

DIGITALES ARCHIV

Book

55th International Scientific Conference on Economic and Social Development: vol. 1/4

Provided in Cooperation with:

Varazdin Development and Entrepreneurship Agency

Reference: 55th International Scientific Conference on Economic and Social Development: vol. 1/4.

This Version is available at:

<http://hdl.handle.net/11159/4567>

Kontakt/Contact

ZBW – Leibniz-Informationszentrum Wirtschaft/Leibniz Information Centre for Economics
Düsternbrooker Weg 120
24105 Kiel (Germany)
E-Mail: [rights\[at\]zbw.eu](mailto:rights[at]zbw.eu)
<https://www.zbw.eu/econis-archiv/>

Standard-Nutzungsbedingungen:

Dieses Dokument darf zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden. Sie dürfen dieses Dokument nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen. Sofern für das Dokument eine Open-Content-Lizenz verwendet wurde, so gelten abweichend von diesen Nutzungsbedingungen die in der Lizenz gewährten Nutzungsrechte.

<https://zbw.eu/econis-archiv/termsfuse>

Terms of use:

This document may be saved and copied for your personal and scholarly purposes. You are not to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public. If the document is made available under a Creative Commons Licence you may exercise further usage rights as specified in the licence.

Varazdin Development and Entrepreneurship Agency and University North
in cooperation with
Azerbaijan State University of Economics (UNEC)
Faculty of Management University of Warsaw
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat
Polytechnic of Medimurje in Cakovec



Economic and Social Development

55th International Scientific Conference on Economic and Social Development Development

Book of Proceedings Vol. 1/4

Editors:

Altay Ismayilov, Khatai Aliyev, Manuel Benazic



ISSN 1849-7535



9 771849 753006 >

Baku, 18-19 June 2020

Varazdin Development and Entrepreneurship Agency and University North
in cooperation with
Azerbaijan State University of Economics (UNEC)
Faculty of Management University of Warsaw
Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat
Polytechnic of Medimurje in Cakovec

Editors:

Altay Ismayilov, Azerbaijan State University of Economics, Azerbaijan
Khatai Aliyev, Azerbaijan State University of Economics, Azerbaijan
Manuel Benazic, University of Pula, Croatia

Economic and Social Development

55th International Scientific Conference on Economic and Social Development Development

Book of Proceedings Vol. 1/4

*55th International Scientific Conference on Economic and Social Development
was dedicated to Azerbaijan State University of Economics 90th anniversary*



Baku, 18-19 June 2020

Title ■ Economic and Social Development (Book of Proceedings Vol. 1/4), 55th International Scientific Conference on Economic and Social Development Development

Editors ■ Altay Ismayilov, Khatai Aliyev, Manuel Benazic

Scientific Committee / Programski Odbor ■ Marijan Cingula (President), University of Zagreb, Croatia; Sannur Aliyev, Azerbaijan State University of Economics, Azerbaijan; Ayuba A. Aminu, University of Maiduguri, Nigeria; Anona Armstrong, Victoria University, Australia; Gouri Sankar Bandyopadhyay, The University of Burdwan, Rajbati Bardhaman, India; Haimanti Banerji, Indian Institute of Technology, Kharagpur, India; Victor Beker, University of Buenos Aires, Argentina; Asmae Benthani, Mohammed V University, Morocco; Alla Bobyleva, The Lomonosov Moscow State University, Russia; Leonid K. Bobrov, State University of Economics and Management, Novosibirsk, Russia; Rado Bohinc, University of Ljubljana, Slovenia; Elisabeth de Jesus Oliveira Brito, University of Aveiro, Portugal; Adnan Celik, Selcuk University, Konya, Turkey; Angelo Maia Cister, Federal University of Rio de Janeiro, Brasil; Mirela Cristea, University of Craiova, Romania; Taoufik Daghari, Mohammed V University, Morocco; Oguz Demir, Istanbul Commerce University, Turkey; T.S. Devaraja, University of Mysore, India; Onur Dogan, Dokuz Eylul University, Turkey; Darko Dukic, University of Osijek, Croatia; Gordana Dukic, University of Osijek, Croatia; Alba Dumi, Vlora University, Vlore, Albania; Galina Pavlovna Gagarinskaya, Samara State University, Russia; Mirjana Gligoric, Faculty of Economics - Belgrade University, Serbia; Maria Jose Angelico Goncalves, Porto Accounting and Business School - P.Porto, Portugal; Mehmet Emre Gorgulu, Afyon Kocatepe University, Turkey; Klodiana Gorica, University of Tirana, Albania; Aleksandra Grobelna, Gdynia Maritime University, Poland; Liudmila Guzikova, Peter the Great Saint-Petersburg Polytechnic University, Russia; Anica Hunjet, University North, Koprivnica, Croatia; Khalid Hammes, Mohammed V University, Morocco; Oxana Ivanova, Ulyanovsk State University, Ulyanovsk, Russia; Irena Jankovic, Faculty of Economics, Belgrade University, Serbia; Myrl Jones, Radford University, USA; Hacer Simay Karaalp, Pamukkale University, Turkey; Dafna Kariv, The College of Management Academic Studies, Rishon Le Zion, Israel; Hilal Yildirim Keser, Uludag University, Bursa, Turkey; Sophia Khalimova, Institute of Economics and Industrial Engineering of Siberian Branch of Russian Academy of Science, Novosibirsk, Russia; Marina Klacmer Calopa, University of Zagreb, Croatia; Igor Klopota, Medjimursko Velesuciliste u Cakovcu, Croatia; Vladimir Kovsca, University of Zagreb, Croatia; Goran Kozina, University North, Koprivnica, Croatia; Dzenan Kulovic, University of Zenica, Bosnia and Herzegovina; Robert Lewis, Les Roches Gruyere University of Applied Sciences, Bulle, Switzerland; Ladislav Lukas, Univ. of West Bohemia, Faculty of Economics, Czech Republic; Mustapha Machrafi, Mohammed V University, Morocco; Pascal Marty, University of La Rochelle, France; Vaidotas Matutis, Vilnius University, Lithuania; Daniel Francois Meyer, North West University, South Africa; Marin Milkovic, University North, Koprivnica, Croatia; Abdelhamid Nechad, Abdelmalek Essaadi University, Morocco; Gratiela Georgiana Noja, West University of Timisoara, Romania; Zsuzsanna Novak, Corvinus University of Budapest, Hungary; Tomasz Ochowski, University of Warsaw, Poland; Barbara Herceg Paksic, University of Osijek, Croatia; Vera Palea, Università degli Studi di Torino, Italy; Dusko Pavlovic, Libertas International University, Zagreb, Croatia; Igor Pihir, University of Zagreb, Croatia; Dmitri Pletnev, Chelyabinsk State University, Russian Federation; Mirosław Przygoda, University of Warsaw, Poland; Karlis Purmalis, University of Latvia, Latvia; Nicholas Recker, Metropolitan State University of Denver, USA; Kerry Redican, Virginia Tech, Blacksburg, USA; Humberto Ribeiro, University of Aveiro, Portugal; Robert Rybnicek, University of Graz, Austria; Elzbieta Szymanska, Bialystok University of Technology, Poland; Katarzyna Szymanska, The State Higher School of Vocational Education in Ciechanow, Poland; Iaria Tutore, University of Naples Parthenope, Italy; Sandra Raquel Alves, University of Aveiro, Portugal; Joanna Stawska, University of Lodz, Poland; Claudia Miranda Veloso, University of Aveiro, Portugal; Ilko Vrankic, University of Zagreb, Croatia; Stanislaw Walukiewicz, Bialystok University of Technology, Poland; Thomas Will, Agnes Scott College, USA; Li Yongqiang, Victoria University, Australia; Peter Zabielskis, University of Macau, China; Silvija Zeman, Medjimursko Velesuciliste u Cakovcu, Croatia; Tao Zeng, Wilfrid Laurier University, Waterloo, Canada; Snezana Zivkovic, University of Nis, Serbia.

Review Committee / Recenzentski Odbor ■ Marina Klacmer Calopa (President); Ana Aleksic; Sandra Raquel Alves; Ayuba Aminu; Mihovil Andjelinovic; Josip Arneric; Lidija Bagaric; Tomislav Bakovic; Sanja Blazevic; Leonid Bobrov; Ruzica Brecic; Anita Ceh Casni; Iryna Chernysh; Mirela Cristea; Oguz Demir; Stjepan Dvorski; Robert Fabac; Ivica Filipovic; Sinisa Franjic; Fran Galetic; Mirjana Gligoric; Tomislav Globan; Anita Goltnik Urnaut; Tomislav Herceg; Irena Jankovic; Emina Jerkovic; Dafna Kariv; Oliver Kesar; Hilal Yildirim Keser; Martina Dragija Kostic; Tatjana Kovac; Vladimir Kovsca; Angelo Maia Cister; Katarina Marosevic; Vaidotas Matutis; Marjana Merkac Skok; Daniel Francois Meyer; Natanya Meyer; Josip Mikulic; Ljubica Milanovic Glavan; Guenter Mueller; Ivana Nacinovic Braje; Zlatko Nedelko; Gratiela Georgiana Noja; Zsuzsanna Novak; Alka Obadic; Claudia Ogorean; Igor Pihir; Najla Podrug; Vojko Potocan; Dinko Primorac; Zeljka Primorac; Sanda Renko; Humberto Ribeiro; Vlasta Roska; Souhaila Said; Armando Javier Sanchez Diaz; Tomislav Sekur; Lorena Skufflic; Mirko Smoljic; Petar Soric; Mario Spremic; Matjaz Stor; Tomasz Studzieniecki; Lejla Tijanac; Daniel Tomic; Boris Tusek; Rebeka Daniela Vlahov; Ilko Vrankic; Thomas Will; Zoran Wittine; Tao Zeng; Grzegorz Zimon; Snezana Zivkovic; Berislav Zmuk.

Organizing Committee / Organizacijski Odbor ■ Domagoj Cingula (President); Djani Bunja; Marina Klacmer Calopa; Spomenko Kesina; Erlino Koscak; Tomasz Ochowski; Mirosław Przygoda; Michael Stefulj; Rebeka Danijela Vlahov; Sime Vucetic.

Publishing Editor ■ Spomenko Kesina, Mario Vrazic, Domagoj Cingula

Publisher ■ **Design** ■ **Print** ■ Varazdin Development and Entrepreneurship Agency, Varazdin, Croatia / University North, Koprivnica, Croatia / Azerbaijan State University of Economics, Baku, Azerbaijan / Faculty of Management University of Warsaw, Warsaw, Poland / Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat, Morocco / Polytechnic of Medimurje in Cakovec, Cakovec, Croatia

Printing ■ Online Edition

ISSN 1849-7535

The Book is open access and double-blind peer reviewed.

Our past Books are indexed and abstracted by ProQuest, EconBIZ, CPCI (Web of Science) and EconLit databases and available for download in a PDF format from the Economic and Social Development Conference website: <http://www.esd-conference.com>

© 2020 Varazdin Development and Entrepreneurship Agency, Varazdin, Croatia; University North, Koprivnica, Croatia; Azerbaijan State University of Economics, Baku, Azerbaijan; Faculty of Management University of Warsaw, Warsaw, Poland; Faculty of Law, Economics and Social Sciences Sale - Mohammed V University in Rabat, Morocco; Polytechnic of Medimurje in Cakovec, Cakovec, Croatia. All rights reserved. Authors are responsible for the linguistic and technical accuracy of their contributions. Authors keep their copyrights for further publishing.

CONTENTS

INTERNATIONAL ASPECTS OF TRANSPORT INFRASTRUCTURE DEVELOPMENT	1
Mehriban Samadova, Galina Grinenko, Alexander Troshin, Svetlana Ykimchuk	
HUMAN RESOURCES IN DIGITAL ECONOMY	10
Anna Volkova, Dina Konstantinova, Marina Kudaeva, Yulia Masalova	
ROBUST HOMEOSTASIS PARAMETERIZATION - THE REGULATOR OF THE ECONOMIC SYSTEM OPERATING ACTIVITY	17
Mikhail Alekseev, Elizaveta Freydina, Lyudmila Rudi, Tatyana Vladimirova, Nataliya Kravchenko, Nadezda Ulanova	
DIGITAL BANK CONCEPT	30
Yuriy Shvetsov, Galina Tarasova, Vladimir Balikoev, Alexandra Shmyreva	
INFORMATION AS AN OBJECT OF CIVIL RIGHTS	35
Elena Kholmova	
THE IMPACT OF DIGITAL TRANSFORMATION ON THE FORMATION OF MANAGEMENT TOOLS USED BY MODERN COMPANIES	41
Akmaeva Rayasa, Abbasova Sevinj	
IMPROVING THE NORMATIVE LEGAL BASE FOR THE REGULATION OF LABOR RELATIONS	48
Arabiya Mustafayeva	
THE USE OF TOURISM SLOGANS AND LOGOS IN THE CASE OF EUROPEAN CAPITALS – A POSSIBLE CLASSIFICATION	52
Arpad Papp-Vary, David Wolf, Mate Farkas, Szabolcs Szolnoki	
PUBLIC AUDIT IN THE SYSTEM OF ENSURING REGION ECONOMIC SECURITY (THE ASTRAKHAN REGION EXAMPLE)	74
Perepechkina Elena, Samarets Tatyana, Mamedova Aida, Kasumova Lala, Babashirinova Esmira	
CYCLICAL FLUCTUATION IN MONEY LAUNDERING: CASE STUDY OF AZERBAIJAN, TAJIKISTAN, UKRAINE AND KAZAKHSTAN	83
Atik Kerimov, Anton Boyko, Victoria Bozhenko	
THE DIMENSION OF FINANCING OF NON-PROFIT ORGANIZATIONS IN SLOVAK REPUBLIC	93
Dagmar Hraskova	
GREEN INTELLECTUAL CAPITAL AND COMPANY PERFORMANCE	100
Eldar Khanlarov, Serhiy Lyeonov, Lyudmila Starchenko	

THE IMPACT OF TIME MANAGEMENT ON FINANCE OF SLOVAK NON-PROFIT ORGANIZATIONS.....	110
Emilia Gresakova	
TOOLS FOR STRATEGIC RESEARCH OF THE NATIONAL SECURITY SYSTEM - METHODOLOGY FOR RESEARCH USING SIMULATION BUSINESS GAME....	117
Venelin Terziev, Mitko Stoykov	
ELECTRONIC SERVICES AS SUPPORTING FACTOR OF QUALITY OF LIFE IN DIGITAL ECONOMY.....	126
Zuzana Stofkova	
MULTINATIONAL BANKING IN THE TIMES OF CORONAVIRUS OUTBREAK: TRENDS AND CHALLENGES	135
Fahri Murshudli, Roksolana Zapotichna	
MARKETING OF SOCIAL TOURISM.....	147
Farhad Rahmanov, Nataliia Letunovska, Oleksii Lyulyov	
RESEARCH OF INDICATORS OF QUALITY OF RIVER CANCER, (ASTACUS LEPTODACTYLUS) FISHED FROM MINGECHAUR RESERVOIR	161
Farida Guliyeva	
THE ROLE OF BIOKIBERNETICS IN THE HUMAN IMMUNOLOGICAL SYSTEM	165
Vladimir Nikolayevich Golubev, Farzaliyev Elsevar Baba Oglu	
HOW TO INCREASE THE EFFICIENCY OF UTILIZATION OF CREDIT RESOURCES BY THE PRODUCTION SECTOR.....	169
Javadov Ramiz Javad, Feyzullayev Mushfig Ahad	
MANAGERIAL DISRUPTIVE STRATEGIES IN THE GLOBAL MUSIC INDUSTRY: BUILDING OF THE COMPETITIVE ADVANTAGES OF SPOTIFY AND PANDORA DIGITAL STREAMING CORPORATIONS	183
Josko Lozic	
CLUSTERING AS A DRIVER OF REGIONAL ECONOMIC COMPLEXES INNOVATIVE DEVELOPMENT IN CONDITIONS OF KNOWLEDGE ECONOMY FORMATION	195
Elena Kostuchenko, Sevinj Abbasova, Vladimir Klyunya	
REMUNERATION STRUCTURE ACCORDING TO OCCUPATIONS IN POLAND IN 2018	204
Agata Gomolka	
GLOBAL ENERGY SECURITY AS A GLOBAL PUBLIC BLESS.....	212
Rauf Qusxani, Maksimov Ivan, Matsuy Elena, Kryukova Ekaterina	
ABOUT SOME ASPECTS AND FEATURES OF FORMATION OF THE DOMESTIC MARKET OF MERGERS AND ABSORPTIONS	220
Kogan Marina, Svetlana Mammadova, Lala Hamidova, Leman Kashiyeva	

REGIONAL DIFFERENCES IN THE WAGES OF AGRICULTURAL WORKERS AND THEIR REGULATION.....	227
Mirzabayova Mehriban Samaddin	
SUSTAINABLE GROWTH AND COUNTRY GREEN BRAND: VISUALIZATION AND ANALYSIS OF MAPPING KNOWLEDGE	234
Naila Akhundova, Tetyana Pimonenko, Yana Us	
DIGITAL EDUCATIONAL SERVICES IN THE CONDITIONS OF GLOBAL CHALLENGES: ANTI-CRISIS INSTRUMENT OR NEW REALITY	244
Natig Gadim-Oglu Hajiyev, Pogodina Irina Vladimirovna, Avdeev Danila Alekseevich, Mamedov Sabir Niyazovich, Sugra Ingilab Humbatova	
MORTGAGE LENDING MARKET: CHALLENGES AND PROSPECTS.....	250
Aydin Rafiyev, Natalya Solovjeva, Natalia Melnikova	
EDUCATION FOR SUSTAINABLE DEVELOPMENT AS A TOOL TO REACH HIGH QUALITY IN TEACHING.....	260
Farhad Rahmanov, Nadiya Kostyuchenko, Denys Smolennikov, Farhad Huseynov	
NEW AGE OF MARKETING - NEUROMARKETING	269
Leonarda Jez, Ana Mulovic Trgovac, Ante Roncevic	
EARNINGS MANAGEMENT: THEORETICAL BACKGROUND AND BIBLIOMETRICS ANALYSIS OF THE ISSUE	277
Anna Siekelova	
RATIONALITY OF PUBLIC INFLATION EXPECTATIONS	287
Avaz Alakbarov, Anna Buriak, Anna Lasukova	
CENTRAL BANK INDEPENDENCE MEASURING	296
Azer Babayev, Tetyana Vasilyeva, Victoria Dudchenko	
CHANGE FROM PERSONNEL MANAGEMENT TO HUMAN RESOURCE MANAGEMENT IS AN EPISTEMOLOGICAL NECESSITY OR RHETORIC CHANGE?	306
Hasan Tutar, Teymur Sarkhanov	
POVERTY ALL OVER THE ROMANIAN RURAL AREA - SHORT MONOGRAPH OF SOME RURAL LOCALITIES IN ROMANIA WITH THE LOWEST POVERTY LEVEL.....	314
Cristina Stroe	
THE APPLICATION OF REMOTE SENSING DATA FOR WHEAT YIELD PREDICTION	326
Anna Pavlova	
INTERNATIONAL BANKING BUSINESS' EXPANSION IN DEVELOPING MARKETS: PRE AND POST-CRISIS FRAMEWORKS	333
Fahri Murshudli, Sergii Sheludko	

IMPACT OF INNOVATIONS ON THE STANDARD OF LIVING IN THE CONTEXT OF THE CRISIS AND FALLING EXPORT PRICES FOR ENERGY RESOURCES 344

Farhad Rahmanov, Inna Bagautdinova, Irina Degtyareva

APPLICATION OF SQDCME OPERATIONAL MANAGEMENT SYSTEM IN EDUCATIONAL ORGANIZATIONS.....354

Irina Chistnikova, Yana Mochalova, Svetlana Ivashchenko, Kerimova Tahira, Dilavarov Farid

LABOR MARKET MANAGEMENT MECHANISMS IN GEORGIA ACCORDING TO CURRENT TRENDS361

Nino Paresashvili, Rusudan Kinkladze, Ketevan Chitaladze, Zumurud Nadjafova, Teona Edzgveradze

NETWORK HUMAN CAPITAL AS A FACTOR OF INTER-REGIONAL INTERACTION IN THE CONTEXT OF DIGITAL TRANSFORMATION: RUSSIAN AND FOREIGN EXPERIENCE371

Elena Stryabkova, Leyla Hajiyeva, Elnur Aliyev, Anna Kulik, Mikhail Kochergin

PROSPECTS FOR THE DEVELOPMENT OF INTERNATIONAL TRANSPORT CORRIDORS IN MODERN GEO-ECONOMIC CONDITIONS382

Mansur Barxudarov, Esmira Ahmadova, Kryukova Ekaterina

ASSESSMENT OF VALUE ADDED TAX GAPS: CROSS-COUNTRY ANALYSIS..390

Mirdamad Sadigov, Inna Tiutiunyk, Svitlana Pokhylyko

BLOCKCHAIN TECHNOLOGY BASED SYSTEM-DYNAMIC SIMULATION MODELING OF ENTERPRISE'S CYBER SECURITY SYSTEM.....399

Mustafa Sadigov, Olha Kuzmenko, Hanna Yarovenko

SUSTAINABILITY ACCOUNTING & REPORTING ASSESSMENT SYSTEM: ROLE IN INDEPENDENT VERIFICATION FOR STAKEHOLDERS INTERESTS409

Niyazi Ismayilov, Inna Makarenko, Serhiy Makarenko

THE IMPACT OF FINANCIAL CRISIS ON THE PERFORMANCE OF LARGE CROATIAN BANK.....419

Ante Roncevic, Marina Gregoric, Dajana Maria Horvat

ECONOMETRIC ESTIMATION OF THE IMPACT OF INTEGRATION OF EDUCATION AND SCIENCE ON SUSTAINABLE DEVELOPMENT (ON THE EXAMPLE OF CIS COUNTRIES, UKRAINE AND GEORGIA).....429

Yadulla Hasanli, Sardar Shabanov, Salman Najafov, Oleksandr Krupskyi

THE CORONAVIRUS EPIDEMIC AS A WAY TO INFLUENCE TOTAL WORLD ECONOMY'S TRANSFORMATION: ANALYSIS AND FORECAST437

Sevda Mamedova, Inna Bagautdinova, Vitaly Vasiltsov

FORECASTIC CONTOURS OF THE DIGITAL ECONOMY IN THE FUTURE446

Sevinj Abbasova, Inna Bagautdinova, Irina Degtyareva

SIGNIFICANT ISSUES OF ORGANIZATIONAL CONFLICT MANAGEMENT457

Nino Paresashvili, Natiq Gurbanov, Badri Gechbaia, Ketevan Goletiani, Teona Edzgveradze

STRATEGY OF DISORGANIZATION OF LABOR AND HUMAN RESOURCE MANAGEMENT POLICIES	465
Hasan Tutar, Teymur Sarkhanov	
OPPORTUNITIES AND LIMITATIONS OF THE INDICATOR SYSTEM FOR FINANCIAL DIAGNOSTICS AND BANKRUPTCY FORECASTING.....	473
Svetlana Nadezhdina, Sergey Filatov, Tatyana Khramtsova, Alexander Shaposhnikov, Maria Krasnova	
THE CONCEPT OF A PROACTIVE APPROACH TO ANALYZING THE EFFECTIVENESS OF INVESTMENTS IN NATURAL RESOURCES	482
Vladimir Kalugin, Elena Lavrinenko, Mehriban Aliyeva, Yana Bondareva	
THE CURRENT STATE OF RUSSIA’S FISCAL POLICY FUTURE.....	489
Tunzala Gurbanova, Guzel Tokareva, Olga Shalina, Faniya Rastegaeva	
SPATIAL DEVELOPMENT OF TERRITORIES BASED ON A SYSTEM OF KEY PERFORMANCE INDICATORS	499
Vafa Huseynova Arif, Marina Vladyka, Viktor Zakharov, Elena Gorbunova	
HOW TO COMMUNICATE A PRICE TO THE CUSTOMERS	507
Zdenka Vidrova, Lubica Gajanova	
FINANCIAL INNOVATION IN THE CONDITIONS OF DIGITALIZATION OF THE ECONOMY	515
Ali Abbasov, Zahid Mamedov, Victoria Kovalenko	
ON THE POSSIBILITY OF INCREASING THE ROLE OF EDB AND CENTRAL BANKS OF EAEU COUNTRIES IN THE STIMULATION OF INTEGRATION PROCESSES IN THE UNION TERRITORY	525
Zohrab Ibragimov, Elena Linkevich	
HUMAN RESOURCES AS AN AREA FOR ENTERPRISE INNOVATION	533
Zuzana Rosnerova, Boris Kollar	
THE INNOVATIONS ROLE IN FACILITATING REGIONAL DEVELOPMENT...543	
Olga Nosova, Tetiana Nosova, Natiq Qurbanov, Damirov Yashar	
INNOVATIVE MANAGEMENT PERSPECTIVE: ABM - ACTIVITY BASED MANAGEMENT	554
Olga Ponisciakova	
RISK FACTORS FOR MALIGNANCY: SOCIAL AND PSYCHOLOGICAL ASPECTS	562
Diana Tsiring, Yana Sizova	
THE IMPACT OF COVID-19 CORONAVIRUS ON FINANCIAL MARKETS: A QUALITATIVE APPROACH.....	567
Richard Ajayi, Fuzuli Aliyev, Teymur Sarkhanov	

EASTERN MEDITERRANEAN GAS RESERVES: A RISING CRISIS FOR TURKEY AND REGION	572
Sayyad Sadri Alibabalu, Teymur Sarkhanov	
EMISSIONS AND WASTE IN THE CONDITIONS OF SUSTAINABLE DEVELOPMENT: SEARCH FOR THE ECOLOGICAL BALANCE	578
Sadiq Binyamin Oqlu Nazaraliyev, Baranova Alla Fedorovna, Pogodina Irina Vladimirovna, Mamedov Sabir Niyazovich	
FACTORS OF ATTRACTION AND HUMAN CAPITAL ACCUMULATION IN THE FRAMEWORK OF A MACRO-REGION	586
Mustafayeva Zohra Ismayil, Glotova Anastasia Sergeevna, Titova Irina Nikolaevna, Druzhnikova Elena Petrovna	
NEW APPROACHES OF HUMAN CAPITAL MANAGEMENT IN CONTEXT OF EMOTIONAL INTELLIGENCE	595
Peter Seemann, Zuzana Stofkova	
ECONOMIC, SOCIAL, AND INSTITUTIONAL DETERMINANTS OF DOMESTIC CONFLICT IN FRAGILE STATES	603
Syed Muhammad All-e-Raza Rizvi, Marie-Ange Veganzones-Varoudakis	
ECONOMIC GROWTH AND PUBLIC GOVERNANCE: FORESIGHT SCENARIOS	613
Shahin Sadigov, Oleksii Lyulyov, Tetyana Vasylieva	
IMPORT SUBSTITUTION AS FACTOR OF ECONOMIC SECURITY	624
Rauf Gushkhani, Huseynova Shahla Akif, Meshkova Anna	
TO THE QUESTION OF THE CONCEPT OF "CAREER GUIDANCE" IN THE CONCEPT OF COMPETITIVENESS	632
Svetlana Sotnikova, Olga Prokudina	
E-COMMERCE FROM THE PERSPECTIVE OF VISEGRAD COUNTRIES	641
Tatiana Corejova, Milan Garbier, Roman Chinoracky, Alexandra Valicova	
MARKETING MIX AS PART OF MARKETING STRATEGY USED IN THE SERVICE INDUSTRIES	649
Veronika Paurova, Margareta Nadanyiova	
CHANGES IN WORK OF TRUCK DRIVERS FROM THE ASPECT OF SAFETY AND PSYCHOSOCIAL RISKS.....	658
Viera Sukalova	
INTERNATIONAL SANCTIONS AS AN ECONOMIC SECURITY THREAT	668
Ekaterina Vostrikova, Samedova Mehriban, Huseynova Shahla Akif, Aliyeva Mehriban, Leyla Alikhanova	
FINANCIAL SECTOR DEVELOPMENT: EFFICIENCY OF THE REGULATION AND PUBLIC TRUST	677
Zohrab Ibragimov, Maryna Brychko, Serhiy Lyeonov	

FISCAL EFFECTIVENESS OF ENVIRONMENTAL TAXES: CASE OF EUROPEAN COUNTRIES	688
Avaz Alakbarov, Alina Vysochyna, Yaryna Samusevych	
CURRENT TRENDS IN THE STATE AND DEVELOPMENT OF THE INSURANCE SECTOR	698
Nizami Khudiyev, Natalia Putivtseva, Tatyana Zaitseva	
EVALUATION OF THE FINANCIAL HEALTH OF NON-PROFIT ORGANIZATIONS: A CASE STUDY IN THE SLOVAK REPUBLIC	708
Ivana Podhorska	
FROM CULTURAL HERITAGE TO CULTURAL TOURISM IN OSIJEK-CROATIA: CURRENT SITUATION AND DEVELOPMENT PERSPECTIVES	717
Marta Boric Cvenic, Hrvoje Mesic, Marija Tolusic	
FINTECH IN ECONOMIC GROWTH: CROSS-COUNTRY ANALYSIS	729
Shahin Sadigov, Tetyana Vasilyeva, Pavlo Rubanov	
THE IMPACT OF FINANCIAL CRISIS ON THE BANKING DEVELOPMENT (WORLD EXPERIENCE AND UKRAINE)	740
Zahid Mamedov, Ulyana Vladychyn, Sophia Lobozyńska	
THE IMPACT OF CURRENCY RESTRICTION ON THE FOREIGN EXCHANGE MARKET (EXPERIENCE OF UKRAINE)	751
Azer Babayev, Iryna Skomorovych, Roya Khanlarova	
IMPACT INVESTMENT: A SMART STRATEGY FOR SUSTAINABLE DEVELOPMENT GOALS ACHIEVEMENT	761
Huseynova Vafa Arif, Julia Lyshchikova, Tatyana Dobrodomova	
TRENDS OF THE ATTRACTIVENESS OF AZERBAIJAN TOURISTS IN GEORGIA	770
Nino Abesadze, Otar Abesadze, Lala Amanova	
OIL PRICES AND MACROECONOMIC INDICATORS OF OIL EXPORTING AND OIL IMPORTING COUNTRIES	778
Sugra Ingilab Humbatova, Manuela Tvaronaviciene, Natig Gadim–Oglu Hajiyev	
TRANSPORT COSTS AND THEIR POSITION IN THE LOGISTICS CHAIN	790
Peter Majercak	
TRANSNATIONALIZATION AND DIGITALIZATION OF BANKS AS MEANS OF EVOLVING EFFICIENCY NOT ACCOUNTABILITY	798
Fahri Murshudli, Boris Loguinov	
CREATIVE ACCOUNTING AND ITS POSSIBLE NEGATIVE IMPACTS IN SELECTED COUNTRIES OF THE CENTRAL EUROPE REGION	810
Boris Kollar	

APPLICATION OF THE KOTHARI MODEL TO ASSESS THE EXISTENCE OF EARNINGS MANAGEMENT IN ENTERPRISES IN THE CZECH REPUBLIC	820
Lenka Strakova, Peter Adamko	
THE PARADIGM OF HUMAN CAPITAL IN THE CONTEXT OF DIGITALIZATION ACROSS COUNTRIES	829
Bayramova Sevinc Rafiq, Anna Kogteva, Natalya Gerasimova, Elena Veiss	
BENCHMARKING AS A TOOL FOR IDENTIFYING THE DIRECTIONS OF SMART SPECIALIZATION IN THE REGION.....	838
Elnara Samedova, Elena Stryabkova, Mikhail Kochergin, Anna Kulik	
THE METHODS OF MANAGING FOR RISK OF COMBATING MONEY LAUNDERING (LEGALIZATION) OF PROCEEDS FROM CRIME AND THE FINANCING OF TERRORISM.....	846
Atik Kerimov, Galina Azarenkova, Alexander Masharsky, Tetiana Tomarovych	
HOUSEHOLD FINANCIAL BEHAVIOR IN COUNTRIES WITH TRANSITION ECONOMIES: EFFECTS AND CONTRADICTIONS	856
Azer Babayev, Bogdan Stetsenko	
BRANDING OF CROATIAN ISLANDS ON SELECTED EXAMPLES.....	864
Ivana Bekic, Nina Bozickovic, Zrinka Mrkonjic	
BLOCKCHAIN TECHNOLOGY IN BANK'S ANTI-MONEY LAUNDERING.....	874
Atik Kerimov, Vitaliia Koibichuk, Serhii Mynenko	
MARKETING AND MANAGEMENT STRATEGIES FOR ENHANCING GREEN COMPETITIVENESS	884
Eldar Khanlarov, Olena Chygryn, Oleksii Lyulyov	
DEVELOPMENT OF METHODOLOGY AS PART OF APPLIED TOOLS FOR STRATEGIC RESEARCH AND ASSESSMENT OF INSTITUTIONAL STABILITY OF THE NATIONAL SECURITY SYSTEM	894
Venelin Terziev, Mitko Stoykov	
DIGITALIZATION OF THE BANKING ENVIRONMENT: FORMATION OF EFFECTIVE BANK ECOSYSTEMS.....	905
Fahri Mourshoudli, Natalya Bykanova, Denis Evdokimov	
LINKING BETWEEN FINANCIAL LITERACY AND EXTENDING OF FINTECH SERVICES.....	915
Mirdamad Sadigov, Olena Pakhnenko, Serhiy Lyeonov	

CYCLICAL FLUCTUATION IN MONEY LAUNDERING: CASE STUDY OF AZERBAIJAN, TAJIKISTAN, UKRAINE AND KAZAKHSTAN

Atik Kerimov

*Azerbaijan State University of Economics (UNEC)
Baku, Istiqlaliyyat str., 6, AZ1001, Azerbaijan
atik.kerimov@yandex.ru*

Anton Boyko

*Sumy State University
Sumy, Rimsky-Korsakov str., 2, 40007, Ukraine
a.boiko@uabs.sumdu.edu.ua*

Victoria Bozhenko

*Sumy State University
Sumy, Rimsky-Korsakov str., 2, 40007, Ukraine
v.roienko@uabs.sumdu.edu.ua*

ABSTRACT

The main purpose of the study is the estimation of the cyclical fluctuation of the environment in different countries, which forms there the preconditions for the money laundering. The relevance of the decision of this scientific problem is that the identification of peaks and recessions in money laundering is the basis for the formation of effective tools for its timely prevention and further minimization. Methodological tools of the research methods were decomposition and harmonic analysis. The information base of the study is the Basel Anti-Money Laundering Index, which describes the level of perception of corruption, the state of financial and public transparency, the risks of the political environment, etc. The object of research is the chosen Azerbaijan, Tajikistan, Ukraine and Kazakhstan, years of research 2009-2019. Investigation of cyclical fluctuation in money laundering in the paper is carried out in the following logical sequence: 1) identification of the trend and cyclical components of the market environment, which forms the preconditions for the money laundering, based on a decomposition and harmonious analysis of the Fourier series; 2) identification of market environment cycle parameters (peak, bottom, cycle duration); 3) estimation of volatility and inertia of the money laundering. The study empirically confirms and theoretically proves that cyclical fluctuation in money laundering is different for the studied countries, namely for Ukraine – 5 years, Tajikistan – 3 years, Kazakhstan – 4 years. Azerbaijan – no cycles detected. The developed methodological support allows applying the most effective instruments of counteraction to the money laundering in accordance with the stage of the cycle of the environment concerning money laundering, which will maximize their effectiveness in terms of neutralization of specific catalysts for the money laundering.

Keywords: *Cycle, Money laundering, Fluctuation, Decomposition, Harmonic analysis*

1. INTRODUCTION

The intensification of globalization processes, the advent of digital money, the liberalization of commodity and financial markets formed the basis for the intensification and growth of money laundering. The United Nations Office on Drugs and Crime estimates that the global money laundering was 2.7% of world GDP in 2009, while as of early 2019 this figure had almost doubled to about 5% of the world GDP or about \$2.0 trillion US, which is equivalent to annual GDP of countries such as Italy, Brazil, or Canada. The need to ensure counteraction to money laundering and to reduce the level of threats to the national security of countries requires

expanding and deepening the methodological tools for investigating this process, namely, assessing the cyclicity and volatility of the environment that forms the prerequisites for money laundering. A more detailed study of this process will allow developing effective tools and levers of state influence on countering money laundering, as well as forming a set of preventive measures to minimize the risk of money laundering.

2. LITERATURE REVIEW

The issue of counteracting money laundering and terrorist financing has been widely discussed in the scientific literature. Thus, in their papers, Sharman and Chaikin (2009), Sharman (2010), Levi and Reuter (2012), Levi et al. (2018) investigate the origins of illegal income, as well as methods and markets for their laundering. Moreover, the above authors paid considerable attention to the system of counteracting money laundering. Balakina, D'Andrea and Masciandaro (2017), Barone, Delle Side and Masciandaro (2018) focused on the study of international instruments for hiding criminal proceeds, namely the use of offshore countries in the process of money laundering in the context of globalization processes. One important area of research is to assess the risk of money laundering, both at the level of financial institutions and the state (Kostyuchenko et al., 2018). According to Dmytrov and Medvid (2017), it is advisable to make a national assessment of money laundering based on international rankings. Le Nguyen (2018) explores ways to combat money laundering through financial intermediaries that are actively involved in the process of money laundering. Scientists suggest an optimal strategy for maximizing the benefits of each participant in this process, including financial intermediaries, based on the evolutionary game. In addition, Le Nguyen (2018) suggests using preventive methods to combat the laundering of money in the context of their interaction with financial confidentiality. Arnone and Padoan (2008) considered it expedient to use methods of strict state management of the processes of countering money laundering. Thus, these authors analyze repressive measures against money laundering and the ability of countries to effectively apply these measures. Dobrovic et al. (2018), Tiutiunyk et al. (2019) examine the relationship between tax evasion and the process of money laundering and identify the most effective tools for a comprehensive fight against these phenomena of economic fraud. The analysis of scientific publications made it possible to identify the main factors contributing to the spread of money laundering around the world, namely: high level of shadow economy (Hrytsenko et al., 2018; Levchenko et al., 2018), corruption (Nguedie, 2018; Zakharkina and Abramchuk, 2018), aggravation of social tension and discontent in society (Kyrychenko et al., 2018), the emergence and active use of cryptocurrency for various transactions (Bilan, Đšuzmenko and Boiko, 2019; Bilan et al., 2019; Druhov, Druhova and Pakhnenko, 2019), the spread of cyberattacks (Lyeonov et al., 2018), the low level of openness of public finances (Logan and Esmanov, 2017; Grenčíková et al., 2019), the lack of conformity between the national legislation on combating money laundering and international standards and recommendations (Rubanov et al., 2019; Islam and Khan, 2019), low level of development of the financial system (Kozmenko and Kuzmenko, 2011; Zarutskya, 2018; Alikariev and Poliakh, 2018; Djalilov and Ngoc Lam, 2019), lobbying the interests of stakeholders through the owners and (or) top managers of financial institutions (Petrushenko, 2013; Vasylyeva et al., 2017) etc. Moreover, the lack of an adequate system of accountability of financial institutions to regulatory authorities creates the conditions for illegal transactions (Vasylyeva et al., 2017; Makarenko et al., 2017; Evana et al., 2019). Special attention should be paid to the scientific approach to assessing the volume of money laundering (Levchenko et al., 2019), which takes into account the operations through the real sector of the economy, state and local budgets, as well as the segment of financial intermediaries, adjusted for the level of shadowing of the economy and indicators of the quality and effectiveness of state regulation of the national economy. A separate area of research is devoted to state regulation of financial institutions in the context of

countering money laundering, as well as evaluating the effectiveness of regulatory agencies in the country. In particular, Subeh and Boiko (2018) proposed a methodological approach to assessing the effectiveness of the national system for countering money laundering and terrorism financing based on the provisions of the theory of queues. Despite a detailed study of the issue of money laundering, namely its nature, implementation features, and mechanism of minimization, scientists have not sufficiently disclosed the detailed aspects of its development. Thus, the cyclicity of money laundering has been studied only in fragments. Considerable attention is also paid to the cyclicity of economic processes by such scientists as (Bilan, Brychko, et al., 2019; Buriak et al., 2019), analyzing the relationship between the economic cycle and the confidence in financial institutions.

3. METHODOLOGY AND RESULTS

The determination of peaks and drops in the intensity of money laundering is the basis for the formation of effective tools for its timely prevention and subsequent minimization. The information base of the study is proposed to be formed based on the Basel AML Index (the Basel Anti-Money Laundering Index). This index includes 14 indicators, including:

- 1) Indicators of the quality of the state system for countering money laundering and terrorism financing. These indicators include data from the FATF Mutual Assessment Reports, the Financial Secrecy Index from the Tax Justice Network, and data from the US International Narcotics Control Strategy Report. This group of indicators has a share of 65% in the index.
- 2) The Corruption Perceptions Index, which has a share of 10%;
- 3) Indicators of financial transparency and standards: corporate transparency index, data from the WEF Global Competitiveness Report: the strength of standards for securities market regulation, and the World Bank's IDA resource allocation index. These indicators together have a 15% share in the Basel AML Index;
- 4) Indicators of public transparency and accountability (a share of 5%);
- 5) Indicators of political and legal risk (a share of 5%).

Thus, the analysis of the composition of the Basel AML Index provides an opportunity to assert a comprehensive characteristic of the process of money laundering using this complex indicator and, accordingly, the validity of its application in the study of the cyclical component of the prerequisites for the emergence of this process. Confirmation of the hypothesis about the differences in the cyclicity of money laundering for different countries will allow, in the future, forming a differentiated set of tools to combat financial fraud. Thus, the input information is summarized in Table 1.

Country	Year						
	2012	2013	2014	2015	2016	2017	2018
Azerbaijan	6.49	6.48	6.46	4.9	4.84	4.78	4.7
Tajikistan	8.12	8.27	8.34	8.26	8.19	8.28	8.3
Ukraine	6.62	6.47	6.55	6.56	6.57	6.52	6.06
Kazakhstan	5.12	5.94	5.94	5.93	5.88	6.42	6.36

Table 1: Dynamics of the Basel AML Index for Azerbaijan, Tajikistan, Ukraine, and Kazakhstan during 2012-2018

(Source: Data of Basel Institute on Governance)

The Basel AML Index is essentially a disincentive indicator, meaning that the higher its value, the more active is the process of money laundering in the country. The absolute values of this indicator (Table 1) indicate the slightest prerequisites for money laundering in Azerbaijan and the gradual reduction of the Basel AML Index during 2012-2018 in this country.

At the same time, the highest value of the Basel AML Index is typical for Tajikistan since the studied indicator did not decrease below 8.1 units during the study period. The authors consider the sequence of implementation of the methodological approach to assessing the cyclicity and volatility of the environment, which forms the prerequisites for money laundering. The first stage involves the study of the cyclical component of the risk of money laundering based on the Basel AML Index, which provides for the gradual implementation of the following steps:

- 1) Decomposition of the time series for assessing the risk of money laundering by filtering the trend and cyclical components;
- 2) Formalization of the trend component;
- 3) Evaluation of the cyclical component;
- 4) Visualization of the initial time series, as well as the trend and cyclical components;
- 5) Identification of characteristics such as peak, bottom, duration of the cycle (if confirmed).

The type of the trend component was initially determined, formalizing its specification by constructing an equation with a high coefficient of determination. Thus, for Azerbaijan, it is advisable to formalize the trend component of the time series of the Basel AML Index using a linear function (Fig. 1a, Table 2). In turn, the specification of the trend component of the time series of the Basel AML Index in the context of Tajikistan takes the form of a power function (Fig. 1b, Table 2), a polynomial function for Ukraine (Fig. 1c, Table 2), and a linear function for Kazakhstan (Fig. 1d, Table 2).

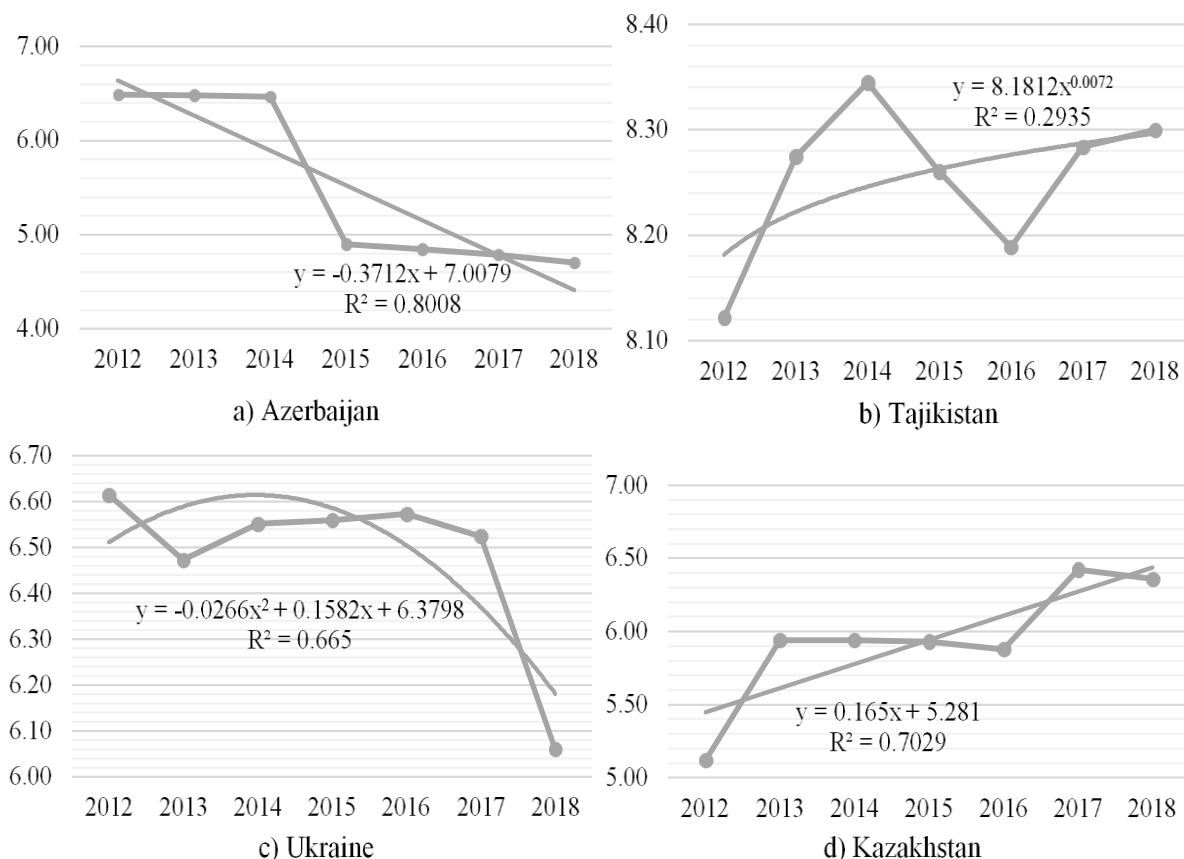


Figure 1: Visualization of the baseline time series of the Basel AML Index, trend and cyclical components in the context of Azerbaijan (a), Tajikistan (b), Ukraine (c), Kazakhstan (d) for the period from 2012 to 2018

(Source: proprietary calculations)

Country	Type of equation
Azerbaijan	$ALM_t^A = -0.3712 \cdot t + 7.0079$
Tajikistan	$ALM_t^T = 8,1812 \cdot t^{0.0072}$
Ukraine	$ALM_t^U = -0,0266 \cdot t^2 + 0.1582 \cdot t + 6.3798$
Kazakhstan	$ALM_t^K = 0.165 \cdot t + 5,281$

Legend: ALM_t^A , ALM_t^T , ALM_t^U , ALM_t^K – an indicator for assessing the risk of money laundering for the t-th year for Azerbaijan, Tajikistan, Ukraine, Kazakhstan, respectively; t – indicator of the year.

Table 2: Formalization of the trend component for the Basel AML Index in terms of the countries under consideration

(Source: proprietary calculations)

Having determined the trend component for each of the countries under consideration (Azerbaijan, Tajikistan, Ukraine, Kazakhstan) in the framework of the Basel AML Index, we will evaluate the cyclical component by subtracting the trend component calculated using the formulas in Table 1 from the original time series. The results of this step are shown in the lines marked as trend Table 3.

Country	Indicator	Year						
		2012	2013	2014	2015	2016	2017	2018
Azerbaijan	time series	6.49	6.48	6.46	4.9	4.84	4.78	4.7
	trend	6.64	6.27	5.89	5.52	5.15	4.78	4.41
	cyclical component	-0.14	0.22	0.57	-0.62	-0.31	0.00	0.29
Tajikistan	time series	8.12	8.27	8.34	8.26	8.19	8.28	8.3
	trend	8.18	8.22	8.25	8.26	8.28	8.29	8.30
	cyclical component	-0.06	0.05	0.10	0.00	-0.09	0.00	0.00
Ukraine	time series	6.62	6.47	6.55	6.56	6.57	6.52	6.06
	trend	6.51	6.59	6.62	6.59	6.51	6.37	6.18
	cyclical component	0.10	-0.12	-0.06	-0.03	0.07	0.15	-0.12
Kazakhstan	time series	5.12	5.94	5.94	5.93	5.88	6.42	6.36
	trend	5.45	5.61	5.78	5.94	6.11	6.27	6.44
	cyclical component	-0.33	0.33	0.16	-0.01	-0.23	0.15	-0.08

Table 3: Dynamics of the Basel AML Index, as well as its trend and cyclical components in terms of countries under consideration

(Source: proprietary calculations)

At the second stage, the authors will specify the cyclical component of the time series using the Fourier harmonic analysis, which allows describing the phenomenon of periodic recurrence using mathematical expressions and analyzing it. The harmonic analysis ignores the nature of seasonal fluctuations, and only the presence of the cyclical component in the dynamic series is important. Thus, the cyclical component is formalized using the Fourier harmonic analysis (the Fast Fourier Transform) for countries as follows:

- for Azerbaijan:

$$tt_j := -0.396 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{1}{4} + (-1) \cdot 0.611 \right] + -0.411 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{2}{16} + (1) \cdot 2.325 \right] \quad (1)$$

- for Tajikistan:

$$tt_j := 0.04 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{1}{4} + (-1) \cdot 1.565 \right] + 0.044 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{2}{8} + (-1) \cdot 2.247 \right] \quad (2)$$

- for Ukraine:

$$tt_j := 0.091 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{2}{8} + (1) \cdot 0.606 \right] + 0.086 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{3}{8} + (1) \cdot 1.654 \right] \quad (3)$$

- for Kazakhstan:

$$tt_j := 0.225 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{1}{4} + (-1) \cdot 2.194 \right] + 0.27 \cdot \cos \left[2 \cdot \pi \cdot j \cdot \frac{2}{4} + (1) \cdot 1.886 \right] \quad (4)$$

The volatility and persistence of time series were calculated as part of the third stage of the methodological approach to assessing the cyclical and volatility of the environment, which forms the prerequisites for money laundering. Absolute volatility is an indicator of the amplitude of fluctuations of the Basel AML Index, and its formal degree is the ratio of the span (the difference between the maximum and minimum possible levels of the original time series), weighted by the mean square deviation:

$$V_t^a = \frac{\max_t y_t - \min_t y_t}{S} \quad (5)$$

where V_t^a – absolute volatility;
 y_t – the level of the time series;
 S – standard (mean square) deviation of the time series.

Relative volatility is defined as the ratio of the absolute volatility of the country under consideration to the maximum value of absolute volatility among the countries under consideration. The level of persistence of the time series (Basel AML Index) was estimated based on the Hurst exponent. In theory, there are three different classifications for different Hurst exponents:

- at $0 < H < 0.5$ – an anti-persistent time series, i.e. a series in which there is an average return: if the system develops for a certain period, then the system's activity is expected to decline in the next period. The closer the H value is to zero, the more stable the system's fluctuations are.
- $H=0.5$ – corresponds to a stochastic time series;
- $0.5 < H < 1$ – persistent time series or trend-resistant series. This time series is characterized by the effect of the long memory. If the number has started to grow, we should expect further growth. If the number has started to decline, this trend will continue in the future.

The following Hurst metric is used to calculate persistence:

$$\frac{R}{S} = (\alpha \cdot N)^H \quad (6)$$

where H – the Hurst exponent;
 N – number of observation periods;
 α – a positive number, the specified constant.

Hence

$$H = \frac{\log \left(\frac{R}{S} \right)}{\log (\alpha \cdot N)} \quad (7)$$

where the scope of the accumulated deviation:

$$R = \frac{\max_{1 \leq u \leq N} Z_u - \min_{1 \leq u \leq N} Z_u}{\sigma_u} \quad (8)$$

$$Z_u = \sum_1^u (y_i - \bar{y}) \quad (9)$$

where \bar{y} – the arithmetic value of the time series;
 σ_u – the average square of the accumulated deviation.

Thus, turning to the definition of persistence in the time series of the Basel AML Index, it is first necessary to calculate the deviation of the current level of the time series from the mean over the study period. After interim calculations, the Hurst exponent for the Basel AML Index for the countries under consideration was determined, the results of which are presented in Table 4.

Country	Persistence			
	actual value		cyclical component	
Azerbaijan	0.2064	anti-persistent time series	X	X
	X	X	0.5895	persistent time series
Tajikistan	0.5938	persistent time series	X	X
	X	X	0.5644	persistent time series
Ukraine	0.6003	persistent time series	X	X
	X	X	0.4714	anti-persistent time series
Kazakhstan	0.6548	persistent time series	X	X
	X	X	0.5303	persistent time series

Table 4: Persistence of actual values and cyclical components of the time series of the Basel AML Index

(Source: proprietary calculations)

Thus, in the context of the countries under consideration, stochastic time series were not found either in actual data or in cyclical components. For those time series for which the Hurst exponent is less than 0.5 units, we can conclude that they are anti-persistent, i.e. a gradual return to the average level of the series and a change in the trend. For the growing time series, we should expect a decline in the future perspective and the opposite trend for declining time series. This applies to countries such as Azerbaijan – the downward trend during 2012-2017 will be replaced by a growing one, while for Russia (with the current growth in the prerequisites for money laundering) we should expect a decrease in this trend in the future. At the same time, countries such as Tajikistan, Ukraine and Kazakhstan were trend-resistant in the context of the Basel AML Index.

A separate area of research is the identification of the peak, bottom and duration of the cycle in the study of the environment, which forms the prerequisites for money laundering (table 5). Analyzing the characteristics of the prerequisites for money laundering within the countries with economies in transition, we note that Tajikistan has a typical cycle duration of three years, and the duration of the cycle of money laundering is the smallest in comparison with other countries.

Country	Characteristics of the money laundering process		
	Peak	Bottom	Cycle duration
Azerbaijan	2014	2015	not revealed
Tajikistan	2014,2017	2016	3 years
Ukraine	2012,2017	2013, 2018	5 years
Kazakhstan	2013, 2017	2016	4 years

Table 5: Peak, bottom and duration of the cycle of processes related to money laundering (Source: proprietary calculations)

4. CONCLUSION

The proposed method allows determining the cyclical fluctuations of the process of money laundering, namely its prerequisites, at the level of different countries of the world. This will allow predicting the peaks of laundering and neutralizing them in the future. The reliability of this task is confirmed by the determination that the laundering processes are not stochastic, and therefore predictable. The hypothesis that there are no individual prerequisites for the development of money laundering process depending on the country has been confirmed since the process of money laundering has an international character and is not limited to the territory of one country. Fraudsters from one country usually use financial institutions of several countries for money laundering, trying to hide the real sources of funds' origin. In addition, as it was established at the previous stages of the study, the reasons for the development of the money laundering process in the countries under consideration are both national prerequisites and global transformations. Thus, the proposed methodological approach and the obtained practical results provide the state financial monitoring agencies with the possibility to form strategic action plans for the implementation of the most effective tools for countering money laundering according to the stage of the cycle that forms the environment for money laundering.

ACKNOWLEDGEMENT: *This research was funded by the grant from the Ministry of Education and Science of Ukraine (No. s/r 10117U003930, 0118U003574, 0118U003569).*

LITERATURE:

1. Alikariev, O.F.U., Poliakh, S. (2018). Index of protection of the interests of consumers of the financial services market. *Business Ethics and Leadership*, 2(1), 78-95. doi: 10.21272/bel.2(1).78-95.2018
2. Arnone, M., Padoan, P. C. (2008). Anti-money laundering by international institutions: A preliminary assessment, *European Journal of Law and Economics*, 26, 361–386. doi: 10.1007/s10657-008-9069-3
3. Balakina, O., D'Andrea, A., Masciandaro, D. (2017). Bank secrecy in offshore centres and capital flows: Does blacklisting matter? *Review of Financial Economics*, 32, January, 30-57. doi: 10.1016/j.rfe.2016.09.005
4. Barone, R., Delle Side, D., Masciandaro, D. (2018). Drug trafficking, money laundering and the business cycle: Does secular stagnation include crime?, *Metroeconomica*, 69(2), 409-426. doi: 10.1111/meca.12193

5. *Basel AML Index*. Basel Institute on Governance. Retrieved 10.10.2019 from <https://index.baselgovernance.org/ranking>.
6. Bilan, Y., Brychko, M., *et al.* (2019). Financial, business and trust cycles: The issues of synchronization, *Zbornik Radova Ekonomskog Fakultet au Rijeci*, 37(1), 113-138. doi: 10.18045/zbefri.2019.1.113
7. Bilan, Y., Rubanov, P., *et al.* (2019). The influence of industry 4.0 on financial services: Determinants of alternative finance development, *Polish Journal of Management Studies*, 19(1), 70-93. doi: 10.17512/pjms.2019.19.1.06
8. Bilan, Y., Dšuzmenko, D., Boiko, A. (2019). Research on the impact of industry 4.0 on entrepreneurship in various countries worldwide, in *Proceedings of the 33rd International Business Information Management Association Conference, IBIMA 2019: Education Excellence and Innovation Management through Vision 2020*.
9. Buriak, A. *et al.* (2019). Social trust and institutional (Bank) trust: Empirical evidence of interaction, *Economics and Sociology*, 12(4), 116-129. doi: 10.14254/2071-789X.2019/12-4/7
10. Djalilov, Kh., Ngoc Lam, T. (2019). Ownership, Risk and Efficiency in the Banking Sector of the ASEAN Countries. *Financial Markets, Institutions and Risks*, 3(2), 5-16. doi: 10.21272/fmir.3(2).5-16.2019
11. Dmytrov, S., Medvid, T. (2018). An approach to the use of indices-based analysis subject to money laundering and terrorist financing national risk assessment. *SocioEconomic Challenges*, 1(1), 35-47.
12. Dobrovic J., Koraus, A., Rajnoha, R. (2018). Activity management of the action plan for a sustainable fight against tax fraud and tax evasion in Slovakia as compared with the EU. *Marketing and Management of Innovations*, 3, 313-323. doi:10.21272/mmi.2018.3-28
13. Druhov, O., Druhova, V., Pakhnenko, O. (2019). The influence of financial innovations on EU countries banking systems development, *Marketing and Management of Innovations*, 3, 167-177. doi: 10.21272/mmi.2019.3-13
14. Evana, E., Metalia, M., Mirfazli, E., Georgieva, D. V., Sastrodiharjo, I. (2019). Business Ethics in Providing Financial Statements: The Testing of Fraud Pentagon Theory on the Manufacturing Sector in Indonesia. *Business Ethics and Leadership*, 3(3), 68-77. doi: [https://doi.org/10.21272/bel.3\(3\).68-77.2019](https://doi.org/10.21272/bel.3(3).68-77.2019)
15. Grenčíková, A. *et al.* (2019). Drivers and inhibitors of entrepreneurship development in central and eastern European countries', in *Proceedings of the 33rd International Business Information Management Association Conference, IBIMA 2019: Education Excellence and Innovation Management through Vision 2020*.
16. Islam, S.T., Khan, M.Y.H. (2019). Evaluating the changes in the European Banking Regulation – MiFID and its possible effects on the Global Economy: A Theoretical Study. *Financial Markets, Institutions and Risks*, 3(4), 24-31. doi: 10.21272/fmir.3(4).24-31.2019
17. Hrytsenko, L.L., Roienko, V.V., Boiarko, I.M. (2018). Institutional background of the role of state in investment processes activation. *Financial and credit activity: problems of theory and practice*, 1(24), 338-344. doi: 10.18371/fcaptp.v1i24.128465
18. Kostyuchenko, N. *et al.* (2018). Methodical approach to the assessment of risks connected with the legalization of the proceeds of crime. *Montenegrin Journal of Economics*, 14(4), 23-43. doi: 10.14254/1800-5845/2018.14-4.2
19. Kozmenko, O., Kuzmenko, O. (2011). Using structural modeling for studying the indicators of insurance and banking services markets. *Actual Problems of Economics*, 119(5), 284-292.
20. Kyrychenko, K., Samusevych, Y., Bagmet, K. (2018). Innovations in country's social development level estimation. *Marketing and Management of Innovations*, 2, 113-128. doi:10.21272/mmi.2018.2-10

21. Levi M., Reuter, P. Money Laundering. In *The Oxford Handbook of Crime and Public Policy*. Oxford University Press. 2012. 1-30.
22. Levi M., Reuter, P., Halliday, T. (2018). Can the AML system be evaluated without better data? *Crime, Law and Social Change*, 69(2), 307-328.
23. Levchenko, V. *et al.* (2019). State Regulation of the Economic Security by Applying the Innovative Approach to its Assessment, *Marketing and Management of Innovations*, 4, 364-372. doi: 10.21272/mmi.2019.4-28
24. Levchenko, V., Kobzieva, T., Shlapko, T. (2018). Innovations in assessing the efficiency of the instruments for the national economy de-shadowing: the state management aspect. *Marketing and Management of Innovations*, 4, 361-371. doi:10.21272/mmi.2018.4-31
25. Lyeonov, S., Kuzmenko, O., Dotsenko, T. (2019). The Innovative Approach to Increasing Cybersecurity of Transactions Through Counteraction to Money Laundering. *Marketing and Management of Innovations*, 3, 308-326. doi:10.21272/mmi.2019.3-24
26. Logan, W., Esmanov, O. (2017). Public financial services transparency. *Business Ethics and Leadership*, 1(2), 62-67. doi: 10.21272/bel.1(2).62-67.2017
27. Le Nguyen, C. (2018). Preventing the use of financial institutions for money laundering and the implications for financial privacy. *Journal of Money Laundering Control*, 21(1), 47-58. doi: 10.1108/JMLC-01-2017-0004
28. Nguedie, Y.H.N. (2018). Corruption, Investment and Economic Growth in Developing Countries: A Panel Smooth Transition Regression Approach. *SocioEconomic Challenges*, 2(1), 63-68. DOI: 10.21272/sec.2(1).63-68.2018
29. Petrushenko Y. (2013). Peculiarities of Implementing of the corporate social responsibility concept in the national economy of Ukraine. *Journal of institutional studies*, 5 (1), 92-107.
30. Rubanov, P. *et al.* (2019). Cluster analysis of development of alternative finance models depending on the regional affiliation of countries. *Business & Economic Horizons*, 15(1), 90-106. doi: 10.22004/ag.econ.287251
31. Sharman, J. (2010). Offshore and the new international political economy. *Review of International Political Economy*, 17(1), 1-19. doi: 10.1080/09692290802686940
32. Sharman, J.C., Chaikin, D. (2009). Corruption and anti-money-laundering systems: Putting a luxury good to work. *Governance*, 22(1), 27-45. doi: 10.1111/j.1468-0491.2008.01420.x
33. Subeh, M., Boiko, A. (2017). Modeling efficiency of the State Financial Monitoring Service in the context of counteraction to money laundering and terrorism financing. *SocioEconomic Challenges*, 1(2), 39-51.
34. Tiutiunyk, I. *et al.* (2019). Innovations in the management of tax gaps in the economy: foreign economic component. *Marketing and Management of Innovations*, 3, 112-125. doi: 10.21272/mmi.2019.3-09
35. Zakharkina, L., Abramchuk, M. (2018). The correctness of the capm-model application in the Ukrainian reality in terms of investors financial security. *Baltic Journal of Economic Studies*, 4(1), 63-168. doi:10.30525/2256-0742/2018-4-1-163-168
36. Zarutskaya El. (2018). Structural-functional analysis of the Ukraine banking system. *Financial Markets, Institutions and Risks*, 2(1), 79-96.
37. Vasylyeva, T. A. *et al.* (2017). Bank 3.0 Concept: global trends and implications. *Financial and credit activity: problems of theory and practice*, 22(1), 4-10. doi: 10.18371/fcaptp.v1i22.107714.
38. Vasilyeva, T.A., Makarenko, I.A. (2017). Modern innovations in corporate reporting. *Marketing and Management of Innovations*, 1, 115–125. doi: 10.21272/mmi.2017.1-10
39. Vasylyeva, T.A., Leonov, S.V., Makarenko, I.O. (2017). Modern methodical approaches to the evaluation of corporate reporting transparency. *Scientific bulletin of Polissia*, 2, 1(9)), 185–190. doi: 10.25140/2410-9576-2017-2-1(9)-185-190