"Determinants of anti-money laundering system's effectiveness in Ukraine: Insights from factorial and regression analysis"

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DETERMINANTS OF ANTI-MONEY LAUNDERING SYSTEM'S EFFECTIVENESS IN UKRAINE: INSIGHTS FROM FACTORIAL AND REGRESSION ANALYSIS

Abstract

The effectiveness of anti-money laundering systems is vital for national economic resilience, especially in transitional economies facing wartime challenges, such as Ukraine. This study aims to identify key managerial determinants of the effectiveness of Ukraine's anti-money laundering and counter-terrorist financing (AML/CFT) system and to develop evidence-based recommendations for improving its performance. Based on data from Ukrainian national institutions for the period 2011–2023, the study employs principal component analysis and multiple linear regression to evaluate 44 statistical indicators related to institutional workload, procedural efficiency, and inter-agency coordination. The findings reveal that a small set of indicators, including the volume of suspicious transaction reports from non-banking institutions, the number of dossiers compiled, and the backlog of unresolved judicial cases, explain over 70% of the system's output variance. The final model exhibits high explanatory power ($R^2 = 0.963$), underscoring the importance of prioritizing high-impact operational metrics. The study concludes that targeted procedural reforms and enhanced coordination between institutions can significantly strengthen AML/CFT outcomes in fragile and reforming contexts.

Keywords	AML/CFT, financial monitoring, Ukraine, efficiency, regression analysis, factor analysis
JEL Classification	H83, K42, O17

INTRODUCTION

Anti-money laundering and counter-terrorist financing (AML/CFT) systems are vital instruments for ensuring national economic security and combating illicit financial activities, including money laundering and the financing of terrorism. International organizations such as the Financial Action Task Force stress that effective AML/CFT mechanisms are fundamental to both national stability and global financial integrity. According to FATF assessments (FATF, 2023), countries with strong AML/CFT frameworks are more resilient to organized crime and cross-border illicit financial flows. In contrast, institutional weaknesses in AML/CFT create vulnerabilities that facilitate the movement and integration of illicit capital. Complementary research by the World Bank and the International Monetary Fund (2005) affirms that well-managed financial intelligence systems enhance economic security by strengthening transparency, reducing corruption, and supporting law enforcement through effective detection and investigation of complex financial crimes.

In Ukraine, the AML/CFT system is functionally embodied in the national financial monitoring system, which serves as the primary in-

stitutional mechanism for detecting, preventing, and countering illicit financial flows. The role of this system has become even more critical amid conditions of full-scale Russia-Ukraine war, heightened economic turbulence, and institutional stress. The war has intensified the risks of corruption, smuggling, illegal arms trade, and the misuse of humanitarian and reconstruction funds. These challenges have significantly increased the demands placed on Ukraine's financial monitoring (AML/CFT) system. Simultaneously, institutional capacity has been strained by budgetary reallocations, human resource shortages, and disruptions to inter-agency coordination. These factors have challenged the effectiveness and responsiveness of Ukraine's AML/CFT system, necessitating urgent analysis of its structural resilience. While pre-war reforms, driven by European integration and global AML/CFT obligations, led to measurable improvements in technical compliance, the ongoing war has profoundly tested the system's operational resilience. According to MONEYVAL (2020), Ukraine has made notable progress in aligning its AML/CFT system with FATF standards. However, persistent challenges remain, particularly in implementing risk-based supervision, enhancing inter-agency cooperation, and ensuring transparency of beneficial ownership.

In this context, assessing the AML/CFT system is not only a technical necessity but also a strategic imperative. Understanding how this system performs under the extreme stress of wartime conditions is essential to identifying structural and managerial weaknesses that hinder its effectiveness. This study addresses this gap by empirically examining the factors that shape the performance of Ukraine's AML/CFT system and proposing data-driven recommendations for strengthening its institutional capacity during and after wartime.

1. LITERATURE REVIEW

The effectiveness of AML/CFT systems is increasingly examined in the context of global digitalization, shifting geopolitical landscapes, and intensifying cross-border financial threats. This trend reflects growing recognition of the need for resilient and adaptive oversight mechanisms to combat financial crime and support economic governance. Recent studies confirm the multidimensional nature of AML/CFT, addressing institutional integrity, behavioral risks, technological adaptation, and governance structures (Pulungan et al., 2024; Vyas-Doorgapersad, 2024; Kawedar et al., 2025; Steenbergen et al., 2023; Ishwardat et al., 2024).

Financial oversight systems are often weakened by deep-rooted corruption and socio-economic vulnerability, which undermine their credibility and effectiveness. Researchers emphasize that structural limitations, individual predispositions, and ethical lapses continue to enable money laundering and financial fraud. These arguments are supported by Pulungan et al. (2024), who explore the behavioral-environmental determinants of corruption and laundering, and by Kawedar et al. (2025), who use fraud triangle theory to assess motivational factors behind illicit financial actions. Vyas-Doorgapersad (2024) similarly critiques the inefficiency of systemic anti-corruption responses. Steenbergen et al. (2023) and Ishwardat et al. (2024) offer further insights into how organizational culture and leadership impact regulatory compliance and ethical performance.

Periods of crisis, particularly armed conflicts, significantly increase the strain on AML/CFT institutions and create new channels for illicit financial activity. Scholars point out that war intensifies cyber threats, weakens institutional coordination, and heightens the misuse of public funds. These conclusions are supported by Yarovenko et al. (2024a), who demonstrated how wartime conditions exacerbate fraud risks in environments with low judicial maturity. Dobrovolska et al. (2024) further highlight how disruptions in one sector, such as health, can cascade into financial vulnerability. The international scope of these concerns is addressed by Kuzior et al. (2024b), who analyze illicit flows from local authorities, and Yarovenko et al. (2024b), who assess resilience in anti-fraud strategies across developed nations. These challenges are also reflected in studies examining the impact of armed conflict on academic institutions and their resources (Plastun & Kozmenko, 2025).

Technological transformation, especially the spread of digital finance, is reshaping the conceptual and operational foundations of AML/CFT. Researchers emphasize that integrating decentralized technologies, artificial intelligence, and cybersecurity measures is no longer optional but essential. Zámek and Zakharkina (2024) demonstrate how digitalization has altered national security paradigms. Asare and Samusevych (2023) show the links between fintech tools and financial fraud, while Kuzior et al. (2022) stress the importance of transparency and cybersecurity in AML efforts. Mustafa (2024) and Kuzmenko et al. (2023a) call for a rethink of monitoring models in light of digital decentralization. Lyeonov et al. (2024, 2025) highlight the dual role of AI as a regulatory tool and a potential facilitator of fraud. Burton and Moore (2024) warn of new social engineering schemes such as "pig butchering," and Holtfort and Horsch (2024) advocate for the inclusion of quantum economics to address future financial complexities.

The effectiveness of AML/CFT systems also depends on the strength of internal audit mechanisms and regulatory tools. Scholars argue that improvements in audit automation and corporate oversight can reinforce institutional accountability. This view is supported by Alassuli (2025), who examines robotic process automation in internal auditing, and Kurniasari and Lestari (2025), who analyze governance reforms in the insurance sector. Shonhadji and Irwandi (2023) assess anti-fraud frameworks in Indonesian banks, while Hauptman et al. (2024) demonstrate how behavioral economics shapes tax compliance. Mong and Thanh (2025) provide further evidence on the relationship between leadership, legal compliance culture, and organizational trust in the banking sector. Together, these studies underline the importance of well-designed, incentive-aligned monitoring systems.

Policy coherence and institutional maturity are recognized as foundational to sustainable AML performance. Scholars increasingly argue that current AML frameworks overemphasize formal compliance while underdelivering actual enforcement outcomes. Dalla Pellegrina and Masciandaro (2009) critique the rigidity of EU AML legislation and advocate for the adoption of risk-based approaches. Similar concerns are raised by Kuzmenko et al. (2023b), who stress the need for maturity assessments to address cyber-financial fraud. Tsingou (2010) and Pol (2018, 2020) argue that AML policies often prioritize box-ticking over impact. Bozhenko et al. (2022) highlight how poor institutional design contributes to corruption risks. Soudijn (2016) and Aldabousi (2025) extend these arguments by showing how AML regulation fails in unconventional or emerging sectors.

Macroeconomic conditions, institutional learning, and socio-cultural factors significantly shape AML/CFT effectiveness. Researchers argue that AML efforts cannot be detached from broader systemic and behavioral contexts. Eratalay and Kaasa (2024) explore how cultural values affect consumer trust in financial systems. Garbowski et al. (2019) and Kotina et al. (2023) demonstrate how fiscal and macroeconomic policies intersect with monitoring practices. Ishwardat et al. (2024) and Allen et al. (2021) show how fintech innovation outpaces regulatory frameworks. Vasilyeva et al. (2021) employed data mining to document the impact of COVID-19 and digitalization on AML governance, while Khrais (2025) highlighted the challenges of AML enforcement in the context of InsurTech and e-commerce integration in Gulf countries.

The Ukrainian case is particularly illustrative of how war, reform, and digitalization intersect to influence AML/CFT outcomes. Scholars observe that Ukraine's wartime context has led to the reconfiguration of financial behaviors, institutional priorities, and risk exposure. Polishchuk et al. (2024) examine how war reshapes public financial behavior, while Koroshchenko (2024) reviews principles of administrative adaptation. Mańka-Szulik et al. (2023) provide evidence of insurance market vulnerabilities through fractal analysis. Kuznetsov et al. (2020) introduce a novel digital signature system for post-quantum security, and Kuzior et al. (2024a) chart cybersecurity and cybercrime trends in the country's financial sector. In this context, the role of information technologies in developing effective knowledge management systems, as discussed by Polyakov et al. (2020), becomes a vital factor for strengthening institutional resilience and improving data-driven decision-making in the face of ongoing challenges.

The existing body of literature demonstrates that effective AML/CFT systems depend on the alignment of institutional design, technological integration, crisis resilience, and cultural awareness.

Despite advances in policy and technology, systemic corruption, cyber threats, and political instability continue to hinder progress. These findings collectively underscore the urgency of building flexible, intelligence-based AML/CFT systems, especially in transitional and conflict-affected states like Ukraine.

This study aims to identify key managerial determinants of the effectiveness of Ukraine's AML/CFT system and to develop scientifically grounded recommendations for improving its management based on factorial and regression analysis of empirical data from 2011 to 2023.

2. METHODOLOGY

To achieve the aim of this study, a comprehensive quantitative-analytical approach was employed, combining factorial and regression analyses. The methodology was designed to describe and explain the statistical relationships among various operational and managerial indicators collected from Ukrainian national institutions over the period from 2011 to 2023.

2.1. Data collection

The study utilized 44 indicators representing the activities of key institutions involved in Ukraine's AML/CFT system (Table A1). These included the State Financial Monitoring Service of Ukraine (n.d.), the National Bank of Ukraine (n.d.), the National Securities and Stock Market Commission (NSSMC, n.d.), the Prosecutor General's Office of Ukraine (n.d.a, n.d.b), and national judicial institutions (The Judiciary of Ukraine, n.d.). The indicators cover various functions, including the number of suspicious transaction reports, dossiers compiled, financial intelligence exchanges, inspection counts, legal case outcomes, and supervisory measures.

2.2. Factor analysis

The first phase of the new method for assessing the effectiveness of the AML/CFT system is to determine the appropriateness of including or not including the statistical indicators selected for analysis in the model, that is, identifying relevant indicators based on the performance of a factor analysis of

data characterizing the AML/CFT system. In this case, the principal components method was chosen to implement the factor analysis. The first stage of this study involves generating a set of input data using indicators (Table A1). At the second stage of the methodology, the importance of indicators (also referred to as factors in the context of factor analysis) among the studied dataset is determined. This stage is based on the application of the principal components method as one of the key tools in economic research, which is especially appropriate when it is necessary to reduce the dimensionality of the data set while preserving as much information as possible. The implementation of this stage is proposed to be performed in the Statistica software, using the Principal Components & Classification Analysis toolkit.

Thus, a scree graph and an eigenvalue matrix were built to establish in graphical and tabular form the optimal number of principal components in the model. The total variance of influence in terms of factors is at least 70% for economic research; a table of factor loadings, together with the variance of the influence of factors, is used for further calculation of weighting coefficients for ranking the importance of indicators of Ukraine's AML/CFT system. The third stage of the methodology determines the priorities of indicators of Ukraine's AML/CFT system based on the calculation of weighting coefficients for the selected array of factors. This stage is proposed to be implemented using MS Excel. Weighting coefficients are calculated according to Equation 1 (Kuzior et al., 2024b):

$$wk_i = \frac{\sum_{z=1}^{b} fl_{iz} \cdot \sigma_z^2}{\sum_{i=1}^{a} \sum_{z=1}^{b} fl_{iz} \cdot \sigma_z^2}, \qquad (1)$$

where wk_i – weight coefficients of importance of the i-th indicator of Ukraine's AML/CFT system; fl_{iz} – factor loading of the z-th factor in terms of the i-th indicator; σ_z^2 – dispersion of the influence of the z-th factor.

2.3. Regression modeling

The second phase of the innovative method for evaluating the analysis of the effectiveness of the AML/CFT system is to determine the relevant factors of the AML/CFT system's activity that affect

the effectiveness of the AML/CFT system. In addition, it is crucial to justify the feasibility of including them in the model and to quantitatively represent the degree and direction of variation in the effectiveness of the AML/CFT system under the influence of the established relevant factors based on the implementation of regression analysis of the data using the Sigma-limited parameterization method. It includes conducting a Single-factor significance test and constructing a Pareto Diagram, data correlation analysis techniques, and the OLS method for constructing multiple linear regression.

In the first stage, the input indicators are divided into factorial and effective indicators, where FM1-FM44 act as factorial indicators that characterize the activities of Ukraine's AML/CFT system, FM (number of decisions and instructions of the SFMS to suspend financial transactions) acts as an effective indicator that characterizes the effectiveness of the AML/CFT system. Factor characteristics are formed by groups:

- statistical data on financial transactions reflecting the activities of the SFMS (FM1-FM4);

- general accounting information characterizing the activities of the SFMS (FM20-FM22);

- indicators of the efficiency of the SFMS (FM5-FM9);

- indicators of the flow of the SFMS (FM10-FM12);

- indicators of the NBU regarding financial markets (FM23-FM26);

- indicators of the NSSMC regarding financial markets (FM27-FM30);

- indicators of the Prosecutor General's Office of Ukraine regarding financial markets (FM31-FM36);

- indicators of the courts regarding financial markets (FM37-FM44);

- indicators of the non-banking sector in terms of financial markets, reflecting the activities of the SFMS (FM13-FM19).

The second stage is to determine the relevant factors of the AML/CFT system that affect the effectiveness of the AML/CFT system. The study employs the Sigma-constrained parameterization method, combined with a Single-factor significance test and the construction of a Pareto Chart, as a filtering tool to identify insignificant factors. This approach leaves only factors with a significant impact on the system for further analysis. Specifically, the analysis identifies the most influential variables among the presented set, allowing the classification of factors according to their influence on the resulting feature and the priority of the influence force (Dobrovolska et al., 2024).

The third stage is a correlation analysis, which plays an important role in identifying relevant factors of the AML/CFT system that affect the effectiveness of the AML/CFT system. This type of data analysis is one of the key statistical methods used in economic research to assess the presence and strength of the relationship between the economic indicators under study, that is, to establish how changes in one variable are related to changes in another variable (Dotsenko et al., 2023). The Statistica software is employed, using the Correlation matrices toolkit. Correlation analysis involves constructing a correlation matrix in which correlation coefficients are formed between indicators. Their values describe the strength of the relationship between the studied features, namely:

- above 0.9 in absolute value – very strong relationship;

- from 0.7 to 0.9 – strong relationship;

- from 0.5 to 0.7 – medium relationship;

- from 0.3 to 0.5 – weak relationship;

- from 0.1 to 0.3 – very weak relationship;

- up to 0.1 – almost no relationship.

The fourth stage is the further optimization of the composition of the most influential factors of the model by analyzing the relevant factors of the AML/CFT system. Here, their mutual influence is taken into account using a single-factor significance test and a Pareto diagram. The study further identifies the strength and direction of the influ-

ence of the selected relevant factors on the effectiveness of the AML/CFT system by constructing a multiple linear regression model using the least squares method (OLS method).

It is emphasized that when identifying relevant factors at the previous stages, the mutual influence of factors on each other was not investigated. This is proposed to be implemented by using a single-factor significance test and a Pareto diagram for the set of selected relevant factors.

The construction of multiple linear regression is proposed in the Statistica software using the Multiple Regression toolkit. Multiple linear regression, constructed by the method of least squares (OLS method), is one of the most common statistical methods for analyzing economic data to identify relationships between the dependent and independent variables (Dotsenko et al., 2023). The adequacy and accuracy of the model are confirmed by the level of the coefficient of determination, *p*-level, Fisher's test, and the normal distribution of the residuals.

2.4. Software and tools

All data processing, factor analysis, and regression modeling were conducted using Statistica, Microsoft Excel, and supplementary Python scripts for data cleaning and visualization. Internal consistency and robustness checks were performed to ensure the validity of the findings.

2.5. Limitations and assumptions

While this methodology provides strong empirical insights, it is limited by the availability and consistency of national statistical data. It does not include qualitative variables such as institutional culture or staff training quality. The model assumes linear relationships and may not fully capture dynamic interactions among systemic variables.

3. RESULTS

3.1. Factor analysis

The input data generated at the first stage, which characterize the activities of Ukraine's AML/CFT system, are presented in Table A2.

In the second stage, the significance of the examined factors within the AML/CFT system was assessed. The analysis of the scree plot (Figure 1) and the eigenvalue matrix (Table 1) indicates that the first three principal components should be retained for the subsequent calculation of weighting coefficients for the system's indicators. These three components together explain over 70% of the total variance, which is considered an acceptable threshold in economic research.
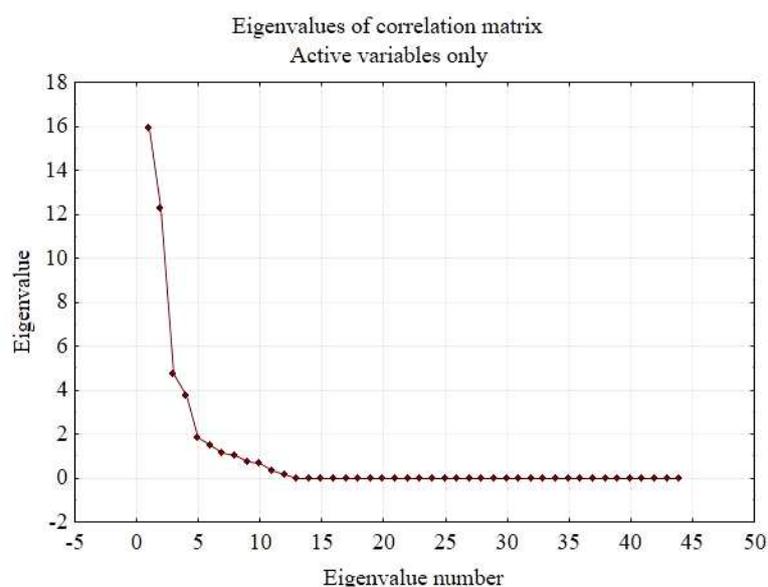

Figure 1. Scree plot – Graphical visualization of principal components

Table 1. Eigenvalue matrix – Tabular representation of principal components

Value number	Eigenvalues of the correlation matrix and related statistics. Active variables only			
	Eigenvalue	% Total variance	Cumulative Eigenvalue	Cumulative %
1	**15.94**	**36.23**	**15.94**	**36.23**
2	**12.26**	**27.86**	**28.20**	**64.10**
3	**4.70**	**10.69**	**32.91**	**74.78**
4	3.73	8.48	36.64	83.27
5	1.83	4.16	38.47	87.43
6	1.47	3.34	39.94	90.77
7	1.13	2.57	41.07	93.33
8	1.03	2.34	42.10	95.67
9	0.75	1.71	42.85	97.38
10	0.65	1.48	43.50	98.86
11	0.33	0.76	43.83	99.62
12	0.17	0.38	44.00	100.00

Note: Items in bold mean the main components that allow to obtain variances of influence at the level of more than 70%, which must be taken into account for further calculation.

Table A3, with factor loadings formed at this stage, serves as the basis for calculating the weighting coefficients of the performance indicators of Ukraine's AML/CFT system.

The result of the third stage is presented in Table 2. Calculations for determining weight coeffi- cients based on the use of previously established factor loadings in the context of 44 indicators for the first three main components established at the previous stage and estimated weight coeffi- cients for the indicators of Ukraine's AML/CFT system selected in the study.

Table 2. Summary of interim calculations for determining weight coefficients of indicators of Ukraine's AML/CFT system with estimated values of weight coefficients

Variance of the influence of factors	36,2343	27,8625	10,6881	–	Variance of the influence of factors	36,2343	27,8625	10,6881	–
Variable	**Factor 1**	**Factor 2**	**Factor 3**	**Weighting factors**	**Variable**	**Factor 1**	**Factor 2**	**Factor 3**	**Weighting factors**
FM1	0.0149	0.0479	0.0166	**2.7439%**	FM23	0.0165	0.0460	0.0150	**2.7295%**
FM2	0.0270	0.0005	0.0770	**2.4252%**	FM24	0.0297	0.0210	0.0000	**2.2233%**
FM3	0.0126	0.0089	0.0001	**0.9419%**	FM25	0.0449	0.0003	0.0060	**2.2740%**
FM4	0.0011	0.0407	0.0449	**2.2106%**	FM26	0.0038	0.0000	0.1140	**1.8162%**
FM5	0.0036	0.0266	0.0270	**1.5504%**	FM27	0.0144	0.0342	0.0048	**2.0416%**
FM6	0.0177	0.0002	0.0073	**0.9693%**	FM28	0.0098	0.0531	0.0133	**2.6448%**
FM7	0.0016	0.0037	0.1372	**2.1730%**	FM29	0.0352	0.0063	0.0000	**1.9386%**
FM8	0.0153	0.0466	0.0101	**2.6223%**	FM30	0.0285	0.0242	0.0041	**2.3401%**
FM9	0.0396	0.0005	0.0032	**1.9839%**	FM31	0.0489	0.0000	0.0000	**2.3728%**
FM10	0.0493	0.0067	0.0097	**2.7772%**	FM32	0.0501	0.0000	0.0000	**2.4274%**
FM11	0.0237	0.0150	0.0000	**1.7074%**	FM33	0.0423	0.0000	0.0006	**2.0565%**
FM12	0.0107	0.0372	0.0078	**2.0181%**	FM34	0.0284	0.0168	0.0126	**2.1836%**
FM13	0.0337	0.0263	0.0125	**2.7888%**	FM35	0.0493	0.0001	0.0000	**2.3954%**
FM14	0.0506	0.0045	0.0016	**2.6453%**	FM36	0.0505	0.0000	0.0000	**2.4473%**
FM15	0.0074	0.0480	0.0191	**2.4182%**	FM37	0.0165	0.0297	0.0468	**2.5739%**
FM16	0.0144	0.0447	0.0395	**2.9265%**	FM38	0.0099	0.0576	0.0027	**2.6621%**
FM17	0.0163	0.0279	0.0024	**1.8661%**	FM39	0.0107	0.0001	0.0145	**0.7284%**
FM18	0.0031	0.0529	0.0415	**2.7112%**	FM40	0.0131	0.0055	0.1052	**2.3420%**
FM19	0.0115	0.0000	0.0653	**1.4894%**	FM41	0.0436	0.0003	0.0558	**2.9192%**
FM20	0.0167	0.0459	0.0148	**2.7301%**	FM42	0.0102	0.0641	0.0001	**2.8832%**
FM21	0.0166	0.0460	0.0150	**2.7309%**	FM43	0.0048	0.0635	0.0167	**2.8394%**
FM22	0.0375	0.0107	0.0302	**2.6500%**	FM44	0.0141	0.0357	0.0047	**2.0808%**

The results of the weight coefficients show that the following indicators have the greatest influence on the system of indicators of Ukraine's AML/CFT system: FM16 – 2.9265%; FM41 – 2.9192%; FM42 – 2.8832%; FM43 – 2.8394%; FM13 – 2.7888%; FM10 – 2.7772%; FM1 – 2.7439%; FM21 – 2.7309%; FM20 – 2.7301%; FM23 – 2.7295%; FM18 – 2.7112%; FM38 – 2.6621%. These factors are the most relevant and are proposed to be selected for further research.

3.2. Regression modeling

The input data used in this phase of the study, characterizing the activities of Ukraine's AML/CFT system, are presented in Table 1.

The results of the second stage are presented in Table A4 and Figure 2, which contain the values from the one-factor significance test and the Pareto diagrams illustrating the impact of AML/CFT system factors on its effectiveness.

Analysis of the data in Table A4 shows that five factors of the activity of Ukraine's AML/CFT system are statistically significant in relation to the indicator of the effectiveness of the AML/CFT system, which contributed the greatest effect to the overall model: FM2, FM7, FM26, FM38, and FM44. This is confirmed by the significance levels of p (p2 = 0.0164, p7 = 0.0281, p26 = 0.0177, p38 = 0.0159, and p44 = 0.0218), which are less than the critically acceptable level of $p = 0.05$; high values of Fisher's criteria (F2 = 9.1512, F7 = 7.6207, F26 = 8.8549, F38 = 16.1274, and F44 = 13.2947); the largest values of the sums of squared deviations (SS2 = 5,708,982, SS7 = 5,236,367, SS26 = 4,990,379, SS38 = 3,071,930, and SS44 = 2,532,370). Other effect contributions are observed to be statistically insignificant and are ranked in groups as follows (in decreasing order of influence): FM4, FM1, FM3; FM22, FM21, FM20; FM6, FM9, FM8, FM5; FM10, FM11, FM12; FM25, FM23, FM24; FM29, FM30, FM27, FM28; FM34, FM33,
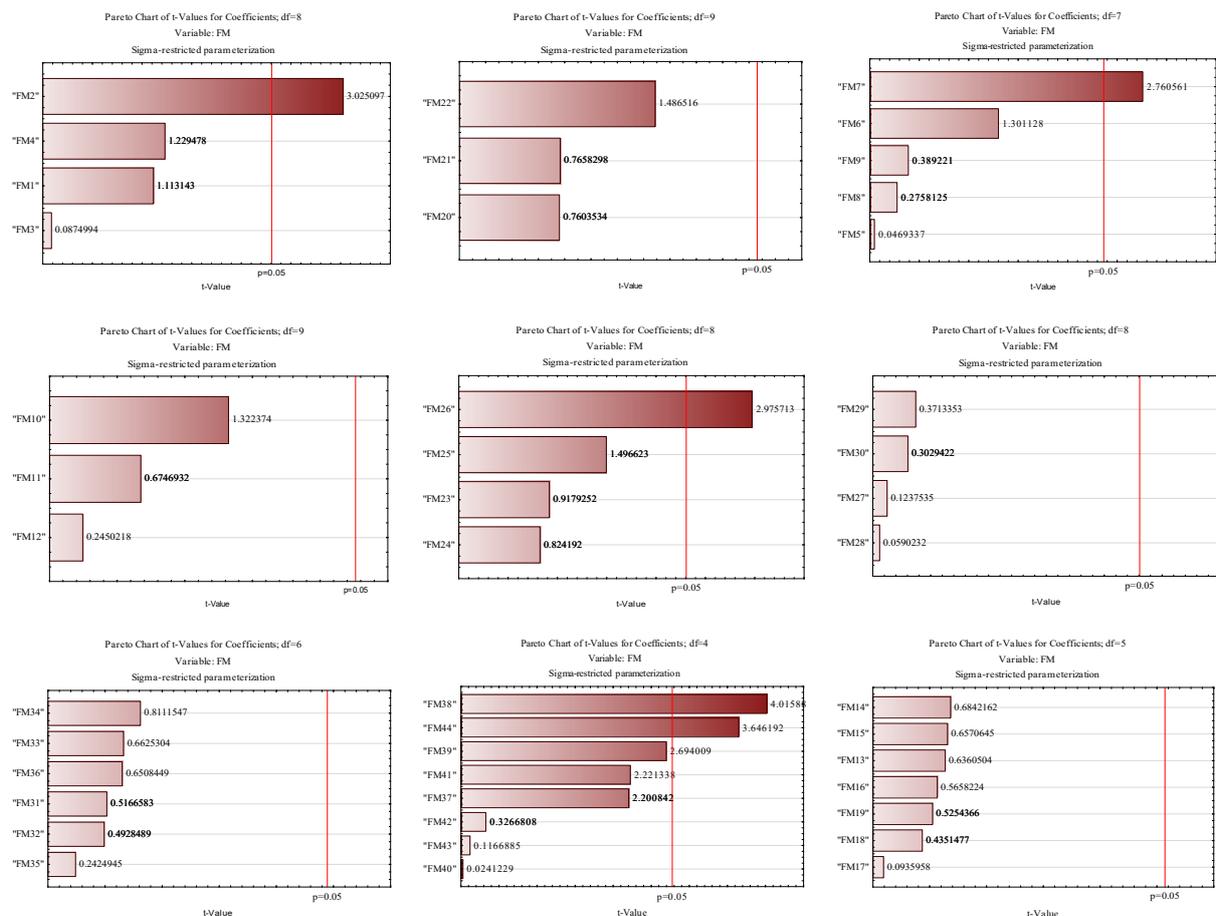
Figure 2. Pareto diagrams of factors significantly affecting the effectiveness of Ukraine's AML/CFT system

FM36, FM31, FM32, FM35; FM39, FM41, FM37, FM42, FM43, FM40; FM14, FM15, FM13, FM16, FM19, FM18, and FM17.

As shown in Figure 2, five factors (FM2, FM7, FM26, FM38, and FM44) significantly influence the effectiveness of Ukraine's AML/CFT system, crossing the red line and denoting the critical level of statistical significance. Also, the effects of the effectiveness of the AML/CFT system are ranked in the diagrams from the most influential factor to the least influential, with an indication of the strength of the influence. Thus, the indicated five factors are the most relevant and are proposed for more detailed consideration in further research.

The result of the third stage – correlation analysis – is the construction of a correlation matrix of factors of Ukraine's AML/CFT system (Table A5), the analysis of which indicates the following.

According to the correlation coefficients between the effective indicator FM (the number of decisions and orders of the SFMS to suspend financial transactions), which characterizes the effectiveness of the AML/CFT system, and 44 factor characteristics that characterize the activities of Ukraine's AML/CFT system (FM1–FM44), a very strong and strong relationship between FM and factor characteristics was not found, since there are no values above 0.7. The average relationship was between FM and FM2 (0.67), FM7 (0.66), FM26 (0.64), FM40 (0.62),

FM37 (0.51), FM41 (0.54) since they are in the range from 0.5 to 0.7. A weak relationship was found between FM and FM6, FM10, FM19, and FM22, as they take values from 0.3 to 0.5. A very weak relationship was found between FM and FM1, FM4, FM5, FM8, FM11, FM14, FM15, FM16, FM17, FM18, FM20, FM21, FM23, FM24, FM27, FM28, FM30, FM31, FM32, FM33, FM34, FM35, FM36, FM43, and FM44, as they take values from 0.1 to 0.3. Finally, there was almost no relationship between FM and FM3, FM9, FM12, FM13, FM25, FM29, FM38, FM39, FM42, as they take values up to 0.1.

Given the above result, it is recommended to include factors with medium correlation in further research: FM2, FM7, FM26, FM40, FM37, and FM41. The results of the correlation dependence between the factor signs show the presence of a strong connection between the factors within the groups, as well as between other factors, which implies a more detailed analysis and the possible exclusion of collinear factors from the study.

So, generalizing the results of identifying relevant indicators according to factor analysis, one-factor significance test, Paretto diagram, and correlation analysis, a set of indicators has been identified that are of the greatest importance in building a model of the effectiveness of Ukraine's AML/CFT system, namely: FM2, FM7, FM10, FM16, FM21, FM26, FM38, FM40, FM41, and FM44.

Table 3. One-factor test for the significance of selected indicators affecting the effectiveness of Ukraine's AML/CFT system

Effect	Univariate Tests of Significance for FM. Sigma-restricted parameterization Effective hypothesis decomposition; Std. Error of Estimate: 160.5643				
	SS	df	MS	F	p
Intercept	709,377	1	709,377	27.51562	0.034475
FM2	**732,030**	**1**	**732,030**	**28.39429**	**0.033461**
FM7	**1,072,029**	**1**	**1,072,029**	**41.58232**	**0.023215**
FM10	10	1	10	0.00039	0.985984
FM16	298,477	1	298,477	11.57747	0.076584
FM21	**832,901**	**1**	**832,901**	**32.30689**	**0.029586**
FM26	**635,847**	**1**	**635,847**	**24.66347**	**0.038235**
FM38	**1,119,962**	**1**	**1,119,962**	**43.44154**	**0.022254**
FM40	56,048	1	56,048	2.17402	0.278304
FM41	384,316	1	384,316	14.90702	0.061008
FM44	308,811	1	308,811	11.97828	0.074300
Error	51,562	2	25,781	–	–

Note: Items in bold mean statistically significant relevant influencing factors.

Pareto Chart of t-Values for Coefficients; df=2
Variable: FM
Sigma-restricted parameterization
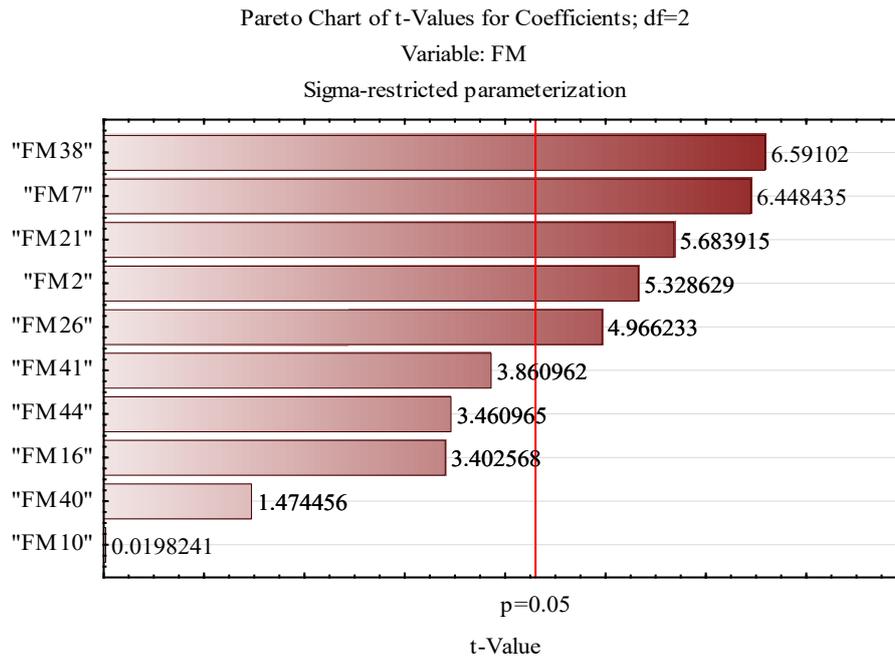
Figure 3. Pareto diagrams showing the significance of key factors affecting the effectiveness of Ukraine's AML/CFT system

The results of the fourth stage are presented in Table 3 (characteristics of the one-factor significance test for relevant factors influencing the effectiveness of Ukraine's AML/CFT system), Figure 3 (Pareto diagram), and Table 4 (model adequacy indicators).

Analysis of the data in Tables 3 and 4, along with Figure 3, confirms that five factors – FM2, FM7, FM21, FM26, and FM38 – have a statistically significant impact on the effectiveness of Ukraine's AML/CFT system. Their *p*-values (p2 = 0.0335, p7 = 0.0232, p21 = 0.0296, p26 = 0.0382, p38 = 0.0223) are all below the 0.05 threshold commonly accepted in economic research. Although other factors (FM10, FM16, FM40, FM41, and FM44) did not meet this significance level, the overall regression model remains statistically adequate ($p = 0.02$, $R^2 = 0.996$), as shown in Table 4. The contribution of individual factors, ranked by importance, is as follows: FM38, FM7, FM21, FM2, FM26, FM41, FM44, FM16, FM40, and FM10.

At this stage, based on the effective features of FM and factors FM2, FM7, FM10, FM16, FM21, FM26, FM38, FM40, FM41, and FM44, a regression analysis was performed (Table 5), and multiple linear regression was constructed using the OLS method (Equation 2).

$$\begin{aligned}
FM = {} & 4,254.299 + 0.006 \cdot FM2 \\
& -0.084 \cdot FM7 + 0.002 \cdot FM10 \\
& +0.095 \cdot FM16 - 0.001 \cdot FM21 \\
& +13.884 \cdot FM26 - 28.935 \cdot FM38 \\
& -25.573 \cdot M40 - 6.601 \cdot FM41 \\
& -66.742 \cdot FM44.
\end{aligned} \quad (2)$$

The adequacy and accuracy of the constructed model (Equation 2) are confirmed by the high coefficient of determination (0.99), Fisher's exact test (46.309), which exceeds the critical level, *p*-level (0.021), which is less than the critical level for economic research of 0.05, and compliance with the normal distribution law of the residuals of the lin-

Table 4. Characteristics of adequacy and accuracy of the model

Dependent Variable	Test of SS Whole Model vs. SS Residual										
	R	R²	Adjusted R²	SS Model	df Model	MS Model	SS Residual	df Residual	MS Residual	F	P
FM	0.998	0.996	0.974	11,938,915	10	1,193,892	51,561.80	2	25,780.90	46.31	0.02

Table 5. Regression analysis of key factors influencing the effectiveness of Ukraine's AML/CFT system

Effect	Regression Summary for Dependent Variable: FM, R = 0.998, R² = 0.996 Adjusted R² = 0.974, F(10,2) = 46.309 p < 0.021, Std. error of estimate: 160.56					
	b*	Std.Err. of b*	b	Std.Err. of b	t(2)	p-value
Intercept	–	–	4254.299	811.0327	5.24553	0.034475
FM2	**0.77164**	**0.144810**	**0.006**	**0.0012**	**5.32863**	**0.033461**
FM7	**−0.90144**	**0.139793**	**−0.084**	**0.0131**	**−6.44844**	**0.023215**
FM10	0.00349	0.175996	0.002	0.1092	0.01982	0.985984
FM16	1.56232	0.459159	0.095	0.0280	3.40257	0.076584
FM21	**−2.53747**	**0.446430**	**−0.001**	**0.0001**	**−5.68391**	**0.029586**
FM26	**0.86988**	**0.175158**	**13.884**	**2.7956**	**4.96623**	**0.038235**
FM38	**−1.03012**	**0.156292**	**−28.935**	**4.3901**	**−6.59102**	**0.022254**
FM40	−0.24304	0.164831	−25.573	17.3443	−1.47446	0.278304
FM41	−1.24440	0.322304	−6.601	1.7097	−3.86096	0.061008
FM44	−0.51708	0.149402	−66.742	19.2842	−3.46096	0.074300

Note: Items in bold mean statistically significant relevant influencing factors.

ear regression model (Figure 4). At the same time, the factors FM2, FM7, FM21, FM26, and FM38 are statistically significant, which coincides with the result of the single-factor significance test and the Pareto diagram. Also, the factors FM10 and FM40 have the lowest levels of significance p, which is proposed to be removed from the study.

Further regression analysis involves the study of the effective feature FM and the factors FM2, FM7, FM16, FM21, FM26, FM38, FM41, and FM44, the results of which are presented in Table 6, along with the construction of the regression equation (Equation 3).

$$\begin{aligned} FM = {}& 3,216.916 + 0.007 \cdot FM2 \\ & - 0.080 \cdot FM7 + 0.069 \cdot FM16 \\ & - 0.001 \cdot FM21 + 10.891 \cdot FM26 \\ & - 31.712 \cdot FM38 - 4.994 \cdot FM41 \\ & - 42.403 \cdot FM44. \end{aligned} \quad (3)$$

The adequacy and accuracy of the constructed model (Equation 3) is confirmed by the high coefficient of determination (0.98), Fisher's exact test (46.164), which exceeds the critical level, p-level (0.001), which is less than the critical level for economic research of 0.05, and compliance with the normal distribution law of the residuals of the lin-
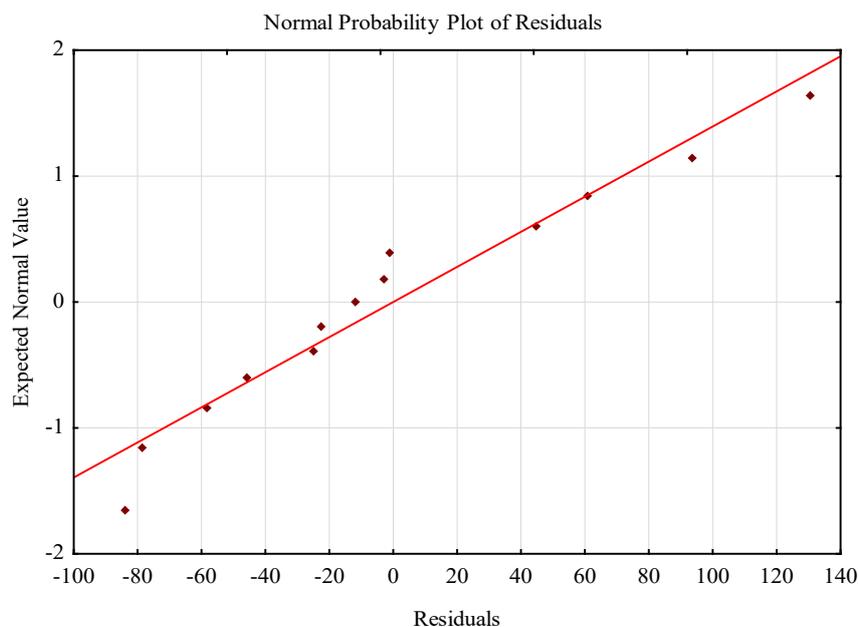
Figure 4. Normal distribution of residuals from the regression model explaining the effectiveness of Ukraine's AML/CFT system

Table 6. Regression analysis results for the most statistically significant factors affecting the effectiveness of Ukraine's AML/CFT system

Effect	Regression Summary for Dependent Variable: FM, R = 0.994; R² = 0.988; Adjusted R² = 0.963; F(8,4) = 40.164; p < 0.001; Std. Error of estimate: 191.99					
	b*	Std.Err.of b*	b	Std.Err. of b	t(2)	p-value
Intercept	–	–	3216.916	588.6443	5.46496	0.005452
FM2	0.85091	0.164490	0.007	0.0013	5.17302	0.006638
FM7	−0.85575	0.144264	−0.080	0.0135	−5.93183	0.004048
FM16	1.12667	0.323217	0.069	0.0197	3.48581	0.025219
FM21	−2.14929	0.346819	−0.001	0.0001	−6.19716	0.003448
FM26	0.68240	0.142211	10.891	2.2698	4.79850	0.008658
FM38	−1.12900	0.156721	−31.712	4.4021	−7.20388	0.001968
FM41	−0.94141	0.149697	−4.994	0.7941	−6.28878	0.003266
FM44	−0.32851	0.096249	−42.403	12.4234	−3.41317	0.026949

Note: Items in bold mean statistically significant relevant influencing factors.

ear regression model (Figure 5). At the same time, all of the above factors are statistically significant. In the constructed model, the factors FM2, FM16, and FM26 act as stimulants of the efficiency of the AML/CFT system, while the factors FM7, FM21, FM38, FM41, and FM44 act as de-stimulants. That is, an increase in FM2 by 1 unit causes an increase in FM by 0.007 units, an increase in FM7 by 1 unit causes a decrease in FM by 0.080 units, an increase in FM16 by 1 unit causes an increase in FM by 0.069 units, an increase in FM21 by 1 unit causes a decrease in FM by 0.001 units, an increase in FM26 by 1 unit causes an increase in FM by 10.891 units, an increase in FM38 by 1 unit causes a de-crease in FM by 31.712 units, an increase in FM41 by 1 unit causes a decrease in FM by 4.994 units, an increase in FM44 causes a decrease in FM by 42.403 units.

4. DISCUSSION

The findings of this study offer new empirical evidence on the efficiency determinants of Ukraine's AML/CFT system, emphasizing the crucial role of a limited set of measurable indicators in shaping systemic performance. The factorial and regression analyses conducted on 44 indicators from
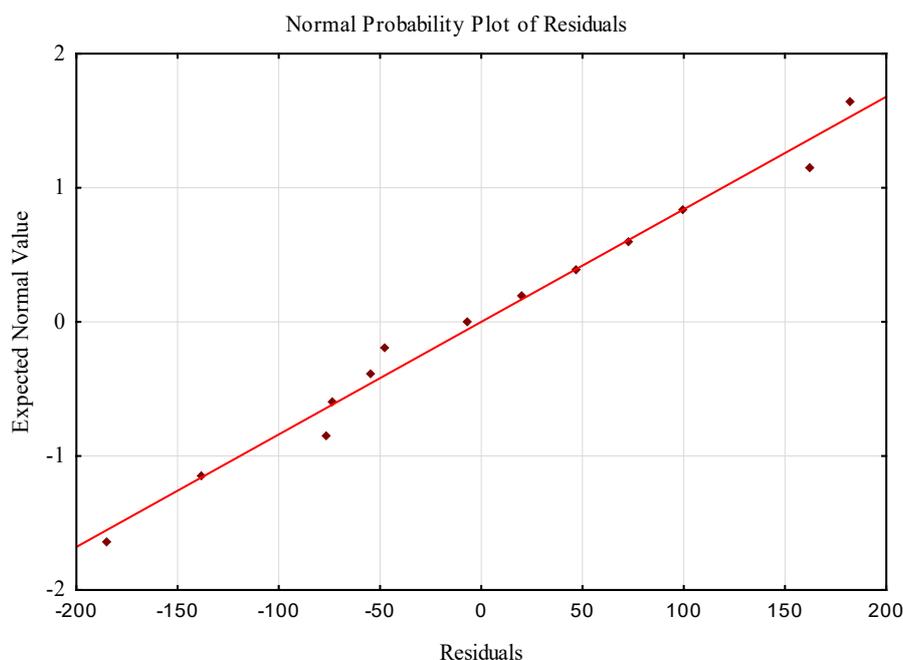
Figure 5. Normal distribution of residuals from the final regression model of Ukraine's AML/CFT system effectiveness

2011 to 2023 revealed that only a small subset, including the number of reports from non-banking institutions, the volume of completed dossiers, and the number of unresolved cases, accounts for over 70% of the variation in system effectiveness. This strongly supports the hypothesis that managerial and procedural optimization can yield substantial improvements even within existing institutional frameworks.

These results align with the broader literature highlighting the importance of targeted managerial and institutional reforms in strengthening AML/CFT systems. For example, Kuzmenko et al. (2023a) and Pol (2020) emphasize that effectiveness is often hindered not by the absence of regulations but by poor prioritization, resource misallocation, and ineffective data utilization. The current findings complement these views by statistically validating which factors matter most for performance.

The importance of non-banking sector engagement identified in this analysis echoes observations made by Steenbergen et al. (2023) and Ishwardat et al. (2024), who emphasize the role of organizational behavior and compliance culture in driving ethical outcomes. Similarly, the contribution of case resolution and dossier completeness to effectiveness aligns with Kawedar et al. (2025) and Pulungan et al. (2024), who link procedural follow-through with institutional trust and corruption resistance.

While digital transformation and technological innovations were not directly modeled in this analysis, the findings reinforce conclusions drawn by Lyeonov et al. (2024) and Mustafa (2024) that effective data utilization, especially from decentralized actors, can significantly impact monitoring quality. Moreover, the empirical model supports Yarovenko et al. (2024a), who argue that unresolved cases and judicial bottlenecks remain key vulnerabilities in post-conflict AML systems.

Interestingly, the results diverge somewhat from Tsingou (2010) and Pol (2018), who argue that procedural compliance often overshadows performance outcomes. In contrast, this study shows that well-targeted procedural metrics (e.g., dossier counts, alert resolution) can reflect genuine functional improvements when embedded in a performance-based framework.

Finally, this study reinforces the policy view that MONEYVAL (2020) and the European Commission (Directorate-General for Neighbourhood and Enlargement Negotiations, 2024) expressed that Ukraine must prioritize risk-based supervision and inter-institutional integration. Identifying only a few highly influential indicators suggests that reform strategies can be more focused and cost-effective than previously assumed, provided they are evidence-based and strategically prioritized.

While the study provides valuable insights into the managerial determinants of Ukraine's AML/CFT system, several limitations must be acknowledged. First, the analysis relies heavily on quantitative data from national institutions (e.g., SFMS, NBU, NSSMC, judicial statistics), which, despite being official, may be subject to delays in reporting, gaps in completeness, or a lack of harmonization across agencies. This may affect the comparability and granularity of some indicators across the whole 2011–2023 period.

Second, the factorial and regression methods offer robust statistical conclusions regarding correlations and explanatory power. Still, they do not fully capture causal relationships or institutional dynamics behind the identified factors. For instance, political will, informal institutional arrangements, or limitations on cross-border information exchange are not easily quantifiable but may significantly influence the system's performance.

Third, although the study encompasses a broad set of 44 indicators, it excludes qualitative dimensions such as personnel capacity, the quality of inter-agency coordination, and the effectiveness of international cooperation. Including expert assessments or case-based validations would strengthen the interpretative depth of the results.

Finally, the analysis is context-specific to Ukraine and its regulatory environment, which limits the generalizability of the findings to other jurisdictions. Comparative or cross-country studies would be needed to validate the relevance of the identified managerial determinants in broader AML/CFT frameworks.

CONCLUSION

This study aimed to identify the key managerial determinants influencing the effectiveness of Ukraine's AML/CFT system and to develop evidence-based recommendations for improving its performance. Given the ongoing war and the resulting institutional, economic, and security challenges, as well as Ukraine's continued efforts to align with international AML/CFT standards, the paper addressed a critical gap in understanding which factors most significantly shape the system's functionality under conditions of armed conflict and reform.

The methodological framework combined factorial analysis using the principal component method with multiple linear regression modeling (OLS), applied to a dataset of 44 statistical indicators spanning the period from 2011 to 2023. The data were obtained from official national sources, including the State Service of Financial Monitoring of Ukraine, the National Bank of Ukraine, the National Commission on Securities and Stock Market, the Prosecutor General's Office, and the judicial authorities. The analysis was conducted using the Statistica software environment. This dual approach allowed for effective dimensionality reduction and facilitated the identification of statistically significant predictors of the AML/CFT system's effectiveness.

The findings show that only a narrow group of indicators explains the vast majority of variance in system effectiveness. Specifically, the number of reports from the non-banking sector (FM13–FM19), the number of compiled dossiers (FM10), and the volume of unresolved judicial cases (FM41) emerged as the most powerful determinants. The final regression model demonstrated high explanatory power, with an R^2 of 0.963, confirming the reliability of the factor selection and modeling technique. These results empirically validate that targeted improvements in a small number of process metrics can yield significant systemic benefits.

The results of this study highlight several priority areas for institutional and regulatory improvement within Ukraine's AML/CFT system. In particular, greater emphasis should be placed on integrating data from non-bank reporting entities, improving the efficiency of dossier processing procedures, and reducing the volume of unresolved judicial cases. To enhance the system's overall effectiveness, reforms should advance the implementation of risk-based supervision, establish formalized inter-agency data-sharing mechanisms, and ensure that managerial and financial resources are allocated to the most impactful operational components. The implementation of these measures would support Ukraine's compliance with the standards of the FATF and the MONEYVAL evaluation framework, thereby strengthening the country's financial stability and international credibility in the domain of AML/CFT.

AUTHOR CONTRIBUTIONS

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Methodology: Tetiana Vasylieva.
Project administration: Tetiana Vasylieva.
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Software: Maksym Zhytar, Tetiana Vasylieva.
Supervision: Tetiana Vasylieva.
Validation: Oleksii Zakharkin, Tetiana Vasylieva.
Visualization: Gulnara Zhanseitova, Tetiana Vasylieva.

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APPENDIX A

Table A1. Indicators reflecting the activities of key institutions involved in Ukraine's AML/CFT system

Indicator	Indicator description
The indicators formed by the State Financial Monitoring Service of Ukraine	
FM1	Number of reports in terms of financial monitoring features (hereinafter FM): threshold financial transactions / with features of mandatory FM financial monitoring
FM2	Number of reports in terms of FM features: suspicious financial transactions (activity)/with features of internal FM
FM3	Number of reports in terms of FM features: threshold and suspicious financial transactions (activity)/with features of mandatory and internal FM
FM4	Number of reports in terms of FM features: tracking (monitoring) of financial transactions
FM5	Number of reports selected for dossier formation
FM6	Number of generalized materials transferred to law enforcement agencies
FM7	Number of request files sent to banking institutions
FM8	Number of additional generalized materials transferred to law enforcement agencies
FM9	Number of requests to foreign financial intelligence units
FM10	Number of dossiers formed
FM11	Number of generalized materials used in criminal proceedings
FM12	Number of responses to foreign financial intelligence units
FM13	Number of reports received by primary FM entities: non-banking institutions
FM14	Number of reports received from the non-banking sector: insurance institutions
FM15	Number of reports received from the non-banking sector: other economic entities providing financial services/financial companies
FM16	Number of reports received from the non-banking sector: securities traders, asset management companies, custodian traders, other professional securities market participants/professional stock market participants/participants of capital markets and organized commodity markets
FM17	Number of messages received from the non-banking sector: business entities conducting lotteries/business entities conducting lotteries and business entities conducting gambling, including casinos, electronic (virtual) casinos
FM18	Number of messages received from the non-banking sector: notaries
FM19	Number of messages received from the non-banking sector: other financial institutions
FM20	Number of received and processed messages on financial transactions subject to the Financial Supervision Authority
FM21	Number of messages on financial transactions recorded
FM22	Number of financial institutions registered with the Financial Supervision Authority – number of decisions and instructions of the Financial Supervision Authority to suspend financial transactions
The indicators formed by the National Bank of Ukraine	
FM23	Number of financial transactions submitted by banks to the Financial Supervision Authority
FM24	Number of scheduled bank inspections/scheduled on-site inspections
FM25	Number of unscheduled bank inspections
FM26	Number of impact measures
The indicators formed by the National Securities and Stock Market Commission	
FM27	Number of entities found to have violated the requirements of the legislation in the field of prevention and counteraction to the legalization (laundering) of proceeds from crime, financing of terrorism and financing of proliferation of weapons of mass destruction
FM28	Number of inspections of entities of primary financial monitoring/number of requests for information
FM29	Number of penalties for violation of the requirements of the legislation on prevention and counteraction to the legalization (laundering) of proceeds from crime or financing of terrorism
FM30	Number of cases considered on violations of the requirements of the legislation on the prevention and counteraction to the legalization (laundering) of proceeds of crime or the financing of terrorism
The indicators formed by the Prosecutor General's Office of Ukraine	
FM31	Number of criminal offenses, pre-trial investigation of which was conducted in the reporting period
FM32	Number of outstanding criminal cases/prosecutions
FM33	Number of criminal cases/prosecutions sent to court with an indictment/act
FM34	Number of criminal cases/prosecutions sent to court to resolve the issue of exemption from criminal liability
FM35	Number of criminal cases/prosecutions sent for investigation to other bodies; FM36 – number of closed cases/prosecutions
The indicators formed by the national judicial institutions	
FM37	Number of criminal cases that were in progress
FM38	Number of cases reviewed with the case returned for additional investigation
FM39	Number of cases referred for jurisdiction

Table A1 (cont.). Indicators reflecting the activities of key institutions involved in Ukraine's AML/CFT system

Indicator	Indicator description
FM40	Number of indictments returned to the prosecutor
FM41	Number of outstanding cases
FM42	Number of cases in which the charges were changed
FM43	Number of cases merged
FM44	Number of cases reviewed with the release of persons from criminal liability

Table A2. Input statistical base for research into the activities of Ukraine's AML/CFT system

Year	FM	FM1	FM2	FM3	FM4	FM5	FM6	FM7	FM8
2011	91	581,213	241,155	5,050	252,033	205,543	323	0	257
2012	126	620,974	277,795	6,780	62,272	100,912	588	12,931	131
2013	471	653,645	312,898	12,075	3,523	117,976	588	14,747	234
2014	2,406	780,234	490,617	12,167	4,478	200,824	476	47,940	298
2015	3,313	3,873,967	407,462	67,888	7,800	280,525	364	22,745	322
2016	757	5,925,372	315,262	76,728	2,414	288,614	269	16,942	322
2017	399	7,631,690	298,394	298,394	10,116	397,902	382	17,876	330
2018	161	9,663,903	253,913	51,638	338	526,372	466	15,070	468
2019	171	11,092,670	288,317	55,964	423	530,393	503	12,981	390
2020	184	4,562,082	146,484	16,435	536	1,229,660	607	13,070	429
2021	151	1,582,370	76,501	421	585	488,088	767	14,679	403
2022	475	1,117,829	52,123	194	9,246	38,121	550	21,430	384
2023	232	1,260,269	155,369	178	13,778	98,535	608	21,505	514

Year	FM9	FM10	FM11	FM12	FM13	FM14	FM15	FM16	FM17
2011	467	1,841	191	189	33,668	23,138	0	5,764	0
2012	433	1,896	161	172	31,537	22,907	0	5,997	0
2013	439	1,999	294	173	35,957	27,612	1,492	4,875	392
2014	458	1,970	293	251	36,816	28,831	1,680	5,357	258
2015	421	1,951	233	245	44,480	29,991	2,632	11,315	300
2016	668	2,278	183	229	59,049	36,782	2,583	18,987	399
2017	367	2,757	265	253	72,701	36,451	4,747	29,181	603
2018	418	2,999	296	241	98,184	40,021	6,810	45,805	600
2019	356	2,861	284	287	110,334	44,577	12,783	51,318	648
2020	328	2,859	250	338	50,105	15,882	6,489	26,730	511
2021	591	5,575	391	373	21,394	1,385	843	18,202	612
2022	1,242	5,016	294	245	5,348	339	1,492	2,874	266
2023	824	6,785	382	298	6,283	388	1,535	2,788	1413

Year	FM18	FM19	FM20	FM21	FM22	FM23	FM24	FM25	FM26
2011	1,172	2,297	1,095,883	1,079,451	11,701	1,062,215	194	12	90
2012	637	1,996	975,399	967,821	21,863	943,862	218	8	185
2013	89	40	990,337	982,141	22,947	954,380	188	5	194
2014	29	30	1,297,324	1,287,496	23,172	1,260,508	184	72	260
2015	31	211	4,391,834	4,357,117	24,327	4,312,637	59	59	262
2016	20	278	6,381,728	6,319,776	23,656	6,260,727	34	50	158
2017	21	1,698	8,044,703	8,013,500	23,831	7,940,799	35	29	154
2018	21	4,927	10,006,093	9,969,792	24,603	9,871608	25	21	169
2019	11	997	11,462,494	1,143,7374	23,055	11,327,040	50	12	152
2020	14	479	4,744,115	4,725,537	22,451	4,675,432	63	3	94
2021	6	346	1,664,173	1,659,877	14,557	1,638,483	326	8	80
2022	0	377	1,181,675	1,179,392	13,030	1,174,044	337	205	219
2023	0	125	1,432,684	1,429,594	11,445	1,423,311	214	347	251

Year	FM27	FM28	FM29	FM30	FM31	FM32	FM33	FM34	FM35
2011	100	287	84	150	215	35	131	2	13
2012	212	178	81	127	133	36	80	1	17
2013	116	190	77	105	18	2	4	0	0

Table A2 (cont). Input statistical base for research into the activities of Ukraine's AML/CFT system

Year	FM27	FM28	FM29	FM30	FM31	FM32	FM33	FM34	FM35
2014	9	70	74	82	37	7	6	0	5
2015	70	35	30	34	58	10	3	0	8
2016	23	30	57	58	148	24	2	0	43
2017	99	118	125	134	185	40	11	0	28
2018	66	67	91	102	175	66	18	0	46
2019	27	34	34	35	149	61	13	0	71
2020	7	13	18	21	0	0	0	0	0
2021	13	21	5	8	0	0	0	0	0
2022	1	8	0	0	4,933	2,714	608	3	1104
2023	14	35	8	13	7,832	3,728	1,934	2	1,389

Year	FM36	FM37	FM38	FM39	FM40	FM41	FM42	FM43	FM44
2011	7	987	87	40	13	487	75	15	12
2012	13	978	80	25	7	466	81	13	24
2013	2	798	96	20	34	347	63	5	15
2014	2	566	42	39	34	284	30	0	3
2015	2	428	17	19	32	264	22	3	4
2016	2	369	42	13	32	251	22	2	0
2017	2	448	13	35	19	317	10	0	11
2018	1	552	7	25	26	431	6	0	11
2019	0	650	5	48	20	507	6	0	0
2020	0	683	2	12	17	600	0	0	0
2021	0	816	3	28	17	688	0	0	0
2022	574	777	1	15	12	689	0	0	0
2023	803	1,010	1	17	11	854	0	0	0

Table A3. Factor loadings– Intermediate calculations

Variable	Variable contributions. based on correlations											
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
FM1	**0.0149**	**0.0479**	**0.0166**	0.0208	0.0011	0.0008	0.0037	0.0061	0.0002	0.0068	0.0028	0.0024
FM2	**0.0270**	**0.0005**	**0.0770**	0.0125	0.0069	0.0508	0.0180	0.0224	0.0058	0.0196	0.0226	0.0009
FM3	**0.0126**	**0.0089**	**0.0001**	0.0368	0.0031	0.0041	0.3654	0.0004	0.1507	0.0085	0.0020	0.0515
FM4	**0.0011**	**0.0407**	**0.0449**	0.0035	0.0462	0.0897	0.0036	0.0233	0.0044	0.0083	0.0045	0.0296
FM5	**0.0036**	**0.0266**	**0.0270**	0.0645	0.0058	0.0116	0.0000	0.0888	0.0028	0.1215	0.1408	0.0126
FM6	**0.0177**	**0.0002**	**0.0073**	0.0757	0.1731	0.0196	0.0244	0.0186	0.0022	0.0000	0.0135	0.0003
FM7	**0.0016**	**0.0037**	**0.1372**	0.0002	0.0240	0.0470	0.0000	0.0238	0.0009	0.1898	0.0239	0.0879
FM8	**0.0153**	**0.0466**	**0.0101**	0.0021	0.0000	0.0065	0.0024	0.0307	0.0952	0.0147	0.0000	0.0235
FM9	**0.0396**	**0.0005**	**0.0032**	0.0121	0.0585	0.0061	0.0050	0.1345	0.0183	0.0279	0.0105	0.0373
FM10	**0.0493**	**0.0067**	**0.0097**	0.0001	0.0169	0.0000	0.0186	0.0019	0.0025	0.0127	0.0507	0.0295
FM11	**0.0237**	**0.0150**	**0.0000**	0.0058	0.1392	0.0428	0.0109	0.0014	0.0604	0.0333	0.0002	0.1072
FM12	**0.0107**	**0.0372**	**0.0078**	0.0610	0.0018	0.0183	0.0210	0.0105	0.0181	0.0235	0.0403	0.0093
FM13	**0.0337**	**0.0263**	**0.0125**	0.0110	0.0011	0.0023	0.0241	0.0036	0.0019	0.0034	0.0023	0.0042
FM14	**0.0506**	**0.0045**	**0.0016**	0.0244	0.0000	0.0049	0.0189	0.0000	0.0003	0.0111	0.0006	0.0130
FM15	**0.0074**	**0.0480**	**0.0191**	0.0034	0.0002	0.0049	0.1019	0.0021	0.0313	0.0027	0.1042	0.0423
FM16	**0.0144**	**0.0447**	**0.0395**	0.0008	0.0027	0.0001	0.0112	0.0127	0.0026	0.0006	0.0000	0.0060
FM17	**0.0163**	**0.0279**	**0.0024**	0.0165	0.0754	0.0006	0.0021	0.1446	0.0001	0.0364	0.0114	0.0384
FM18	**0.0031**	**0.0529**	**0.0415**	0.0013	0.0186	0.0284	0.0012	0.0078	0.0001	0.0187	0.0163	0.0014
FM19	**0.0115**	**0.0000**	**0.0653**	0.0327	0.0107	0.0107	0.0014	0.0337	0.2697	0.1584	0.0319	0.0000
FM20	**0.0167**	**0.0459**	**0.0148**	0.0224	0.0014	0.0003	0.0038	0.0046	0.0003	0.0061	0.0041	0.0023
FM21	**0.0166**	**0.0460**	**0.0150**	0.0224	0.0013	0.0003	0.0039	0.0048	0.0003	0.0060	0.0039	0.0021
FM22	**0.0375**	**0.0107**	**0.0302**	0.0000	0.0098	0.0547	0.0147	0.0000	0.0044	0.0098	0.0091	0.0018
FM23	**0.0165**	**0.0460**	**0.0150**	0.0225	0.0013	0.0003	0.0039	0.0048	0.0003	0.0060	0.0040	0.0021
FM24	**0.0297**	**0.0210**	**0.0000**	0.0238	0.0100	0.0089	0.0011	0.1359	0.0013	0.0089	0.0000	0.0009
FM25	**0.0449**	**0.0003**	**0.0060**	0.0618	0.0000	0.0010	0.0004	0.0131	0.0011	0.0050	0.0008	0.0066
FM26	**0.0038**	**0.0000**	**0.1140**	0.0654	0.0137	0.0002	0.0583	0.0040	0.0026	0.0398	0.0302	0.1487

Table A3 (cont.). Factor loadings– Intermediate calculations

Variable	Variable contributions. based on correlations											
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10	Factor 11	Factor 12
FM27	**0.0144**	**0.0342**	**0.0048**	0.0097	0.0547	0.0908	0.0009	0.0017	0.0358	0.0000	0.0746	0.0223
FM28	**0.0098**	**0.0531**	**0.0133**	0.0067	0.0120	0.0136	0.0051	0.0158	0.0055	0.0189	0.0447	0.0543
FM29	**0.0352**	**0.0063**	**0.0000**	0.0365	0.0405	0.0003	0.0932	0.0000	0.0117	0.0065	0.0766	0.0451
FM30	**0.0285**	**0.0242**	**0.0041**	0.0255	0.0268	0.0017	0.0446	0.0016	0.0118	0.0065	0.0453	0.0185
FM31	**0.0489**	**0.0000**	**0.0000**	0.0553	0.0002	0.0007	0.0017	0.0058	0.0013	0.0000	0.0068	0.0003
FM32	**0.0501**	**0.0000**	**0.0000**	0.0510	0.0000	0.0015	0.0019	0.0003	0.0010	0.0000	0.0153	0.0011
FM33	**0.0423**	**0.0000**	**0.0006**	0.0558	0.0104	0.0003	0.0037	0.0807	0.0025	0.0002	0.0047	0.0274
FM34	**0.0284**	**0.0168**	**0.0126**	0.0352	0.0454	0.0010	0.0008	0.0373	0.0004	0.0092	0.0408	0.0382
FM35	**0.0493**	**0.0001**	**0.0000**	0.0527	0.0007	0.0018	0.0026	0.0005	0.0011	0.0001	0.0206	0.0010
FM36	**0.0505**	**0.0000**	**0.0000**	0.0492	0.0000	0.0017	0.0019	0.0008	0.0014	0.0000	0.0139	0.0007
FM37	**0.0165**	**0.0297**	**0.0468**	0.0013	0.0411	0.0022	0.0522	0.0046	0.0021	0.0001	0.0112	0.0027
FM38	**0.0099**	**0.0576**	**0.0027**	0.0000	0.0025	0.0000	0.0147	0.0146	0.0097	0.0839	0.0510	0.0528
FM39	**0.0107**	**0.0001**	**0.0145**	0.0026	0.0391	0.3856	0.0018	0.0645	0.0582	0.0000	0.0002	0.0002
FM40	**0.0131**	**0.0055**	**0.1052**	0.0017	0.0003	0.0116	0.0014	0.0176	0.1722	0.0738	0.0015	0.0463
FM41	**0.0436**	**0.0003**	**0.0558**	0.0023	0.0080	0.0001	0.0097	0.0002	0.0019	0.0036	0.0030	0.0014
FM42	**0.0102**	**0.0641**	**0.0001**	0.0003	0.0028	0.0001	0.0277	0.0047	0.0005	0.0098	0.0000	0.0118
FM43	**0.0048**	**0.0635**	**0.0167**	0.0006	0.0072	0.0001	0.0164	0.0078	0.0049	0.0002	0.0588	0.0008
FM44	**0.0141**	**0.0357**	**0.0047**	0.0102	0.0852	0.0721	0.0000	0.0074	0.0005	0.0077	0.0003	0.0132

Note: Items in bold mean factor loadings of the first three factors, corresponding to the first three principal components, and serve as the basis for calculating the weight coefficients of the indicators.

Table A4. One-factor significance test of factors influencing the effectiveness of Ukraine's AML/CFT system

Univariate Tests of Significance for FM. Sigma-restricted parameterization Effective hypothesis decomposition;					
Effect	SS	df	MS	F	p
Std. Error of Estimate: 789.8418					
Intercept	197,913	1	197,913	0.3172	0.5887
FM1	773,005	1	773,005	1.2391	0.2980
FM2	**5,708,982**	**1**	**5708982**	**9.1512**	**0.0164**
FM3	4,776	1	4,776	0.0077	0.9324
FM4	943,022	1	943,022	1.5116	0.2538
Error	4,990,801	8	623,850	–	–
Std. Error of Estimate: 828.9297					
Intercept	902,845	1	902,845	1.3139	0.2894
FM5	1,514	1	1,514	0.0022	0.9639
FM6	1,163,257	1	1,163,257	1.6929	0.2344
FM7	**5,236,368**	**1**	**52,36,368**	**7.6207**	**0.0281**
FM8	52,271	1	52,271	0.0761	0.7907
FM9	104,095	1	104,095	0.1515	0.7087
Error	4,809,872	7	687,125	–	–
Std. Error of Estimate: 750.7161					
Intercept	106,625	1	106,625	0.1892	0.6751
FM23	474,861	1	474,861	0.8426	0.3855
FM24	382,832	1	382,832	0.6793	0.4337
FM25	1,262,340	1	1,262,340	2.2399	0.1729
FM26	**4,990,379**	**1**	**4,990,379**	**8.8549**	**0.0177**
Error	4,508,597	8	563,575	–	–
Std. Error of Estimate: 1,229.791					
Intercept	4,120,885	1	4,120,885	2.7248	0.1499
FM31	403,710	1	403,710	0.2669	0.6239
FM32"	367,359	1	367,359	0.2429	0.6396
FM33	663,857	1	663,857	0.4389	0.5322

Table A4. One-factor significance test of factors influencing the effectiveness of Ukraine's AML/CFT system

Univariate Tests of Significance for FM. Sigma-restricted parameterization Effective hypothesis decomposition;					
Effect	SS	df	MS	F	p
FM34	995,108	1	995,108	0.6580	0.4483
FM35	88,934	1	88,934	0.0588	0.8165
FM36	640,645	1	640,645	0.4236	0.5393
Error	9,074,317	6	1,512,386	–	–
Std. Error of Estimate: 1,039.109					
Intercept	1,697,502	1	1,697,502	1.5721	0.2653
FM13	436,823	1	436,823	0.4046	0.5527
FM14	505,486	1	505,486	0.4682	0.5243
FM15	466,164	1	466,164	0.4317	0.5402
FM16	345,687	1	345,687	0.3202	0.5960
FM17	9,459	1	9,459	0.0088	0.9291
FM18	204,454	1	204,454	0.1894	0.6816
FM19	298,101	1	298,101	0.2761	0.6217
Error	5,398,740	5	1,079,748	–	–
Std. Error of Estimate: 954.3352					
Intercept	683,792	1	683,792	0.7508	0.4087
FM20	526,542	1	526,542	0.5781	0.4665
FM21	534,154	1	534,154	0.5865	0.4634
FM22	2,012,525	1	2,012,525	2.2097	0.1713
Error	8,196,801	9	910,756	–	–
Std. Error of Estimate: 1,049.569					
Intercept	15,293	1	15,293	0.0139	0.9088
FM10	1,926,332	1	1,926,332	1.7487	0.2187
FM11	501,459	1	501,459	0.4552	0.5168
FM12	66,135	1	66,135	0.0600	0.8119
Error	9,914,365	9	1,101,596	–	–
Std. Error of Estimate: 1,177.865					
Intercept	2,355,645	1	2,355,645	1.6979	0.2288
FM27	21,247	1	21,247	0.0153	0.9046
FM28	4,833	1	4,833	0.0035	0.9544
FM29	191,304	1	191,304	0.1379	0.7200
FM30	127,324	1	127,324	0.0918	0.7697
Error	1,387,368	8	1,387,368	–	–
Std. Error of Estimate: 436.4394					
Intercept	616,746	1	616,746	3.2379	0.1463
FM37	922,626	1	922,626	4.8437	0.0926
FM38	**3,071,930**	**1**	**3,071,930**	**16.1274**	**0.0159**
FM39	1,382,440	1	1,382,440	7.2577	0.0544
FM40	111	1	111	0.0006	0.9819
FM41	939,891	1	939,891	4.9343	0.0905
FM42	20,328	1	20,328	0.1067	0.7603
FM43	2,594	1	2,594	0.0136	0.9127
FM44	**2,532,370**	**1**	**2,532,370**	**13.2947**	**0.0218**
Error	761918	4	190479	–	–

Note: Items in bold mean statistically significant relevant influencing factors.

Table A5. Correlation matrix of interdependence of factors of Ukraine's AML/CFT system

Correlations. Marked correlations are significant at p <0 .05														
Variable	FM	FM1	FM2	FM3	FM4	FM5	FM6	FM7	FM8	FM9	FM10	FM11	FM12	FM13	FM14
FM	1.00	−0.13	0.67	0.05	−0.20	−0.19	−0.35	0.66	−0.15	−0.10	−0.33	−0.11	−0.09	−0.08	0.19
FM1	−0.13	1.00	0.13	0.54	−0.34	0.48	−0.32	−0.16	0.39	−0.37	−0.15	−0.04	0.21	0.93	0.69
FM2	0.67	0.13	1.00	0.26	−0.02	−0.19	−0.56	0.48	−0.45	−0.55	−0.73	−0.40	−0.46	0.36	0.72

Table A5 (cont.). Correlation matrix of interdependence of factors of Ukraine's AML/CFT system

Variable	FM	FM1	FM2	FM3	FM4	FM5	FM6	FM7	FM8	FM9	FM10	FM11	FM12	FM13	FM14
FM3	0.05	0.54	0.26	1.00	−0.17	0.11	−0.45	0.00	−0.01	−0.30	−0.21	−0.15	−0.03	0.47	0.49
FM4	−0.20	−0.34	−0.02	−0.17	1.00	−0.22	−0.34	−0.51	−0.39	−0.08	−0.27	−0.44	−0.42	−0.19	−0.04
FM5	−0.19	0.48	−0.19	0.11	−0.22	1.00	0.17	−0.21	0.41	−0.48	−0.07	0.03	0.61	0.44	0.14
FM6	−0.35	−0.32	−0.56	−0.45	−0.34	0.17	1.00	0.03	0.23	0.15	0.58	0.65	0.50	−0.37	−0.64
FM7	0.66	−0.16	0.48	0.00	−0.51	−0.21	0.03	1.00	0.08	0.14	0.04	0.29	0.12	−0.16	−0.02
FM8	−0.15	0.39	−0.45	−0.01	−0.39	0.41	0.23	0.08	1.00	0.27	0.70	0.69	0.73	0.13	−0.26
FM9	−0.10	−0.37	−0.55	−0.30	−0.08	−0.48	0.15	0.14	0.27	1.00	0.64	0.29	0.06	−0.61	−0.66
FM10	−0.33	−0.15	−0.73	−0.21	−0.27	−0.07	0.58	0.04	0.70	0.64	1.00	0.79	0.62	−0.44	−0.75
FM11	−0.11	−0.04	−0.40	−0.15	−0.44	0.03	0.65	0.29	0.69	0.29	0.79	1.00	0.65	−0.20	−0.48
FM12	−0.09	0.21	−0.46	−0.03	−0.42	0.61	0.50	0.12	0.73	0.06	0.62	0.65	1.00	0.00	−0.39
FM13	−0.08	0.93	0.36	0.47	−0.19	0.44	−0.37	−0.16	0.13	−0.61	−0.44	−0.20	0.00	1.00	0.87
FM14	0.19	0.69	0.72	0.49	−0.04	0.14	−0.64	−0.02	−0.26	−0.66	−0.75	−0.48	−0.39	0.87	1.00
FM15	−0.15	0.89	0.07	0.29	−0.36	0.58	−0.07	−0.10	0.43	−0.38	−0.10	0.08	0.33	0.85	0.55
FM16	−0.26	0.95	0.01	0.39	−0.30	0.61	−0.10	−0.23	0.40	−0.46	−0.11	0.06	0.33	0.92	0.60
FM17	−0.22	0.26	−0.30	0.10	−0.45	0.14	0.32	0.10	0.79	0.16	0.73	0.73	0.57	0.03	−0.24
FM18	−0.23	−0.37	0.03	−0.21	0.96	−0.25	−0.26	−0.52	−0.57	−0.17	−0.37	−0.56	−0.53	−0.18	0.01
FM19	−0.36	0.44	−0.01	0.18	0.29	0.12	−0.22	−0.39	0.05	−0.29	−0.21	−0.21	−0.27	0.52	0.40
FM20	−0.11	1.00	0.17	0.54	−0.32	0.46	−0.35	−0.15	0.37	−0.39	−0.19	−0.07	0.18	0.94	0.72
FM21	−0.11	1.00	0.17	0.54	−0.32	0.46	−0.35	−0.15	0.37	−0.39	−0.18	−0.07	0.18	0.94	0.72
FM22	0.36	0.55	0.67	0.43	−0.48	0.32	−0.31	0.25	−0.23	−0.64	−0.68	−0.36	−0.19	0.69	0.80
FM23	−0.11	1.00	0.17	0.54	−0.32	0.46	−0.35	−0.15	0.37	−0.39	−0.18	−0.07	0.18	0.94	0.72
FM24	−0.17	−0.78	−0.51	−0.56	0.18	−0.47	0.60	0.07	−0.12	0.62	0.52	0.38	0.07	−0.81	−0.82
FM25	0.03	−0.29	−0.31	−0.20	−0.14	−0.42	0.15	0.31	0.49	0.73	0.73	0.46	0.16	−0.53	−0.58
FM26	0.64	−0.20	0.45	−0.06	−0.35	−0.57	−0.13	0.70	−0.02	0.30	0.04	0.11	−0.30	−0.23	0.00
FM27	−0.13	−0.16	0.27	0.16	0.38	−0.32	−0.11	−0.37	−0.76	−0.40	−0.51	−0.56	−0.71	0.05	0.29
FM28	−0.21	−0.34	0.24	0.01	0.79	−0.35	−0.25	−0.42	−0.69	−0.33	−0.50	−0.46	−0.72	−0.07	0.20
FM29	−0.04	0.21	0.57	0.57	0.28	−0.15	−0.50	−0.06	−0.50	−0.54	−0.66	−0.46	−0.62	0.43	0.67
FM30	−0.13	0.00	0.47	0.35	0.55	−0.23	−0.44	−0.23	−0.64	−0.51	−0.66	−0.54	−0.72	0.26	0.53
FM31	−0.17	−0.29	−0.48	−0.23	−0.09	−0.38	0.25	0.13	0.50	0.76	0.79	0.47	0.16	−0.54	−0.65
FM32	−0.16	−0.29	−0.50	−0.25	−0.10	−0.38	0.26	0.14	0.49	0.80	0.79	0.47	0.16	−0.55	−0.66
FM33	−0.17	−0.29	−0.39	−0.24	−0.02	−0.34	0.25	0.09	0.48	0.58	0.75	0.47	0.17	−0.50	−0.59
FM34	−0.26	−0.49	−0.52	−0.35	0.46	−0.49	0.06	−0.17	0.05	0.77	0.45	0.03	−0.20	−0.62	−0.62
FM35	−0.17	−0.27	−0.51	−0.24	−0.11	−0.38	0.25	0.14	0.49	0.82	0.78	0.46	0.15	−0.53	−0.65
FM36	−0.16	−0.31	−0.50	−0.25	−0.10	−0.39	0.26	0.15	0.48	0.79	0.79	0.46	0.16	−0.56	−0.67
FM37	−0.51	−0.61	−0.50	−0.59	0.50	−0.27	0.55	−0.36	−0.12	0.25	0.39	0.18	−0.08	−0.57	−0.62
FM38	−0.03	−0.48	0.39	−0.20	0.56	−0.44	−0.22	−0.22	−0.85	−0.26	−0.61	−0.55	−0.80	−0.18	0.21
FM39	−0.03	0.27	0.35	0.22	0.35	−0.07	−0.15	0.02	−0.20	−0.43	−0.27	0.00	−0.06	0.44	0.43
FM40	0.62	0.20	0.69	0.14	−0.37	0.00	−0.38	0.46	−0.07	−0.31	−0.47	−0.03	−0.16	0.32	0.55
FM41	−0.54	−0.25	−0.85	−0.45	0.03	0.08	0.68	−0.23	0.55	0.52	0.86	0.58	0.52	−0.45	−0.80
FM42	−0.01	−0.47	0.38	−0.20	0.64	−0.44	−0.21	−0.26	−0.89	−0.29	−0.62	−0.62	−0.81	−0.17	0.20
FM43	−0.15	−0.44	0.12	−0.24	0.83	−0.35	−0.22	−0.50	−0.75	−0.20	−0.47	−0.65	−0.68	−0.22	0.05
FM44	−0.19	−0.19	0.26	0.11	0.38	−0.31	−0.07	−0.30	−0.72	−0.38	−0.51	−0.48	−0.74	0.05	0.28

Variable	FM15	FM16	FM17	FM18	FM19	FM20	FM21	FM22	FM23	FM24	FM25	FM26	FM27	FM28	FM29
FM	−0.15	−0.26	−0.22	−0.23	−0.36	−0.11	−0.11	0.36	−0.11	−0.17	0.03	0.64	−0.13	−0.21	−0.04
FM1	0.89	0.95	0.26	−0.37	0.44	1.00	1.00	0.55	1.00	−0.78	−0.29	−0.20	−0.16	−0.34	0.21
FM2	0.07	0.01	−0.30	0.03	−0.01	0.17	0.17	0.67	0.17	−0.51	−0.31	0.45	0.27	0.24	0.57
FM3	0.29	0.39	0.10	−0.21	0.18	0.54	0.54	0.43	0.54	−0.56	−0.20	−0.06	0.16	0.01	0.57
FM4	−0.36	−0.30	−0.45	0.96	0.29	−0.32	−0.32	−0.48	−0.32	0.18	−0.14	−0.35	0.38	0.79	0.28
FM5	0.58	0.61	0.14	−0.25	0.12	0.46	0.46	0.32	0.46	−0.47	−0.42	−0.57	−0.32	−0.35	−0.15
FM6	−0.07	−0.10	0.32	−0.26	−0.22	−0.35	−0.35	−0.31	−0.35	0.60	0.15	−0.13	−0.11	−0.25	−0.50
FM7	−0.10	−0.23	0.10	−0.52	−0.39	−0.15	−0.15	0.25	−0.15	0.07	0.31	0.70	−0.37	−0.42	−0.06
FM8	0.43	0.40	0.79	−0.57	0.05	0.37	0.37	−0.23	0.37	−0.12	0.49	−0.02	−0.76	−0.69	−0.50
FM9	−0.38	−0.46	0.16	−0.17	−0.29	−0.39	−0.39	−0.64	−0.39	0.62	0.73	0.30	−0.40	−0.33	−0.54
FM10	−0.10	−0.11	0.73	−0.37	−0.21	−0.19	−0.18	−0.68	−0.18	0.52	0.73	0.04	−0.51	−0.50	−0.66
FM11	0.08	0.06	0.73	−0.56	−0.21	−0.07	−0.07	−0.36	−0.07	0.38	0.46	0.11	−0.56	−0.46	−0.46

Table A5 (cont.). Correlation matrix of interdependence of factors of Ukraine's AML/CFT system

Variable	FM15	FM16	FM17	FM18	FM19	FM20	FM21	FM22	FM23	FM24	FM25	FM26	FM27	FM28	FM29
FM12	0.33	0.33	0.57	−0.53	−0.27	0.18	0.18	−0.19	0.18	0.07	0.16	−0.30	−0.71	−0.72	−0.62
FM13	0.85	0.92	0.03	−0.18	0.52	0.94	0.94	0.69	0.94	−0.81	−0.53	−0.23	0.05	−0.07	0.43
FM14	0.55	0.60	−0.24	0.01	0.40	0.72	0.72	0.80	0.72	−0.82	−0.58	0.00	0.29	0.20	0.67
FM15	1.00	0.90	0.30	−0.40	0.23	0.88	0.88	0.47	0.88	−0.64	−0.24	−0.18	−0.28	−0.38	−0.01
FM16	0.90	1.00	0.23	−0.32	0.50	0.94	0.95	0.49	0.94	−0.66	−0.42	−0.38	−0.16	−0.30	0.16
FM17	0.30	0.23	1.00	−0.56	−0.14	0.24	0.24	−0.20	0.24	−0.09	0.61	0.15	−0.47	−0.49	−0.35
FM18	−0.40	−0.32	−0.56	1.00	0.33	−0.36	−0.36	−0.36	−0.36	0.20	−0.25	−0.34	0.58	0.85	0.35
FM19	0.23	0.50	−0.14	0.33	1.00	0.45	0.45	0.16	0.45	−0.32	−0.31	−0.27	0.39	0.33	0.55
FM20	0.88	0.94	0.24	−0.36	0.45	1.00	1.00	0.57	1.00	−0.80	−0.31	−0.19	−0.14	−0.31	0.24
FM21	0.88	0.95	0.24	−0.36	0.45	1.00	1.00	0.57	1.00	−0.80	−0.30	−0.19	−0.14	−0.31	0.24
FM22	0.47	0.49	−0.20	−0.36	0.16	0.57	0.57	1.00	0.57	−0.75	−0.58	0.14	0.23	−0.12	0.47
FM23	0.88	0.94	0.24	−0.36	0.45	1.00	1.00	0.57	1.00	−0.80	−0.30	−0.19	−0.14	−0.31	0.24
FM24	−0.64	−0.66	−0.09	0.20	−0.32	−0.80	−0.80	−0.75	−0.80	1.00	0.36	0.04	−0.05	0.09	−0.44
FM25	−0.24	−0.42	0.61	−0.25	−0.31	−0.31	−0.30	−0.58	−0.30	0.36	1.00	0.57	−0.39	−0.35	−0.48
FM26	−0.18	−0.38	0.15	−0.34	−0.27	−0.19	−0.19	0.14	−0.19	0.04	0.57	1.00	−0.02	−0.21	−0.06
FM27	−0.28	−0.16	−0.47	0.58	0.39	−0.14	−0.14	0.23	−0.14	−0.05	−0.39	−0.02	1.00	0.74	0.63
FM28	−0.38	−0.30	−0.49	0.85	0.33	−0.31	−0.31	−0.12	−0.31	0.09	−0.35	−0.21	0.74	1.00	0.66
FM29	−0.01	0.16	−0.35	0.35	0.55	0.24	0.24	0.47	0.24	−0.44	−0.48	−0.06	0.63	0.66	1.00
FM30	−0.18	−0.01	−0.47	0.63	0.55	0.03	0.03	0.26	0.02	−0.25	−0.48	−0.15	0.76	0.86	0.94
FM31	−0.21	−0.38	0.61	−0.18	−0.24	−0.31	−0.31	−0.66	−0.31	0.43	0.97	0.44	−0.34	−0.28	−0.50
FM32	−0.21	−0.38	0.57	−0.19	−0.25	−0.32	−0.31	−0.66	−0.31	0.46	0.97	0.44	−0.35	−0.30	−0.53
FM33	−0.22	−0.37	0.70	−0.10	−0.21	−0.31	−0.30	−0.64	−0.30	0.35	0.94	0.41	−0.26	−0.19	−0.43
FM34	−0.42	−0.53	−0.02	0.39	−0.03	−0.50	−0.50	−0.81	−0.50	0.62	0.66	0.16	−0.03	0.17	−0.32
FM35	−0.19	−0.37	0.56	−0.21	−0.24	−0.29	−0.29	−0.66	−0.29	0.45	0.96	0.44	−0.36	−0.32	−0.53
FM36	−0.23	−0.40	0.57	−0.19	−0.26	−0.33	−0.33	−0.67	−0.33	0.46	0.97	0.44	−0.34	−0.30	−0.53
FM37	−0.40	−0.46	0.06	0.55	0.00	−0.62	−0.62	−0.73	−0.62	0.70	0.30	−0.15	0.27	0.43	−0.24
FM38	−0.49	−0.46	−0.60	0.68	0.04	−0.45	−0.45	0.05	−0.45	0.13	−0.37	−0.04	0.70	0.86	0.53
FM39	0.33	0.34	−0.16	0.32	0.25	0.28	0.28	0.05	0.28	−0.08	−0.34	−0.17	0.14	0.37	0.41
FM40	0.12	0.11	−0.10	−0.41	−0.18	0.22	0.22	0.64	0.22	−0.44	−0.30	0.31	−0.19	−0.13	0.24
FM41	−0.05	−0.12	0.53	−0.03	−0.10	−0.28	−0.28	−0.77	−0.28	0.58	0.59	−0.17	−0.33	−0.26	−0.67
FM42	−0.48	−0.45	−0.66	0.79	0.13	−0.44	−0.44	0.03	−0.45	0.15	−0.37	−0.02	0.80	0.88	0.52
FM43	−0.47	−0.40	−0.62	0.94	0.25	−0.42	−0.42	−0.21	−0.42	0.19	−0.29	−0.21	0.76	0.86	0.37
FM44	−0.30	−0.16	−0.48	0.58	0.50	−0.17	−0.17	0.22	−0.17	0.00	−0.39	−0.03	0.96	0.79	0.71

Variable	FM30	FM31	FM32	FM33	FM34	FM35	FM36	FM37	FM38	FM39	FM40	FM41	FM42	FM43	FM44
FM	−0.13	−0.17	−0.16	−0.17	−0.26	−0.17	−0.16	−0.51	−0.03	−0.03	0.62	−0.54	−0.01	−0.15	−0.19
FM1	0.00	−0.29	−0.29	−0.29	−0.49	−0.27	−0.31	−0.61	−0.48	0.27	0.20	−0.25	−0.47	−0.44	−0.19
FM2	0.47	−0.48	−0.50	−0.39	−0.52	−0.51	−0.50	−0.50	0.39	0.35	0.69	−0.85	0.38	0.12	0.26
FM3	0.35	−0.23	−0.25	−0.24	−0.35	−0.24	−0.25	−0.59	−0.20	0.22	0.14	−0.45	−0.20	−0.24	0.11
FM4	0.55	−0.09	−0.10	−0.02	0.46	−0.11	−0.10	0.50	0.56	0.35	−0.37	0.03	0.64	0.83	0.38
FM5	−0.23	−0.38	−0.38	−0.34	−0.49	−0.38	−0.39	−0.27	−0.44	−0.07	0.00	0.08	−0.44	−0.35	−0.31
FM6	−0.44	0.25	0.26	0.25	0.06	0.25	0.26	0.55	−0.22	−0.15	−0.38	0.68	−0.21	−0.22	−0.07
FM7	−0.23	0.13	0.14	0.09	−0.17	0.14	0.15	−0.36	−0.22	0.02	0.46	−0.23	−0.26	−0.50	−0.30
FM8	−0.64	0.50	0.49	0.48	0.05	0.49	0.48	−0.12	−0.85	−0.20	−0.07	0.55	−0.89	−0.75	−0.72
FM9	−0.51	0.76	0.80	0.58	0.77	0.82	0.79	0.25	−0.26	−0.43	−0.31	0.52	−0.29	−0.20	−0.38
FM10	−0.66	0.79	0.79	0.75	0.45	0.78	0.79	0.39	−0.61	−0.27	−0.47	0.86	−0.62	−0.47	−0.51
FM11	−0.54	0.47	0.47	0.47	0.03	0.46	0.46	0.18	−0.55	0.00	−0.03	0.58	−0.62	−0.65	−0.48
FM12	−0.72	0.16	0.16	0.17	−0.20	0.15	0.16	−0.08	−0.80	−0.06	−0.16	0.52	−0.81	−0.68	−0.74
FM13	0.26	−0.54	−0.55	−0.50	−0.62	−0.53	−0.56	−0.57	−0.18	0.44	0.32	−0.45	−0.17	−0.22	0.05
FM14	0.53	−0.65	−0.66	−0.59	−0.62	−0.65	−0.67	−0.62	0.21	0.43	0.55	−0.80	0.20	0.05	0.28
FM15	−0.18	−0.21	−0.21	−0.22	−0.42	−0.19	−0.23	−0.40	−0.49	0.33	0.12	−0.05	−0.48	−0.47	−0.30
FM16	−0.01	−0.38	−0.38	−0.37	−0.53	−0.37	−0.40	−0.46	−0.46	0.34	0.11	−0.12	−0.45	−0.40	−0.16
FM17	−0.47	0.61	0.57	0.70	−0.02	0.56	0.57	0.06	−0.60	−0.16	−0.10	0.53	−0.66	−0.62	−0.48
FM18	0.63	−0.18	−0.19	−0.10	0.39	−0.21	−0.19	0.55	0.68	0.32	−0.41	−0.03	0.79	0.94	0.58
FM19	0.55	−0.24	−0.25	−0.21	−0.03	−0.24	−0.26	0.00	0.04	0.25	−0.18	−0.10	0.13	0.25	0.50
FM20	0.03	−0.31	−0.32	−0.31	−0.50	−0.29	−0.33	−0.62	−0.45	0.28	0.22	−0.28	−0.44	−0.42	−0.17

Table A5 (cont.). Correlation matrix of interdependence of factors of Ukraine's AML/CFT system

Variable	FM30	FM31	FM32	FM33	FM34	FM35	FM36	FM37	FM38	FM39	FM40	FM41	FM42	FM43	FM44
FM21	0.03	−0.31	−0.31	−0.30	−0.50	−0.29	−0.33	−0.62	−0.45	0.28	0.22	−0.28	−0.44	−0.42	−0.17
FM22	0.26	−0.66	−0.66	−0.64	−0.81	−0.66	−0.67	−0.73	0.05	0.05	0.64	−0.77	0.03	−0.21	0.22
FM23	0.02	−0.31	−0.31	−0.30	−0.50	−0.29	−0.33	−0.62	−0.45	0.28	0.22	−0.28	−0.45	−0.42	−0.17
FM24	−0.25	0.43	0.46	0.35	0.62	0.45	0.46	0.70	0.13	−0.08	−0.44	0.58	0.15	0.19	0.00
FM25	−0.48	0.97	0.97	0.94	0.66	0.96	0.97	0.30	−0.37	−0.34	−0.30	0.59	−0.37	−0.29	−0.39
FM26	−0.15	0.44	0.44	0.41	0.16	0.44	0.44	−0.15	−0.04	−0.17	0.31	−0.17	−0.02	−0.21	−0.03
FM27	0.76	−0.34	−0.35	−0.26	−0.03	−0.36	−0.34	0.27	0.70	0.14	−0.19	−0.33	0.80	0.76	0.96
FM28	0.86	−0.28	−0.30	−0.19	0.17	−0.32	−0.30	0.43	0.86	0.37	−0.13	−0.26	0.88	0.86	0.79
FM29	0.94	−0.50	−0.53	−0.43	−0.32	−0.53	−0.53	−0.24	0.53	0.41	0.24	−0.67	0.52	0.37	0.71
FM30	1.00	−0.47	−0.49	−0.37	−0.12	−0.50	−0.49	0.04	0.71	0.42	0.06	−0.54	0.74	0.65	0.83
FM31	−0.47	1.00	1.00	0.96	0.74	0.99	1.00	0.44	−0.35	−0.35	−0.45	0.71	−0.35	−0.23	−0.33
FM32	−0.49	1.00	1.00	0.94	0.76	1.00	1.00	0.43	−0.36	−0.36	−0.45	0.72	−0.36	−0.25	−0.34
FM33	−0.37	0.96	0.94	1.00	0.63	0.92	0.94	0.50	−0.28	−0.29	−0.44	0.70	−0.26	−0.15	−0.27
FM34	−0.12	0.74	0.76	0.63	1.00	0.77	0.76	0.63	0.03	−0.16	−0.65	0.60	0.10	0.30	−0.01
FM35	−0.50	0.99	1.00	0.92	0.77	1.00	1.00	0.41	−0.38	−0.36	−0.45	0.71	−0.37	−0.26	−0.36
FM36	−0.49	1.00	1.00	0.94	0.76	1.00	1.00	0.44	−0.35	−0.37	−0.45	0.72	−0.35	−0.24	−0.34
FM37	0.04	0.44	0.43	0.50	0.63	0.41	0.44	1.00	0.32	0.04	−0.71	0.70	0.39	0.52	0.29
FM38	0.71	−0.35	−0.36	−0.28	0.03	−0.38	−0.35	0.32	1.00	0.14	0.14	−0.42	0.96	0.82	0.72
FM39	0.42	−0.35	−0.36	−0.29	−0.16	−0.36	−0.37	0.04	0.14	1.00	−0.03	−0.19	0.20	0.18	0.15
FM40	0.06	−0.45	−0.45	−0.44	−0.65	−0.45	−0.45	−0.71	0.14	−0.03	1.00	−0.74	−0.02	−0.31	−0.14
FM41	−0.54	0.71	0.72	0.70	0.60	0.71	0.72	0.70	−0.42	−0.19	−0.74	1.00	−0.37	−0.14	−0.33
FM42	0.74	−0.35	−0.36	−0.26	0.10	−0.37	−0.35	0.39	0.96	0.20	−0.02	−0.37	1.00	0.91	0.80
FM43	0.65	−0.23	−0.25	−0.15	0.30	−0.26	−0.24	0.52	0.82	0.18	−0.31	−0.14	0.91	1.00	0.72
FM44	0.83	−0.33	−0.34	−0.27	−0.01	−0.36	−0.34	0.29	0.72	0.15	−0.14	−0.33	0.80	0.72	1.00

Note: Items in red mean correlation coefficients between indicators, the values of which describe a very strong, strong and medium relationship between the studied characteristics.