aims to examine to what extent CPI, USD Libor, interest rate on long-term bonds, and unemployment rate influence annual return. The second part puts an emphasis on the methodology and formed hypotheses. The last part of the study focuses on the results of the research as well as their explanation regarding the issue. The research has a tendency to highlight the significance of the relationship between macroeconomic factors and hedge fund performance in the long run.

LITERATURE REVIEW

Macroeconomic factors have a very profound effect on hedge fund returns on a global level, and therefore the literature refers to the research worldwide. According to Attié and Roache (2009), consumer price index and interest rate on long-term bonds strongly influence return. The main objective of their study is to focus on different types of assets as well as inflation in order to test to which extent the return is affected in the long term. Also, Attié and Roache (2009) used data from the USA, focusing on

the period in the 1970s and 1980s. What is more, the results for the dependent variable cover total return indexes, which include hedge fund performance as well. Furthermore, Kalaš et al. (2024) claim that CPI has a significant effect on investments in the short and long run. Since it is the prime activity in hedge funds, it is stated that CPI has the same effect on hedge fund performance as well.
In his research, Anjos (2017) acquired data from EurekaHedge, which dates back to the 2000s, and he examined whether the hedge fund return is influenced by USD Libor and other variables. He concluded that USD Libor has an impact on hedge fund return.
As far as the unemployment rate is concerned, there are two studies which approve that the unemployment rate does not influence hedge fund return. Muething et al. (2005) intend to test whether a certain group of variables, including unemployment rate, affects hedge fund return. The data covers the period from January 1989 to December 2000. Also, it is collected from various hedge fund databases, including the Hedge Fund Research database and TASS.
Additionally, Racicot and Théoret (2013) use data based on a sample of the indices of US Greenwich Alternative Investment hedge fund strategies in order to show how the trends of a few macroeconomic variables, including the unemployment rate, impact hedge fund returns. The period covers the data from January 1995 to March 2010. Eventually, the authors (2013) summarized that the unemployment rate does not have a significant impact on the return.

METHODOLOGY AND DATA

This chapter puts the emphasis on dependent and independent variables and the model itself together with formulated hypotheses. In this study, annual return is considered the dependent variable. The independent variables have already been mentioned; they include CPI, USD Libor, interest rate on long-term bonds, and unemployment rate. Then, the only model in the research that is appropriate for the calculations is the log-log regression model. Consequently, all the variables are converted into logarithmic numbers and, as such, are used further in the test. Apart from summary statistics regarding macroeconomic determinants and a regression summary for annual return, there is a table presenting descriptive statistics.
The calculations have been done in Excel, and the results are yet to be shown in Tables 3 and 4.
The annual return covers the data series calculated at the end of years between 2015 and 2024. This also applies to independent variables, meaning that the data is calculated on the basis of the end-of-year numbers.

Table 1
Variables

Variable	*Notation*	*Source*
Annual return	*log(return)*	*Income statement Man Group*
12M USD Libor	*log(USD Libor)*	*Global-rates*

Consumer price index	*log(CPI)*	*Federal Reserve Economic Data, Federal Reserve Bank of St. Louis*
Interest rate on long-term bonds	*log(interest rate)*	*Federal Reserve Economic Data, Federal Reserve Bank of St. Louis*
Unemployment rate	*log(unemployment rate)*	*International Monetary Fund*

Source: Author

When all the variables are considered, here are the following equations that represent the regression model and explanations below it:

$$Log\ (return) = \beta_0 + \beta_1\ log\ (USD\ Libor) + \beta_2\ log\ (CPI) + \beta_3\ log\ (interest\ rate) + \beta_4\ log\ (unemployment\ rate) + \varepsilon \quad (1)$$

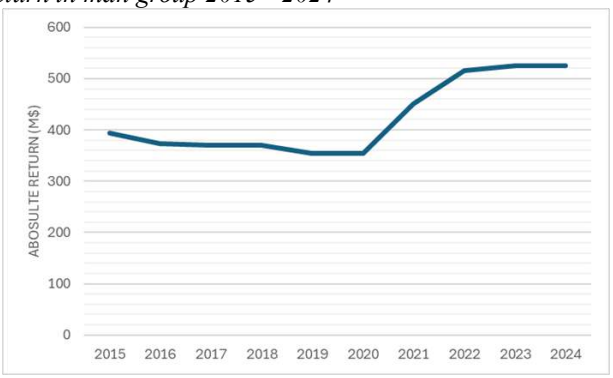
Annual return – net of fee return expressed in absolute numbers
USD Libor – 12M USD Libor expressed in the percents
CPI – consumer price index expressed in index
Interest rate – Interest rate on long-term bonds expressed in the percents
Unemployment rate – expressed in the percents
Before the results of calculations, it is necessary to formulate hypotheses in order to test the results appropriately.
H_1 : USD Libor affects the annual return positively
H_2 : CPI affects the annual return positively.
H_3 : Interest rate affects the annual return positively.
H_4: Unemployment rate affects the annual return negatively
If the calculated p-value is higher than 0.05, the hypothesis is rejected, meaning that the hypothesis is not true. On the other hand, if the p-value is below 0.05, the hypothesis is accepted, meaning that the hypothesis is true.

RESULTS AND DISCUSSION

Before the main calculation of the study, there is a group of tables showing the trend of both dependent and independent variables. This will undoubtedly lead to a better understanding of all the variables, especially macroeconomic ones.
The analysis starts by presenting the trend of the annual return so as to get an overall view of how the fund was performing.

Figure 1

Trend of annual return in man group 2015 - 2024

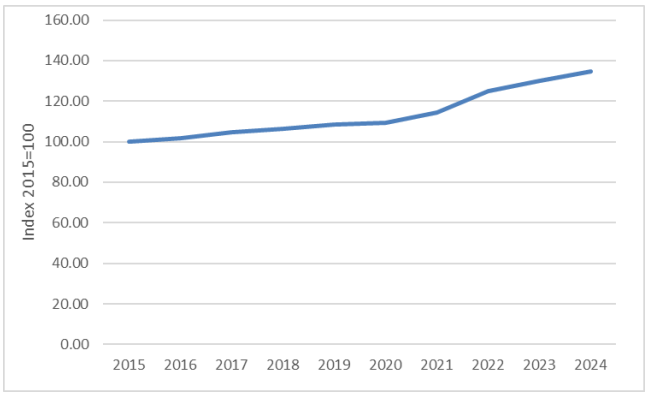


Source: Author based on the balance sheet of (Man Group, 2025)

Figure 1 shows how the return fluctuates during the period. It can be concluded that until 2020 the variables held steady, and after that the rapid incline was captured. In the last three years, the hedge fund has maintained steadiness.

Figure 2

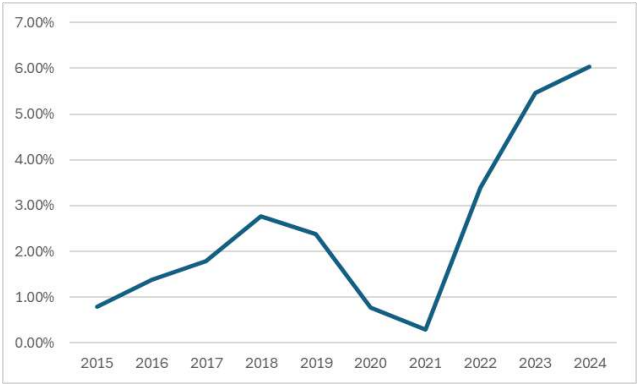
TREND OF CONSUMER PRICE INDEX IN THE UK 2015-2024



Source: Author based on FRED (2025)

Figure 2 shows the direction CPI is taking. Apparently, there is a gentle incline from 2015 to 2020, and after that, the variable increased steadily until the end of the year 2024 had a slight incline.

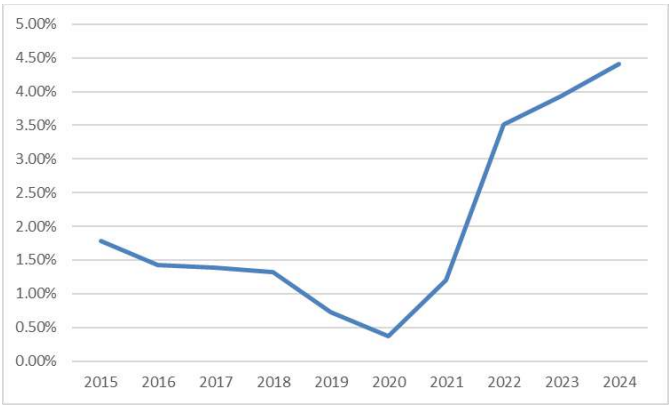
Figure 3
TREND OF 12M USD LIBOR IN THE UK 2015-2024



Source: Author based on (Global-rates, 2025)

Following the trend of Libor is of great importance because until 2024 Libor was a crucial factor concerning Man Group's investment portfolio. This results from the fact that the major part of the investment portfolio covers securities, which depend heavily upon the fluctuations of the variable. In this study, the explanatory variable is 12M USD. Figure 3 shows rapid fluctuations of the Libor, especially after 2021 when the variable started increasing dramatically. The first reason for this significant increase in the Libor on the market is rising prices in loans and debt securities. Another reason is the initiative to replace the Libor as the benchmark interest rate with another one called SONIA (Sterling Overnight Indexed Average).

Figure 4
TREND OF INTEREST RATE ON LONG-TERM BONDS IN THE UK 2015-2024

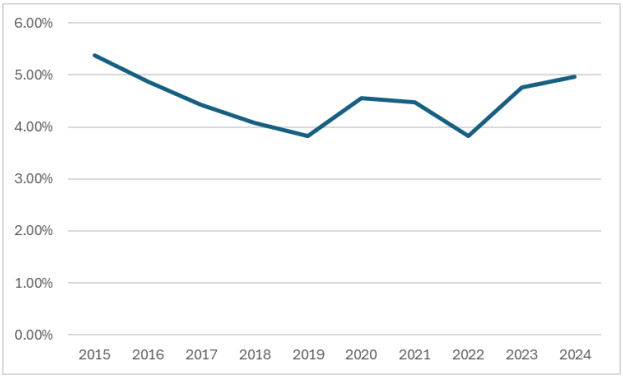


Source: Author based on FRED (2025)

In the study, the focus is on the long-term bonds, whose maturity is 10 years. Long-term bonds are mostly included in the investment portfolio of Man Group. Therefore, it is crucial to proactively follow the trend of the interest rate. The trend of the variable depends on the trend of CPI as well as the Libor rate. By taking a look at Figures 2

and 3, it can be claimed that CPI and Libor rates take the same direction as the interest rate on long-term bonds.

Figure 5
TREND OF UNEMPLOYMENT RATE IN THE UK 2015-2024



Source: Author based on (IMF, 2025)

Unlike the trend of CPI and Libor, the direction of the unemployment rate highly differs. In other words, there is always a trade-off between CPI and the unemployment rate, meaning that these two variables move in the opposite directions. Taking into account the fact that Libor always follows CPI, it can be concluded that the unemployment rate heads in a different direction from Libor as well. The minimal value of the unemployment rate is captured in 2022.

Table 2 shows the descriptive statistics regarding CPI, 12M USD Libor, interest rate on long-term bonds, unemployment rate, and annual return in the period from 2015 to 2024.

Table 2
DESCRIPTIVE STATISTICS

	log (return)	*log(USD libor)*	*log(CPI)*	*log(interest rate)*	*log(unemployment rate)*
Mean	*6.03400*	*-1.74838*	*2.05250*	*-1.80413*	*-1.34769*
Standard Error	*0.05250*	*0.12996*	*0.01440*	*0.10647*	*0.01548*
Median	*5.95030*	*-1.68643*	*2.03662*	*-1.85182*	*-1.34560*
Standard Deviation	*0.16602*	*0.41098*	*0.04555*	*0.33667*	*0.04895*
Sample Variance	*0.02756*	*0.16890*	*0.00207*	*0.11335*	*0.00240*
Kurtosis	*-1.74607*	*-0.21760*	*-0.99839*	*-0.05438*	*-0.78780*
Skewness	*0.56091*	*-0.53669*	*0.68184*	*-0.34535*	*-0.14927*
Minimum	*5.86930*	*-2.52450*	*1.99957*	*-2.43510*	*-1.41737*
Maximum	*6.26530*	*-1.21896*	*2.12905*	*-1.35556*	*-1.26962*
Count	*10*	*10*	*10*	*10*	*10*

Source: Author's calculations based on Excel

Tables 3 and 4 present a regression summary for annual return as well as summary statistics for all relevant statistical measurements.

Table 3
SUMMARY STATISTICS: MACROECONOMIC DETERMINANTS

Regression Statistics	
Multiple R	*0.99225*
R Square	*0.98457*
Adjusted R Square	*0.97222*
Standard Error	*0.02767*
Observations	*10*

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	*4*	*0.24424*	*0.06105956*	*79.74259662*	*0.00010*
Residual	*5*	*0.00383*	*0.00077*		
Total	*9*	*0.24807*			

Source: Author's calculation based on Excel

Table 4
REGRESSION SUMMARY FOR DEPENDENT VARIABLE: ANNUAL RETURN

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	*1.06420*	*0.65061*	*1.63570*	*0.16283*
log(USD libor)	*-0.14498*	*0.03235*	*-4.48173*	*0.00651*
log(CPI)	*2.49315*	*0.28679*	*8.69335*	*0.00033*
log(interest rate)	*0.31245*	*0.04449*	*7.02272*	*0.00090*
log(unemployment rate)	*-0.12080*	*0.21570*	*-0.56005*	*0.59961*

Source: Author's calculations based on Excel

For multivariate regression, it is crucial to explain coefficients β_0, β_1, β_2, β_3 based on the formula (1) and Table 4. Coefficient β_0 shows that if USD Libor, CPI, interest rate on long-term bonds, and unemployment rate amount to 0, the theoretical value of annual return is 1.064 million dollars.
Coefficient β_1 presents that if USD Libor goes up by 1%, the annual return on average will decrease by 0.14%, considering CPI, interest rate on long-term bonds, and unemployment rate are constant.
Coefficient β_2 presents that if CPI goes up by 1%, annual return on average will increase by 2.49%, considering USD Libor, interest rate on long-term bonds and unemployment rate are not changed.
Coefficient β_3 presents that if the interest rate on long-term bonds goes up by 1%, annual return on average will increase by 0.31%, considering USD Libor, CPI, and unemployment rate remain constant.

Coefficient β_4 presents that if the unemployment rate goes up by 1%, annual return on average will decrease by 0.12 %, considering USD Libor, CPI and interest rate on long-term bonds do not change.
Focusing on Table 3, the major indicator is R-squared, and it shows that 98.5% of the variation in annual return is explained by variations of USD Libor, CPI, interest rate on long-term bonds, and unemployment rate. However, the standard error shows that the average distance of the original data from the regression model is 2.8%.
In order to examine whether the macroeconomic factors have an impact on annual return, it is necessary to follow Table 4 with all the p-values.
Table 4 shows that USD Libor, CPI, and interest rate on long-term bonds have p-values which are below 0.05, and it can be concluded that H_1, H_2 and H_3 are accepted. Therefore, it can be concluded that USD Libor, CPI, and interest rate on long-term bonds have a significant impact on annual return.
As far as the unemployment rate is concerned, its p-value is above 0.05, and it can be concluded that it does not have a significant impact on annual return.
After the calculation with regression, it can be summarized that the results correspond to the results of the mentioned authors in the study. In this study, it is claimed that USD Libor, CPI, and interest rate on long-term bonds positively impact annual return, as was presented in the other studies beforehand.
The only explanatory variable in this study that has no effect on annual return is the unemployment rate, and that is proved by other authors as well.

CONCLUSION

Macroeconomic determinants play a vital role in the market and influence all institutional investors. From the perspective of this research, it is essential to habitually follow the trends of particular macroeconomic factors. In other words, it can be implied that CPI, 12M USD Libor, and interest rate on long-term bonds positively affect annual return and consequently their fluctuations are of a major importance for Man Group. In other words, a long-term follow-up on these variables is mandatory for strong hedge fund performance. On the other hand, it can also be concluded that the unemployment rate negatively affects annual return, and its trend might well be easily left out while considering macroeconomic events.
The impact of macroeconomic factors on hedge fund performance should be periodically examined since the macroeconomic environment can be turbulent. Moreover, inaccurate and irrelevant data could result in poor hedge fund performance. That is why the quality of the obtained data from the market is of great significance and makes the analysis comprehensive.
Considering all crucial elements of the study, it can be summarized by saying that this study may well be used as a relevant example further in the hedge fund industry since it makes a connection between hedge fund performance and macroeconomic events.

REFERENCES

1. Anjos, F. (2017). Hedge Funds: Assets Under Management versus Performance. Doctoral dissertation, NOVA–School of Business and Economics, 18-22, Available at: http://hdl.handle.net/10362/26184
2. Attié, A. P., & Roache, S. K. (2009). Inflation Hedging for Long-Term Investors. International Monetary Fund Working Paper, 29.
3. Bank, F. R. (2025). FRED Economic Data. Interest Rates: Long-Term Government Bond Yields: 10-Year: Main (Including Benchmark) for United Kingdom. Available at: https://fred.stlouisfed.org/series/IRLTLT01GBM156N
4. Bank, F. R. (2025). FRED Economic Data .Consumer Price Indices, Available at: https://fred.stlouisfed.org/series/GBRCPIALLMINMEI
5. Capocci, D. (2013). The complete guide to hedge funds & hedge fund strategies. New York: Palgrave Macmillan.
6. Global-rates. (2025). Global-rates. USD LIBOR, Available at: https://www.global-rates.com/en/interest-rates/libor/american-dollar/
7. IMF. (2025). World Economic Outlook Database. International Monetary Fund, Available at: https://www.imf.org/en/Publications/WEO/weo-database/2022/October/weo-report?c=112,&s=LUR,&sy=2015&ey=2024&ssm=0&scsm=1&scc=0&ssd=1&ssc=0&sic=0&sort=country&ds=.&br=1
8. Kalaš, B., Radovanov, B., Milenković, N., & Marcikić Horvat, A. (2024). Macroeconomic Determinants of Circular Economy Investments:An ECM Approach. Sustainability 2024, 9, Available at: https://doi.org/10.3390/su16156666
9. Lhabitant, F.-S. (2006). Handbook of Hedge Funds. Chichester: John Wiley & Sons Ltd.
10. Man Group. (2025, February 27). Available at: https://www.man.com/documents/download/ba42d-9e224-18937-65a25
11. Muething, D. L., Kish, R. J., & Das, N. (2005). Modeling Hedge Fund Returns. Financial Decisions, 6-9.
12. Racicot, F.-É., & Théoret, R. (2013). The procyclicality of hedge fund alpha and beta. Journal of Derivatives & Hedge Funds, p.119, Available at: https://doi.org/10.1057/jdhf.2013.3
13. Schwarz, C. G. (2007). Hedge Fund Fees. University of Massachusetts, 27.

REZIME

Makroekonomska kretanja imaju značajan uticaj na funkcionisanje finansijskih tržišta i poslovanje finansijskih institucija širom sveta. Promene u ključnim makroekonomskim pokazateljima utiču na investicione odluke, upravljanje rizicima i ostvarivanje prinosa, zbog čega je kontinuirano praćenje ovih faktora od posebnog značaja za investitore i upravljače fondovima. U tom kontekstu, cilj ovog istraživanja jeste da ispita uticaj odabranih makroekonomskih determinanti na poslovanje hedž fondova, sa posebnim osvrtom na ostvareni godišnji prinos. Kao nezavisne varijable u modelu uključeni su indeks potrošačkih cena (CPI), 12-mesečni USD LIBOR, kamatna stopa na dugoročne državne obveznice i stopa nezaposlenosti, dok je zavisna varijabla godišnji prinos hedž fonda. Empirijska analiza zasnovana je na podacima

hedž fonda Man Group, sa sedištem u Ujedinjenom Kraljevstvu, pri čemu analizirani period obuhvata godine od 2015. do 2024. godine. Podaci o makroekonomskim pokazateljima prikupljeni su za isti vremenski period, čime je omogućeno ispitivanje njihove međusobne povezanosti sa performansama fonda. Za analizu odnosa između varijabli primenjen je log-log regresioni model, koji omogućava procenu elastičnosti prinosa u odnosu na promene makroekonomskih faktora. Dobijeni rezultati pokazuju da indeks potrošačkih cena, 12-mesečni USD LIBOR i kamatna stopa na dugoročne obveznice ostvaruju pozitivan i statistički značajan uticaj na godišnji prinos hedž fonda. Nasuprot tome, stopa nezaposlenosti nije pokazala statistički značajan uticaj na ostvarene prinose u posmatranom periodu. Nalazi istraživanja ukazuju na to da pojedini makroekonomski indikatori predstavljaju važne determinante uspešnosti hedž fondova i mogu biti korisni pri donošenju investicionih odluka, proceni rizika i kreiranju strategija upravljanja portfoliom u uslovima promenljivog makroekonomskog okruženja.

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UČEŠĆE DIREKTNE PRODAJE U OSIGURANJU SRBIJE 2019-2024: STRUKTURA PREMIJE I STRUKTURNI POKAZATELJI EFIKASNOSTI

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Apsrtakt
Rad analizira učešće direktne prodaje (prodaja preko „zaposlenih u društvu za osiguranje“) u sektoru osiguranja u Srbiji na osnovu zvaničnih podataka Narodne banke Srbije o distribucionim kanalima za period 2019-2024, koji obuhvata prepandemijsku, pandemijsku i postpandemijsku fazu. Fokus je na strukturi premije neživotnih i životnih osiguranja prema glavnim kanalima prodaje (sopstvena prodajna mreža društava za osiguranje, brokerska društva, zastupnici, tehnički pregledi i banke), kao i na dinamici njihovog učešća u posmatranom periodu. Metodološki, rad primenjuje deskriptivnu statistiku, indekse strukture i jednostavne indikatore efikasnosti zasnovane na učešću premije po kanalima, pri čemu se efikasnost direktne prodaje posmatra u strukturnom smislu zbog ograničene dostupnosti javnih podataka o troškovima prodaje po kanalima. Rezultati pokazuju da direktna prodaja zadržava dominantno učešće u premiji neživotnih osiguranja (oko 62% u proseku) i životnih osiguranja (oko 64%), uz postepeni rast uloge brokerskih društava i banaka. Naučni doprinos rada ogleda se u strukturisanoj kvantifikaciji učešća direktne prodaje na tržištu osiguranja Srbije u periodu 2019-2024 i definisanju indikatora koji mogu biti polazna osnova za buduća, detaljnija istraživanja efikasnosti kanala distribucije.
Ključne reči: direktna prodaja, osiguranje, distribucioni kanali, struktura premije, digitalizacija, tržište osiguranja Srbije

PARTICIPATION OF DIRECT SALES IN SERBIAN INSURANCE, 2019-2024: PREMIUM STRUCTURE AND STRUCTURAL EFFICIENCY INDICATORS

Abstract
The paper analyses the share of direct sales in the Serbian insurance sector using official data from the National Bank of Serbia on distribution channels for the period 2019-2024, which covers the pre-pandemic, pandemic and post-pandemic phases. The focus is on the premium structure of non-life and life insurance by main sales channels (insurers’ own sales force, brokers, agents, technical inspection stations and banks), as well as on the dynamics of their shares over time. Methodologically, the paper applies descriptive statistics, structure indices and simple efficiency indicators based on the share of premiums by channel, with efficiency being considered in a structural sense due to the limited availability of public data on selling expenses by channel. The results show that direct sales retain a dominant share in non-life insurance premiums (around 62% on average) and life insurance premiums (around 64%), alongside a gradual increase in the role of brokers and banks. The contribution of the paper lies in providing a structured quantification of the share of direct sales in the Serbian insurance market over the period 2019-2024 and in defining indicators that can serve as a basis for future, more detailed research on the efficiency of distribution channels.
Keywords*:* direct sales, insurance, distribution channels, digitalisation, premium structure, Serbian insurance market

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UVOD

Tržište osiguranja u Srbiji u poslednjoj deceniji prolazi kroz značajne promene, kako u pogledu obima premije, tako i u pogledu strukture proizvoda i kanala distribucije. Pored tradicionalne prodaje putem agenata i brokera, sve veći značaj stiču direktni kanali, bilo da je reč o prodaji u filijalama, kontakt centrima ili putem digitalnih platformi. Period 2019-2024 posebno je zanimljiv zato što obuhvata prepandemijsku godinu, šok izazvan pandemijom COVID-19 i postpandemijsku fazu oporavka, kada dolazi do ubrzane digitalizacije poslovanja i preispitivanja postojećih modela prodaje (EIOPA, 2024; McKinsey & Company, 2019). U takvom okruženju, pitanje učešća direktne prodaje i njene relativne efikasnosti u odnosu na posredničke kanale postaje ključno za razumevanje konkurentnosti društava za osiguranje i dinamike razvoja tržišta osiguranja u Srbiji.

Međunarodna literatura ukazuje na to da izbor i kombinacija distribucionih kanala utiču ne samo na obim premije, već i na strukturu troškova, profitabilnost i nivo usluge korisnicima (Gonulal et al., 2012; Rubio-Misas, 2022). U razvijenim tržištima uloga direktne prodaje sve češće se posmatra u okviru multikanalnih i omnikanalnih strategija, u kojima se klasični kanali (filijale, agenti, brokeri) kombinuju sa bankoosiguranjem i digitalnim kanalima - onlajn prodajom, mobilnim aplikacijama i platformama trećih strana (EIOPA, 2024; McKinsey & Company, 2019). Ipak, empirijske analize koje sistematski kvantifikuju doprinos pojedinih kanala u premiji i razlike između životnih i neživotnih osiguranja relativno su ograničene čak i na većim tržištima.

U domaćoj literaturi, studije koje detaljnije kvantifikuju učešće direktne prodaje u ukupnoj premiji i upoređuju njenu ulogu sa posredničkim kanalima i dalje su retke, i uglavnom su usmerene na institucionalni razvoj tržišta i regulatorni okvir (Božović et al., 2014; Aničić i Anufrijev, 2022). Dosadašnji radovi pretežno analiziraju opšti razvoj sektora osiguranja, koncentraciju tržišta i regulatorne promene, dok struktura prodajnih kanala i uloga direktne prodaje, posebno iz ugla razdvajanja životnih i neživotnih osiguranja, ostaju nedovoljno istraženi. Ovaj rad nastoji da popuni tu prazninu tako što analizira položaj direktne prodaje u sektoru osiguranja Srbije u periodu 2019-2024, pri čemu se posebna pažnja posvećuje razlikama između životnih i neživotnih osiguranja i ulozi digitalizacije u transformaciji direktnih kanala.

Empirijski deo istraživanja zasniva se na agregatnim podacima o premiji po kanalima distribucije, preuzetim iz zvaničnih statističkih tabela i publikacija Narodne banke Srbije za period 2019-2024 (Narodna banka Srbije, 2024a; Narodna banka Srbije, 2024b; Narodna banka Srbije, 2024c). Posmatraju se pokazatelji nivoa i strukture premije po glavnim kanalima prodaje, kao i odabrani indikatori efikasnosti distribucije, definisani pre svega kroz učešće premije pojedinih kanala u ukupnoj premiji tržišta i odgovarajućih segmenata (neživotna i životna osiguranja). U ovom radu efikasnost direktne prodaje posmatra se prvenstveno u strukturnom smislu - kroz relativni značaj pojedinih kanala u premiji i njihovu prilagođenost vrstama proizvoda - budući da javno dostupni podaci Narodne banke Srbije ne obuhvataju detaljne troškove prodaje po kanalima. Analiza se oslanja na deskriptivne statističke postupke,

uporedne pokazatelje i indekse strukture, uz razdvajanje životnih i neživotnih osiguranja tamo gde je to moguće.

Polazeći od ovakvog pristupa, rad nastoji da odgovori na sledeća istraživačka pitanja:

1. kako se učešće direktne prodaje u premiji neživotnih i životnih osiguranja Srbije kretalo u periodu 2019-2024, uključujući pandemijski i postpandemijski period, i
2. kakvi se strukturni obrasci mogu identifikovati u odnosu između direktnih i posredničkih kanala prodaje, posmatrano kroz učešće u premiji i specijalizaciju po vrstama proizvoda.

Dobijeni nalazi treba da doprinesu boljem razumevanju uloge direktne prodaje u strukturi tržišta osiguranja Srbije i da ponude smernice za optimizaciju kanalne strategije društava za osiguranje, posebno u uslovima digitalne transformacije. Istovremeno, rezultati mogu biti od koristi donosiocima odluka u domenu regulative, kroz jasniji uvid u to kako različiti kanali distribucije mogu biti povezani sa troškovima, konkurencijom i zaštitom korisnika usluga osiguranja.

U nastavku rada najpre se daje teorijski okvir i pregled relevantne literature, zatim se predstavljaju podaci i metodologija, prikazuju rezultati analize i diskutuje o implikacijama za tržište osiguranja, nakon čega sledi zaključak.

TEORIJSKI OKVIR I PREGLED LITERATURE

Pojam i funkcije osiguranja

Osiguranje predstavlja specifičan oblik finansijske usluge čija je osnovna funkcija transfer i raspodela rizika između većeg broja učesnika, uz naplatu premije koja odražava verovatnoću nastupanja rizika i potencijalni iznos štete. Za razliku od materijalnih dobara, osiguranje je nematerijalan proizvod, zasnovan na obećanju buduće usluge i poverenju u solventnost i reputaciju osiguravača. Marketing i prodaja osiguravajućih proizvoda zbog toga imaju ključnu ulogu u premošćavanju asimetrije informacija između pružaoca i korisnika usluge, kao i u objašnjavanju složenih ugovornih karakteristika polisa (Shameem & Gupta, 2012; Zekaj, 2016).

U literaturi se naglašava da tržište osiguranja, pored klasične zaštitne funkcije, ima i važnu ulogu u mobilizaciji štednje i alokaciji kapitala kroz ulaganja osiguravajućih društava u finansijske instrumente, čime doprinosi stabilnosti finansijskog sistema i ekonomskom rastu (Gonulal et al., 2012). U takvom okviru, kanali distribucije osiguranja postaju ključni element lanca vrednosti, jer utiču na troškove akvizicije, strukturu premije i dostupnost proizvoda različitim segmentima klijenata.

Distribucioni kanali u osiguranju: tipologija i evolucija

Distribucioni kanali u osiguranju obuhvataju skup institucionalnih aranžmana i prodajnih mehanizama putem kojih se osiguravajući proizvodi plasiraju krajnjim korisnicima. Tradicionalno, dominiraju posrednički kanali - pre svega ekskluzivni i višestruki agenti i brokeri - dok se u savremenim uslovima razvijaju i alternativni kanali, poput bankoosiguranja, tehničkih pregleda, leasing društava i različitih oblika partnerskih mreža (Božović et al., 2014; Gonulal et al., 2012).

Bancassurance, odnosno distribucija osiguranja putem bankarske mreže, u literaturi se opisuje kao modalitet koji koristi postojeću bazu klijenata i infrastrukturne kapacitete banaka kako bi se smanjili troškovi prodaje i proširio obim premije (Gonulal et al., 2012; Chang et al., 2011). Istraživanja za razvijena evropska tržišta ukazuju da bankoosiguranje ima posebno značajnu ulogu u segmentu životnih osiguranja, dok brokeri i agenti zadržavaju centralno mesto u distribuciji neživotnih proizvoda, uz rastuće prisustvo višekanalnih i omnikanalnih strategija (Rubio-Misas, 2022; EIOPA, 2024). U zemljama u razvoju i tranzicionim ekonomijama, direktna prodaja i dalje ima veliku težinu, ali dolazi do postepenog jačanja uloge banaka i nezavisnih posrednika, naročito u urbanim sredinama (Gonulal et al., 2012).

Efikasno upravljanje kanalima zahteva koordinaciju cena, provizija i marketinških aktivnosti, kako bi se izbegli konflikti i kanibalizacija između kanala. U teorijskom smislu, efikasnost pojedinačnog kanala najčešće se definiše kroz odnos ostvarenog obima premije i troškova prodaje, kao i kroz sposobnost kanala da obezbedi adekvatan obim i strukturu premije za ciljane segmente klijenata (Rubio-Misas, 2022). U praksi, međutim, dostupnost detaljnih podataka o troškovima po kanalima često je ograničena, pa se analiza efikasnosti svodi na strukturne pokazatelje učešća kanala u premiji i njihovu dinamiku kroz vreme.

Direktna prodaja i digitalni kanali

Direktna prodaja u osiguranju podrazumeva plasman proizvoda bez angažovanja nezavisnih posrednika, najčešće putem sopstvene mreže filijala, kontakt centara, web-sajtova, mobilnih aplikacija i drugih oblika neposrednog obraćanja klijentima. Klasični oblici direktnog marketinga - poput prodaje putem pošte, telefona ili direktnog oglašavanja u medijima - u savremenim uslovima nadograđeni su digitalnim kanalima, uključujući onlajn prodajne portale i agregatore ponuda (Onn & Mercer, 1998; Moore, 1998; Kroll, 2016).

Razvoj digitalizacije u evropskom osiguravajućem sektoru dovodi do transformacije načina na koji se proizvodi dizajniraju, distribuiraju i servisiraju. Izveštaji nadzornih tela i konsultantskih kuća ukazuju da, iako fizički kanali i dalje imaju dominantnu ulogu, rastući značaj imaju direktni onlajn kanali, mobilne aplikacije i upotreba agregatora, što utiče na strukturu troškova i očekivanja korisnika osiguranja (EIOPA, 2024; McKinsey & Company, 2019). U takvom okruženju, direktna prodaja sve više podrazumeva kombinaciju fizičke prisutnosti i digitalnih interakcija sa klijentima, pri čemu se očekuje da osiguravači prilagode svoje modele distribucije različitim preferencijama generacija i segmenta klijenata.

Sa stanovišta merenja efikasnosti, digitalni kanali uvode dodatne izazove i mogućnosti. S jedne strane, oni potencijalno smanjuju marginalne troškove prodaje i omogućavaju preciznije targetiranje, dok sa druge strane zahtevaju značajne početne investicije u IT infrastrukturu, integraciju podataka i usklađivanje sa regulatornim zahtevima za zaštitu potrošača (EIOPA, 2024). Zbog toga se u literaturi sve češće naglašava potreba da se direktna prodaja posmatra u okviru integrisanih, višekanalnih modela, u kojima se fizički i digitalni kanali međusobno dopunjuju.

Pregled istraživanja o kanalima distribucije u Srbiji

Empirijska istraživanja tržišta osiguranja u Srbiji ukazuju da je struktura distribucionih kanala pod uticajem tranzicionih procesa, jačanja konkurencije i promena regulatornog okvira. Božović et al. (2014) analiziraju institucionalnu regulativu i distributivnu mrežu prodaje, ističući ulogu posrednika, agenata i banaka u formiranju premije i dostupnosti proizvoda. Novija istraživanja naglašavaju značaj digitalnih kanala i tehnoloških inovacija za razvoj sektora, uključujući pojavu mobilnih aplikacija, agregatora i drugih onlajn platformi (Aničić i Anufrijev, 2022; Kocatürk, 2023).

Izveštaji Narodne banke Srbije pokazuju da se najveći deo premije i dalje ostvaruje kroz tradicionalne kanale, ali se uočava postupno jačanje direktne prodaje putem osiguravajućih društava i banaka, uz paralelni razvoj digitalnih kanala (Narodna banka Srbije, 2024a). Poslednjih godina, posebno u periodu obuhvaćenom ovim istraživanjem (2019-2024), tržište osiguranja Srbije suočeno je sa spoljnim šokovima, poput pandemije COVID-19, koji su ubrzali preispitivanje postojećih modela distribucije i podstakli veće oslanjanje na elektronsku komunikaciju sa klijentima. Ovi nalazi ukazuju da je analiza učešća direktne prodaje, posmatrane kroz strukturu premije i relativni položaj u odnosu na posredničke kanale u segmentima životnog i neživotnog osiguranja, relevantna i aktuelna tema za domaću literaturu i praksu.

PODACI I METODOLOGIJA

Izvori podataka i obuhvat

Empirijski deo istraživanja zasniva se na sekundarnim, agregatnim podacima o tržištu osiguranja u Srbiji, preuzetim iz zvaničnih izveštaja Narodne banke Srbije. Ključni izvor čine godišnji podaci o ukupnoj premiji osiguranja prema kanalima prodaje, objavljeni u okviru statističkih tabela „Ukupna premija osiguranja prema kanalima prodaje“ za period 2019-2024 (Narodna banka Srbije, 2024a; Narodna banka Srbije, 2024c). Dodatno je korišćen sažet prikaz udela najznačajnijih kanala distribucije po vrstama osiguranja (neživotna i životna) iz publikacije „Svet bankarstva i investicija, maj 2024 - pitanja u vezi s kanalima putem kojih se prodaje osiguranje“ Narodne banke Srbije (Narodna banka Srbije, 2024b).

Obuhvat analize zasniva se na raspoloživoj, konzistentnoj seriji podataka o učešću premije po kanalima prodaje za period 2019-2024, koji obuhvata prepandemijski, pandemijski i postpandemijski period i omogućava posmatranje kratkoročnih promena u strukturi distribucionih kanala. U analizi se odvojeno prikazuju struktura premije neživotnih osiguranja i premije životnih osiguranja po kanalima prodaje, čime se uvažava njihova različita priroda i uloga pojedinih kanala u ovim segmentima.

Definicije varijabli

U empirijskoj analizi koriste se sledeće ključne varijable: ukupna bruto premija tržišta osiguranja, bruto premija neživotnih osiguranja, bruto premija životnih osiguranja i učešće premije po kanalima prodaje. Posmatrani kanali prodaje obuhvataju: direktnu prodaju preko društava za osiguranje (sopstvena prodajna mreža), društva za posredovanje u osiguranju, zastupnike u osiguranju, tehničke preglede i banke. Za potrebe poređenja kanala posmatra se struktura premije izražena kao procenat premije

pojedinog kanala u ukupnoj premiji odgovarajućeg segmenta (neživotna ili životna osiguranja). Pri tome, direktna prodaja se u empirijskom delu operacionalizuje kroz kanal „zaposleni u društvu za osiguranje“ iz statističkih tabela NBS (prodaja preko sopstvene prodajne mreže). NBS klasifikacija sadrži i druge oblike direktne prodaje (npr. internet i druga sredstva telekomunikacije), koji su u ovom radu obuhvaćeni u zbirnoj kategoriji „ostali kanali“ zbog malog učešća i radi uporedivosti glavnih kanala.

Indikatori efikasnosti distribucije primarno se definišu kroz ove strukturne pokazatelje učešća premije, dok se troškovi prodaje posmatraju na konceptualnom nivou, imajući u vidu da javno dostupni podaci ne pružaju potpunu raspodelu troškova po kanalima. Efikasnost kanala se, dakle, u ovom radu operacionalizuje kao relativni značaj pojedinih kanala u strukturi premije i njihova prilagođenost vrstama proizvoda, a ne kao puna troškovno-profitabilnosna efikasnost na nivou pojedinačnih društava.

Metodološki pristup

Metodološki, istraživanje se oslanja na deskriptivnu statističku analizu i uporedne pokazatelje. Najpre se, na agregatnom nivou, prikazuju nivo i struktura premije po kanalima prodaje u posmatranom periodu, uz razdvajanje životnih i neživotnih osiguranja. Zatim se analiziraju trendovi u učešću direktne prodaje i posredničkih kanala, kroz posmatranje relativnih promena i jednostavnih indeksa rasta, kako bi se identifikovali periodi ubrzanog rasta, stabilizacije ili smanjenja uloge pojedinih kanala.

U drugom koraku, razmatraju se indikatori efikasnosti distribucije. Teorijski okvir efikasnosti zasniva se na odnosu premije i troškova prodaje po kanalima, dok se u empirijskom delu, zbog ograničene dostupnosti detaljnih podataka o troškovima, efikasnost sagledava prvenstveno kroz strukturne pokazatelje učešća premije. Analiza se dopunjuje tabelarnim pregledima, koji doprinose preglednosti i interpretaciji nalaza. S obzirom na agregatni karakter podataka i ograničenu dostupnost detaljnih informacija o troškovima po kanalima, rezultati se tumače uz jasno naglašena ograničenja i sa fokusom na strukturne obrasce i trendove, a ne na stroge kauzalne zaključke.

Indikatori efikasnosti direktne prodaje

U ovom radu efikasnost direktne prodaje posmatra se u strukturnom smislu - kroz učešće kanala u premiji i njihovu prilagođenost vrstama proizvoda - budući da javno dostupni podaci Narodne banke Srbije ne obuhvataju detaljne troškove prodaje po kanalima. Efikasnost direktne prodaje u empirijskom smislu u literaturi se najčešće razmatra na osnovu odnosa između ostvarenog obima premije i troškova prodaje, kao i kroz strukturu premije po kanalima i dinamiku njihovog učešća kroz vreme. Na nivou kanala distribucije, osnovni indikator efikasnosti može se definisati kao odnos bruto premije ostvarene putem određenog kanala i troškova prodaje tog kanala (premija po jedinici troška), odnosno kao obrnuti pokazatelj - udeo troškova prodaje u premiji. Kod direktne prodaje, ovaj odnos zavisi od širine mreže filijala, broja zaposlenih u prodaji, nivoa fiksnih troškova i intenziteta marketinških aktivnosti.

S obzirom na to da javno dostupni podaci Narodne banke Srbije detaljno prikazuju strukturu premije po kanalima, ali ne i potpune troškove prodaje raspoređene po kanalima, u ovom radu se efikasnost direktne prodaje empirijski sagledava

prvenstveno kroz strukturne pokazatelje. To podrazumeva poređenje učešća direktne prodaje u ukupnoj premiji sa učešćem posredničkih kanala, posebnu analizu segmenta životnih osiguranja, kao i praćenje promena kroz vreme. U meri u kojoj dodatni podaci o troškovima prodaje po kanalima postanu dostupni (npr. iz internih izveštaja društava za osiguranje ili detaljnijih sektorskih analiza), indikatori odnosa premije i troškova prodaje po kanalima mogu se koristiti za kvantitativnu procenu relativne efikasnosti direktne prodaje u odnosu na alternativne kanale distribucije.

REZULTATI I ANALIZA

U ovom poglavlju analiziraju se empirijski nalazi o strukturi premije prema kanalima prodaje na tržištu osiguranja Srbije, sa posebnim osvrtom na učešće direktne prodaje i promene u strukturi kanala u poslednjim godinama. Analiza obuhvata period 2019-2024. godine: za 2019-2023. daje se detaljnija kvantitativna razrada, dok se podaci za 2024. godinu koriste deskriptivno, kao ilustracija nastavka uočenih trendova, uz poseban osvrt na segment životnih osiguranja, što omogućava da se oceni relativni značaj i potencijalna efikasnost direktne prodaje u odnosu na posredničke kanale.

Struktura premije neživotnih osiguranja prema kanalima prodaje (2019-2024)

Prema podacima Narodne banke Srbije, u segmentu neživotnih osiguranja dominira prodaja preko sopstvene prodajne mreže društava za osiguranje, uz značajno i rastuće učešće brokerskih društava i stabilnu ulogu tehničkih pregleda. U tabeli 1 prikazani su udeli glavnih kanala u premiji neživotnih osiguranja u Srbiji za period 2019-2024 (Narodna banka Srbije, 2024a; Narodna banka Srbije, 2024c).

Tabela 1.

Struktura premije neživotnih osiguranja prema kanalima prodaje, Srbija, 2019-2024 (u %)

Godina / kanal prodaje	2019	2020	2021	2022	2023	2024
Zaposleni u društvu za osiguranje	63,14	62,61	59,99	62,57	61,06	58,62
Društva za posredovanje u osiguranju (brokeri)	12,91	14,94	15,97	15,99	16,45	19,25
Društva za zastupanje u osiguranju	3,69	3,58	3,92	3,28	3,16	3,32
Tehnički pregledi	13,43	13,27	13,52	11,34	11,26	11,06
Banke	2,51	1,44	2,25	1,66	2,65	2,20

Napomena: Prikazani su najvažniji kanali; preostali deo premije odnosi se na ostale kanale distribucije (internet i druga sredstva telekomunikacije, fizička lica - preduzetnici, javni poštanski operator, davaoci finansijskog lizinga, zaposleni u drugom društvu za osiguranje i lica po članu 113 Zakona o osiguranju).

Izvor: Narodna banka Srbije, statističke tabele „Ukupna premija osiguranja prema kanalima prodaje“, 2019-2024; preračun autora

Podaci pokazuju da je u posmatranom periodu prosečno učešće premije ostvarene preko zaposlenih u društvu za osiguranje iznosilo nešto iznad 61%, pri čemu je udeo direktne prodaje opao sa 63,14% (2019) na 61,06% (2023), a u 2024. godini dodatno na 58,62%. Istovremeno, udeo brokerskih društava porastao je sa 12,91% (2019) na 16,45% (2023), odnosno 19,25% u 2024. godini, što potvrđuje nastavak trenda jačanja

specijalizovanih posredničkih kanala. Učešće tehničkih pregleda ostaje relativno stabilno, između oko 11% i 13,5%, dok je učešće banaka u premiji neživotnih osiguranja i dalje relativno skromno, krećući se u rasponu od oko 1,5% do 2,7% premije.

Struktura premije životnih osiguranja prema kanalima prodaje (2019-2024)

Kod životnih osiguranja uloga kanala prodaje je delimično drugačija. I dalje dominira sopstvena prodajna mreža društava za osiguranje, ali značajno učešće imaju i banke i društva za zastupanje, što odražava razvoj bankoosiguranja i agenata kao primarnih tačaka kontakta sa klijentima u ovom segmentu. Tabela 2 prikazuje učešće glavnih kanala u premiji životnih osiguranja za period 2019-2024 (Narodna banka Srbije, 2024a; Narodna banka Srbije, 2024c).

Tabela 2

Struktura premije životnih osiguranja prema kanalima prodaje, Srbija, 2019-2024 (u %)

Godina / kanal prodaje	2019	2020	2021	2022	2023	2024
Zaposleni u društvu za osiguranje	63,11	65,27	63,20	64,33	64,36	64,46
Zastupnici u osiguranju (fizička lica)	5,65	5,45	5,26	4,74	4,67	3,99
Društva za zastupanje u osiguranju	12,70	12,87	13,35	13,93	13,39	12,48
Društva za posredovanje u osiguranju (brokeri)	2,55	2,49	2,44	1,61	1,51	1,65
Banke	15,87	13,47	15,34	15,07	15,87	16,85

Napomena: Zbir prikazanih kanala može biti nešto manji od 100%, jer manji deo premije ide preko ostalih kanala distribucije; odstupanja su posledica zaokruživanja.

Izvor: Narodna banka Srbije, statističke tabele „Ukupna premija osiguranja prema kanalima prodaje“, 2019-2024; preračun autora

U segmentu životnih osiguranja učešće direktne prodaje (zaposleni u društvu za osiguranje) stabilno se kreće oko 64% premije tokom celog posmatranog perioda, pri čemu je učešće blago poraslo sa 63,11% (2019) na 64,46% (2024). Uloga banaka je takođe visoka i stabilna (oko 15-17% premije), što oslikava značaj bankoosiguranja za distribuciju dugoročnih, kombinovanih proizvoda. Društva za zastupanje u osiguranju ostvaruju udeo od oko 12-14% premije, dok brokerska društva imaju relativno skromno učešće (oko 2% u proseku), što je u skladu sa nalazima međunarodne literature da se životna osiguranja oslanjaju pre svega na direktne i bankarske kanale (Gonulal et al., 2012; Rubio-Misas, 2022).

Posmatranje promena kroz vreme pokazuje da je učešće direktne prodaje kod životnih osiguranja blago poraslo, dok je učešće zastupnika (fizičkih lica) smanjeno za više od 1 procentnog poena. Banke zadržavaju ulogu ključnog eksternog kanala, sa udelom koji blago osciluje, ali je na kraju posmatranog perioda (2024) viši nego 2019. godine. Ovakva struktura ukazuje na komplementarnost direktne prodaje, bankoosiguranja i zastupnika u distribuciji životnih osiguranja, što je u skladu sa obrascima u razvijenim evropskim tržištima osiguranja (EIOPA, 2024; McKinsey & Company, 2019).

Najnoviji podaci za 2024. godinu - kratki osvrt

Kao poslednja godina posmatranog perioda, 2024. dodatno potvrđuje uočene trendove. Prema podacima Narodne banke Srbije, premija realizovana preko društava za posredovanje u osiguranju u ukupnoj premiji porasla je sa oko 14,5% (2023) na približno 16% (2024), dok učešće posrednika u premiji neživotnih osiguranja dostiže oko 19,25%. Kod životnih osiguranja, društva za osiguranje ostvaruju oko 64% premije, banke oko 17% premije, dok zastupnici u zbiru (fizička lica i društva za zastupanje) učestvuju sa približno 17% premije, a brokerska društva sa oko 1,65% (Narodna banka Srbije, 2024c). Ovi podaci potvrđuju nastavak trenda rasta značaja posrednika i banaka, uz zadržavanje dominantne pozicije direktne prodaje.

Diskusija prvih pokazatelja učešća i efikasnosti direktne prodaje

Prikazani nalazi ukazuju da direktna prodaja, merena učešćem premije ostvarene preko osiguravajućih društava, i dalje ima centralno mesto u strukturi tržišta osiguranja Srbije. U ukupnoj premiji, učešće direktne prodaje kreće se nešto iznad 60%, dok je u segmentu životnih osiguranja ono dodatno više (oko dve trećine premije), što sugeriše da ovaj kanal ima posebnu važnost kod složenijih, dugoročnih proizvoda. Istovremeno, vidljiv je trend rasta učešća brokerskih društava i banaka, što odražava sve veću specijalizaciju posredničkih kanala i razvoj bankoosiguranja (Rubio-Misas, 2022; EIOPA, 2024).

Posmatrano iz perspektive efikasnosti, ovi strukturni pokazatelji ne predstavljaju direktnu meru ekonomske efikasnosti kanala u smislu odnosa premije i troškova prodaje, već pružaju indikativnu sliku relativnog značaja i specijalizacije kanala u različitim segmentima. Na osnovu uočenih obrazaca može se pretpostaviti da direktna prodaja ima relativnu prednost u segmentima gde je neophodan intenzivniji kontakt sa klijentima i detaljno savetovanje (npr. životno osiguranje), dok posrednički kanali - pre svega brokeri i banke - mogu biti efikasniji u distribuciji standardizovanih proizvoda, kao što su neživotna osiguranja i pojedine linije posebnih osiguranja. Međutim, takve pretpostavke treba posmatrati oprezno, imajući u vidu da agregatni podaci za period od šest godina ne omogućavaju potpunu kvantifikaciju odnosa premije i troškova prodaje po kanalima.

Detaljnija kvantitativna analiza efikasnosti, zasnovana na odnosu premije i troškova prodaje po kanalima, zahtevala bi dostupnost granularnijih podataka o troškovima, kao i korišćenje naprednijih statističkih i ekonometrijskih modela (npr. panel analiza na nivou društava za osiguranje). U tom smislu, ovaj rad postavlja strukturni okvir i početne pokazatelje o položaju direktne prodaje u odnosu na posredničke kanale na tržištu osiguranja Srbije u periodu 2019-2024, dok preciznija procena relativne efikasnosti direktne prodaje u odnosu na alternativne kanale distribucije ostaje zadatak budućih istraživanja.

DISKUSIJA I IMPLIKACIJE ZA TRŽIŠTE OSIGURANJA U SRBIJI

Kvantitativno posmatrano, učešće direktne prodaje u premiji neživotnih osiguranja smanjilo se sa 63,14% (2019) na 61,06% (2023), a prema najnovijim podacima za 2024. godinu dodatno na 58,62%. Istovremeno, učešće brokerskih društava poraslo je sa 12,91% (2019) na 16,45% (2023), odnosno na 19,25% u 2024. godini. Kod životnih

osiguranja direktna prodaja se tokom celog posmatranog perioda zadržala na nivou od oko 64% premije (63,11% u 2019. i 64,46% u 2024), uz blago povećanje učešća banaka sa 15,87% (2019) na 16,85% (2024). Ovi nalazi ukazuju na postepenu, ali ne i radikalnu promenu strukture distribucionih kanala, pri čemu direktna prodaja zadržava centralnu poziciju, uz istovremeno jačanje posredničkih kanala, pre svega brokera kod neživotnih osiguranja i banaka kod životnih osiguranja.

Diskusija dobijenih nalaza pokazuje da je uloga direktne prodaje u sektoru osiguranja Srbije konzistentna sa teorijskim naglascima o važnosti sopstvene prodajne mreže i direktne komunikacije sa klijentima kod složenijih finansijskih proizvoda. Visoko i stabilno učešće direktne prodaje u ukupnoj premiji, a posebno u segmentu životnih osiguranja, u skladu je sa nalazima međunarodnih istraživanja koja ukazuju da su lični kontakt, poverenje i reputacija osiguravača i dalje ključni faktori kod dugoročnih ugovora i proizvoda sa visokim stepenom informacione asimetrije (Shameem & Gupta, 2012; Gonulal et al., 2012). U tom segmentu, direktna prodaja se javlja kao prirodan nosilac odnosa sa klijentima, dok posrednički kanali imaju izraženiju ulogu u pojedinim nišama i specijalizovanim proizvodima.

Istovremeno, postepeni rast učešća brokerskih društava i banaka potvrđuje trendove diverzifikacije kanala distribucije koje beleži literatura o bancassurance-u i multikanalnim strategijama osiguravajućih društava (Chang et al., 2011; Rubio-Misas, 2022). U domaćem kontekstu, jačanje uloge banaka u distribuciji životnih osiguranja može se tumačiti kao rezultat sinergije između kreditnih proizvoda i polisa životnog osiguranja, kao i korišćenja postojeće baze klijenata i infrastrukture bankarskog sektora. Rast brokerskih kanala, posebno u neživotnim osiguranjima, ukazuje na potrebu za specijalizovanim savetovanjem i kompleksnijim strukturama rizika, naročito u segmentu korporativnih i imovinskih osiguranja.

Sa stanovišta efikasnosti, dobijene nalaze treba tumačiti pre svega kao pokazatelje strukturne efikasnosti - u smislu relativnog značaja i specijalizacije kanala - a ne kao potpunu meru ekonomske efikasnosti zasnovane na odnosu premije i troškova prodaje po kanalima. Visoko učešće direktne prodaje u životnim osiguranjima i dalje sugeriše da ovaj kanal ima komparativnu prednost u segmentima gde je neophodan intenzivniji kontakt sa klijentima i detaljno savetovanje, dok posrednički kanali - pre svega brokeri i banke - stiču relativnu prednost u distribuciji standardizovanih i transakciono jednostavnijih proizvoda, kao što su pojedine linije neživotnih osiguranja. Međutim, s obzirom na to da agregatni podaci Narodne banke Srbije ne obuhvataju detaljnu strukturu troškova po kanalima, ovakva tumačenja imaju indikativni karakter i ne mogu zameniti punu analizu profitabilnosti kanala.

Ovakva slika u velikoj meri je u skladu sa nalazima o digitalizaciji i promeni preferencija korisnika, prema kojima klijenti sve češće kombinuju digitalne i fizičke kanale u zavisnosti od vrste proizvoda i ličnih preferencija (EIOPA, 2024; McKinsey & Company, 2019). Direktna prodaja se, u tom smislu, sve manje može posmatrati isključivo kao „fizički“ kanal, a sve više kao kombinacija fizičkih i digitalnih tačaka kontakta sa korisnicima - filijale, kontakt centri, onlajn kalkulatori, video-savetovanje i mobilne aplikacije. Za osiguravače u Srbiji to implicira potrebu da se tradicionalna direktna prodaja tehnološki nadogradi, kako bi se zadržale prednosti ličnog kontakta,

uz istovremeno smanjenje jediničnih troškova akvizicije i povećanje dostupnosti proizvoda.

Za društva za osiguranje, ovi rezultati impliciraju da je neophodno strateško upravljanje portfeljom kanala prodaje. Dominantno učešće direktne prodaje i dalje opravdava ulaganja u razvoj sopstvene mreže i prodajnog osoblja, ali rast brokerskih i bankarskih kanala zahteva redefinisanje provizijskih šema, koordinaciju marketinških aktivnosti i jasnu segmentaciju klijenata kako bi se izbegla kanibalizacija između kanala. Uvođenje digitalnih alata u direktnu prodaju - poput onlajn kalkulatora, daljinskog savetovanja i mobilnih aplikacija - može doprineti povećanju efikasnosti i smanjenju jediničnih troškova akvizicije, bez gubitka kvaliteta usluge i ličnog kontakta.

Sa stanovišta regulatora, nalaz o stabilno visokom učešću direktne prodaje, uz istovremen rast posredničkih kanala, otvara pitanja adekvatne zaštite korisnika osiguranja i transparentnosti provizija i troškova po kanalima. Regulatorni okvir treba da obezbedi uslove u kojima izbor kanala ne dovodi do diskriminacije klijenata u pogledu cene i kvaliteta usluge, već da podstiče konkurenciju i inovacije u distribuciji. Poseban izazov predstavlja regulisanje digitalnih kanala i agregatora ponuda, gde je potrebno uskladiti zahteve zaštite potrošača sa podsticanjem digitalne transformacije i širenja finansijske inkluzije.

U konačnici, rezultati rada ukazuju da budući razvoj tržišta osiguranja u Srbiji verovatno neće podrazumevati supstituciju direktne prodaje posredničkim kanalima, već njihovu komplementarnost u okviru integrisanih multikanalnih strategija. Direktna prodaja će, prema svemu sudeći, zadržati centralnu ulogu u izgradnji odnosa sa klijentima i distribuciji složenijih proizvoda, dok će posrednici i banke preuzimati veći deo u distribuciji standardizovanih linija i specijalizovanih proizvoda. Ovakav razvoj postavlja jasne zahteve pred osiguravajuća društva i regulatora u pogledu prikupljanja i objavljivanja detaljnijih podataka po kanalima, kako bi se efikasnost različitih modela distribucije mogla preciznije pratiti i empirijski vrednovati. U tom smislu, nalazi ovog rada predstavljaju početni strukturni okvir i polaznu osnovu za buduća istraživanja koja bi, uz upotrebu granularnijih podataka i naprednijih metoda, mogla detaljnije da kvantifikuju relativnu efikasnost direktne prodaje u odnosu na alternativne kanale distribucije.

ZAKLJUČAK

Rad je imao za cilj da analizira učešće direktne prodaje u sektoru osiguranja u Srbiji i strukturne pokazatelje njene efikasnosti, sa posebnim fokusom na strukturu premije prema kanalima prodaje i specifičnosti segmenta životnih osiguranja. Polazeći od teorijskog okvira o funkcijama osiguranja i tipologiji distribucionih kanala, ukazano je na razvoj multikanalnih strategija u savremenom osiguranju i složenu ulogu direktne prodaje u uslovima digitalne transformacije i jačanja posredničkih kanala. Empirijska analiza, zasnovana na agregatnim podacima Narodne banke Srbije za period 2019-2024 pokazala je da direktna prodaja, merena učešćem premije ostvarene putem društava za osiguranje, zadržava stabilno dominantno mesto u strukturi tržišta.

U ukupnoj premiji, učešće direktne prodaje kreće se nešto iznad 60%, dok je u premiji životnih osiguranja ono još veće (oko dve trećine), što ukazuje na posebnu važnost ovog kanala kod dugoročnih i informacijski intenzivnih proizvoda. Istovremeno, zabeležen je rast učešća brokerskih društava i banaka, što potvrđuje trend diverzifikacije kanala i razvoja bankoosiguranja i specijalizovanog posredovanja. Na taj način, obuhvaćen je prepandemijski, pandemijski i postpandemijski period, pri čemu podaci za 2024. godinu pre svega potvrđuju i zaokružuju uočene trendove u strukturi i dinamici kanala distribucije.

U pogledu efikasnosti, rad je definisao relevantne indikatore koji su konceptualno zasnovani na odnosu premije i troškova prodaje po kanalima, ali je, zbog ograničene dostupnosti javnih podataka o troškovima po kanalima, empirijsku analizu usmerio prvenstveno na strukturne pokazatelje učešća premije i promene u strukturi kroz vreme. Takav pristup omogućava da se identifikuju relativne prednosti direktne prodaje u segmentima gde je važan intenzivan kontakt sa klijentima i savetodavna uloga prodajnog osoblja, naspram posredničkih kanala koji se pokazuju konkurentnim u distribuciji standardizovanih proizvoda i specijalizovanih linija osiguranja. Pri tome, dobijeni nalazi treba da se tumače kao indikativni pokazatelji strukturne efikasnosti, a ne kao potpuna mera ekonomske efikasnosti zasnovane na premiji i troškovima prodaje po kanalima.

Za razliku od dosadašnjih domaćih radova, koji su uglavnom razmatrali institucionalne aspekte i regulativu distribucije osiguranja, ovaj rad uvodi sistematsku kvantifikaciju uloge direktne prodaje na osnovu zvaničnih podataka Narodne banke Srbije za period 2019-2024 i eksplicitno razlikuje neživotni i životni segment. Naučni doprinos rada ogleda se u strukturisanoj analizi učešća direktne prodaje na tržištu osiguranja Srbije i povezivanju empirijskih nalaza sa teorijskim konceptima distribucionih kanala, bankoosiguranja i multikanalnih strategija. Posebno je naglašena razlika između ukupne premije i premije životnih osiguranja, čime se ukazuje na heterogenost uloge pojedinih kanala po linijama poslovanja. Uz to, rad identifikuje skup indikatora strukturne efikasnosti koji se mogu primeniti i dodatno produbiti u budućim istraživanjima, kada budu dostupni detaljniji podaci o troškovima prodaje po kanalima.

Istovremeno, rad ima određena ograničenja. Ona se pre svega odnose na agregatni karakter korišćenih podataka i nemogućnost direktnog povezivanja premije i troškova po pojedinačnim kanalima, vrstama proizvoda i segmentima klijenata. Takođe, analiza je deskriptivna i fokusirana na strukturu i trendove, bez formalnog modeliranja kauzalnih veza između kanala distribucije, troškova i profitabilnosti. Buduća istraživanja mogla bi da uključe mikro-podatke društava za osiguranje, panel modele i analize na nivou pojedinačnih proizvoda i segmenata klijenata, što bi omogućilo dublje razumevanje determinanti efikasnosti direktne prodaje, uloge digitalnih kanala i optimalne kombinacije distribucionih kanala.

Za praksu, rezultati rada upućuju na potrebu da osiguravajuća društva u Srbiji razvijaju integrisane multikanalne strategije, u kojima direktna prodaja ostaje centralni kanal za stvaranje dugoročnih odnosa sa klijentima i plasman složenijih proizvoda, dok posrednici i banke imaju važnu dopunsku ulogu u distribuciji standardizovanih i specifičnih proizvoda. Za regulatora, nalazi naglašavaju važnost

prikupljanja i objavljivanja detaljnijih podataka po kanalima prodaje, kao i daljeg unapređenja okvira zaštite korisnika osiguranja u uslovima digitalne transformacije i širenja novih kanala distribucije. Na taj način, moguće je obezbediti razvoj konkurentnog, transparentnog i efikasnog tržišta osiguranja koje bolje odgovara potrebama domaćih korisnika.

LITERATURA

1. Aničić, A., & Anufrijev, A. (2022). Da li je scenario razvoja osiguranja u Srbiji optimističan. Revizor, 25(99), 81-88. https://doi.org/10.56362/Rev2299081A
2. Aničić, A., & Anufrijev, A. (2022). The impact of the COVID-19 pandemic on the faster digitalization of financial and banking. U A. Lošonc & A. Ivanišević (ur.), Socio-Economic Aspects of the Pandemic: Crisis Management (zbornik radova 8. međunarodne naučne konferencije, str. 276-286). Novi Sad: Fakultet tehničkih nauka, Univerzitet u Novom Sadu.
3. Bilgen Kocatürk, E. (2023). Development of distribution channels in finance industry: Evidence from banking and insurance sector in Turkey. International Journal of Economics, Politics, Humanities & Social Sciences, 6(4), 251-264. https://doi.org/10.59445/ijephss.1340941
4. Božović, J., Saračević, M., & Milošević, A. (2014). Distributivni kanali osiguranja u Srbiji. Ekonomika, 60(4), 105-116.
5. Chang, P.-R., Peng, J.-L., & Fan, C.-K. (2011). A comparison of bancassurance and traditional insurer sales channels. The Geneva Papers on Risk and Insurance - Issues and Practice, 36(1), 76-93. https://doi.org/10.1057/gpp.2010.34
6. European Insurance and Occupational Pensions Authority (EIOPA). (2024). Report on the digitalisation of the European insurance sector (EIOPA-BoS-24/139). Frankfurt am Main: European Insurance and Occupational Pensions Authority.
7. https://www.eiopa.europa.eu/publications/eiopas-report-digitalisation-european-insurance-sector_en
8. Kroll, K. (2016). Direct Marketing of Personal Insurance. Stamford: Gen Re. https://www.genre.com/us/knowledge/publications/2016/june/ri16-6-en
9. Gonulal, S. O., Goulder, N., & Lester, R. (2012). Bancassurance: A valuable tool for developing insurance in emerging markets (Policy Research Working Paper No. 6196). Washington, DC: World Bank.
10. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/725931468056443105
11. McKinsey & Company. (2019). Global insurance pools: Statistics and trends - distribution. New York: McKinsey & Company. https://www.mckinsey.com/industries/financial-services/our-insights/global-insurance-pools-statistics-and-trends-an-overview-of-life-p-and-c-and-health-insurance
12. Moore, B. D. (1998). Direct marketing of insurance: Integration of marketing, pricing and underwriting. Casualty Actuarial Society Discussion Paper Program. Arlington, VA: Casualty Actuarial Society. https://www.casact.org/abstract/direct-marketing-insurance-integration-marketing-pricing-and-underwriting

13. Narodna banka Srbije. (2024a). Sektor osiguranja u Republici Srbiji - Izveštaj za 2023. godinu. Beograd: Narodna banka Srbije. Dostupno na:
14. https://www.nbs.rs/export/sites/NBS_site/documents/osiguranje/izvestaji/izv_IV_2023.pdf
15. Narodna banka Srbije. (2024b). Statističke tabele: Ukupna premija osiguranja prema kanalima prodaje, 2019-2023. Beograd: Narodna banka Srbije. Dostupno na (stranica sa svim godišnjim tabelama, gde su i T15 za 2019-2023): https://www.nbs.rs/sr_RS/finansijske-institucije/osiguranje/poslovanje
16. Narodna banka Srbije. (2024c). Pregled podataka o premiji osiguranja prema kanalima prodaje u 2024. godini. Beograd: Narodna banka Srbije. Dostupno na (direktna tabela za 2024): https://www.nbs.rs/export/sites/NBS_site/documents/osiguranje/godisnji/god_T15_2024.pdf
17. Onn, K. P., & Mercer, A. (1998). The direct marketing of insurance. European Journal of Operational Research, 109(3), 541-549. https://doi.org/10.1016/S0377-2217(98)00024-1
18. Rubio-Misas, M. (2022). Bancassurance and the coexistence of multiple insurance distribution channels. International Journal of Bank Marketing, 40(4), 724-745. https://doi.org/10.1108/IJBM-04-2021-0129
19. Shameem, B., & Gupta, S. (2012). Marketing strategies in life insurance services. International Journal of Marketing, Financial Services & Management Research, 1(11), 132-141.
20. https://www.academia.edu/50073428/MARKETING_STRATEGIES_IN_LIFE_INSURANCE_SERVICES
21. Zekaj, B. (2016). Marketing in insurance industry: Marketing functions in insurance industry. European Journal of Multidisciplinary Studies, 1(5), 33-39. https://doi.org/10.26417/ejms.v2i1.p33-39

SUMMARY

This paper examines the participation of direct sales and structural indicators of its efficiency in the Serbian insurance sector by analysing the structure of gross written premiums by distribution channels in the period 2019-2024, with more detailed quantitative analysis for 2019-2023 and a descriptive overview of the most recent data for 2024. The motivation for the research stems from the fact that the Serbian insurance market is still relatively shallow and concentrated, while at the same time facing increasing pressure to diversify distribution channels and adapt to digitalisation trends observed in the European Union. Although domestic literature has mostly focused on institutional and regulatory aspects of insurance distribution, there is a lack of empirical studies that systematically quantify the share of direct sales and compare it with brokerage, agency and bank channels on the basis of official supervisory data. The empirical analysis relies on aggregate data of the National Bank of Serbia on gross written premiums by distribution channel, separately for non-life and life insurance, for the period 2019-2024, with detailed breakdowns available for 2019-2023. The paper applies descriptive statistics, structural indicators and simple proxies of structural efficiency based on the share of premiums realised through individual

channels. Official data on selling expenses by channel are not publicly available, which is why efficiency is considered in a structural rather than a full cost-profit sense. The 2024 data are used in a descriptive manner only, as an illustration of the continuation of the trends identified for 2019-2023.

The results show that direct sales, measured by premiums realised through insurance companies' own sales force and branches, retain a dominant position in the Serbian market: in non-life insurance, the share of direct sales is slightly above 60% on average, while in life insurance it is around two thirds of total premiums. At the same time, the role of brokers and banks has been gradually increasing, especially brokers in non-life insurance and banks through bancassurance in life insurance, which is in line with international evidence on multichannel and omnichannel strategies.

The contribution of the paper is twofold. First, it provides a structured quantification of the role of direct sales in the Serbian insurance market on the basis of the official data series for 2019-2024, explicitly distinguishing between non-life and life business, with the core quantitative analysis focused on 2019-2023. Second, it defines a set of structural indicators that can be used and further refined in future research once more detailed data on selling expenses by channel become available. The findings have practical implications for insurers and regulators in designing integrated multichannel and omnichannel strategies and in improving the transparency of distribution costs.

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FINANSIJSKI LEVERIDŽ I TAČKA INDIFERENCIJE FINANSIRANJA

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Apstrakt
Neto dobitak se kvantitativno dobija kao razlika ukupnog prihoda i svih troškova. U troškove se pri njegovom obračunu uključuju i troškovi finansiranja (kamate na pozajmljena sredstva) i porez na profit. Neto dobitak zavisi od svih onih faktora koji determinišu visinu operativnog dobitka (prodajna cena, obim proizvodnje i prodaje, visina prosečnih varijabilnih troškova i nivo ukupnih fiksnih troškova), iznosa troškova po osnovu kamata na pozajmljena sredstva i visine poreza na profit. Oceni stepena senzitivnosti neto dobitka na promene u nivou operativnog dobitka u literaturi je posvećeno dosta pažnje. On se posebno obrađuje u kontekstu kvantificiranja faktora finansijskog leveridža. Na potpuno istovetan način se u literaturi obrađuje i pitanje uslovljenosti stope prinosa na sopstvena sredstva od stope prinosa na ukupna sredstva i utvrđuje tačka indiferencije finansiranja. Iako na prvi pogled izgleda da se radi o rešavanju istog problema iz druge perspektive, u radu želimo pokazati da senzitivitet stope prinosa na sopstvena sredstva mora biti pri svim nivoima stope prinosa na ukupna sredstva jednak faktoru finansijskog leveridža pri različitim nivoima operativnog dobitka.
Ključne reči: Finansijski leveridž, tačka indiferencije finansiranja, elastičnost, troškovi finansiranja, neto dobitak, porez na profit, operativni dobitak

FINANCIAL LEVERAGE AND INDIFFERENCE POINT OF FINANCING

Abstract
Net profit is quantified as a difference between total revenues and all costs. The costs of its calculation are including financing costs (interest on borrowed funds) and income tax. Net profit depends on all those factors that determine the amount of operating profit (sales price, volume of production and sales, the amount of average variable costs and the level of total fixed costs), the amount of costs based on interest on borrowed funds and level of income tax. Much attention has been paid in the literature to the assessment of the degree of sensitivity of net profit on changes in the level of operating profit. It is specifically treated in the context of quantifying the factors of financial leverage. In a completely identical way, the literature deals with the issue of conditionality of the rate of return on own funds from the rate of return on total assets, and determines the indifference point of financing. Although, and if it seems that is the solution of the same problem from another perspective, we want to show that the sensitivity of the rate of return on own funds must be at all levels of the rate of return on total assets equal to the factor of financial leverage at different levels of operating profit.
Keywords: Financial leverage, indifference point of financing, elasticity, financing costs, net profit, income tax, operating profit

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UVOD

Pod rizikom u poslovanju preduzeća se podrazumeva njegova neizvesnost u pogledu ostvarenja operativnog i neto dobitka. Predmet analize operativnog rizika je prinos na ukupna sredstva preduzeća, a finansijskog rizika prinos na sopstvena sredstva njegovih vlasnika. Za razliku od operativnog rizika koji zavisi od fiksnih troškova poslovanja, finansijski rizik je uslovljen troškovima finansiranja. Važno je napomenuti da obe ove kategorije troškova imaju apsolutno fiksni karakter i da ne reaguju na kratkoročne promene u nivou poslovne aktivnosti. Njih u punom iznosu preduzeće mora snositi i onda kada obustavi svoju aktivnost. Do simultanog dejstva obe vrste rizika (operativnog i finansijskog) dolazi kada je preduzeće opterećeno obema kategorijama fiksnih troškova. Pošto je rizik u poslovanju stalno prisutan, neophodno je iznaći adekvatnu meru njegovog kvantitativnog određenja. Najbolja od tih mera je faktor leveridža. Leveridžom se kvantitativno izražava osetljivost operativnog dobitka na promenu nivoa poslovne aktivnosti (operativni leveridž), osetljivost neto dobitka na promenu operativnog dobitka (finansijski leveridž) i osetljivost neto dobitka na promenu u nivou poslovne aktivnosti preduzeća (kombinovani leveridž).

Predmet ovog rada je finansijski leveridž, kao mera finansijskog rizika. Neto dobitak kao apsolutna mera poslovnog uspeha preduzeća, odnosno stopa prinosa na sopstveni kapital kao njegova relativna mera, zavise od dejstva brojnih faktora. Od svih tih faktora dominantan uticaj ima kamatna stopa na pozajmljena sredstva, stopa duga prema sopstvenom kapitalu i stopa poreza na profit, pa je u radu prikazan jedan od mogućih načina merenja osetljivosti stope prinosa na sopstveni kapital na promenu ovih stopa.

Operativni dobitak se računski dobija oduzimanjem varijabilnih i fiksnih troškova, izuzimajući troškove po osnovu kamata na pozajmljena sredstva, od ukupnog prihoda [2., str. 121-125]. Operativni dobitak u našem primeru iznosi 10.000 i njegova visina nije uslovljena strukturom izvora finansiranja. Oduzimanjem kamate od operativnog dobitka dobija se neto dobitak pre poreza, a kada se od njega oduzme porez na profit dobija se neto dobitak nakon poreza, odnosno iznos koji ostaje na raspolaganju vlasnicima preduzeća.

Kao što se u donjoj tabeli može i primetiti sa povećanjem učešća pozajmljenog kapitala u ukupnom kapitalu visina operativnog dobitka ostaje nepromenjena, dok visina neto dobitka opada zbog rasta fiksnih troškova po osnovu kamate. Zbog ovakvih tendencija u kretanju operativnog dobitka i neto dobitka, faktor operativnog leveridža ostaje konstantan, a finansijskog raste.

Kao što smo već i istakli stopa prinosa na ukupan kapital se dobija deljenjem operativnog dobitka sa iznosom ukupnog kapitala. U našem primeru ona iznosi 13,33% i onda kada je učešće sopstvenog kapitala 100% (alternativa *A*) i onda kada je to učešće 75% (alternativa *B*), i kada je 50% (alternativa *C*), kao i pri učešću sopstvenog kapitala od 25% (alternativa *D*). Za razliku od nje, pomeranjem strukture kapitala u korist pozajmljenih sredstava, stopa prinosa na sopstvena sredstva se povećava.

Tabela 1.

Elastičnost stope prinosa na sopstvena sredstva

Izvor: *Obračun autora*

Alternativa / Stavka	A	B	C	D
1	2	3	4	5
Struktura kapitala				
1. Pozajmljeni kapital (8,00%)	0	18.750	37.500	56.250
2. Sopstveni kapital	75.000	56.250	37.500	18.750
3. Ukupni kapital (1+2)	75.000	75.000	75.000	75.000
Operativni i neto dobitak				
I.. OPERATIVNI DOBITAK	10.000	10.000	10.000	10.000
II. FINANSIJSKI RASHODI	0	1.500	3.000	4.500
III. DOBITAK PRE POREZA (I-II)	10.000	8.500	7.000	5.500
IV. POREZ NA DOBITAK (20,00%)	2.000	1.700	1.400	1.100
V. NETO DOBITAK (III-IV)	8,000	6.800	5.600	4.400
Karakteristične stope				
Stopa prinosa na ukupni kapital. (I:3)	0,1333	0,1333	0,1333	0,1333
Stopa prinosa na sop. kapital (V:2)	0,1067	0,1209	0,1493	0,2347
Stopa duga (1:2)	0	0,3333	1,0000	3,0000
Kamatna stopa	0,08	0,08	0,08	0,08
Stopa poreza na profit	0,20	0,20	0,20	0,20
Elastičnost stope prinosa na sopstvena sredstva				
Na promenu *p*	1,0000	1,1765	1,4286	1,8182
Na promenu *g*	0	-0,1765	-0,4286	-0,8182
Na promenu *d*	0	0,1176	0,2857	0,5454
Na promenu *m*	-0,2500	-0,2500	-0,2500	-0,2500

DETERMINANTE STOPE PRINOSA NA SOPSTVENI KAPITAL

Neto dobitak je značajan pokazatelj efikasnosti preduzeća i primaran cilj njegovog poslovanja u kratkom periodu. Ali, ono što zadržava preduzeće u nekom poslu u

dužem vremenskom periodu je iznos neto dobitka po jedinici kapitala angažovanog od strane njegovih vlasnika. Iz tih razloga ovaj relativni pokazatelj ima mnogo veći značaj u odnosu na visinu neto dobitka kao apsolutnog pokazatelja uspešnosti.
Neto dobitak (*ND*) se dobija na osnovu obrasca:

$$ND = (OD - g \cdot PK)(1 - m) \qquad (1)$$

gde *OD* označava operativni dobitak, g kamatnu stopu, *PK* pozajmljeni kapital, a m stopu poreza na profit. Deljenjem obe strane izraza (1) iznosom sopstvenog kapitala (*SK*), a desne deljenjem i množenjem iznosom ukupnog kapitala (*UK*), dobijamo:

$$\frac{ND}{SK} = \frac{(OD - g \cdot PK)(1 - m)UK}{SK \cdot UK}$$

Ako levu stranu gornjeg izraza označimo sa r, on se može preurediti i napisati u obliku:

$$r = \left[\frac{OD(1 - m) - g \cdot PK(1 - m)}{UK}\right] \cdot \frac{UK}{SK}$$

Stopa prinosa na ukupni kapital (p) se dobija deljenjem operativnog dobitka sa ukupnim kapitalom ($p = OD/UK$), pa će njenom zamenom gornji obrazac dobiti oblik

$$r = -\frac{PK}{SK}(1 - m)g + \frac{UK}{SK}(1 - m)p \qquad (2)$$

Ako odnos pozajmljenog i sopstvenog kapitala označimo sa d, izraz (2) se može preurediti i prikazati u obliku:

$$r = -d(1 - m)g + (1 + d)(1 - m)p \qquad (3)$$

Izraz (3) ukazuje na zavisnost stope prinosa na sopstveni kapital (r) od stope prinosa na ukupni kapital (p), kamatne stope (g), stope duga prema sopstvenom kapitalu (d) i stope poreza na profit (m). U svim izrazima koje koristimo stope r, p, g i m će biti date u decimalnom obliku. Na osnovu podataka iz gornje tabele, zavisnost stope r od stope p će biti data relacijama:

- Ako se poslovanje u celosti finansira sopstvenim kapitalom (varijanta *A*)

$$r_A = -\frac{0}{37.500}(1 - 0{,}2)0{,}08 + \frac{75.000}{75.000}(1 - 0{,}2)p$$

$$r_A = 0{,}8\,p$$

- Ako pozajmljeni kapital u ukupnom kapitalu učestvuje sa 25% (varijanta *B*), odnosno sa 18.750

$$r_B = -\frac{18.750}{56.250}(1-0{,}2)0{,}08 + \frac{75.000}{56.250}(1-0{,}2)p$$

$$r_B = -0{,}0213 + 1{,}0667p$$

- Ako pozajmljeni i sopstveni kapital učestvuju u istoj proporciji (varijanta *C*)

$$r_C = -\frac{37.500}{37.500}(1-0{,}2)0{,}08 + \frac{75.000}{37.500}(1-0{,}2)p$$

$$r_C = -0{,}0640 + 1{,}6 \cdot p$$

- Ako pozajmljeni kapital učestvuje sa 75%, odnosno sa 56.250 (varijanta *D*)

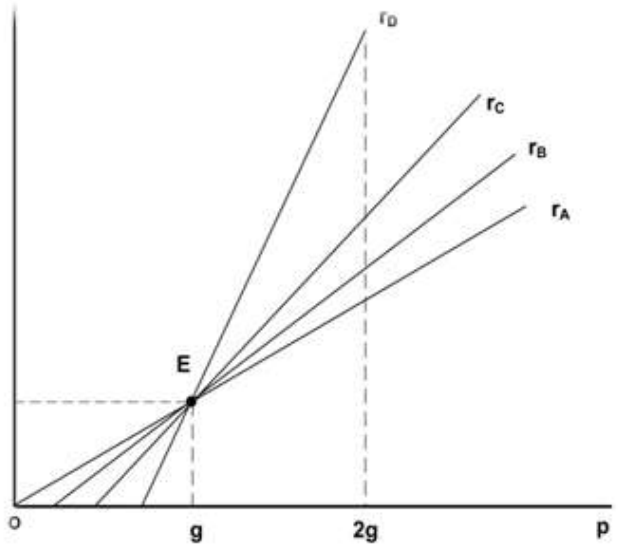
$$r_D = -\frac{56.250}{18.750}(1-0{,}2)0{,}08 + \frac{75.000}{18.750}(1-0{,}2)p$$

$$r_D = -0{,}1920 + 3{,}2 \cdot p$$

Pri datom iznosu d,m i g relacija (3) ukazuje na zavisnost stope r od stope p. Ako se p poveća i r će se povećati i obratno. Kriva koja ukazuje na ovu zavisnost je linearnog oblika i rastućeg nagiba. Ona vertikalnu osu u njenom negativnom delu seče u tački $-d(1-m)g$, a njen nagib je konstantan pri svim stopama p i iznosi $(1+d)(1-m)$.

Slika 1.

Zavisnost stope prinosa na sopstveni kapital od strukture kapitala



ZAVISNOST STOPE PRINOSA NA SOPSTVENI KAPITAL OD STOPE PRINOSA NA UKUPNI KAPITAL

Na osnovu izraza (3) možemo uočiti neke karakteristične odnose između stope r i stope p:

- Ako stopa prinosa na ukupni kapital (p) iznosi

$$p = \left(\frac{d}{1+d}\right) g$$

stopa prinosa na sopstveni kapital (r) će biti jednaka nuli.

- Ako je $(p = g)$, stopa prinosa na sopstveni kapital iznosi

$$r = g(1-m)$$

Krive koje pri datoj vrednosti stopa g i m i različitim stopama duga prema sopstvenom kapitalu prikazuju zavisnost stope r od stope p, se pri određenoj visini operativnog dobitka, odnosno stopi p međusobno seku. Presečna tačka se naziva tačkom indiferencije finansiranja i reprezentuje jednakost stopa prinosa na sopstveni kapital pri različitim strukturama kapitala. Tačka indiferencije finansiranja je jednaka stopi p pri kojoj se ona izjednačava sa kamatnom stopom, a stopa r u toj tački biva jednaka ceni pozajmljenog kapitala nakon oporezivanja. Utvrđivanje tačke indiferencije je od posebnog značaja pri odabiru strukture finansiranja. Ako su alternativni oblici finansiranja poznati izbor konkretnog oblika zavisi od stope prinosa na ukupni kapital koja je jednaka kamatnoj stopi. Racionalni rezon nalaže da će donosilac odluke birati onu alternativu koja mu obezbeđuje najveću moguću stopu prinosa na sopstveni kapital.

Da li će u praksi preduzeće preferirati visok leveridž ili će imati konzervativan pristup zavisi od toga kako menadžment gleda na budućnost. Ako izgledi nisu ružičasti, opredeliće se za konzervativan pristup. Ako se procenjuje da će privredni rast biti dinamičan, pristup leveridžu može da bude agresivniji [5., str. 67]. U našem primeru tačka indiferencije se nalazi pri stopi p od 8%. Pri stopi od 8%, stope prinosa na sopstveni kapital za sve četiri alternative su međusobno jednake i iznose 6,4% .

U vezi sa uticajem stope zaduženosti na visinu stope prinosa na sopstveni kapital često se postavlja pitanje optimalne strukture kapitala. Kreiranje optimalne, odnosno najbolje kombinacije sopstvenih i pozajmljenih izvora finansiranja rezultira odsustvom neke univerzalne teorije o finansijskoj strukturi. Takva teorija još nije razvijena [12., str. 81].

- Stopa prinosa na sopstveni kapital će biti jednaka kamatnoj stopi ako stopa prinosa na ukupni kapital iznosi:

$$p = \left(\frac{d}{1+d}\right) g + \frac{g}{(1+d)(1-m)}$$

- Stopa prinosa na sopstveni i ukupni kapital će međusobno biti jednake ako stopa prinosa na ukupni kapital bude iznosila:

$$p = \frac{d(1-m)g}{(1+d)(1-m)-1}$$

- Pri stopi prinosa na ukupni kapital koja je jednaka dvostrukom iznosu kamatne stope, stopa prinosa na sopstveni kapital će iznositi:

$$r = g(1-m)(2+d)$$

Za finansijsku analizu je od značaja da se zna da svako povećanje ili smanjenje stope p za jednu jedinicu izaziva povećanje ili smanjenje stope r za iznos koji je jednak konstantnom nagibu krive r. Ali, pri donošenja poslovnih odluka je od puno većeg značaja da se utvrdi relativna promena u stopi r izazvana promenom stope p za vrlo mali iznos ($\Delta p \to 0$). Pri izračunavanju ovog pokazatelja koristi se koeficijent elastičnosti (osetljivosti) stope prinosa na sopstveni kapital na promenu stope p. On se algebarski dobija kao količnik procentualne promene stope r i procentualne promene stope p. Ako procentualnu promenu u stopi prinosa na sopstveni kapital označimo sa $(\Delta r/r)100$, a procentualnu promenu u stopi prinosa na ukupni kapital sa $(\Delta p/p)100$, elastičnost stope prinosa na sopstveni kapital (E_p) se može prikazati izrazom:

$$E_p = \frac{\Delta r/\Delta p}{r/p} \qquad (4)$$

u kojoj brojilac označava nagib krive r, odnosno izvod funkcije (3) po argumentu p, a imenilac količnik izraza (3) i stope p

$$E_p = \frac{(1+d)(1-m)p}{-d(1-m)g + (1+d)(1-m)p}$$

odnosno

$$E_p = \frac{(1+d)p}{d(p-g)+p} \qquad (5)$$

Pošto je $p = OD/UK$, a $d = PK/SK$ to zamenom u izraz (5) dobijamo:

$$E_p = \frac{OD}{OD - g \cdot PK} \qquad (6)$$

što znači da je elastičnost stope r u odnosu na stopu p jednaka količniku operativnog dobitka i neto dobitka pre poreza. Finansijski leveridž određuje kako će se proizvodnja finansirati [4. str. 62], pa stoga i izrazi (5) i (6) mogu alternativno biti korišćeni pri kvantificiranju stepena finansijskog rizika, odnosno vrednosti faktora finansijskog leveridža.

UTICAJ KAMATNE STOPE NA STOPU PRINOSA NA SOPSTVENA SREDSTVA

Povećanjem kamatne stope (g), pri ostalim nepromenjenim faktorima kriva r se paralelno pomera ulevo i nadole, dok se sa smanjenjem kamatne stope ona paralelno pomera udesno i nagore. Njenim pomeranjem u jednom ili drugom pravcu nagib ostaje isti, ali se odsečak te krive sa negativnim delom ordinatne ose smanjuje sa smanjenjem kamatne stope i povećava sa njenim povećanjem. Implikacije promene kamatne stope na veličinu stope r su jasne, jer povećanjem kamatne stope, stopa prinosa na sopstveni kapital je manja pri svim nivoima operativnog dobitka, odnosno stope prinosa na sopstveni kapital. Povećanjem kamatne stope troškovi finansiranja rastu i pri ostalim nepromenjenim faktorima utiču na smanjenje neto dobitka kao jednog od elemenata (pored veličine sopstvenog kapitala) za obračun stope r. Isti rezon važi i u slučaju smanjenja kamatne stope.
Što se osetljivosti stope prinosa na sopstveni kapital u zavisnosti od promene kamatne stope (E_g) tiče, možemo je dobiti korišćenjem obrasca:

$$E_g = \frac{\Delta r/\Delta g}{r/g} \qquad (7)$$

u kojoj je brojilac izvod funkcije (3) po argumentu g, a imenilac količnik izraza (3) i stope g.
Elastičnost r u odnosu na g će iznositi:

$$E_g = \frac{-d(1-m)g}{-d(1-m)g + (1+d)(1-m)p}$$

odnosno:

$$E_g = -\frac{d \cdot g}{d(p-g)+p} \qquad (8)$$

Pošto je $d = PK/SK$, a $p = OD/UK$ to njihovom zamenom u obrascu (8) dobijamo:

$$E_g = -\frac{g \cdot PK}{OD - g \cdot PK}$$

na osnovu čega konstatujemo da je elastičnost stope prinosa na sopstveni kapital u odnosu na promenu kamatne stope jednaka negativnoj vrednosti količnika kamate i neto dobitka pre poreza. Izraz (8) kojim se kvantitativno meri osetljivost stope prinosa na sopstveni kapital na promenu kamatne stope polazi od pretpostavke da su stope p i m, kao i iznos pozajmljenog kapitala, odnosno koeficijent duga d konstantni. U svemu tome je posebno diskutabilna pretpostavka o neizmenjenoj visini pozajmljenog kapitala, odnosno konstantnoj stopi duga na promenu kamatne stope. Normalno je očekivati da svako smanjenje kamatne stope stimuliše dodatno zaduživanje (povećava d) i obratno, povećanje kamatne stope destimulativno deluje na finansiranje iz pozajmljenih izvora (smanjuje d), što može biti predmetom posebnih istraživanja.

UTICAJ STOPE DUGA PREMA SOPSTVENOM KAPITALU NA STOPU PRINOSA NA SOPSTVENA SREDSTVA

Ako se visina pozajmljenog kapitala, pri datom iznosu ukupnog kapitala, povećava za određeni iznos, što istovremeno znači i smanjenje sopstvenog kapitala u ukupnom kapitalu za isti iznos (ako *d* raste) pri datoj kamatnoj stopi i stopi poreza na profit, dobija se nova kriva koja ordinatnu osu u njenom negativnom delu, odnosno apcisnu osu u njenom pozitivnom delu seče dalje od koordinatnog početka i koja je većeg nagiba. Ako se *d* smanjuje nova kriva je blažeg nagiba i ordinatnu osu seče u njenom negativnom delu, odnosno apcisnu osu seče u njenom pozitivnom delu bliže koordinatnom početku. Promena u veličini *d* za jednu jedinicu izaziva promenu u stopi prinosa na sopstvena sredstva za iznos koji je jednak prvom izvodu funkcije (3) po argumentu *d*, koji iznosi:

$$(1-m)(p-g)$$

Da li će promena *d* izazvati istosmernu ili suprotnosmernu promenu u *r* zavisi od stopa p i g.

- Ako je $p > g$ povećanje *d* za jednu jedinicu povećava stopu *r* za iznos $(1-m)(p-g)$, i obratno smanjenje *d* za jednu jedinicu smanjuje *r* za dati iznos. Pri ovakvom odnosu stope *r* i kamatne stope zavisnost stope prinosa na sopstveni kapital od stope duga je istosmerna.
- Ako je $p < g$ povečanje *d* za jednu jedinicu smanjuje stopu *r* za iznos $(1-m)(p-g)$, i obratno smanjenje *d* za jednu jedinicu povećava *r* za dati iznos. Pri ovakvom odnosu stope *r* i kamatne stope, zavisnost stope prinosa na sopstveni kapital od stope duga je suprotnosmerna [15. str.362].
- Ako je $p = g$ promena (povećanje ili smanjenje) stope *d* za jednu jedinicu ne izaziva nikakvu promenu u stopi *r*.

Svaka promena stope duga prema sopstvenim sredstvima, pri ostalim neizmenjenim faktorima utiče na promenu stope prinosa na sopstveni kapital. Ako se *d* poveća nagib krive *r* se povećava, ali se i odsečak nove krive sa negativnim delom ordinatne ose pomera nadole. Ako se stopa duga prema sopstvenom kapitalu smanjuje, nagib krive *r* postaje blaži (smanjuje se) i nova kriva *r* seče ordinatnu osu bliže koordinatnom početku. Drugim rečima nove krive *r* rotiraju u odnosu na inicijalnu pri stopi prinosa na ukupni kapital koja je jednaka kamatnoj stopi u smeru kretanja kazaljke na sati (smanjenje *d*), odnosno u suprotnom smeru (povećanje *d*).
Što se osetljivosti stope r u zavisnosti od promene stope duga prema sopstvenom kapitalu tiče (E_d), možemo je dobiti korišćenjem obrasca:

$$E_d = \frac{\Delta r / \Delta d}{r/d} \qquad (9)$$

u kojoj brojilac označava izvod funkcije (3) po argumentu *d*, a imenilac količnik izraza (3) i stope duga.
Polazeći od relacije (3) elastičnost *r* u odnosu na d će iznositi:

$$E_d = \frac{d(p-g)}{d(p-g)+p} \qquad (10)$$

Gornji izraz nas upućuje na sledeće:

- Pri stopama prinosa na ukupni kapital u rasponu od:

$$\left(\frac{d}{1+d}\right) g < p < g$$

  koeficijent elastičnosti stope *r* u odnosu na promenu *d* je negativan.
- Ako je stopa *p* jednaka stopi *g*, elastičnosti stope *r* u odnosu na promenu *d* će biti jednaka nuli;
- Pri stopama prinosa na ukupna sredstva koje su veće od kamatne stope, odnosno pri stopama *p* koje su veće od stope indiferencije finansiranja, koeficijent elastičnosti stope *r* u odnosu na promenu *d* je pozitivan, ali manji od jedinice [15. str.360].

U finansijskoj teoriji se navode brojni faktori koji imaju uticaja na strukturu kapitala preduzeća. Dominantno mesto među njima imaju principi finansijske politike, a među ostalima posebno se mesto pridaje:

- poreskoj poziciji preduzeća,
- perspektivi rasta preduzeća i
- stavu menadžmenta prema relaciji prinos-rizik [4. str.620-621].

UTICAJ PORESKE STOPE NA STOPU PRINOSA NA SOPSTVENI KAPITAL

Pri datoj visini operativnog dobitka, kamatnoj stopi i stopi duga prema sopstvenom kapitalu, promena (povećanje ili smanjenje) stope poreza na profit izaziva inverznu promenu u stopi *r*. Promena stope poreza na profit menja i nagib krive *r* i njenu tačku preseka sa ordinatnom osom, dok presečna tačka sa apcisnom osom ostaje nepromenjena. Geometrijski posmatrano to znači da se sa povećanjem stope *m* nagib krive *r* postaje blaži a presečna tačka sa negativnim delom ordinatne ose je bliža koordinatnom početku i obratno. S obzirom da presečna tačka sa apcisnom osom ostaje ista, to praktično znači da ona predstavlja tačku rotacije, povećanjem stope *m* nova kriva *r* rotira oko nje u pravcu kretanja kazaljke na satu, dok pri smanjenju *m* rotira u suprotnom smeru. Nagib krive *r* u zavisnosti od *m* iznosi $[dg - (1+d)p]$ i pokazuje da će se stopa *r* povećati (smanjiti) za taj iznos ako stopa *m* bude smanjena (povećana) za 1%.

Pri donošenju finansijskih odluka u preduzeću mnogo je bitnije utvrditi za koliko će se procenata promeniti stopa *r* ako se stopa poreza na profit promeni za vrlo mali iznos ($\Delta\, m \to 0$). Za kvantitativno utvrđivanje ovog indikatora koristićemo se količnikom procentualne promene u stopi $r(\Delta r/r)$ i procentualne promene u stopi $m(\Delta m/m)$. Ovaj količnik nazivamo koeficijentom elastičnosti stope *r* u odnosu na promenu stope poreza na profit (E_m).

$$E_m = \frac{\Delta r/\Delta m}{r/m} \qquad (11)$$

u kojoj $\Delta\, r/\Delta\, m$ označava izvod funkcije *r* po argumentu *m* koji iznosi:

$$\frac{\Delta r}{\Delta\, m} = [dg - (1+d)p]$$

to njihovom zamenom u gornjem izrazu dobijamo:

$$E_m = \frac{m[dg-(1+d)p]}{-d(1-m)g+(1+d)(1-m)p} = \frac{-m[(1+d)p-dg]}{(1-m)[(1+d)p-dg]}$$

odnosno:

$$E_m = -\left(\frac{m}{1-m}\right) \qquad (12)$$

U finansijskoj literaturi mnogo su prisutnija empirijska i teorijska istraživanja koja se odnose na analizu uticaja poreza na profit na strukturu kapitala. Na povoljan tretman pozajmljenih izvora na zaduživanje preduzeća svojevremeno su ukazivali i tvorci MM teorije [13. str. 433]. Zbog bilansnog tretmana kamate, korišćenjem pozajmljenih sredstava smanjuje se osnovica za obračun poreza na profit i ostvaruju određene uštede po tom osnovu [18. str. 42]. Visina ušteda se dobija množenjem iznosa kamate i poreske stope, odnosno:

$$Iznos\ poreskih\ ušteda = kamata\ x\ poreska\ stopa$$

na osnovu čega konstatujemo da visina poreskih ušteda direktno zavisi od visine poreske stope i stepena zaduženosti preduzeća. Na veće ili manje korišćenje pozajmljenih, odnosno sopstvenih izvora značajan uticaj imaju i stope poreza na dividende [19. str. 298]. Ako se stope poreza na dividende povećaju, podsticaji za korišćenje pozajmljenih izvora opadaju, a sopstvenih rastu. I obratno, svako smanjenje stope poreza na dividende povećava interes za korišćenje pozajmljenih izvora finansiranja, a smanjuje interes vlasnika preduzeća za korišćenje sopstvenih izvora.

ZAKLJUČAK

Finansijska teorija stoji na stanovištu da je stopa prinosa na sopstveni kapital najznačajniji indikator uspešnosti poslovanja preduzeća i dominantni cilj njegovih vlasnika u današnjim kompleksnim, dinamičnim i složenim uslovima poslovanja. Ona ukazuje na profitabilnost poslovanja posmatranog iz ugla efikasnosti korišćenja sopstvenog kapitala pri obavljanju poslovnih aktivnosti. Kao veličina koja se dobija deljenjem neto dobitka sa sopstvenim kapitalom, ona je determinisana svim onim faktorima koji primarno utiču na visinu neto dobitka. Pri datoj veličini ukupnog kapitala, model koga smo prezentirali ukazuje na visok stepen zavisnosti stope prinosa na sopstveni kapital od stope prinosa na ukupni kapital, stope duga, kamatne stope i stope poreza na profit.

Ne umanjujući teorijski i praktični značaj uticaja kamatne stope i stope poreza na profit na visinu neto dobitka i stopu prinosa na sopstveni kapital, naša istraživanja su dominantno bila usmerena ka analizi uticaja stope prinosa na ukupni kapital, odnosno visine operativnog dobitka i strukture kapitala (stope duga prema sopstvenom kapitalu) na visinu stope prinosa na sopstveni kapital. Pri datoj strukturi kapitala, povećanje stope prinosa na ukupna sredstva, odnosno povećanje operativnog dobitka povećava stopu prinosa na sopstveni kapital, dok promene u strukturi kapitala na štetu sopstvenog kapitala izaziva inverzne promene u stopi prinosa na sopstveni kapital. Naša istraživanja u ovom radu su pokazala da svaka promena u operativnom dobitku izaziva promenu u neto dobitku, dok svaka promena u stopi prinosa na ukupni kapital izaziva promenu u stopi prinosa na sopstveni kapital. Uvažavajući pretpostavke od kojih smo pošli i intenzitet u promeni stope prinosa na sopstveni kapital u odnosu na stopu prinosa na ukupni kapital mora biti jednak stepenu osetljivosti neto dobitka na promenu operativnog dobitka, odnosno faktoru finansijskog leveridža.

LITERATURA

1. Balaban, S.(2022) Poslovne finansije, Beograd, ALFA BK Univerzitet
2. Black, F. (1976) Studies of stock price volatility changes, Proceedings of the Meeting of Business and Economic Statistics Section, American Statistical Association, 177–181
3. Bodi, Z., Kane, A., Marcus, J. (2009) Osnovi investicija, Beograd, Data Status
4. Brigham, F. E.(1989) Fundamentals of Finansial Management, The Dryden Press, Chicago, .
5. Đurić, D.Uvod u finansijski menadžment, Beograd
6. Faccio, M. & Xu, J. (2015) Taxes and Capital Structure. Journal of Financial and Quantitative Analysis, 50(3), 277−300.
7. Ivaniš,M. & Nešić, S. (2011) Poslovne finansije, Beograd, Univerzitet Singidunum.
8. Janberg, H.(1964) Finanzierungshandbuch, Verlag dr Th. Gabler, Weisbaden.
9. Krasulja, D., & Ivanišević, M. (2005) Poslovne finansije, Beograd, Ekonomski fakultet.
10. Mikerević, D.(1997) Upravljanje finansijama preduzeća u tranziciji, Ekonomski fakultet, Banja Luka.
11. Mishkin, S. F.(2006) Monetarna ekonomija, bankarstvo i finansijska tržišta, Data status, Beograd.

12. Modigliani, F. & Miller, M. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. The American Economic Review, 53(3),433-443
13. Myers, S. (2001). Capital Structure. Journal of EconomicPerspectives, 15(2), 81−102.
14. Shim, K. J. and Siegel, G. J.(2000) Finansial Management, New York.
15. Stančić, P. (2006) Savremeno upravljanje finansijama preduzeća, Ekonomski fakultet, Kragujevac
16. Van Horne, J., Wackowicz J. M. Jr. (2007) Osnovi finansijskog menadžmenta, (12. izd.), Beograd, Data Status
17. Veselinović B., Vunjak, N. & Radakov, S. (2011) Uticaj finansijskog leveridža na poslovanje preduzeća, Ekonomija : teorija i praksa, God. 4, br. 1, Novi Sad, Univerzitet Privredna akademija, Fakultet za ekonomiju i inženjerski menadžment, 1–14
18. Vržina, S. (2019) Porez na dobitak i finansijaka struktura u tranzicionim državama: Slučaj Republike Srbije, Finansije 1-6 2019 god. str.37-52
19. Žiravac, M.M. (2011) Uvod u poslovne finansije, PIM, Banja Luka

SUMMARY

Net profit represents the residual earnings of a company after accounting for all incurred costs, and is calculated as the difference between total revenues and total expenses. These expenses encompass both operating costs and non-operating costs, such as financing costs (e.g., interest on borrowed capital) and income taxes. The determination of net profit is influenced by several key factors: the components that shape operating profit—including the sales price, production and sales volume, average variable costs, and total fixed costs—as well as external financial elements like interest expenses and tax rates. In the existing literature, considerable attention has been devoted to analyzing the sensitivity of net profit to changes in operating profit. This sensitivity is frequently examined through the lens of financial leverage, a concept that quantifies the extent to which net profit responds to variations in operating income. Closely related is the analysis of how the return on equity (ROE) is conditioned by the return on total assets (ROA), often explored through the concept of the "indifference point of financing"—the level at which the choice between equity and debt financing becomes neutral in terms of profitability impact. Although these analytical approaches may appear to address distinct financial questions, they are inherently linked. In this paper, we aim to demonstrate that the sensitivity of the rate of return on equity to changes in the rate of return on total assets is, in fact, consistently equivalent to the financial leverage factor measured at varying levels of operating profit. By establishing this equivalence, we offer a unified perspective on financial performance sensitivity, reinforcing the foundational role of financial leverage in profitability analysis.

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CRITICAL AND COMPARATIVE PERSPECTIVES ON EMPLOYEE PARTICIPATION AND SHARE OWNERSHIP

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Abstract
Research on corporate governance has yet to produce a thorough comparative account of how employees are represented across different economic systems. This article seeks to fill that gap by contrasting two principal approaches: employee participation in decision-making and ownership of company shares. The analysis draws on case studies from Germany, the United Kingdom, the United States, and China, and places them alongside the experience of post-socialist countries such as Croatia, Slovenia, and Serbia. The findings highlight how transitional states face particular legal and institutional obstacles that limit meaningful employee influence, even where laws on paper appear progressive. In Southeast Europe especially, legislative reforms have often failed to take root in practice, exposing a persistent gap between policy ambition and implementation. The study concludes by setting out a framework for reform aimed at designing corporate governance arrangements that are both more inclusive and responsive to the realities of transitional economies.
Keywords: corporate governance, employee participation, worker representation, employee ownership, comparative law, stakeholder theory, Southeast Europe, transition economies.

KRITIČKE I KOMPARATIVNE PERSPEKTIVE O UČEŠĆU ZAPOSLENIH I VLASNIŠTVU NAD AKCIJAMA

Apstrakt
Istraživanja o korporativnom upravljanju još uvek nisu dala temeljno komparativno objašnjenje o tome kako su zaposleni zastupljeni u različitim ekonomskim sistemima. Ovaj rad nastoji da popuni tu prazninu suprotstavljajući dva glavna pristupa: učešće zaposlenih u donošenju odluka i vlasništvo nad akcijama kompanije. Analiza se oslanja na studije slučaja iz Nemačke, Ujedinjenog Kraljevstva, Sjedinjenih Država i Kine i stavlja ih pored iskustava postsocijalističkih zemalja poput Hrvatske, Slovenije i Srbije. Nalazi naglašavaju kako se države u tranziciji suočavaju sa određenim pravnim i institucionalnim preprekama koje ograničavaju značajan uticaj zaposlenih, čak i tamo gde zakoni na papiru izgledaju progresivni. Posebno u jugoistočnoj Evropi, zakonodavne reforme često nisu uspele da zažive u praksi, otkrivajući uporni jaz između ambicije politike i sprovođenja. Studija se završava postavljanjem okvira za reformu čiji je cilj dizajniranje aranžmana korporativnog upravljanja koji su inkluzivniji i koji odgovaraju realnostima tranzicionih ekonomija.
Ključne reči: korporativno upravljanje, učešće zaposlenih, zastupljenost radnika, vlasništvo zaposlenih, komparativno pravo, teorija stejkholdera, jugoistočna Evropa, tranzicione ekonomije

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INTRODUCTION

In contemporary corporations, the question of who should influence key decisions remains unsettled: is it solely the shareholders, the employees who sustain the enterprise, a balance of the two, or even emerging technologies such as artificial intelligence? The role of employees in corporate governance has been the subject of extensive discussion across law, economics, and political science (Blair & Stout, 1999). At the heart of this debate lies the issue of legitimacy: which stakeholders should be empowered to shape the long-term direction of the firm, and on what basis? The providers of capital, traditionally represented by shareholders, or the providers of labor, whose collective contributions sustain the productive capacity of the enterprise. Increasingly, Artificial Intelligence (AI) is becoming a factor (Joshi, A., 2025), but in this study the focus will remain on corporate governance frameworks across the world that reflect differing answers to this question, shaped by historical trajectories, institutional design, and prevailing socio-economic ideologies.

The comparative study of employee participation is particularly significant because it highlights the variety of institutional arrangements that can emerge to balance the competing claims of capital and labor. From strong codetermination regimes, as seen in Germany, to shareholder-centric systems exemplified by the United States and the United Kingdom, the landscape of corporate governance is marked by profound divergences. Yet, these models are not static: they are continuously reinterpreted in response to pressures from globalization, technological change, labor market restructuring, and the rise of new governance paradigms emphasizing sustainability and stakeholder engagement (Anheier, H. K., & Baums, T. (Eds.), 2020). Historically, employee participation emerged out of struggles for industrial democracy and the quest for a more equitable distribution of power within the firm. In Central and Eastern Europe, post-socialist states such as Serbia, Croatia, and Slovenia have navigated complex transitions, moving from systems of social ownership and worker self-management to shareholder-based governance structures, while retaining certain elements of employee influence. In contrast, in China, state ownership and party influence have produced a distinctive model where formal mechanisms of employee voice coexist with political oversight, reflecting the primacy of state objectives over private interests (Monks, R. A., & Minow, N., 2011).

Western jurisdictions provide additional contrasts (Amatori, F., & Colli, A., 2008). Germany stands out as the archetype of codetermination, where employee representatives enjoy entrenched rights at both board and workplace levels, embodying a philosophy of cooperation between capital and labor. By contrast, the Anglo-American model, prevalent in the United States and the United Kingdom, prioritizes shareholder primacy and market-based mechanisms, leaving employee participation largely outside the formal structures of corporate governance, though pressures from ESG norms and political debates have opened new avenues for discussion. This comparative analysis is not merely descriptive but aims to shed light on the normative underpinnings of different governance systems. Each model embodies implicit assumptions about the role of the corporation in society, the nature of industrial relations, and the balance between efficiency, accountability, and

fairness. The juxtaposition of diverse legal regimes, from post-socialist Europe to liberal market economies, from coordinated market economies to state-capitalist systems, enables a more nuanced understanding of the possibilities and limits of embedding employee participation in corporate governance (Roe, M. J., 2005).

Ultimately, this inquiry speaks to broader debates about the democratization of economic life and the search for governance models that can reconcile competitiveness with social justice. At a time when corporations are facing heightened scrutiny for their social and environmental impacts, the question of employee participation acquires renewed relevance. By examining how different jurisdictions regulate and practice worker involvement in governance, this chapter seeks to contribute to both the theoretical and practical discourse on how corporate law can evolve to meet the challenges of the twenty-first century. Thus, it compares the institutional frameworks and practical realities of employee participation in six key countries, highlighting both convergences and divergences in their approaches and drawing conclusions.

CORPORATE GOVERNANCE AND EMPLOYEE PARTICIPATION IN SERBIA: INSTITUTIONAL FRAMEWORK AND PRACTICE

Joint-stock companies constitute a form of capital-based business entity in which the founding capital is divided into shares. This structure allows for a flexible ownership model and facilitates potential access to capital markets. Nevertheless, the prevalence of joint-stock companies in Serbia remains relatively low. According to an analysis by Milošević Law (2022), only around 1% of active business entities in Serbia operate as joint-stock companies, a fact attributable to the complex establishment procedures, high administrative costs, and extensive reporting obligations associated with this legal form. Data from the Central Securities Depository and Clearing House (CRHoV, 2025) indicate that 1,217 joint-stock companies are registered in Serbia, with a total of 64,238 issued shares. The ownership structure of these entities falls broadly into three categories: foreign-owned joint-stock companies, state-owned enterprises, and domestically owned private joint-stock companies. Foreign companies such as NIS (Gazprom), Hemofarm (Stada), and Messer Tehnogas typically adopt governance models aligned with their parent corporations, with an emphasis on transparency and efficiency (CRHoV, 2025; NIS Investitori, 2025). State-owned joint-stock companies, such as Telekom Srbija and Belgrade Nikola Tesla Airport, retain strategic significance and are subject to heightened corporate oversight (CRHoV, 2025; Milošević Law, 2022). The most numerous category comprises domestic private joint-stock companies, many of which face bankruptcy or are reorganized into limited liability companies (DOO). This trend suggests a persistent preference for simpler legal structures (CRHoV, 2025; Milošević Law, 2022).

The governance of public joint-stock companies in Serbia is shaped by the specificities of the legal and institutional framework. Public enterprises, established by state authorities, are subject to a distinct governance regime, with the general rules of corporate governance applied only mutatis mutandis (Mrdak, 2020). As Lepetić (2022) notes, this dual framework complicates legal certainty and hinders the

consistent application of modern governance principles, since the Law on Public Enterprises is applied concurrently with the Law on Business Companies. The Law on Business Companies (Official Gazette RS, No. 76/2023, Article 19) requires large and medium-sized companies to adopt a two-tier governance model, while small and micro companies may opt for a one-tier structure. The two-tier model ensures a clear separation between supervisory and executive functions: supervisory boards are vested with the authority to appoint and dismiss executive board members (Articles 228–229), while members of supervisory boards may not be employees of the company (Article 229). In effect, this arrangement excludes employee participation in governance bodies.

The Law on the Governance of Business Companies Owned by the Republic of Serbia reinforces centralization by mandating the two-tier model in public joint-stock companies. This framework enhances the supervisory board's role in the professionalization of corporate structures (Todorović & Brašić Stojanović, 2024). The Law on Public Enterprises (Official Gazette RS, Nos. 15/2016 and 88/2019, Article 17) does envisage the possibility of including employee representatives on supervisory boards, but in practice this remains largely formal and depends on company statutes. The Serbian Labor Law (Articles 13 and 16) grants employees' rights to information and consultation through trade unions, but it stops short of embedding participation in company decision-making bodies. As Vukolić (2019) notes, these rights remain limited and exert little, if any, influence over strategic corporate decisions. In practice, direct employee participation in Serbian joint-stock companies is rare. Where it does appear, it is most often in foreign-owned firms originating from countries with strong traditions of worker involvement, such as Germany or Sweden. For the most part, Serbian trade unions remain confined to collective bargaining and information rights, without a role in shaping corporate strategy.

Recent developments in corporate law scholarship increasingly promote a multi-stakeholder model, in which the company is conceived not only as a vehicle for maximizing shareholder value but as a nexus of diverse stakeholder interests, including those of employees. Under this approach, employees' perspectives would be integrated into the broader "interest of the company" (Vasiljević, 2021, pp. 197–198). In Serbia, however, this vision remains largely theoretical and has yet to be reflected in corporate practice.

Croatia: Institutional Framework and Practice

The regulation of corporate governance in Croatia, particularly regarding joint-stock companies and the position of employees, closely parallels that of Serbia. This similarity is rooted in their shared continental legal tradition and comparable historical and institutional developments. Both systems are dominated by a "closed" model of corporate governance, characterized by concentrated ownership and relatively weak capital markets. While such a structure can foster stable ownership ties and support long-term strategy, it also poses risks for minority shareholder protection and business transparency (Klačmer Čalopa, Đunđek Kokotec & Korent, 2015). Within the legislative framework, employees are recognized as relevant stakeholders, and the principles of transparency, accountability, and ethical treatment

of the workforce are integrated into corporate governance policies, in line with modern European standards (Generis, 2024). Special emphasis is placed on protecting minority shareholders and regulating changes in corporate status, which strengthens institutional accountability mechanisms (Odvjetnički ured Bistrović, 2024).

The Companies Act allows for the choice between a one-tier and a two-tier system. In practice, the two-tier model dominates in large companies, particularly those on the Zagreb Stock Exchange. This model separates management and supervisory functions, increasing control over management's operations. Companies like Podravka and Ericsson Nikola Tesla successfully use this model (Podravka, 2023; Ericsson Nikola Tesla, 2022). An empirical study of 109 Croatian companies found that supervisory boards have an average of four to five members. This board size is associated with lower agency costs, which means more efficient decision-making and better coordination among members. However, the study also found that a high concentration of ownership does not necessarily lead to a further reduction of these costs. This suggests that ownership structure alone is not enough to improve corporate governance and confirms the limited practical impact of institutional reforms (Klačmer Čalopa, Đunđek Kokotec & Kokot, 2020).

Compliance with European ESG standards has significantly affected the obligations of directors. By law, they are required to run the company in the interest of shareholders, employees, and the wider community, while respecting labor rights, equal opportunities, and the principles of social responsibility (CMS, 2024). The Corporate Sustainability Reporting Directive (CSRD), which was transposed into Croatian law on July 27, 2024, through amendments to the Accounting Act, Audit Act, and Capital Market Act, introduced an obligation for large public interest entities (with 500+ employees) to publish reports on working conditions, employee dialogue, and human rights protection measures (Wolf Theiss, 2024). The announced Corporate Sustainability Due Diligence Directive (CSDDD) will extend management's responsibility to the entire value chain, including suppliers, especially regarding labor rights and workplace safety. Its transposition is expected to require additional oversight and business audit mechanisms (Kinstellar, 2025).

Croatia has also transposed Directive 2001/86/EC, which regulates employee participation in European joint-stock companies (Societas Europaea, SE). This provides the right to information, consultation, and, in certain cases, participation on supervisory boards. However, its application is limited due to the small number of SE companies registered in the country (European Union, 2001). The legal framework does not require private joint-stock companies to include employee representatives on management bodies; this depends on the company's articles of association or a collective agreement. In public enterprises, such as Hrvatska elektroprivreda (HEP), one member of the supervisory board comes from the ranks of employees, while the others are appointed by the government and the shareholders' assembly (HinaOTS, 2018). Terms of office typically last four years with the possibility of re-election (Tušek, Filipović & Pokrovac, 2009). At the national level, the **Labor Act (2014/2023)** provides employees with the right to information and consultation on issues such as ownership changes, reorganization, and technological innovations. In companies with 20+ employees, a works council can be formed, but it has only an advisory role.

Despite an advanced legislative framework and the implementation of European directives that formally enable employee participation, practice in Croatia reveals a significant gap between regulatory solutions and their actual application. Employee participation mechanisms in the private sector remain limited and are rarely used. This is a result of the high concentration of ownership, closed management structures, and the relatively weak influence of the capital market. These structural characteristics further diminish the potential for developing participatory corporate governance, as they don't encourage the inclusion of employees in strategic decision-making processes (Tomić et al., 2019). On the other hand, in public enterprises, participation is institutionalized through formal mechanisms, but its influence on strategic decisions remains largely symbolic. Empirical research shows that although public sector employees express a relatively high degree of satisfaction with working conditions, their actual influence on management and decision-making is minimal (Klopotan et al., 2016). In this context, participation is reduced to a procedural obligation, without the substantive involvement of employees in shaping organizational policy. This practice indicates that, despite their formal presence, participatory management models in Croatia have not yet become functional instruments of democratic corporate governance.

The principle of worker participation was strongly present in the Yugoslav model of self-management, but the transition to a market economy in the 1990s reduced its scope considerably. Current Croatian law does not prescribe a system of codetermination comparable to that in Germany or other continental European countries. Instead, employee participation is primarily realized through the institution of the works council (radničko vijeće), regulated by the Labour Act (Zakon o radu). Works councils serve as bodies of information and consultation but lack the binding powers characteristic of codetermination systems. The Labour Act guarantees workers' rights to information and consultation on issues such as restructuring, redundancies, and workplace safety. However, employee representation on company boards is not mandated by law. The only partial exception is found in state-owned or formerly privatized companies where, depending on privatization contracts and collective agreements, employees may still retain some rights to board representation. European Union membership has significantly influenced Croatian legislation, especially through the transposition of EU directives on information and consultation of employees, as well as on European Works Councils. Nonetheless, the practical impact of these measures has been modest. Academic research indicates that works councils in Croatia often face challenges related to weak institutional capacity, limited influence, and insufficient recognition by employers. Consequently, employee participation in Croatia remains largely consultative rather than decisional, situating the country closer to the Anglo-Saxon model of shareholder primacy than to the continental model of shared governance.

Slovenia: Institutional Framework and Practice of Employee Participation

Slovenia represents a distinct case in the region, often described as a "hybrid" system that blends elements of continental European codetermination with the legacies of Yugoslav self-management. The Companies Act (Zakon o gospodarskih družbah) provides the core framework for corporate governance, allowing for both a two-tier

system with a supervisory board and a management board, and a one-tier system with a board of directors. As a member of the European Union and a country with a developed capital market, Slovenia uses a corporate governance model that combines elements of the continental legal system with the influence of European directives. The specificity of the Slovenian model stems from the country's privatization transition, during which the state retained a significant ownership stake in strategic sectors through funds and direct ownership. This structure has allowed political actors to have a certain influence on management decisions, including the appointment of supervisory board members, which in some cases has led to conflicts of interest and slowed the formulation of corporate governance. Although the regulatory framework has been modernized in recent years, transparency and the protection of minority shareholders remain a challenge (Damijan & Damijan, 2019).

The regulation of joint-stock companies in Slovenia is defined by the Companies Act (Zakon o gospodarskih družbah, ZGD-1), which allows for the choice between a one-tier and a two-tier management system. Although the legislative framework provides flexibility, the two-tier system is more commonly used in practice, especially in large companies listed on the Ljubljana Stock Exchange (Ljubljanska borza, 2024). This model is characterized by a clear separation of supervisory and management functions, where the supervisory board plays a key role in appointing and controlling the work of the management board. The shareholders' assembly is mandatory and must be convened at least once a year, regardless of the chosen model (Kavčič, Bracun & Partners, 2023). Companies like Krka d.d. and Petrol d.d. operate under this model with a high degree of professionalization and transparency, as confirmed by reports from the Agency for Public Supervision of Auditing (ANR, 2023).

Employee participation in management structures in Slovenia has a stronger institutional foundation than in Serbia and Croatia. According to the Labor Relations Act (Zakon o delovnih razmerjih, ZDR-1), employees have the right to information and consultation, as well as direct participation on supervisory boards in certain cases. The Act on the Participation of Employees in Management (Zakon o sodelovanju delavcev pri upravljanju, ZSDU) mandates the inclusion of employee representatives on supervisory boards in companies with more than 50 employees, with employees electing their representatives through democratic procedures (ZSDU, Art. 6–10). In public enterprises, such as Slovenske železnice (Slovenian Railways) and Pošta Slovenije (Slovenian Post), employee representatives make up a significant portion of the supervisory boards and participate in strategic decision-making, especially in areas concerning working conditions, reorganization, and investments (Pošta Slovenije, 2023; Slovenske železnice, 2024). Slovenia is one of the few countries in the region that has fully implemented the provisions of Directive 2001/86/EC on employee participation in European joint-stock companies (SE), with companies like Gorenje using this structure to internationalize their business while preserving the participatory management model (European Union, 2001; Gorenje, 2022).

The practice of employee participation in Slovenia is based on a combination of European directives and national collective agreements, which encourages dialogue between management and employees, particularly in sectors with a high degree of regulation and social responsibility (Kavčič, Bracun & Partners, 2023). According to research, 65% of employees feel they have an influence on decisions related to work

processes, while 71% of managers state that employees participate in the organization of work. This indicates a relatively high level of collective employee participation in decision-making (Eurofound, 2022; Eurofound & Cedefop, 2020). An additional institutional basis is provided by the Slovenian Corporate Governance Code for Public Enterprises, adopted in 2004 and revised in 2009 and 2021 (Ljubljana Stock Exchange & Slovenian Directors' Association, 2021). The code requires a mandatory Corporate Governance Policy (CG Policy), which includes a communication strategy, ethical standards, the protection of employee interests, and mechanisms for balancing the interests of various stakeholders. The latest version emphasizes sustainable business practices, diversity in management bodies, transparency in reporting, and the digitalization of supervisory board operations. The high level of transparency, also confirmed by the SEECGAN index analysis, represents a significant institutional prerequisite for strengthening employee trust and their engagement in decision-making (Djokić & Duh, 2015).

Empirical research from the Institute for Economic Research (IER, 2022) shows that companies with active employee representatives report a higher degree of satisfaction and lower labor turnover. However, despite the relatively developed collective participation, challenges remain, especially in the private sector, where the role of employee representatives is sometimes formal and lacks real influence on strategic decisions. According to the national report of the BroadVoice project, direct employee participation, which involves the immediate involvement of workers in decision-making, has not been systematically developed in Slovenia, while most research focuses on collective forms of participation (Franca, 2025).

The Slovenian corporate governance model demonstrates that it is possible to align management efficiency with participatory principles, but this balance requires continuous institutional support, the development of a culture of dialogue, and the strengthening of mechanisms for the direct inclusion of employees. Unlike in Croatia and Serbia, Slovenian law explicitly guarantees employee participation at the board level in certain companies. The Worker Participation in Management Act (Zakon o sodelovanju delavcev pri upravljanju) is the key legislative instrument establishing employees' rights to elect representatives to supervisory boards. In large companies, employees are entitled to elect at least one-third of supervisory board members, a rule that positions Slovenia closer to the German codetermination model. The works council (svet delavcev) remains the primary institutional channel for employee participation at the workplace level, with rights to information, consultation, and co-decision in areas such as health and safety, working time arrangements, and collective redundancies. Additionally, the dual-channel system ensures that works councils and trade unions coexist, often overlapping in practice.

Empirical research suggests that Slovenian workers' participation is among the strongest in Central and Eastern Europe, with relatively robust legal guarantees and more frequent practical implementation than in neighboring states. The process of EU accession reinforced these mechanisms, as Slovenia adopted relevant directives on information and consultation, European Works Councils, and employee involvement in the European Company (Societas Europaea). However, challenges remain: political debates occasionally question the extent of mandatory worker participation, and companies sometimes attempt to minimize its scope. Nevertheless, Slovenia

stands out in the region as the country where codetermination-type mechanisms are most firmly embedded in corporate governance.

Germany: Institutional Framework and Practice of Employee Participation

Germany represents the paradigmatic example of institutionalized employee participation in corporate governance. Its model of *Mitbestimmung* (codetermination) has influenced debates and reforms across Europe and beyond, making it one of the most studied systems in comparative corporate governance scholarship. The German framework combines robust shareholder rights with extensive mechanisms for worker participation at both the company and plant levels, reflecting a deeply embedded tradition of balancing capital and labor interests (Sandrock, O., 2015).

The roots of German codetermination trace back to the early 20th century, but the model was consolidated after World War II as part of broader efforts to democratize the economy and prevent the re-emergence of authoritarian structures. The Codetermination Act (Mitbestimmungsgesetz) of 1976 remains the cornerstone of the system. It requires large companies (with more than 2,000 employees) to establish a two-tier board structure in which employees hold parity representation on the supervisory board (*Aufsichtsrat*). Specifically, half of the supervisory board members are elected by employees, although in the case of a tie, the chairperson (elected by shareholder representatives) has a casting vote.

For medium-sized companies (between 500 and 2,000 employees), the One-Third Participation Act (Drittelbeteiligungsgesetz) of 2004 applies, mandating that one-third of supervisory board seats be reserved for employee representatives. These legal frameworks institutionalize a powerful form of employee voice in strategic decision-making, particularly in sectors with large, established firms such as manufacturing, energy, and finance. German companies operate under a two-tier governance system consisting of a management board (*Vorstand*) and a supervisory board (*Aufsichtsrat*). While the management board is responsible for day-to-day operations, the supervisory board exercises oversight and appoints senior executives. Employee representatives on supervisory boards are elected partly by the workforce and partly nominated by trade unions, ensuring both workplace-level and organized labor perspectives are incorporated into governance.

Parallel to this structure are works councils (*Betriebsräte*), established under the Works Constitution Act (Betriebsverfassungsgesetz). Works councils exist in companies with five or more employees and are elected directly by the workforce. They enjoy extensive information, consultation, and codetermination rights over a wide range of issues, particularly those relating to working conditions, personnel policies, and occupational health and safety. Unlike trade unions, which operate at the sectoral or national level, works councils are strictly workplace institutions, yet they coordinate closely with unions. The German system ensures that employees have both formal representation at the strategic level (through supervisory boards) and effective influence at the operational level (through works councils). This dual structure has been credited with fostering cooperative industrial relations, enhancing firm stability, and promoting long-term perspectives in corporate governance. Studies have shown that codetermination can improve information flow within firms, increase worker morale, and contribute to economic resilience (Gorton & Schmid 2004; Vitols

2008).

However, criticisms persist. Shareholder advocates argue that parity codetermination may dilute shareholder primacy and create inefficiencies in decision-making. Some scholars also point out that supervisory boards, despite formal parity, are often dominated by shareholder interests due to the chair's casting vote and the relative expertise of shareholder representatives (Sandrock, O., 2015). Globalization and intensified capital market pressures have tested the resilience of Germany's codetermination system. In response, some companies have sought to bypass its requirements by turning to alternative corporate forms registered abroad. Yet, despite these challenges, codetermination continues to be a defining feature of both German law and political culture. Current debates around corporate sustainability, ESG standards, and stakeholder capitalism have brought renewed attention to the German model, highlighting its potential as a framework for reconciling the often-competing interests of capital, labor, and society. The European Union has likewise drawn on the German experience when considering how to strengthen employee involvement at the regional level.

Taken together, Germany offers the most developed and comprehensive example of employee participation in corporate governance. Its model shows that workers can exert real influence not only over workplace issues but also over broader corporate strategy, embedding elements of democratic practice within the functioning of the modern corporation.

United Kingdom: Institutional Framework and Corporate Governance

The United Kingdom represents the classic Anglo-American, shareholder-oriented model of corporate governance. Its system is built around a unitary board structure and relies on market mechanisms for accountability, rather than granting employees a formal role in board-level decision-making. The legal foundation rests in the Companies Act 2006, which sets out directors' fiduciary duties. Among these, section 172 is the most significant: it obliges directors to act in a way that promotes the success of the company "for the benefit of its members as a whole." At the same time, it instructs directors to take into account a range of other factors, including the interests of employees, suppliers, and customers, as well as the company's reputation, environmental impact, and long-term sustainability (Companies Act 2006, s.172). This approach incorporates stakeholder concerns, but only within a framework that ultimately prioritizes shareholder interests, reflecting the broader architecture of shareholder primacy (ICAEW, n.d.).

At the level of soft law, publicly listed firms are required to report on their adherence to the UK Corporate Governance Code, following the familiar "comply or explain" principle. The 2024 version of the Code continues the UK's tradition of a principles-based framework, covering areas such as corporate purpose and leadership, board responsibilities, succession and composition, risk management and audit, and executive pay. Notably, Provision 29 now expects boards to declare the effectiveness of their material internal controls, tightening accountability around risk oversight (FRC, 2024a; 2024b). Since the 2018 revisions, the Code has also pressed boards to establish employee engagement mechanisms, appointing a director from the workforce, creating a workforce advisory panel, or designating a non-executive

director (NED) for workforce engagement (FRC, 2018; KPMG, 2018). In practice, companies most often choose a designated NED or advisory panel; worker-directors remain rare, consistent with the UK's unitary-board tradition (KPMG, 2018; see also UK Parliament evidence, 2016). For large private companies, the Wates Corporate Governance Principles (2018) offer a reporting framework to raise governance standards, with an emphasis on purpose, composition, responsibilities, opportunity and risk, remuneration, and stakeholder relationships. Though voluntary, the Wates Principles dovetail with statutory reporting duties and have become a reference point for articulating stakeholder and workforce engagement outside the listed sector (FRC, 2018; Wates, 2018).

Formal codetermination, mandatory board seats for workers, does not exist in UK company law, and the unitary board remains the norm (Kluwer, n.d.). Employee "voice" is therefore channelled primarily through: (i) information-and-consultation procedures; (ii) collective bargaining via independent trade unions; and (iii) voluntary board-level engagement mechanisms encouraged by the Code. The Information and Consultation of Employees Regulations (ICE) require employers to set up arrangements when triggered by employee request; since 6 April 2020 the request threshold was reduced from 10% to 2% of the workforce (with a minimum of 15 employees), lowering barriers to formal consultation (DBT, 2020; GOV.UK, 2020). Union density, however, has continued to decline: official statistics report union membership among employees at around the low-20s percent range in 2023, with a long-run downward trend since the early 1980s (DBT, 2024). Consequently, while statutory frameworks for consultation exist, workplace representation is uneven across sectors and firms.

EU-derived mechanisms remain relevant in certain forms. Pre-Brexit, UK companies could adopt the Societas Europaea (SE) form with negotiated employee involvement under Directive 2001/86/EC; a domestic UK Societas (UKS) regime now applies, preserving some rules on employee involvement for legacy entities (GOV.UK, 2021). More broadly, the UK's governance debate since 2019 has featured rhetorical moves toward stakeholderism, but without a shift to board-level codetermination. The Code's engagement options and s.172(1) statements (now a mainstream part of annual reports) represent the principal institutional levers for incorporating employee perspectives into strategic deliberation, short of formal representation (ICAEW, n.d.; FRC, 2024a). In comparative perspective, the UK model prioritizes board accountability to shareholders within a robust disclosure and stewardship ecosystem, while offering procedural (rather than structural) channels for employee voice. Relative to Germany or Slovenia, employee participation in the UK is consultative and discretionary, mediated by soft-law guidance and collective labour institutions, not by mandatory board seats which makes it not very present and/or visible.

United States: Institutional Framework and Corporate Governance

The United States presents a markedly different model of corporate governance compared to continental Europe and the post-socialist states of Southeast Europe. Its system is grounded in a long-standing tradition of shareholder primacy, whereby corporate law and governance practices emphasize maximizing shareholder value as the central objective of the corporation. Employee participation in governance, in the

sense of formal representation on boards of directors or supervisory bodies, is virtually absent (Jäger, S., Noy, S., & Schoefer, B., 2022).

In the United States, corporate governance is shaped largely by state law, with Delaware standing out as the dominant jurisdiction thanks to its flexible statutes and extensive body of case law. The standard governance model is a one-tier board of directors that combines oversight and managerial responsibilities. Directors are chosen by shareholders and are bound by fiduciary duties—primarily care and loyalty—owed to the corporation and its shareholders. Unlike Germany or Slovenia, U.S. law does not provide employees with a statutory role in electing or appointing board members, and codetermination has never been part of the American framework (Jäger, Noy & Schoefer, 2022). Employee influence has instead developed through other channels. Historically, labor unions were the most important vehicle for representing workers' interests, particularly in bargaining over pay, benefits, and workplace conditions. But unionization has declined sharply, from roughly one-third of the workforce in the 1950s to under 11 percent today (Bureau of Labor Statistics, U.S. Department of Labor), leaving employees with a diminished collective voice.

A second route for employee involvement has been the spread of employee stock ownership plans (ESOPs). These schemes allow workers to acquire shares, often with favorable tax treatment, and thus link their financial interests more closely to those of traditional shareholders. While millions of employees now participate in ESOPs, their influence on corporate decision-making remains limited. Employees typically hold only a small portion of voting rights, leaving boards firmly in the hands of shareholder representatives. In recent years, broader debates about corporate purpose and stakeholder governance have revived attention to the role of employees. The 2019 Business Roundtable statement, in which leading U.S. executives endorsed a corporate mission extending beyond shareholder value, was seen as a symbolic shift toward stakeholderism. Yet critics contend that this rhetorical commitment has not been matched by substantive reforms in board responsibilities or legal standards.

The COVID-19 pandemic, together with rising inequality and growing job insecurity, has further fueled discussions about expanding worker participation. Proposals to introduce "worker directors" on corporate boards have been advanced by progressive lawmakers, most prominently Bernie Sanders and Elizabeth Warren (2023, 2024), but have so far failed to secure legislative change. As a result, employee influence in the U.S. continues to operate through collective bargaining, employee ownership structures, or occasional voluntary consultation, rather than through institutionalized codetermination. From a comparative standpoint, the U.S. illustrates the core features of the Anglo-American model: boards are accountable primarily to shareholders, and employees are treated as contractual stakeholders rather than as participants in governance. This places the American system in stark contrast to countries like Germany and Slovenia, where worker representation at the board level is guaranteed by law.

China: Institutional Framework and Practice of Employee Participation

The Chinese corporate governance system presents a hybrid model that reflects both global market-oriented reforms and the enduring influence of state and party institutions. Since the 1990s, China has undertaken extensive reforms to align its

corporate law with international standards, particularly following its accession to the World Trade Organization (WTO) in 2001. These reforms introduced modern corporate structures, shareholder rights protections, and disclosure requirements. However, employee participation in governance is deeply shaped by China's socialist legacy and the continuing role of the Chinese Communist Party (CCP) within enterprises.

Chinese company law provides for a two-tier system consisting of a board of directors and a supervisory board. In contrast to the Germanic model, the supervisory board in Chinese companies has weaker powers and is often marginalized in practice. Nonetheless, employees are formally entitled to representation within this structure. According to the Company Law of the People's Republic of China (1993, as amended), companies with more than 300 employees are required to include an employee representative on the supervisory board. Employee representatives are generally elected by the employees themselves, usually through trade unions or workplace congresses. In addition, China retains the institution of the employees' congress (职工代表大会), a legacy of the socialist "work unit" (danwei) system. Employees' congresses are designed to provide a forum for workers to express opinions and participate in the management of enterprises. While formally recognized by law, these bodies have been criticized for being largely consultative in nature and subordinate to managerial and party structures. Their influence on strategic corporate governance decisions remains limited.

The All-China Federation of Trade Unions (ACFTU) plays a dominant role in organizing employees, but unlike pluralistic union models in other countries, the ACFTU is a unitary organization under party leadership. As such, trade unions in China function more as intermediaries between workers and management than as independent actors advocating for worker interests. This institutional setup reduces the capacity of unions to challenge corporate or managerial decisions, particularly in state-owned enterprises (SOEs). A defining characteristic of corporate governance in China is the legally mandated role of Communist Party committees within companies. Since regulatory changes in the late 2010s, enterprises with three or more Party members have been required to establish such committees, whose role has become increasingly formalized in both state-owned and private firms. Party secretaries frequently hold senior management or board positions, and the committees themselves are empowered to shape major strategic and personnel decisions. This dual structure significantly constrains the independent role of employee representatives, since relations between labor and management are largely mediated through Party organs.

In practice, employee participation in China operates through a blend of formal mechanisms—such as supervisory board seats and employee congresses—and political oversight exercised by Party committees and state ownership. These channels ensure that workers have institutionalized avenues for consultation, but they fall short of the codetermination found in Europe or the employee-ownership schemes common in the Anglo-American context. Employees seldom wield decisive influence over corporate strategy, as their role remains embedded within broader state and Party priorities (Chi, 2020). Recent policy discussions have focused less on expanding worker voice than on improving efficiency, enhancing transparency, and reinforcing

Party leadership. Still, the endurance of consultative mechanisms, however limited, underscores the hybrid nature of Chinese corporate governance, situated between market-oriented reforms and socialist institutional legacies.

Comparative Assessment

Looking across Serbia, Croatia, Slovenia, the United States, China, Germany, and the United Kingdom, employee participation in corporate governance shows sharp contrasts as well as some shared features. The divergences stem not only from differences in law and institutional arrangements, but also from each country's historical development, political context, and broader understanding of what the corporation represents within society. Historical legacies are especially decisive. In the post-socialist countries of Serbia, Croatia, and Slovenia, the dismantling of self-management and social ownership during the 1990s represented a clear break with earlier practices and continues to shape the options for reform today. In contrast, Serbia and Croatia adopted more shareholder-centric models, where employee participation plays only a marginal role. By comparison, Germany's system of codetermination illustrates how deeply entrenched historical compromises between labor and capital can sustain robust mechanisms of worker influence over decades.

The comparison highlights a fundamental divide between systems that prioritize shareholder primacy (United States, United Kingdom, and, increasingly, Serbia and Croatia) and those that institutionalize stakeholder governance (Germany and, to a limited extent, Slovenia). The United States and United Kingdom treat employee voice as a matter of contract and labor law rather than corporate governance, leaving workers largely outside formal board structures. Germany, on the other hand, constitutionally embeds labor as a co-decision-maker at the supervisory board level, thereby granting employees a collective voice in strategic decision-making. China presents a hybrid model: while employees are nominally represented through mechanisms such as workers' congresses and trade unions, ultimate control rests with the state and the Communist Party, reflecting an ideology of political rather than economic participation. Behind these institutional models lie different normative visions of the corporation. In liberal market economies such as the U.S. and U.K., the corporation is conceived primarily as a vehicle for shareholder wealth maximization, with labor viewed as a contractual input rather than a constituency with governance rights. Germany embodies the stakeholder model, treating the corporation as a "social institution" whose legitimacy depends on balancing the interests of capital, labor, and other stakeholders. Post-socialist countries, meanwhile, oscillate between these conceptions, often constrained by the pressures of privatization, EU integration, and foreign investment. China's framework situates the corporation within broader state developmental goals, subordinating employee voice to political oversight.

Legal provisions do not always translate into meaningful influence. Even where formal rights exist, as in Slovenia or China, their impact depends on enforcement, institutional culture, and power dynamics within the firm. In practice, Germany remains the only jurisdiction in this comparison where employee representatives consistently exercise significant influence on corporate boards. Elsewhere, participation tends to be symbolic, fragmented, or confined to the realm of labor relations rather than governance. Despite divergent traditions, there are signs of

convergence driven by globalization, ESG standards, and the rise of debates around corporate purpose. In Anglo-American systems, growing attention to sustainability and stakeholder capitalism has revived interest in mechanisms of worker voice, though concrete reforms remain limited. In China, rapid economic modernization has spurred new discussions about employee rights, albeit within the boundaries of party control. In Central and Eastern Europe, integration into the European Union has opened the possibility of strengthening worker participation in line with EU directives, though national resistance remains strong.

For the region of SEE, situated within the post-socialist context and aspiring to EU membership, the comparative evidence underscores the importance of institutional design and political will. The German and Slovenian experiences illustrate that robust systems of participation can coexist with competitiveness and attract investment, provided that they are backed by a clear normative commitment. Conversely, the marginalization of worker voice in Serbia and Croatia shows how transitions that privilege shareholder primacy risk eroding employee influence altogether. Lessons also emerge from the Anglo-American and Chinese approaches: the first illustrates the risks of treating employees solely as contractual parties, while the second shows how participation loses substance when subordinated to political authority. Taken together, the comparison makes clear that employee participation is neither an automatic byproduct of economic growth nor simply an ideological preference. It results from conscious institutional design, shaped by history, politics, and social compromise. No single model can be imported wholesale, but the cross-country evidence suggests that effective participation depends on three key conditions: firm legal foundations, a supportive institutional culture, and a conception of the corporation as more than just a vehicle for shareholder returns. For states such as Serbia and Croatia, which continue to reform their governance systems, these insights are particularly relevant as they seek to reconcile economic competitiveness with democratic accountability in the corporate sphere.

Employee Participation in Corporate Governance

Comparative overview across selected jurisdictions

COUNTRY	BOARD STRUCTURE	EMPLOYEE PARTICIPATION IN BOARDS	EMPLOYEE SHARE OWNERSHIP	LEGAL BASIS	REAL MANAGERIAL INFLUENCE	CHARACTERISTIC
Serbia	One-tier	No mandatory representation. Employees are informed and consulted only, with no formal board presence.	Rare and unsystematic. No structured support exists for employee ownership.	Company Law *Zakon o privrednim društvima*	Weak	*Severed from Yugoslavia's self-management tradition with no meaningful institutional replacement.*
Croatia	One-tier	Limited scope for a single employee representative on the supervisory board. Participation is not obligatory.	Very limited. No systemic framework supports employee shareholding.	Company Law; Labor legislation *Zakon o trgovačkim društvima*	Weak to symbolic	*Formal legal right exists on paper but produces minimal practical governance effect.*
Slovenia	Two-tier	Yes. Worker representatives hold seats on the supervisory board by law, with real consultative and oversight capacity.	Secondary and limited. Share schemes exist but are not the primary channel of influence.	Worker Participation in Management Act *Zakon o sodelovanju delavcev pri upravljanju (ZSDU)*	Moderate	*The most developed post-socialist model in the Western Balkans and former Yugoslav region.*
Germany	Two-tier	Yes. Full parity or quasi-parity codetermination. In large firms, employees hold up to half of all supervisory board seats.	Exists, but share ownership is secondary to board-level structural participation.	Codetermination Act; One-Third Participation Act *Mitbestimmungsgesetz; Drittelbeteiligungsgesetz*	Strong	*Institutionalized democratic balance between capital and labour. The global benchmark for employee voice in governance.*
United Kingdom	One-tier	No mandatory participation. Any involvement is voluntary, company-led, and inconsistent across sectors.	Yes, but individualized and non-systemic. No collective governance mechanism accompanies share ownership.	Companies Act 2006 *UK Companies Act 2006*	Very weak	*Pure shareholder primacy model. Employees have no formal or enforceable governance rights.*
United States	One-tier	No formal mechanism. Board seats are reserved exclusively for shareholder representatives. No legal pathway for employee voice.	Yes. Employee Stock Ownership Plans (ESOP) are widely used, primarily as a financial benefit rather than a governance tool.	State corporate law; ERISA *Employee Retirement Income Security Act*	Weak	*Employees may own shares but hold no managerial authority. Financial participation substitutes for governance power.*
China	Two-tier (formal)	Yes in form. Supervisory boards and employee representative congresses exist by statute, but serve an administrative rather than autonomous function.	Limited in practice. Ownership structures are tightly controlled and politically managed.	Company Law of the PRC *中华人民共和国公司法*	Weak — politically mediated	*Corporate formal structures exist, but participation is directed by the Party rather than driven by genuine worker autonomy.*

Source: Comparative corporate governance research. Legal citations reflect primary statutory frameworks as of 2024.

CONCLUSION

This article set out to examine, from a critical and comparative perspective, the extent to which employee participation and share ownership function as mechanisms for embedding labor within corporate governance across diverse institutional settings. The analysis demonstrates that these two approaches, while often discussed within a common normative framework of stakeholder inclusion, operate according to fundamentally different logics. Employee participation in decision making, particularly in its stronger forms such as codetermination, directly redistributes governance power within the firm. By contrast, employee share ownership, as observed most prominently in Anglo American systems, aligns financial interests without necessarily altering control structures. The empirical and comparative evidence confirms that ownership without control does not constitute participation in any meaningful governance sense.

The cross-country comparison reveals a persistent structural divide between shareholder centric and stakeholder-oriented models of the corporation. Germany remains the clearest example of an institutionalized equilibrium between capital and labor, where employee participation is legally entrenched and operationally effective at both board and workplace levels. Slovenia, while not fully replicating this model, demonstrates that even within post socialist contexts, meaningful participation can be sustained when supported by coherent legislation, EU integration dynamics, and a relatively strong culture of social dialogue. In contrast, the United States and the United Kingdom continue to rely on market-based governance and soft law mechanisms, where employee voice is mediated through consultation, disclosure, or ownership schemes, but remains external to formal decision-making structures.

The position of Southeast European transition economies, particularly Serbia and Croatia, is more problematic. The analysis confirms that these systems are characterized by a disjunction between formal legal frameworks and practical implementation. Despite the transposition of European standards and the nominal recognition of employees as stakeholders, participation mechanisms remain weak, fragmented, and largely symbolic. This reflects deeper structural constraints, including concentrated ownership, underdeveloped capital markets, weak enforcement capacities, and limited traditions of autonomous industrial relations. The legacy of socialist self-management, rather than serving as a foundation for modern participatory governance, has often been institutionally marginalized during the transition to market economies.

The Chinese case further complicates conventional typologies by illustrating a model in which formal channels of employee participation coexist with strong political oversight. While employees are institutionally represented through supervisory boards and workers' congresses, their influence is circumscribed by the dominant role of state and party structures. This underscores a broader analytical point тхат participation cannot be assessed solely on the basis of formal legal provisions but must be situated within the wider distribution of power inside the firm and the political economy in which it operates.

A central finding of this study is that the effectiveness of employee participation depends on the interaction between three elements: legal design, institutional capacity, and normative orientation. First, legal provisions must move beyond declaratory rights and establish enforceable mechanisms that integrate employees into core governance bodies. Second, institutional capacity, including functioning labor institutions, independent representation, and credible enforcement, is necessary to translate formal rights into practice. Third, and more fundamentally, participation requires a normative re-conception of the corporation as a social institution rather than a purely contractual nexus of capital.

For Southeast Europe, these findings carry direct implications for ongoing reform processes. Incremental adjustments limited to information and consultation rights are unlikely to produce substantive change. Instead, reform strategies should consider introducing calibrated forms of board level participation, strengthening works councils, and linking employee involvement to broader corporate governance reforms, including transparency and accountability mechanisms. At the same time, transplantation of foreign models must be approached cautiously. The German

experience illustrates that codetermination is a product of a long term political and social compromise, supported by strong institutions and economic structures.

More broadly, the article contributes to the ongoing debate on the future of corporate governance in the context of rising inequality, technological transformation, and the growing prominence of ESG frameworks. While recent developments suggest a rhetorical shift towards stakeholder capitalism, the comparative evidence presented here indicates that without structural changes in governance arrangements, such shifts risk remaining superficial. Employee participation, if meaningfully implemented, offers one of the few mechanisms capable of embedding democratic principles within the firm and rebalancing the relationship between capital and labor.

In conclusion, the study confirms that employee participation is neither an inevitable feature of advanced economies nor an anachronistic remnant of past industrial systems. It is a contingent institutional choice. Where it is supported by robust legal frameworks, effective institutions, and a clear normative commitment, it can enhance both corporate accountability and long-term economic performance. Where these conditions are absent, participation is reduced to form without substance. The challenge for transitional and developed economies alike is therefore not whether to include employees in corporate governance, but how to design systems in which such inclusion is both meaningful and sustainable.

REFERENCES

1. Ahmed, H., Amatori, F., & Colli, A. (2008). European corporations: Ownership, governance, strategies and structures. A review of five countries: United Kingdom, Germany, France, Italy and Spain. The European enterprise: Historical investigation into a future species, 23-36. Springer.
2. Anheier, H. K., & Baums, T. (Eds.). (2020). Advances in corporate governance: Comparative perspectives. Oxford University Press.
3. Blair, M. M., & Stout, L. A. (1999). A Team Production Theory of Corporate Law. Virginia Law Review, 85, 247-328. https://doi.org/10.2307/1073662.
4. Gorton, G., & Schmid, F. A. (2004). Capital, labor, and the firm: A study of German codetermination. Journal of the European Economic Association, 2(5), 863-905.
5. Joshi, A. (2025). The Rise of Artificial Intelligence in Enterprise Resource Planning Software: Enhancing Supply Chain Management Efficiency through Predictive Analytics. Journal of Computer Science and Technology Studies, 7(8), 1006-1011.
6. Monks, R. A., & Minow, N. (2011). Corporate governance. John Wiley & Sons.
7. Roe, M. J. (2005). The institutions of corporate governance. In Handbook of new institutional economics (pp. 371-399). Boston, MA: Springer US.
8. Sandrock, O. (2015). German and international perspectives of the German model of codetermination. European Business Law Review, 26(1).
9. Vitols, S. (2008). The evolving European system of corporate governance: implications for worker participation. Transfer: European Review of Labour and Research, 14(1), 27-43.
10. Zakon o radu [Labour Act], Croatia.
11. Zakon o trgovačkim društvima [Companies Act], Croatia.
12. Zakon o gospodarskih družbah [Companies Act], Slovenia.
13. Zakon o sodelovanju delavcev pri upravljanju [Worker Participation in Management Act], Slovenia.

14. European Union Directives on Information and Consultation of Employees, 2002/14/EC.
15. European Works Council Directive, 2009/38/EC.
16. European Company (SE) Directive, 2001/86/EC.
17. [Insert key academic references you are using: e.g., works on corporate governance in the Balkans, employee participation literature, codetermination studies].
18. Department for Business and Trade. (2024, May 29). Trade union statistics 2023. GOV.UK. https://www.gov.uk/government/statistics/trade-union-statistics-2023 GOV.UK
19. Financial Reporting Council (FRC). (2018). The UK Corporate Governance Code (2018). (See also workforce engagement options as introduced in 2018). https://www.frc.org.uk/ KPMG
20. Financial Reporting Council (FRC). (2024a). UK Corporate Governance Code 2024. https://www.frc.org.uk/library/standards-codes-policy/corporate-governance/uk-corporate-governance-code/ FRC (Financial Reporting Council)
21. Financial Reporting Council (FRC). (2024b). Guidance to the UK Corporate Governance Code 2024. https://www.frc.org.uk/library/standards-codes-policy/corporate-governance/corporate-governance-code-guidance/ FRC (Financial Reporting Council)
22. GOV.UK. (2020, Nov.). The Information and Consultation Regulations (ICE) (updated threshold). https://www.gov.uk/guidance/the-information-and-consultation-regulations GOV.UK
23. GOV.UK. (2021). Running a UK Societas (UKS). https://www.gov.uk/government/publications/uk-societas/running-a-uk-societas-uks GOV.UK
24. Institute of Chartered Accountants in England and Wales (ICAEW). (n.d.). Section 172(1) statement. https://www.icaew.com/technical/corporate-reporting/section-172-1-statement ICAEW
25. Kluwer Law Online. (n.d.). One-tier or Two-tier Board System? A Comparative Analysis of the British and Polish Corporate Governance Systems. European Company Law, 13(2). https://kluwerlawonline.com/journalarticle/European%2BCompany%2BLaw/13.2/EUCL2016010 Kluwer Law Online
26. KPMG Board Leadership Centre. (2018). Designated NED: 2018 corporate governance reforms. https://assets.kpmg.com/content/dam/kpmgsites/uk/pdf/2018/07/designated-NED.pdf KPMG
27. The Dechert Firm. (2020, Nov.). An introduction to the Information and Consultation of Employees (ICE) Regulations. https://www.dechert.com/knowledge/onpoint/2020/11/an-introduction-to-the-information-and-consultation-of-employees.html Dechert
28. UK Parliament. (2016). Written evidence on corporate governance (CGV0098). https://committees.parliament.uk/writtenevidence/74321/pdf/ UK Parliament Committees
29. Wates, J. (Chair). (2018). The Wates Corporate Governance Principles for Large Private Companies. Financial Reporting Council / Coalition Group. https://www.wates.co.uk/wp-content/uploads/2022/12/Wates-Corporate-Governance_Screen-Dec-2018.pdf Wates
30. Companies Act 2006, c. 46, s. 172. https://www.legislation.gov.uk/ukpga/2006/46/section/172 Legislation.gov.uk

31. Information and Consultation of Employees Regulations 2004 (as amended 2020). Threshold reduction to 2% effective 6 April 2020. (See GOV.UK guidance and legal commentary.) GOV.UKDechert
32. Busarac, R. (2018). Nova rešenja u Zakonu o privrednim društvima i korporativno upravljanje u javnim preduzećima. Revizor, (88), 89–97. https://doi.org/10.5937/Rev1883089B
33. Centralni registar hartija od vrednosti. (2025). Statistika vlasništva akcionarskih društava. https://www.crhov.rs/
34. Jovanović, J., & Grujić, B. (2016). Historical development of corporate governance as the basis for current corporate trends. Ekonomika, 62(1), 187–198. https://doi.org/10.5937/ekonomika1601187J
35. Lepetić, J. (2022). Javna preduzeća-strari i novi izazovi, Pravo i privreda, 60(4), 675–694. https://doi.org/10.55836/PiP_22404A
36. Milošević Law. (2022). Nemo postojanje akcionarskih društava u Srbiji. https://milosevic-law.rs/nemo-postojanje-akcionarskih-drustava-u-srbiji/
37. Mrdak, G. (2020). Specifičnosti korporativnog upravljanja u javnim preduzećima u Srbiji. Revizor, 21(83), 59–69. https://doi.org/10.5937/Rev1885059M
38. NIS Investitori. (2025). Akcije i vlasnička struktura. https://ir.nis.rs/akcije-i-dividenda/akcije-i-vlasnicka-struktura/
39. Republički zavod za statistiku. (2025). Strukturne poslovne statistike. https://www.stat.gov.rs/sr-latn/oblasti/strukturne-poslovne-statistike/
40. Todorović, N. V., & Brašić Stojanović, J. R. (2024). Analiza novog zakona o korporativnom upravljanju u državnim preduzećima u Srbiji u svetlu smernica OECD-a. Strani pravni život, 68(2), 195–213. https://doi.org/10.56461/SPZ_24202KJ
41. Vasiljević, M. S. (2021). „Bermudski trougao“ kompanijskog, stečajnog i prava preuzimanja akcionarskih društava: Tri subjekta zaštite – kompanija, poverilac i akcionar. Strani pravni život, 65(2), 193–206. https://doi.org/10.5937/spz65-33361
42. Vukolić, Z. (2019). Korporativno upravljanje u javnim preduzećima. Revizor, 22(85), 71–87. https://doi.org/10.5937/Rev1885071V
43. Zakon o javnim preduzećima. (čl. 17). Paragraf Lex.
44. Zakon o privrednim društvima Republike Srbije. (čl. 19, 21, 228, 229). Paragraf Lex.
45. Zakon o radu Republike Srbije. (čl. 13, 16). Paragraf Lex.
46. Zakon o upravljanju privrednim društvima u vlasništvu Republike Srbije. (čl. 19–23).
47. CMS. (2024). Expert guide for directors of companies – Croatia. CMS Reich-Rohrwig Hainz. https://cms.law/en/int/expert-guides/expert-guide-for-directors-of-companies/croatia
48. Ericsson Nikola Tesla. (2022). Godišnje izvješće za 2022. godinu. https://www.ericsson.hr/
49. European Union. (2001). Council Directive 2001/86/EC of 8 October 2001 supplementing the Statute for a European company with regard to the involvement of employees. Official Journal of the European Communities, L 294, 22–32. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32001L0086
50. Generis. (2024). Corporate governance in Croatia: Legal and compliance frameworks. Generis Global Legal Services. https://generisonline.com/corporate-governance-in-croatia-legal-and-compliance-frameworks/
51. HinaOTS. (2018, June 5). Hrvatska elektroprivreda d.d. – Odluke izvanredne Glavne skupštine. https://www.hina.hr/

52. Kinstellar. (2025, April). Update on the implementation of CSRD and CSDDD and related local legislative developments in Croatia. Kinstellar Insights. https://www.kinstellar.com
53. Klačmer Čalopa, M., Đunđek Kokotec, I., & Korent, D. (2015). Corporate governance and successful company performance (Focus on Croatia). In 10th International Scientific Conference on Economic and Social Development – Miami, 25th September 2015 (pp. 283–294). https://www.researchgate.net/publication/370638141
54. Klačmer Čalopa, M., Đunđek Kokotec, I., & Kokot, K. (2020). Impact of board size and ownership concentration on agency costs: Evidence for Croatian companies. Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praksu, 38(2), 521–535. https://doi.org/10.18045/zbefri.2020.2.521
55. Klopotan, I., et al. (2018). Parameters which influence employee satisfaction in public sector in the Republic of Croatia. International Journal for Quality Research, 12(2), 405–420. https://doi.org/10.18421/IJQR12.02-07
56. Odvjetnički ured Bistrović. (2024). Corporate law overview. https://odvjetnik-bistrovic.hr/en/practice-areas/corporate-law/
57. Podravka. (2023). Godišnje izvješće za 2022. godinu. https://www.podravka.com/
58. Tomić, I., Rubil, I., Nestić, D., & Stubbs, P. (2019). The employment and social situation in Croatia. European Parliament. https://www.researchgate.net/publication/337085232
59. Tušek, B., Filipović, D., & Pokrovac, I. (2009). Empirical evidence about supervisory board members' term lengths in Croatia. Ekonomski pregled, 60(1–2), 3–27. https://hrcak.srce.hr/33835
60. Wolf Theiss. (2024, July 27). Key insights on CSRD reporting requirements for companies operating in the Croatian market. https://www.wolftheiss.com
61. Zakon o radu Republike Hrvatske. (2014/2023). Narodne novine Republike Hrvatske.
62. Zakon o trgovačkim društvima. (1993/2023). Narodne novine Republike Hrvatske.
63. Agencija za javni nadzor nad revidiranjem. (2023). Letno poročilo o korporativnem upravljanju. https://www.anr.si/
64. Damijan, S., & Damijan, J. P. (2019). Corporate governance in Slovenia: Working at last? Corporate Governance and Organizational Behavior Review, 3(2), 40–51. https://doi.org/10.22495/cgobr_v3_i2_p4
65. Djokić, D. (2013). Corporate governance policies and transparency in the Republic of Slovenia. Montenegrin Journal of Economics, 9(2), 121–126. https://doi.org/10.14254/1800-5845.2013.9-2.9
66. Djokić, D., & Duh, M. (2015). Measuring transparency of the corporate governance in Slovenia. In MIC 2015 Management International Conference, Portorož, Slovenia, 28–30 May 2015 (pp. 373–381). University of Primorska & University of Maribor. https://www.hippocampus.si/ISBN/978-961-7023-31-0.pdf
67. European Union. (2001). Council Directive 2001/86/EC of 8 October 2001 supplementing the Statute for a European company with regard to the involvement of employees. Official Journal of the European Communities, L 294, 22–32. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32001L0086
68. Eurofound. (2022). Working conditions in the time of COVID-19: Implications for the future. Publications Office of the European Union. https://doi.org/10.2806/522792
69. Eurofound, & Cedefop. (2020). European Company Survey 2019: Workplace practices unlocking employee potential. Publications Office of the European Union. https://doi.org/10.2806/148735

70. Franca, V. (2025). BroadVoice: Broadening the spectrum of employee voice in workplace innovation – National Report: Slovenia (Deliverable 3.1). University of Ljubljana. Co-funded by the European Union. https://broadvoiceproject.eu/wp-content/uploads/2025/01/D3.1_National-Report-Slovenia.pdf
71. Gorenje. (2022). Letno poročilo. https://www.gorenjegroup.com/sl/za-vlagatelje/letna-porocila
72. Institut za ekonomska istraživanja. (2022). Participacija zaposlenih u Sloveniji: efekti i izazovi. https://www.ier.si/
73. Kavčič, Bracun & Partners. (2023). Corporate Governance in Slovenia – Comparative Legal Guide. CEE Legal Matters. https://ceelegalmatters.com/Magazines/Guides/CEELegalMatters_ComparativeGuide_CorporateGovernance2023_Slovenia.pdf
74. Ljubljana Stock Exchange & Slovenian Directors' Association. (2021). Slovenian Corporate Governance Code for Listed Companies. https://ljse.si/media/5021/slovenian_corporate_governance_code_for_listed_companies_2021.pdf
75. Ljubljanska borza. (2024). Statistika korporativnega upravljanja. https://www.ljse.si/
76. Pošta Slovenije. (2023). Upravljanje in nadzor. https://www.posta.si/
77. Slovenske železnice. (2024). Struktura upravljanja. https://www.slo-zeleznice.si/
78. Zakon o gospodarskih družbah (ZGD-1). (2023). Uradni list RS. https://www.uradni-list.si/
79. Zakon o sodelovanju delavcev pri upravljanju (ZSDU). (2023). Uradni list RS. https://www.uradni-list.si/
80. Zakon o delovnih razmerjih (ZDR-1). (2023). Uradni list RS. https://www.uradni-list.si/

REZIME

Istraživanja o korporativnom upravljanju još uvek nisu ponudila temeljno komparativno objašnjenje načina na koji su zaposleni zastupljeni u različitim ekonomskim sistemima. Ovaj rad nastoji da popuni tu prazninu upoređivanjem dva ključna modela: učešća zaposlenih u procesima donošenja odluka i vlasništva zaposlenih nad akcijama kompanije. Polazeći od teorijskih okvira komparativnog prava i teorije stejkholdera, rad ispituje u kojoj meri ovi modeli doprinose demokratizaciji upravljanja, unapređenju radnih odnosa i dugoročnoj održivosti preduzeća. Analiza se zasniva na kvalitativnom pristupu i obuhvata studije slučaja iz Nemačke, Ujedinjenog Kraljevstva, Sjedinjenih Američkih Država i Kine, koje se razmatraju uporedo sa iskustvima postsocijalističkih zemalja poput Hrvatske, Slovenije i Srbije. Posebna pažnja posvećena je institucionalnim aranžmanima, pravnim okvirima i stepenu njihove primene u praksi, kao i istorijskom nasleđu koje oblikuje savremene modele upravljanja. Nalazi ukazuju na to da države u tranziciji karakterišu specifične pravne, institucionalne i socio-ekonomske prepreke koje ograničavaju stvarni uticaj zaposlenih, čak i tamo gde zakonska rešenja formalno predviđaju visok stepen participacije. U tim kontekstima često dolazi do diskrepancije između normativnog okvira i njegove implementacije, usled slabih institucija, nedostatka korporativne kulture participacije i ograničenih mehanizama nadzora. Posebno u jugoistočnoj Evropi, zakonodavne reforme često nisu zaživele u praksi, što ukazuje na postojanje trajnog jaza između ambicija javnih politika i njihove efektivne

primene. Studija se završava predlaganjem normativnog i institucionalnog okvira za reformu, sa ciljem oblikovanja modela korporativnog upravljanja koji su inkluzivniji, efikasniji i bolje prilagođeni realnostima tranzicionih ekonomija. Predloženi okvir podrazumeva jačanje pravne sigurnosti, unapređenje mehanizama implementacije i nadzora, kao i razvoj participativne korporativne kulture koja omogućava stvarno uključivanje zaposlenih u procese odlučivanja.

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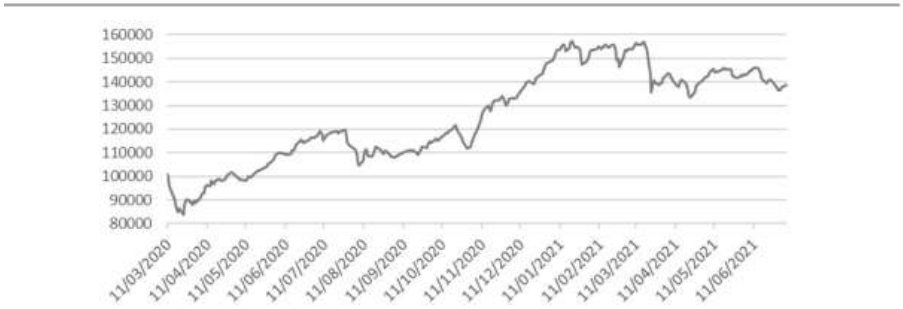
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Tabela 1
Vrijednosti pseudokorelacijskih koeficijenata determinacije u izolovanom modelu predikcije percepcije kvaliteta nogometa

Model	-2 Log likelihood	Coxov & Snellov R^2	Nagelkerkeov R^2
1	37,039	0,071	0,129

Izvor: : Redžepagić, B., Plojović, Š., & Ujkanović, E. (2013). Mogućnosti tranzicijskog potencijala BH sporta kao i njegovog uspješnijeg povezivanja sa ukupnom bosanskohercegovačkom turističkom ponudom. Ekonomski izazovi, 2(4), 15-36. https://doi.org/10.5937/EkoIzavov1304015R

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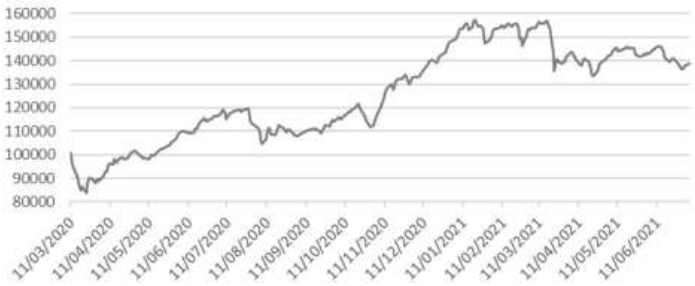
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Below the table/figure, include the *Source* or *Note* (Times New Roman, 10), where the source of the table/figure and any additional explanations should be provided.

Figure 1
Turkish Stock Market Trend XU100



Source: Authors' calculations

Table 1
Values of Pseudo-correlation Deetermination Coefficients in the Isolated Model of Predicting Perception of Football Quality

Model	-2 Log likelihood	Coxov & Snellov R^2	Nagelkerkeov R^2
1	37,039	0,071	0,129

Source: Redžepagić, B., Plojović, Š., & Ujkanović, E. (2013). Opportunities of transitional potential of BH sports and its more successful connection with the overall tourism offer of Bosnia and Herzegovina. *Economic Challenges*, 2(4), 15-36. https://doi.org/10.5937/EkoIzavov1304015R

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The quoted material should be produced verbatim.
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You can cite your data as part of a sentence (narrative citation) or at the end in parentheses (parenthetical citation).
For two authors, use 'and' in narrative citations; and '&' in parenthesis.
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The general citation style is:
Author (year) "quote" (p. #).

Single author: Meta (2015) says, "each of these funding sources has its own characteristics, advantages, and disadvantages that should be considered when choosing between them" (p. 19)
Two authors: Kalač and Jokić (2017) highlight that "a certain number of the most successful entrepreneurs use part of their achieved financial surpluses for various humanitarian and socially beneficial purposes..." (p. 73).
Three or more authors: Plojović et al. (2022) argue, "Resources (human, material, financial) are needed to achieve the goal. For example, if we talk about software and mention human resources, they are closely related to the complexity of the project" (p. 3).

Example of a parenthetical citation
The general citation style is:
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Single author: "each of these funding sources has its own characteristics, advantages, and disadvantages that should be considered when choosing between them." (Meta, 2015, p. 19)
Two authors: "a certain number of the most successful entrepreneurs use part of their achieved financial surpluses for various humanitarian and socially beneficial purposes…" (Kalač & Jokić, 2017, p. 73).
Three or more authors: "Resources (human, material, financial) are needed to achieve the goal. For example, if we talk about software and mention human

resources, they are closely related to the complexity of the project." (Plojović et al., 2022, p. 3).

Paraphrasing and summarizing

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A paraphrased passage is generally shorter and more concise than the original.
You can cite your data as part of the sentence (narrative citation) or at the end in parentheses (parenthetical citation).
Summarizing is very similar to paraphrasing in that it also involves conveying someone else's ideas in your own words to condense the material.
A summary includes only the main points and/or ideas of a longer passage or entire work.
For two authors, use 'and' in narrative citations and the ampersand '&' for parenthetical citations.
For three or more authors, use 'et al.' after the first author's surname to indicate there are additional authors.
Include only the author/year from the article you are summarizing. You do not need to include page numbers or section identification.
If citing multiple works in parentheses, arrange the citations in alphabetical order separated by semicolons.

Example of narrative paraphrasing

The general citation style is:
Author (year) summary.

Single author: Meta (2015) emphasizes that investing only makes economic sense if it can achieve effects.
Two authors: Kalač and Jokić (2017) state that the problem does not arise if the lease period is identical or approximately identical to the economic and technological lifespan of the leased item.
Three or more authors: Plojović et al. (2022) emphasize that communication is the way ideas are transmitted from one subject to another.

Example of parenthetical paraphrasing

The general citation style is:
Summary (Author, year)

Single author: Investing only makes economic sense if it can achieve effects (Meta, 2015).
Two authors: The problem does not arise if the lease period is identical or approximately identical to the economic and technological lifespan of the leased item (Kalač & Jokić, 2017).

Three or more authors: Communication is the way ideas are transmitted from one subject to another. (Plojović et al., 2022).

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