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7th INTERNATIONAL CONFERENCE ON
ECONOMICS BUSINESS MANAGEMENT AND
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BOOK OF CONFERENCE PROCEEDINGS AND ABSTRACTS

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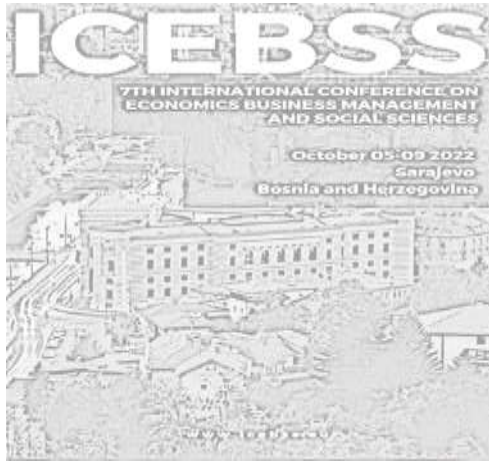
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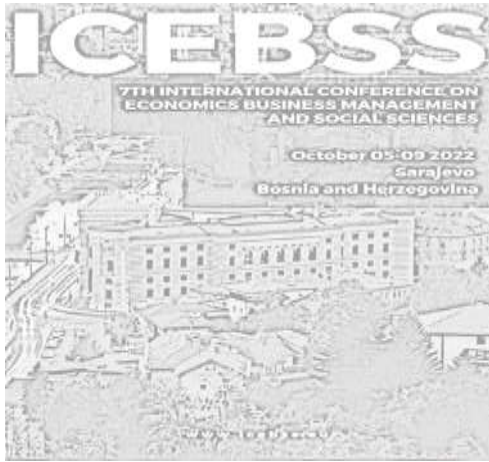SOCIAL SCIENCES

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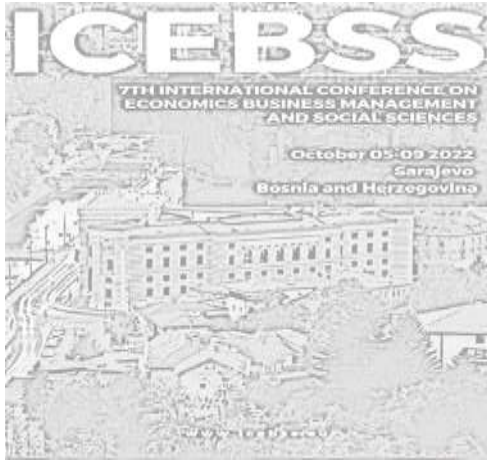SOCIAL SCIENCES

PREFACE

We sincerely hope that the contributors and attendees of ICEBSS'2022 will find presented studies enlightening, useful and of interest. The aim of ICEBSS is to bring researchers from different disciplines together and inspire them to collaborate.

On behalf of the organization committee, I thank all the authors who have shared their precious works, all reviewers for their valuable contributions and members of the committee for their never ending supports and advices.

We hope that ICEBSS will reinforce interdisciplinary and international collaboration and hearten information exchange between various fields.

November 2022
Prof. Dr. Mahmut ZORTUK
Coordinator of ICEBSS

CAUSAL LINK BETWEEN ECONOMIC WELL-BEING AND LABOUR MARKET EQUITY IN TURKEY

Demet BETON KALMAZ[*]

Abstract

There have been several studies for developing countries aiming to investigate the link between economic weell being and female labour force participation (FLFP). Empirical analysis show that female labour force participation has a noteworthy impact on economic growth and well-being. On the other hand there are also studies in literature confirming the significant impact of economic well-being on FLFP. This study aims to explore the co-moment between economic well being and FLFP in Turkey applying annual data covering the years over 1990 to 2018 utilizing wavelet coherence approach allowing the investigation of both short term and long term causal association between economic well-being and FLFP in Turkey. Since both economic well-being and FLFP of Turkey remains below the average levels of the European Union (EU) and the Organisation for Economic Cooperation and Development (OECD) levels, this study is highly significant to be able to investigate the link, hence, policy makers can design appropriate short term and long term policies to promote both indicators. According to the outcomes of the empirical analysis it is confirmed that (i) a significant vulnerability exist in economic well-being and FLFP in 1990 and 2000; (ii) FLFP in Turkey has a strong power for predicting economic well-being between 2006 and 2010; (iii) economic well-being causes FLFP in Turkey in the medium term between 1900 and 2000, and between 2010 and 2015 in the very short term. Furthermore, Toda-Yamamoto causality is applied to check for the robustness of the empirical findings of wavelet coherence approach.

Keywords: Economic well-being, FLFP, Turkey, Wavelet Coherence

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PROCESS ANALYSIS IN TECHNOLOGICAL ENTREPRENEURSHIP FIRMS: A MULTIPLE CASE STUDY

Leydiana DE SOUSA PEREIRA[†]

Abstract

Brazil is essentially an entrepreneurial country and, worldwide, it ranks ahead of developed nations such as France, China, and the United States. However, the difficulties imposed on the Brazilian entrepreneur are numerous and often complex. There are several associative factors, such as growing competition, governmental obstacles, economic and political barriers, and inadequate business structuring and management. At any level and segment of business, it is necessary to know its activities, resources, processing capacity, operations strategies, and role within the supply network. A project is being developed in the metropolitan region of Minas Gerais, especially in the city of Belo Horizonte. The initial focus corresponds to small and medium-sized entrepreneurs in the technological sector. This delimitation is because Belo Horizonte is one of the highlights among Brazilian capitals in innovation aspects, in addition to being a pioneer in the development of startups. This project is based on qualitative and quantitative research using multiple case studies approaches. The first results revealed a lack of knowledge by entrepreneurs about the traditional process modeling tools and agile methodologies. Another relevant data is the deficiency regarding the implementation and use of performance indicators. Consequently, this entrepreneurial niche is characterized by a scenario with a compromised organizational development, needing to incorporate change management, risk and performance analysis, and other components to improve efficiency in management.

Keywords: Entrepreneurship, Process modeling, Belo Horizonte, Performance indicators

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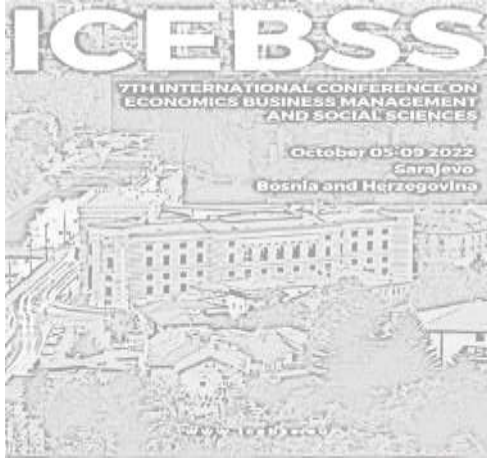
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THE IMPACT OF RISK MANAGEMENT ON PROFITABILITY OF COMMERCIALBANKS IN TURKEY

Halit DEMİR‡, Mahmut ZORTUK§

Abstract

Banks are considered one of the most essential financial sectors within any country in the current era. Its importance has increased with the increase in the services it provides, whether for individuals or companies. Among its most essential services is credit, which is the backbone of banks' profits. Because of the overlapping and expansion of their activities, banks by doing their operation are facing a variety of risks, these risks are classified into groups such as credit risks, market risks, and operational risks. As failure to manage any of them will negatively affect its profitability. Thus, the banking sector and the economy in general. That is why the developed countries and the OECD 20 countries in the last decade focused on laying the foundations for managing these risks and adopting unified instructions to reduce risks, which, if exacerbated, will lead to a financial crisis that is not only regional but may include interconnected countries together.In this article, we review the importance of banks in general, the status of banks in Turkey recently,the definition of banking risks, the concept of risk management, and finally show the impact of banking risk management on the banking profitability of Turkish commercial banks.

Keywords: Banks, Risk management, Performance, Turkish commercial banks

INTRODUCTION

In the financial system globally and in almost all countries Banks are the mainstay. This importance has emerged with the growing economic and financial role played by banks within their regional and international borders. Therefore, the stability of the banking sector provides stability to the

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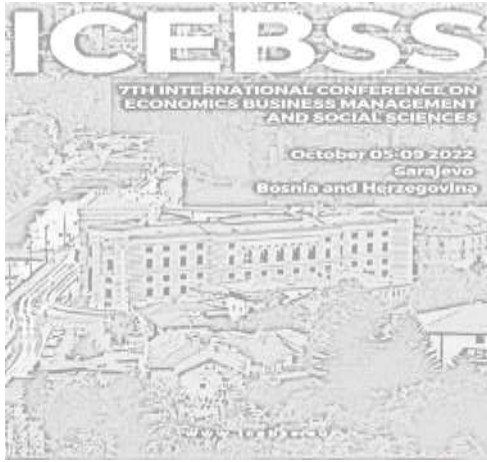
financial system within any country as they are closely and almost completely linked with each other. The safety and flow of the financial and economic system cannot be achieved unless it is ensured that the banks perform their tasks effectively and properly, especiallythe most important process of linking between depositors of individuals, companies, and institutions who have surplus funds that they need to invest and between borrowers seeking to obtain liquidity to finance their various operations. The banking system is a complex system intertwined with all economic and financial activities within the country that affect and are affectedby it. Therefore, central banks periodically and continuously seek to establish and review laws andregulations that govern the work of all banks within the country in order to ensure that they performtheir tasks in an optimal manner and are not exposed to losses that exceed their capabilities and lose Community trust, as community trust is a very important element to ensure the continuity of banks' work in a way that does not make them vulnerable to collapse and thus prevent any negative impact on the economic situation and the stability of the financial system. Turkish commercial banks constitute today's largest economic sector, not just a financial one. Thisindicates their true importance in Turkey, where the proportion of their assets is approximately 120% of GDP in the year 2020 compared to 80% in 2010. Turkish government banks play a majorrole in the Turkish banking sector, nowadays, 51 different banks operate within the Turkish market, with a number of branches close to around 9657 branches inside Turkey. The Turkish commercial banks are based on 35 banks and have almost 9586 branches inside Turkey. The 10 largest commercial banks in Turkey, their assets represent about 80% of the Turkish banking sector's total assets. until the end of the year 2021 these banks had achieved a good capital adequacy ratio, with an average of 18%.return on equity of 12.66% for the non-performing loans was around 4%.banks in Turkey work within a supervisory authority institution that monitors andsupervises all activities in a manner with the laws and regulations in force locally and internationally. The supervisory authority institution is also explicitly concerned with the credit system and ensuring its efficiency within all Turkish banks. The supervisory authority works to continuously follow up and develop risk management laws and work to preserve the rights and interests of savers and develop the financial markets within Turkey.The post-pandemic period, inaddition to the economic situation represented by high inflation rates and a decrease in the currentvalue of the lira, may constitute negative pressures on banks operating in Turkey, especially foreign banks. as the credit rating company Fitch downgraded about 25 Turkish banks from the long-term foreign exchange (LTFC) category. To the rating "B-" from "B". The agency also downgraded the long-term local currency ratings (LTLC) IDRs for 25 banks and the viability ratings (VRs) for 18 banks. The outlook for the long-term banks' IDR has been kept negative. Whatconstitutes a danger to the general economic
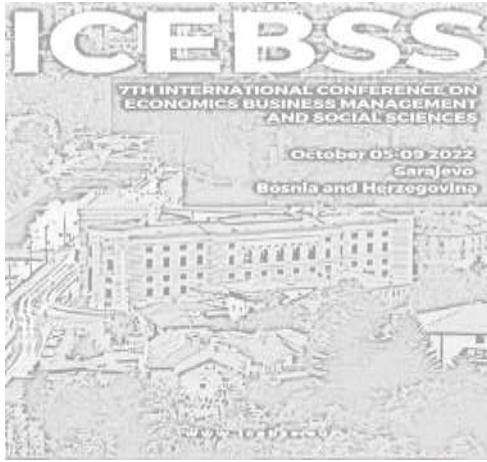
situation due to the importance of the role of banks in Turkey. That required tighter supervision and follow-up by the responsible institutions and bodies.

RISKS TO WHICH BANKS ARE EXPOSED

banking risks exist and are inherent in all bank operations and activities, regardless of whether those activities and operations are long-term or short-term, in addition to the fact that the risks inherent in the activities of banks can affect the achievement of its objectives and continuity, which requires commercial banks to develop A plan and the establishment of specialized departments tomanage banking risks in a way that enables banks to anticipate banking risks and develop plans toconfront them. In the last two decades, central banks around the world have been focusing to understand the causes of banking financial losses and trying to determine what influences they may expose to financial losses and to try to manage them in an optimal manner. Therefore, classifications of these risks have been developed and working to develop laws and regulations that facilitate the ways to confront them. Banking risks can be summarized according to most of the literature on Financial and banking as (Credit risk, Market Risk, Liquidity risk, Operational Risks, banking activities Risk, Strategic risks, Compliance risks, legal and regulatory risks)

BANKING RISK MANAGEMENT

Many financial and banking literature defined risk management from multiple points of view, the most prominent of which is the definition of the American Institute of Internal Auditors, which indicated, that risk management by general definition is: "The process of identifying, evaluating, managing and monitoring potential events or conditions, with the aim of providing the entity with reasonable guarantees regarding the achievement and achievement of objectives." planned for the entity. While risk management was defined by the United Kingdom Institute of Risk Management(IRM) and by the Association of Insurance and Risk Managers (AIRMIC) and the National Forumfor Risk Management in the Public Sector (ALRMIC) it is an essential part included in the organization's strategy. it is aiming to organize procedures in a manner that makes them Able to face any risks associated with its activities in order to achieve sustainable returns and profits commensurate with the size of the risks surrounding it.
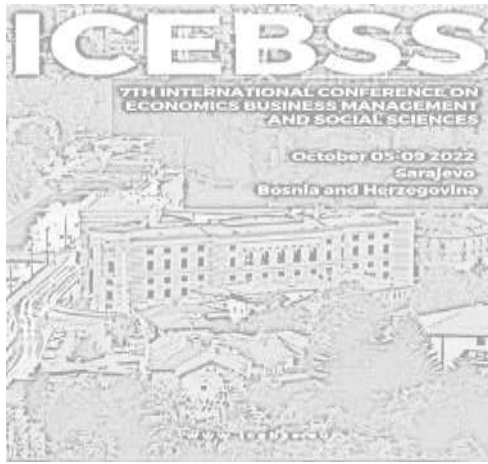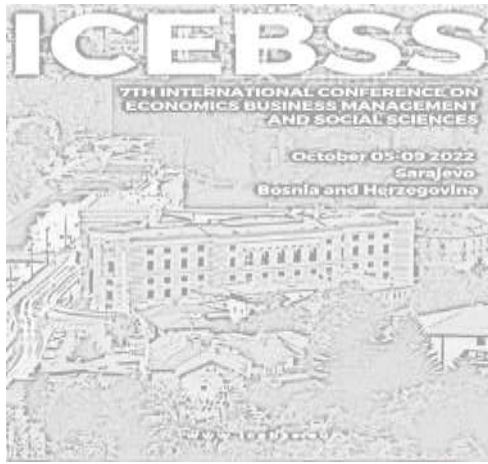
In general, most of the financial and banking literature agrees that risk management consists of a set of policies followed by procedures adhered to by the management of banks in order to identifythe risks surrounding them, measure their impact, and develop appropriate solutions and means toprevent them. The banking literature also specifies the responsibility of the senior management toset the policies for risk management. It also defines the task of the Board of Directors related to itsreview and approval after reviewing all its details, which includes the general policy for risk management, types of risks, methods of measuring and treating them, and the responsibility of each department towards them.

IMPACT OF RISK MANAGMENT ON PROFITABILITY

A sample was selected from a group of commercial banks operating in the Republic of Turkey. The sample included the 10 largest commercial banks in Turkey, in view of the financial statements ending on 12/31/2021. The ten largest commercial banks reflect assets that constitute about 93% of the total assets in the Turkish banking sector.to measure the impact two hypotheses have been applied The first hypothesis aims to verify the existence of a statistical relationship between the dependent variables and independent variables. While the second hypothesis aims to know the joint effect between the variables with an attempt to determine the nature of the dynamic relationship, in the long run, the short run, or both. Three variables represent Risk management (Non-performing loans NPLR, Liquidity ratios FLIQ, and Capital adequacy ratio CAR), and Return on assets ROA was the variable that represented the profitability of the banks.

Dependent variable (ROA)			
Independent Variable	Pooled OLS Coefficient	Fixed Effects Coefficient	Random Effects Coefficient
NPLR	-0.11	-0.114	-0.113
FLIQ	-0.002	-0.01	-0.002
CAR	0.103	0.07	0.10
R-squared	0.37	0.48	0.37
Adjusted R-squared	0.29	0.32	0.29
Durbin-Watson stat	2.14	2.5	2.14
Observations	70	70	70

The general results of the models used indicate the existence of a relationship and the impact of the independent variables on the dependent variable, that is, they indicate the existence of a relationship between risk management and bank profitability. This applies specifically to the capital adequacy ratio (CAR) as well as to the non-performing loan ratio (NPLR). The regression results confirm the existence of a negative relationship between the level of change in the return on assets and the change in non-performing loans. The change at the rate of 1% in non-performing loans reflects its negative impact on profitability, and the return on assets decreases by approximately 11%. It should also be noted that this relationship is statistically significant. As for the capital adequacy ratio, the results indicated a positive and statistically significant relationship with the return on assets. As the change reflects by 1% in capital adequacy ratio, a
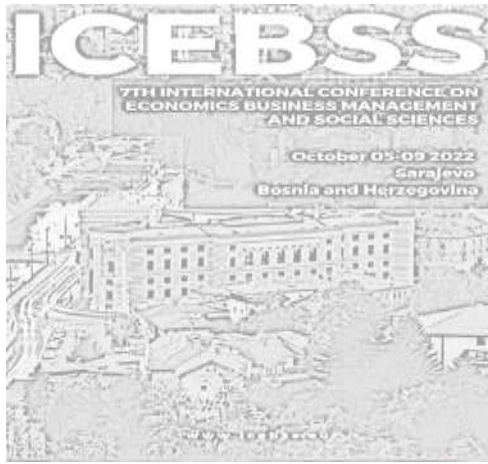
positive change of 10% in return on assets. Change in the liquidity ratio by 1% is negatively reflected by small percentage on the change in the return on capital, i.e. 0.2%.

Dependent variable is (ROA)

Long Run Equation	Coefficient	Prob.	Short Run Equation	Coefficient	Prob.
NPLR	-0.091347	0.0001	NPLR	-0.023798	0.6983
FLIQ	0.011682	0.1751	FLIQ	0.000488	0.9447
CAR	0.112689	0.0000	CAR	0.080418	0.0257
VEC		0.0005			

The relationship between non-performing loans and the return on capital over the long term exists, and it is statistically significant as well. It is a negative relationship, as an increase of 1% leads to a decline in the return on assets by 9%. In view of the capital adequacy ratio, we also find that the long-term relationship has been achieved with the return on capital. This relationship has an impact, as the results indicated that an increase of 1% will enhance the profits of the bank, as the return on assets will increase by an amount of 11%. With regard to the quick liquidity ratio, it can be said that there is a long-term positive relationship with the return on assets, but it does not have any statistical significance. The model indicated that 62% of any short-term defect is adjusted annually. PMG/ARDL Results prove the existence of a Short-run effect between The Capital adequacy ratio (CAR) and profitability - return on Assets (ROA) this Short-run relationship is statistically significant the model shows a 1% increase in (CAR) will increase the return on Assets (ROA) by 8%.

CONCLUSIONS

From the two hypotheses that were tested, the following can be confirmed There is a positive statistically significant relationship between the capital adequacy rate on the rate of return on assets, and this relationship has a long-term and short-term dynamic. There is a negative statistically significant relationship between non-performing loans and the rate of return on assets,and this relationship has a long-term dynamic. As for the short term, it did not show any statisticalsignificance. The results of the liquidity ratio were conflicting, as the regression models showed anegative effect of the liquidity on the rate of profitability, but they showed a positive long-term and short-term relationship with the profitability ratio, in all cases, there is no statistical significance of the liquidity ratio.

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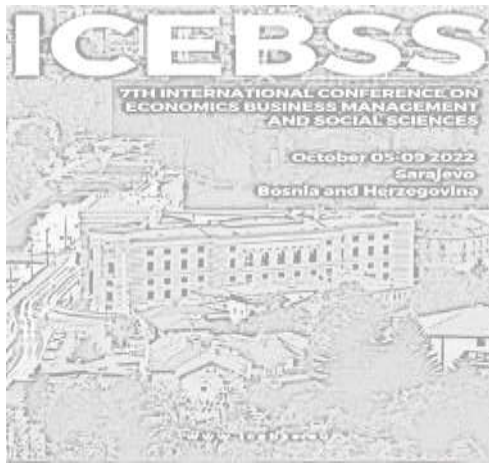
JORDANIAN INSURANCE COMPANIES, A COMPREHENSIVE ANALYSIS WITH MULTI-CRITERIA DECISION MAKING PROCESS

Mosab OBEIDAT*, **Mahmut ZORTUK†**

Abstract

The purpose of this empirical analysis is to identify the top performing company/s in the Jordanian insurance market using most recent publicly available financial statements, period covering January 2018 through December 2020, three annual audited financial statements for all insurance companies (the whole sector) were analyzed.

The study uniquely focuses on utilizing multiple methods of analysis in order to achieve best results, and eliminate possible non compatibility of data with the available scientific methods, three Multi-Criteria Decision Making (MCDM) methods were conducted; the full Multi-Objective Optimization on the basis of Ratio Analysis (MOORA) multiplication, Evaluation Based on Distance from Average Solution (EDAS), and Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). Additionally, the Criteria Importance Through Inter-Criteria Correlation (CRITIC) was conducted in order to identify the criteria weights in the analysis. Findings based on the previously identified methods showed consistent results, identifying the top and worst performing companies in the sector. Arab Orient Insurance Co ranked top all years.

Keywords: Jordanian Insurance Sector, best performing, MCDM Analysis, Multi-MOORA, CRITIC, EDAS, TOPSIS

INTRODUCTION

The state of global economies and commercial atmosphere is experiencing fast and growing insurrection and paradigm change, causing rising ambiguity and intricacy. All major decisions require studying the available options properly, and making the best deduction based on proven scientific methods. This is applicable in business, personal life and academic

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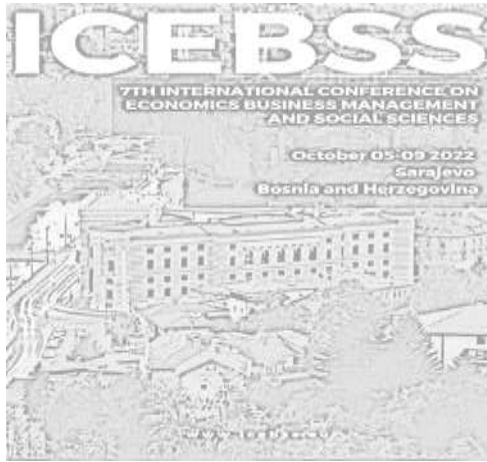† Kütahya Dumlupınar University, mahmut.zortuk@dpu.edu.tr

endeavors. This is of high importance in these uncertain and unprecedented times, the cost of an erroneous choice is very high, and may have severe and long term consequences, it is more difficult to safe keep or maintain one's capital or savings, and even tougher to make a substantially positive return on investment. Investors and customers seek the best possible choice, essentially identifying best choices in order to maximize potential profits and minimize losses, even in inefficient markets where the price of a stock can be artificially inflated or deflated. The insurance market in Jordan is still developing compared to developed nations, hence, makes an ideal research case. Determining the performance of insurance companies is acute to the economy since there is considerable uncertainty and complexity in the markets, not to mention that the market is considered to be sub-efficient. Insurance supports economic growth by providing economic stability, and reducing uncertainties, cultivating, and pooling financial resources, and offsetting the impact of financial loss. It has developed as an industry of protecting the interest of individuals, and entities from loss and uncertainty becoming a social tool to minimize or eradicate risk of loss of resources, health, or property. This study analyses the Jordanian insurance sector, measures efficiency, profitability, leverage, market share and size, utilizing most recent publicly available data. In our empirical research we will examine and analyze the Jordanian insurance market. We will examine companies' balance sheets, and income statement components to identify the best performing company/s for the fiscal years 2018, 2019, and 2020 extracting the following ratios; the solvency ratio, combined ratio, return on assets, return on equity, asset turnover ratio, debt to equity and debt ratios. In addition to the above listed ratios, the following three values shall be used as beneficial indicators to measure the size of the company, market share, and profitability; gross revenue from premiums, equity, and net income. Thus, a total of ten criterions are considered for the purpose of this thesis. Furthermore, in this study we shall use three multi-criteria decision making MCDM models to determine the best performing Jordanian insurance company to invest in, by utilizing three methods we achieve multiple goals; first, elimination of possible non consistencies. Secondly, obtain assurance of the results. And, finally, have a better multi-perspective platform in identifying the solution since not all models use the same algorithms. The models used are Multi-MOORA which is composed of the MOORA Ratio Analysis, MOORA Reference Point, & Full Multiplication, EDAS, TOPSIS to optimize the data and find the best performing company/s. Simultaneously, utilizing the CRITIC method for weight distribution to calculate the objective weights of each criteria or measurement indicator.

LITERATURE

Many scholars, and researchers utilized MCDM in their empirical research and or analysis to identify the best choice among a group of alternatives that can have conflicting effects, scholars also conducted research to determine a relationship or effect of a criteria on an identified outcome. This thesis utilizes previously published studies in identifying the appropriate variables (measurement indicators) and methods of analysis to achieve the required outcome and purpose. Alshadadi and Deshmukh, (2021) examined the profitability of insurance companies in Saudi Al-Arabia, study variables were company size, debt ratio, loss ratio, retention ratio, and investment income. The above variables were used to measure impact on profitability, expressed as ROA and ROE, results showed that the volume of premiums is the most influential variable on the profitability, next came the indebtedness rate and then the actual loss. Mandić et al., (2017) analyzed the efficiency of insurance companies in Serbia using the fuzzy AHP and TOPSIS methods, equity & reserves, business assets, provision & liabilities, financial incomes, and, cost of insurance composed the basic financial criteria of insurance companies. Results revealed that Dunav Osiguranje was best performing, followed by Delta Generali Osiguranje and Ddor Novi Sad. Mimović et al. (2021) evaluated and ranked 28 Serbian insurance companies by combining TOPSIS and IFRS using data from 2006 through 2016. They identified five variables of measurement, investment income, solved claims, acquisition costs, running costs and number of insured cases, results had practical implications, in terms of scientific support for decision makers in the insurance sector. Beiragh et al. (2020) utilized AHP to analyze 14 insurance companies operating in Iran in order to identify the best sustainably performing firm. Measurement indicators used were the number of agents, branches, investment in green projects, operating costs, investment costs, total assets, corporate social responsibility, premiums, net income, investment income, total debt, no of issued insurance policies, and total payable compensations The best sustainably performing companies were identified to be Dana, followed by Razi, and Dey. Davosir Pongrac et al., (2013) utilizing a goal programing MCDM model scrutinizing ROI, ROE, combined ratio, debt ratio, and premiums as measurement indicators, during 2010 and 2011 to determine best performing insurance company in Croatia, Jadransko osiguranje d.d. was found to be first. Wang et al., (2019) aimed at evaluating the efficiency of Malaysian insurance companies, used neutrosophic based NDAHP, TOPSIS, and DEA methods, considering actual datasets of management expenses, net commission, net earned premium and the net investment income for 19 insurance companies in Malaysia over two years from 2016 to 2017. Results revealed SFA & author proposed method had Lonpac ranked first, while DEA showed Etiqa as best performing. Alenjagh (2015) used a combination of ANP and PROMETHEE MCDM approaches

for evaluating the performance of insurance companies in Iran from 2011 – 2013, utilized 17 key financial ratios, and results revealed Parsian insurance company was the best performing. Almulhim (2020) conducted EDAS based on entropy weight MCDM evaluation of insurance industries performance from 2010 through 2017 for the 30 OECD member nations. Eight criterions were chosen for this purpose, the performance indicators were identified as gross written premiums, premium growth, reinsurance premium, net written premiums, gross claims payments, incurred claims ratio/loss ratio, number of insurance undertakings, and insurance density. As a result, the group beholding U.S, German, U.K, Japanese, and French insurance sectors had the best outcomes.

DATA AND METHODOLOGY

Data for this research was obtained from the central bank of Jordan, the oversight authority at the time. Present in the form of financial statements, balance sheets and income statements for all insurance companies, for the last available years, 2018, 2019 and 2020. All relevant ratios required for this multi-criteria analysis were extracted. Beneficial & non-beneficial criterions determined, and a data inputs table formed for each year.
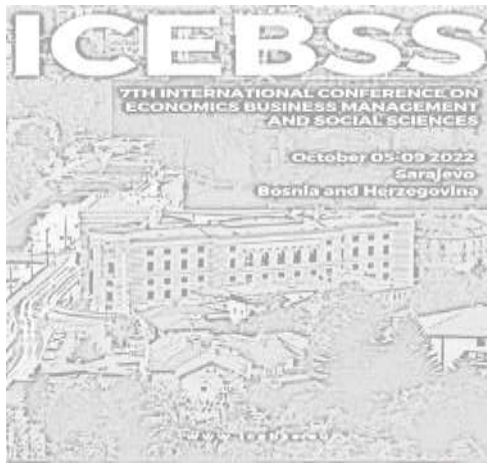
Table 1: Measurement indicators for Jordanian insurance sector year 2018

Company Name	Solvency	Combined	ROA	ROE	A.T.R	D/E	Debt	Equity	Premiums	Net income
2018 Data	Ben	Non	Ben	Ben	Ben	Non	Non	Ben	Ben	Ben
Arab Jordan Ins	0.0504	0.7696	0.0294	0.0915	0.6217	2.108	0.6782	7111342	17031676	650466
Al-Nisr Al-Arabi	0.0394	0.6094	0.0273	0.1219	0.3402	3.4607	0.7758	21058370	43013186	2566125
American Ins	0.0258	0.6522	0.0227	0.2811	0.3268	11.3883	0.9193	7114260	30736707	1999571
Arab Orient GIG	0.0508	0.5732	0.0321	0.1361	0.3875	3.2427	0.7643	23604192	85232935	3212900
Al Safwa Ins	0.0949	1.1063	0.0713	0.381	0.6825	4.3451	0.8129	1488877	5591686	567298
Euro Arab	0.0353	0.8323	0.02	0.0657	0.6412	2.2766	0.6948	10593263	28610731	695890
Arab Assurers Co	0.0614	0.9322	0.037	0.1113	0.8143	2.0042	0.6671	5949234	15923305	662092
Arab Insurance	-0.2011	1.0375	-0.1672	-0.7713	0.7336	3.6127	0.7832	3952096	16982138	-3048385
Al Manara Ins	-0.0814	1.232	-0.0687	-0.3029	0.4881	3.4107	0.7733	3120290	8332999	-945266
Arab Union Intl	0.1061	0.942	0.047	0.1125	0.5173	1.3933	0.5822	6675836	8477522	751106
Delta Insurance	0.0208	0.7526	0.0082	0.022	0.3933	1.6911	0.6284	9726627	15106924	213886
Al-Arabia Ins Co	0.0243	0.7417	0.0107	0.0302	0.5155	1.8269	0.6463	10109814	23070306	304899
The Islamic Ins	0.0635	0.8566	0.028	0.0546	0.414	0.9484	0.4868	20703785	24611242	1129929
Jerusalem Ins	0.0562	0.9197	0.0293	0.0749	0.426	1.5577	0.609	13757878	19098682	1031055
Jordan French Ins	0.0572	0.8597	0.0341	0.1025	0.6432	2.0037	0.6671	10747689	27138322	1102092
Jordan Insurance	0.0064	0.6235	0.0013	0.0034	0.4177	1.7415	0.6352	33676642	72900398	115704
Jordan Intl ins	0.0276	0.6739	0.0029	0.0043	0.1997	0.4751	0.3221	23126637	14042580	99604
Middle East Ins	0.0441	0.5453	0.017	0.0374	0.2176	1.1987	0.5452	39308678	40679648	1470182
Watania-National	-0.0475	0.8735	-0.034	-0.1041	0.5893	2.0587	0.6731	8668181	21244563	-902049
Philadelphia Ins	-0.0336	1.099	-0.0217	-0.0541	0.625	1.4965	0.5994	4112187	7289136	-222672
United Insurance	0.0615	0.699	0.0293	0.0809	0.4381	1.763	0.6381	13866304	24079066	1122171
MedGulf Ins	0.0045	0.9864	0.0013	0.0062	0.5963	3.598	0.7825	5757409	18760114	35729
Solidarity First	0.1072	0.6271	0.0452	0.0826	0.2734	0.8293	0.4533	32828771	42115802	2713043
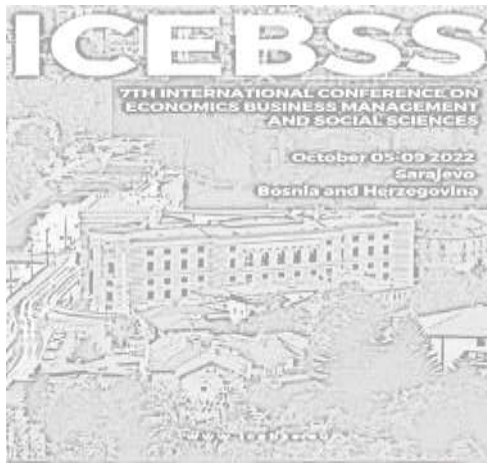
Measurement Indicators

Solvency ratio, points toward the credibility and trustworthiness of the company. Combined ratio, measuring the company's outflow of funds, non-beneficial. ROA, ROE, ATR, debt to equity, and debt ratios both of which are non-beneficial. Also, equity, premiums, and net income.

METHODOLOGY

MULTIMOORA Ratio

Data is normalized via: $x_{ij}^* = \dfrac{x_{ij}}{\sqrt{\sum_{j=1}^{m} x_{ij}^2}}$ and $x_{ij}^* = 1 - \dfrac{x_{ij}}{\sqrt{\sum_{j=1}^{m} x_{ij}^2}}$ (j=1, 2,…….)

Then highest value selected from: $y_i^* = \sum_{j=1}^{g} x_{ij}^* - \sum_{j=g+1}^{n} x_{ij}^*$ highest value is the best rank.

MULTIMOORA Reference Point

After normalization, Max Objective Ref Point (vector)
is found according to the ratios found in the ratio system (such as $r_j = \max x_{ij}$). Tchebycheff can be obtained from the following formulation: $min_i\{ max_j(|r_j - x^*_{ij}|)\}$. The best performing company is identified as the one with the lowest score.

MULTIMOORA Multıplication

Essentially in the past beneficial criteria is multiplied by each other, and divided by non-beneficial criteria via: $B_j = \prod_{k=i+1}^{n} x_{kj}$

CRITIC METHOD

Method implemented by first identifying the standard deviation of each criterion, then determining the weight of each criterion: $C_j = \sigma_j \sum_{j'=1}^{N}(1 - p_{ij'})$
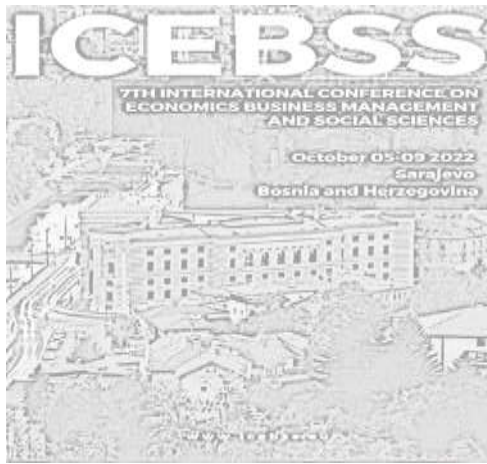
EDAS METHOD

Average solution is determined: $AV_j = \frac{\sum_{i=1}^{n} X_{ij}}{n}$ then positive and negative Euclidian distances, then determining the distance from the averages, then weighted sum of distances from average, then normalized values are treated to obtain the score: $AS_i = \frac{1}{2}(NSP_i + NSN_i)$

TOPSIS METHOD

Decision matrix is normalized, then weighted normalized matrix is prepared. the positive ideal and negative idea solution where $v_i^* = \{\max(v_{ij}) if\ j \in J; \min(v_{ij}) if\ j \in J'\}$ & $v_i' = \{\min(v_{ij}) if\ j \in J; \max(v_{ij}) if\ j \in J'\}$ then separation calculated for both via: $S_i^* = [\sum(v_i^* - v_{ij})^2]^{1/2}$ then, relative closeness to ideal solution $C_i^* = \frac{S_i}{(S_i^* + S_i')}$

RESULTS

Each year results obtained from each method and a collective yearly outcome identified:

Table 2: Comprehensive Results 2018

Company Name	MOORA ratio	Tchebycheff	EDAS	TOPSIS	2018 rank
Arab Jordan Insurance grp	15	13	12	13	14
Al-Nisr Al-Arabi Ins	5	2	6	3	3
American Insurance	2	9	4	2	4
Arab Orient Ins(GIG)	1	1	3	1	1
Al Safwa Ins	3	20	1	4	7
Euro Arab Ins	14	5	15	9	9
Arab Assurers Co	8	14	7	7	8
Arab Insurance	23	23	23	23	23
Al Manara Insurance	22	22	22	22	22
Arab Union International Ins	9	19	5	12	12
Delta Insurance	18	16	18	18	17
Al-Arabia Ins Co Jordan - AICJ	17	11	17	17	16
The Islamic Insurance Co	12	8	10	14	11
Jerusalem Insurance	13	12	13	15	15
Jordan French Insurance Co	6	7	8	6	5
Jordan Insurance Co JIC	10	15	14	8	13
Jordan International Ins JIJC	20	17	16	19	19
Middle East Ins	7	4	9	10	6
Watania - National Ins Co	21	21	21	21	21
Philadelphia Ins Co	19	20	20	20	20
United Insurance Co UIC	11	10	11	11	10
MedGulf Insurance Co	16	18	19	16	18
Solidarity First Insurance	4	3	2	5	2
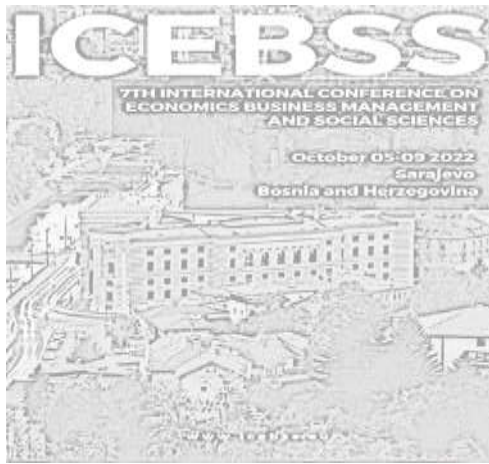
All method results were integrated together, simultaneously MOORA multiplication excluded for having incorrect results, 2018 comprehensive ranking concluded that Arab Orient is the best performing company for 2018 followed by Solidarity, Al-Nisr Al-Arabi, American, and Jordan French. Arab Orient insurance co was consistently the best performing coming during all years.

CONCLUSION

The best performing company in the Jordanian insurance sector is Arab Orient insurance company a member of the Gulf Insurance Group (GIG), and would be the primary choice to invest in or contract, this company was constantly ranked as the top performing. Al-Nisr Al-Arabi and American insurance constantly appeared in the top five performing companies all the way through the period of study, and make a wise alternative in the event that it is not possible to acquire Arab Orient ins shares. Another good alternative is to acquire stock in a company that has seen considerable development during the course of this study such as Jordan insurance, which has been climbing from the middle ranks to be categorized as the second best performing company in 2020.

Some companies highly leverage their operations. It is highly anticipated that they will be insolvent, or liquidated in 2023.

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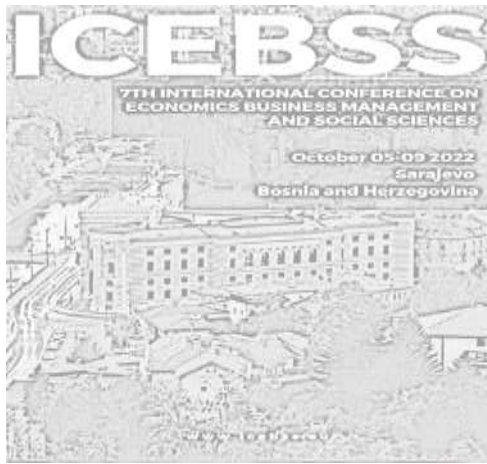
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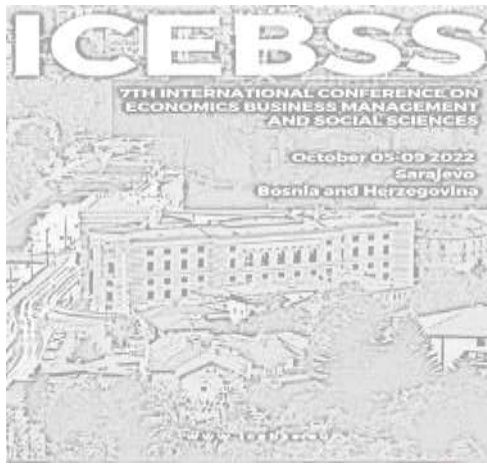
AIR PURIFIERS AND WILLINGNESS TO PAY FOR THE ENVIRONMENT OF CHINESE URBAN RESIDENTS -TAKING TIANJIN AS AN EXAMPLE

Zonghui MAO[*]

Abstract

Using air purifiers as the carrier, this paper conducts empirical regression based on the micro-data obtained through investigations and questionnaire distributions in Tianjin in 2017 to explore Chinese urban residents' willingness to pay (WTP) for the environment and its influencing factors. And we find that the increasing income level has promoted the residents' WTP for the environment significantly. Specifically, for each increase of the income level (such as from 0-50,000 yuan to 50,000-100,000 yuan), the probability of buying air purifiers increases by 3.4%, and the odds ratio increases by 17.3%. Furthermore, considering the heterogeneity of national physical quality, we divide the residents into a more detailed level- the allergic group and the non-allergic group. This paper not only distinguishes the WTP in public environment and private space at the micro-level, but also avoids people's psychological expectation of free-riding in WTP in public space, and overcomes the subjectivity and inaccuracy of the Conditional Value Evaluation (CVM), the method commonly used for collecting micro-data for estimating WTP. And it is the first time to accurately measure the specific impacts of rising income on the total cost of purchasing air purifiers, per capita cost, and per unit area cost, which has important guiding significance for the formulation and implementation of relevant environmental policies, providing a strong guarantee for promoting the sustainable environment.
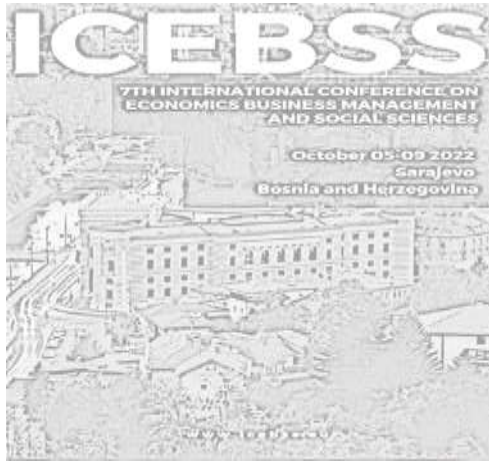
Keywords: Income, Willingness to Pay, Air Purifiers, Private Space, Allergies

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PROGRAM OVERVIEW	
5.October.22	
	Airport transfers
	City Tour Program
6.October.22	
08:00-09:30	Registration
09:30-10:20	Opening Speeches & Speeches by Invited Speakers
10:20-10:40	Coffee Break
10:40-12:20	Session 1
12:30-13:30	Lunch Break
13:30-15:10	Session 2
15:10-15:30	Coffee Break
15:30-17:10	Session 3
17:10-17:30	Coffee Break
17:30-19:10	Session 4
19:30-20:30	Dinner
7.October.22	
09:00-10:40	Session 5
10:40-11:00	Coffee Break
11:00-12:30	Session 6
12:30-13:30	Lunch Break
13:30-15:10	Session 7
15:10-15:30	Coffee Break
15:30-17:10	Session 8
17:10-17:30	Coffee Break
17:30-19:00	Session 9
20:00-22:00	Gala Dinner
8.October.22	
Social/Cultural Tour Program	
9.October.22	
	Airport Transfers