Measuring an amount of money laundering: a case from Ukraine

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Abstract Despite the importance of combating money laundering and terrorist financing, there is still no single methodology for determining the extent amount of money laundering, based on the statistical information provided by the public financial monitoring authorities, since a large part of these financial flows is still outside the official statistics. The aim of the study is to develop methodological bases for determining the amount of money laundering through the real sector of economy, state and local budgets, and the segment of financial intermediaries. While determining the amount of money laundering, authors also have taken into account the level of shadow economy and indicators of quality and efficiency of state regulation of the national economy. The amount of money laundering in the country was determined using the Minkowski metric. The information base for the paper was data from the State Audit Service of Ukraine and the State Financial Monitoring Service of Ukraine. The paper presents the results of an empirical analysis concerning measurement of money laundering in Ukraine, which showed that the lowest level of money laundering was recorded in 2007; during 2008-2009 there was a slightly increase in the amount of money laundering as a result of the activation of destructive processes both in the global financial system and in the national economy; 2010-2013 can be considered a period of post-crisis stabilization and, accordingly, a slight fluctuation in the amount of money laundering, while the intensification of the military-political conflict in Ukraine again intensified the increasing of money laundering with the highest level in 2014. Thus, the correspondence of the trend of volatility of the calculated amount of money laundering to the real political and economic processes in Ukraine confirms the adequacy of the developed approach to its estimation. The methodological approach made it possible to comprehensively evaluate both implicit and explicit flows of money laundering and create an effective information base for evaluating the effectiveness of anti-money laundering instruments in the context of ensuring economic security in the country. Further scientific research requires the forecast the amount of money laundering in Ukraine. The results of the research can be useful for governments in order to adequately respond to destabilizing factors in the national economy.

Keywords: money laundering, Minkowski metric, economic security, financial monitoring.

Introduction. The financial and economic security of the state is ensured by introducing an effective early diagnosis system, enhancing supervision of systemically important banks, improving macro-prudential banking regulation through the introduction of a countercyclical capital buffer, and strengthening measures in anti-money laundering and terrorism financing (S. Kozmenko and Vasyl'yeva (2008), Sofjan (2018), Stankevičienė et al (2014), Vasylyeva et al (2014), Lewandowski (2016). Money laundering is not only a criminal act, but also an ever-present threat to the stable development of the financial market and the corporate sector as a whole (Pilipenko et al (2019)). Leonov et al (2014) justify that institutional investors as subjects of initial financial monitoring in the area of preventing and counteracting the money legalization (laundering) or terrorist financing, should be advisable to improve the system of regulation and supervision of these institutions for the protection the consumers' rights of financial services. However, the scale of money laundering in the country are determined not only by the transparency of economic relations in the country, but also the level of social security and the political stability in the country (Bilan et al (2019), Bilan (2019), Kozmenko and Kuzmenko (2013), Lyeonov and Liuta (2016), Stukalo et al (2018). According to the United Nations Office on Drugs and Crime, the global money laundering amounted at 2.7% of world GDP in 2009, while by the beginning of 2019 this figure has almost doubled to about 5% of world GDP (2.0 trillion USD, which is, for example, equivalent to the annual GDP of countries such as

Italy, Brazil, or Canada). This rapid growth in money laundering clearly confirms the dynamically increasing threat to economic security in both national and global contexts (Zarutska (2018)). That is why finding new tools to prevent money laundering is a key task of national and international oversight bodies. The need to develop anti-money laundering regulatory measures urges the development of methods for determining the amount of money laundered, which would take into account both actual data and implicit components of this process.

Literature Review. Vasilyeva et al (2013) and Gospodarchuk and Suchkova (2019) recon that the money laundering is one of the drivers of appearance of internal and external imbalances in the financial sector. Similar opinion is shared by other scholars (Vasilyeva et al (2016)), who substantiate the following negative factors affecting the banking system development: significant number of bank liabilities generated in foreign currency, imbalance between the terms of investment and borrowing, high level of credit risk, insufficient capitalization of banks and using financial services for money laundering. Buriak et al (2015) empirically identify how expansion of money laundering processes increase fragility of systemically important banks and financial system as a whole. According to Aryani and Hussainey (2017), Deaconu et al (2016), Evana et al (2019), the riskiness of the bank's activities and the financial institution's tendency to use its services for legalization of funds correlates with the quality of the financial reporting.

Assessing the volume of criminal income legalization requires a thorough study of the causes of its occurrence and the mechanisms of its formation. Thus, the analysis of such a source of the legalization of criminal income as narcotics trade and the evaluation of the further mechanisms of the legalization of funds received from this type of activity were carried out in the works of Alasmari (2012, 2013). Particular attention should be paid to money supply and inflation which is also related to impacting factors such as money laundering. The two factors money supply and inflation are a particular characteristic of Ukraine and systematically lead to destructive consequences in the economy. The study of this problem was carried out in the works of Sasongko and Huruta (2018). An equally important factor in expanding the process of criminal income legalization in Ukraine is the dollarization of the economy. This phenomenon was investigated in the works of Kaminskyi and Versal (2018).

The main forms and tools of illegal financial transactions are tax evasion or avoidance and withdrawal financial resources abroad (Bilan et al (2018), Bilan et al (2019), Budzyńska (2016), Dobrovič et al (2018), Grytsenko et al (2010), Pilipenko et al (2019). According to Muljavka and Reznik (2013) one of the key actions to anti-money laundering should be the expansion of the tax police authority and its institutional restructuring into a large-scale law enforcement body that would combat economic and corruption crime. Other scientists (Masri et al (2019)) have justified that international tax practices are a form of international tax avoidance in order to lower tax liabilities and to conceal the source of illegally obtained funds.

Considerable attention to the development of methodological approaches to determining the risk of money laundering is reflected in the work of such scholars as Dmytrov et al (2011, 2014, 2017), Boyko and Roienko (2014), Kostyuchenko et al (2018), Levchenko et al (2019), Berzin et al (2018). An innovative solution for analyzing predisposition to commit illegal activities in the financial services markets involves taking into account public trust in financial institutions, which is determined based on a combination of regulatory rules and the behavior of economic agents (their feelings, emotions and other subjective characteristics) (Bilan et al (2019), Brychko et al (2019)).

Today's drivers of global economic development are innovative technologies that not only dramatically change the architecture of the financial system, but also create completely new approaches to managing and executing business processes based on Big Data, robotics, artificial intelligence, the Internet thing and more (Karaoulanis (2018)). The Internet and digital devices are a driver of economic growth (Afonasova

et al (2019), Nathan et al (2019)). At the same time Industry 4.0 has created an environment conducive to illegal criminal proceeds (Bilan et al (2019)).The paper of Gasparėnienė et al (2017) was aimed to define the concept of a digital shadow economy and identify its determinants and channels. Knezevic (2018) conducted a research on an impact of blockchain technology platform on the financial sector through cryptocurrency, and an impact on activity of money laundering.

The use of cryptocurrency and other digital currencies as innovative financial instruments is another topical trend of money laundering through IT technologies. In particular, Mabunda (2018) justifies that the emergence and rapid spread of cryptocurrency in the world leads to the improvement of money laundering schemes through the Internet, since the peculiarities of circulation of virtual money allow for uncontrolled transactions within different countries. Stokes (2012) conducted a money laundering risk analysis of two virtual currencies: Linden Dollar, a global currency in the Second Life interactive online environment, and Bitcoin, an experimental virtual currency that allows transferring value using peer-to-peer technology. The study found that these virtual currencies are in demand among criminals in the field of money laundering, but they are not suitable for large-scale laundering. Šimonová, Čentéš, & Beleš, 2019 continued a study on the peculiarities of using innovative forms of money for money laundering. They focus on the existing problems in the field of regulation of the electronic money market and the mechanism for countering the illegal circulation of these assets for money laundering.

The rapid development of information technology has led to the emergence of cyber-attacks, which is one of the threats in the functioning of the anti-money laundering system. The study of this issue is reflected in the works of such scientists as (Filipkowski (2008), Horne (2014), Mirea et al (2011), Piller and Zaccariotto (2009), Şcheau and Pop Zaharie (2017), Sekgwathe and Talib, 2012)). In turn Stiawan et al (2017) review various cyber-attack techniques and penetration test methodologies to assist security service personnel in relevant security assessments on their network systems. Simultaneously (Federici, 2007) notes that the use of various data mining methods in modern conditions can be useful for understanding the links between people and suspicious operations in order to track money laundering and terrorist financing activities.

Many scientists studied the use of electronic payment systems and online banking for money launderings, namely Merenkova (2008), More et al (2015), Trautman (2013), Tropina (2014).

However, the latest technologies are used both for money laundering and for counteracting this process. Thus, Plaksiy et al (2018) study the possibilities and benefits of applying Big Data for financial investigation data analysis. The visualization of ML/CFT typologies with the use of graphs is being considered as a result of the study. Leonov et al (2019) engage in the active use of the latest information processing methods, succeeding in the prototyping of information system for monitoring banking transactions.

In scientific works of Kordík and Kurilovská (2017) special attention is devoted to the study of mechanisms of counteraction to money laundering. However Klochko et al (2016) justify the need to bring in criminal liability for offenses in banking activities, which allows to protect the interests of consumers of financial services and increase the level of confidence in the national financial system. Subeh and Boiko (2017) have proposed innovative methodological approach to estimate the effectiveness of regulatory authorities using a queueing system. Kadhim et al (2019) confirmed the necessity for banks' stress testing as one of the primary steps to counteract money laundering.

The most commonly used approach for determining the amount of money laundering is The Walker Gravity Model (Walker (1995)). Walker's model for money laundering assumes that the share of proceeds from unlawful activity generated in one country and sent to another country depends on both the mass and 'attractiveness' of the second country, and the distance between the two countries. It was revised and re-

estimated for the Netherlands by Walker and Unger (2009, 2013) by using the distance between the countries in the attractiveness factor, instead of its square.

Given the need for a comprehensive assessment of the volume of criminal income legalization, it is advisable to analyze the existing econometric approaches to the evaluation of economic phenomena and processes. Thus, the approach to the integrated assessment of social security is reflected in the work of Zavora and Chepurny (2014). The work of Formánek (2019) deals with a complex spatio-temporal regression model. The team of researchers, namely Rungsrisawat et al (2019) use the ARDL technique to explore the nexus between crime, socio-economic strains, and economic growth. In turn, in the works of Bivainis and Skačkauskienė (2009), an approach is proposed to solve the problem of assessing the evolution of indicators over time. In addition, data mining and artificial intelligence can serve as a methodological tool for determining the amount of money laundering (Dahooei et al (2018), Kuziak (2016), Slapikaite and Tamosiuniene (2017), Vasilyeva et al (2019), Njegovanovic (2018).

Methodology and results. A methodology has been developed for determining the amount of money laundered based on the use of mathematical modeling in economics. It involves determining the actual losses from money laundering schemes, as well as calculating an adjusting factor to take into account both explicit and implicit money laundering flows.

First, actual losses from money laundering schemes are assessed. In different countries, this amount can be specified based on the data from the relevant anti-money laundering agencies and government statistics agencies. In Ukraine, this indicator is based on the data from the State Audit Service of Ukraine and the State Financial Monitoring Service of Ukraine. Thus, the operating results of the State Audit Service allow determining two indicators: the amount of money laundered through the state budget and local budgets. In its turn, the data from the State Financial Monitoring Service are used to assess the amount of money laundered through the real sector of the economy and financial intermediaries. The mathematical formalization of this stage is based on the additive convolution of these three indicators.

For the practical implementation of first stage of methodology, we will use Table 1 to formalize the dynamics of the amount of money laundered through the state budget, the amount of money laundered through local budgets and the amount of money laundered through the real sector of the economy and financial intermediaries for 2007-2018.

Table 1: Data for assessing the real volume of money laundered

Year	Amount of money laundered through the real sector of the economy and financial intermediaries	Amount of money laundered through the state budget	Amount of money laundered through local budgets
2007	9,745,614	488,524.77	554,184.40
2008	12,349,333	1,219,706.32	515,381.68
2009	11,365,557	1,308,422.72	992,598.71
2010	14,945,389	7,323,744.68	1,001,618.04
2011	22,702,164	1,109,218.08	1,228,780.89
2012	29,203,021	1,099,530.16	524,724.02
2013	4,482,439	737,850.92	936,838.66
2014	3,961,062	1,546,713.31	567,682.87
2015	1,113,910	819,552.20	730,796.59
2016	11,336,889	709,139.87	511,510.85
2017	928,802,849	608,922.82	510,658.76
2018	124,346,271	623,651.51	470,314.24

Based on the data in Table 1, it is possible to conclude that no consistent patterns were observed regarding the mechanisms for applying money laundering schemes during 2007-2018. Thus, 2017 and 2018 were the most critical years for the real and financial sectors of the economy in terms of the amount of money laundered, when the value of the indicator under study exceeded the average annual indicator by almost 44 times. In turn, when studying public finances, we note that the largest amount of financial resources was laundered through the state budget in 2010 and 2014. The period from 2009 to 2011 demonstrated the peak of money laundering through local budgets. This indicates that criminals use various money laundering schemes and try to increase the amount of money laundered every year.

Second, it is necessary to calculate the adjustment index, which will increase the actual amount of money laundered based on the amounts of laundered money that were not potentially revealed by state regulatory authorities. The following seven indicators are proposed to be selected as components of this index.

The level of the shadow economy. Accounting for this indicator is due to the need to formalize sources of income, which in the future will require laundering. The shadow economy creates monetary resources that are used by criminals either to commit other illegal actions or develop various money laundering schemes.

The corruption control index is currently the most significant disincentive indicator in terms of money laundering for Ukraine. This indicator can be used as an argument that the government is joining private interests and, accordingly, receives illegal income in the form of profit by business entities and in the form of bribes. Thus, taking this indicator into account is mandatory when forming the index for adjusting the amount of money laundered towards its decrease.

Government performance index. The rationale behind this index is that the high quality of public services and the independence of public services from political pressure extremely impedes the money laundering processes. Thus, the competent and highly effective performance by the ministries and departments of Ukraine of the functions assigned to them makes it impossible for the criminals to generate illegal income and use a significant number of schemes (for example, with state property, securities, etc.). Leonov et al (2014) substantiate a systemically important role in determining the effective and fair rate of government bonds' yield to prevent the legalization of illicit income and the withdrawal of funds abroad.

The above index is supplemented by the regulatory quality index. Its use is conditioned by the need to take into account the level of implementation by the ministries and departments of Ukraine of the state policy and adopted provisions. Considering the fact that anti-money laundering activities are based on fulfilling the requirements of international organizations implemented in the laws of Ukraine (FATF, MONEYVAL, etc.), the effectiveness of law enforcement in Ukraine directly affects the level of money laundering.

Political stability and absence of violence/terrorism. This indicator is used due to the need to take into account political instability. This indicator is especially significant for Ukraine since the power shift takes place every five years, and therefore, first, government officials are involved or directly carry out the money laundering because they hold power for a short period, and second, it is much easier for criminals to hide illegal incomes in conditions of constant changes and instability.

The rule of law index directly reflects the probability of crime and the general level of public confidence in the judiciary. Thus, this indicator reflects a certain component of the general indicator of the propensity (desire) of economic entities to accumulate illegal income followed by its subsequent laundering.

The results of the publicity and accountability index are interesting in terms of the openness of companies and freedom of the media. Thus, the first characteristic of this index describes the likelihood of attracting a company to the shadow sector of the economy, and the second opportunity for the media to

honestly covering and carrying out objective journalistic investigations related to the activities of public officials, etc.

Thus, it is fair to point out that the corruption control index, the government performance index, the regulatory quality index, the political stability and absence of violence/terrorism index, the rule of law index and the publicity and accountability index are indicators that more or less describe certain manifestations of corruption. For Ukraine, corruption and the shadow economy are the main sources that stimulate money laundering. Corruption allows criminals to escape punishment and unimpededly implement all money laundering schemes.

As for the mathematical formalization of calculating the index for adjusting the total amount of money laundered, we note that it must be presented as an exponent of the Minkowski parametric metric of naturally normalized indicators.

This stage is complex, and there is a need for its step-by-step description:

The first step involves the formation of an information base for the index adjusting the actual amount of money laundered, represented by the dynamics of seven time series: the level of the shadow economy, corruption control, government performance, political stability and absence of violence/terrorism, regulation quality, the rule of law, transparency and accountability (Table 2).

Table **Ошибка! Текст указанного стиля в документе отсутствует.**: Data on the index for adjusting the real amount of money laundered

Year	Corruption control	Government performance	Political stability and absence of violence/terrorism	Regulation quality	Rule of law	Transparency and accountability	Shadow economy
2007	-0.80	-0.67	0.17	-0.43	-0.73	0.06	28.00
2008	-0.84	-0.72	0.04	-0.53	-0.68	0.09	34.00
2009	-1.04	-0.83	-0.30	-0.57	-0.76	0.06	39.00
2010	-1.03	-0.78	0.01	-0.52	-0.81	-0.08	38.00
2011	-1.05	-0.82	-0.07	-0.60	-0.82	-0.13	34.00
2012	-1.08	-0.58	-0.09	-0.60	-0.78	-0.28	34.00
2013	-1.13	-0.65	-0.78	-0.62	-0.80	-0.32	36.00
2014	-0.99	-0.41	-2.02	-0.63	-0.79	-0.14	43.00
2015	-0.98	-0.52	-1.96	-0.59	-0.81	-0.09	40.00
2016	-0.81	-0.57	-1.86	-0.43	-0.77	0.00	35.00
2017	-0.78	-0.46	-1.87	-0.32	-0.71	0.01	32.00
2018	-0.87	-0.42	-1.83	-0.22	-0.72	-0.01	30.00

Based on the data given in Table 2, it is fair to note the following patterns:

– during 2007-2018, all the indices studied were negative; exceptions were the political stability and absence of violence/terrorism index in 2007-2008 and the publicity and accountability index in 2007-2009 and 2016-2017;

– during the years 2007-2018, with the exception of the publicity and accountability index, the average of all indices was less than -0.5 units;

– the most negative values of the indices studied were traced with respect to the corruption control index (mean -0.95, lowest in 2013 equaled -1.13) and political stability and absence of violence/terrorism index (mean -0.88, lowest in 2014 was -2.02).

This indicates the existence of a favorable environment in Ukraine for the money laundering and, accordingly, the need to adjust the actual amount of money laundered to obtain relatively real data.

Continuing the practical implementation of the methodology for determining the amount of money laundered in the context of the formation of the adjustment index, we proceed to the second step. Thus, it is necessary to normalize the indicators of the information base of the adjustment index using the natural method for incentives and the Savage normalization for disincentives (Levchenko et al (2019)).

For incentives (corruption control indices, government performance, political stability and absence of violence/terrorism, regulation quality, rule of law, publicity, and accountability), we apply natural normalization:

$$n_{it} = \frac{f_{it} - \min\limits_{t} f_{it}}{\max\limits_{t} f_{it} - \min\limits_{t} f_{it}} \quad (1)$$

where f_{it} – the actual value of the i-th indicator-component of the adjustment index for the t-th year;

n_{it} – the naturally normalized value of the i-th indicator-component of the adjustment index for the t-th year;

$\min\limits_{t} f_{it}$ – the minimum possible value of the i-th indicator-component of the adjustment index over the studied time range;

$\max\limits_{t} f_{it}$ – the maximum possible value of the i-th indicator-component of the adjustment index over the studied time range.

For the disincentive (level of the shadow economy), we apply the Savage normalization formula:

$$n_{it} = \frac{\max\limits_{t} f_{ti} - f_{ti}}{\max\limits_{t} f_{ti} - \min\limits_{t} f_{ti}} \quad (2)$$

The calculations made based on formulas (1) and (2) are summarized in Table 3.

Table 1: Normalized values of indicators of the index for adjusting the amount of money laundered

Year	Corruption control	Government performance	Political stability and absence of violence/terrorism	Regulation quality	Rule of law	Transparency and accountability	Shadow economy
2007	0.96	0.40	1.00	0.48	0.67	0.93	1.00
2008	0.84	0.28	0.94	0.23	1.00	1.00	0.60
2009	0.27	0.00	0.78	0.14	0.44	0.92	0.27
2010	0.30	0.12	0.93	0.28	0.08	0.57	0.33
2011	0.23	0.02	0.89	0.06	0.00	0.45	0.60
2012	0.16	0.60	0.88	0.08	0.26	0.09	0.60
2013	0.00	0.45	0.57	0.01	0.10	0.00	0.47
2014	0.40	1.00	0.00	0.00	0.20	0.43	0.00
2015	0.44	0.74	0.03	0.08	0.04	0.56	0.20
2016	0.91	0.62	0.07	0.49	0.38	0.78	0.53
2017	1.00	0.89	0.07	0.75	0.78	0.81	0.73
2018	0.74	1.00	0.09	1.00	0.73	0.74	0.87

The third step is aimed at determining the weighting coefficients of priority of indicators for assessing the index for adjusting the amount of money laundered. Since an assumption is made that the considered indicators are of equal priority, the corresponding onew_i (the weight coefficient of the i-th indicator-component of the adjustment index) takes the value of 1/7. At the same time, it is fair to say that the goal of developing this methodology is the formation of universal principles, i.e. the use of such economic and mathematical tools that will allow adapting to changes in the internal and external environment. Therefore, given the changing economic and political situation in Ukraine, or the application of the proposed

methodology to another country, this step may be transformed and the weighting coefficients of the i-th indicator-component of the adjustment index may take different values. Weighting is usually based on an expert method.

The fourth step involves intermediate calculations, namely the calculation of the Minkowski parametric metric in the context of indicators of the information base of the index for adjusting the actual amount of money laundered.

At the final fifth stage, the adjustment index is directly calculated – the exponent of the Minkowski parametric metric in terms of indicators of the information base of the index for adjusting the actual amount of money laundered (formula 3).

$$I_{kt} = exp(M_{mt}) = exp\left(1 - \sqrt{w_i \cdot \sum_{i=1}^{7}(1 - n_t)^2}\right) exp\left(1 - \sqrt{w_i \cdot \sum_{i=1}^{7}\left(1 - \frac{f_{it} - \min\limits_{t} f_{it}}{\max\limits_{t} f_{it} - \min\limits_{t} f_{it}}\right.}\right. \quad (3)$$

where I_{kt} – index of adjustment of the actual amount of money laundered.

The results of calculations according to formula (3) are presented in Table 4 (column 2).

Table 4: Dynamics of Minkowski metric and index for adjusting the actual amount of money laundered

Year	Minkowski metric	Index for adjusting the actual amount of money laundered
2007	0.67	1.960275006
2008	0.57	1.766179903
2009	0.33	1.385018664
2010	0.32	1.372054102
2011	0.25	1.289611991
2012	0.32	1.372237918
2013	0.19	1.213107852
2014	0.21	1.237898848
2015	0.25	1.284987375
2016	0.48	1.610586896
2017	0.60	1.830284811
2018	0.61	1.844962014

At the third stage of development of the methodology for determining the amount of money laundering, the estimated amount of money laundering is determined by applying a multiplicative model of adjusting the actual amount to the corresponding adjustment index:

$$ML_t = (RL_t + SL_t + LL_t) \cdot I_{kt} \quad (4)$$

where ML_t – estimated (real) amount of money laundering for the t-th year;

RL_t – the amount of money laundered through the real sector of the economy and financial intermediaries;

SL_t – the amount of money laundering through the state budget;

LL_t – the amount of money laundering through the regional budgets.

I_{kt} – the index of adjustment of the actual amount of money laundering for the k-th year.

The results of the calculation of the amount of money laundering are presented in the figure 1. At the same time, in order to understand the real scale of the money laundering in Ukraine, the share of the calculated (actual) amount of money laundering in GDP has been determined.

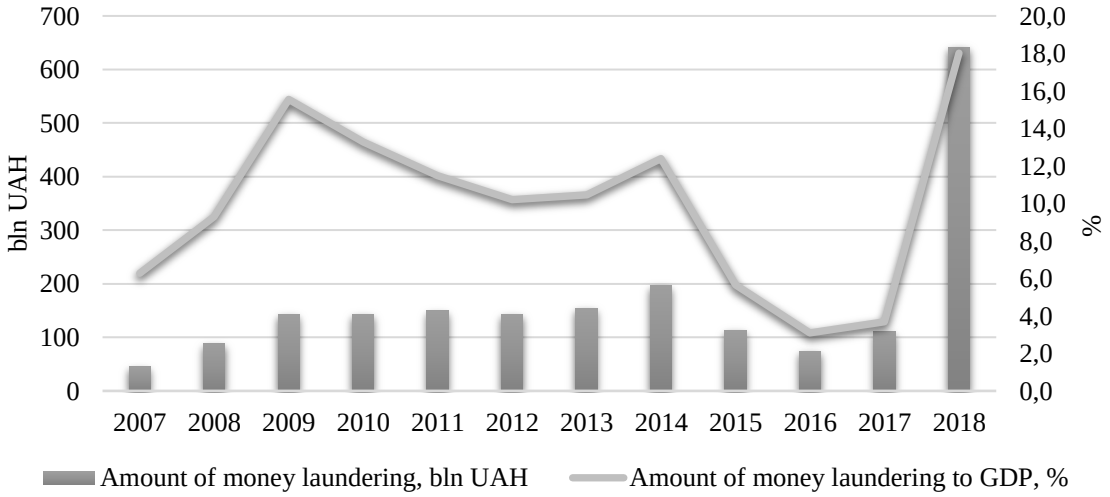

Fig. 1. Dynamics of money laundering in Ukraine during 2007-2018 years

The results of the empirical investigation showed that the lowest level of money laundering was recorded in 2007. During 2008-2009 there was a slightly increase in the amount of money laundering as a result of the activation of destructive processes both in the global financial system and in the national economy. 2010-2013 can be considered a period of post-crisis stabilization and, accordingly, a slight fluctuation for money laundering, while the intensification of the military-political conflict in Ukraine again intensified the increasing of money laundering with the highest level in 2014. The anomalous value of money laundering in Ukraine in 2018 is due to the disclosure of a large-scale scheme for laundering illicit funds in the amount of 1.5 billion USA dollars.

Conclusions. Combating the money laundering and terrorism financing is a major challenge for national and international supervisory and regulatory authorities to ensure sustainable economic development and security. It is advisable to use foreign experience of countries that also have a bank-centered model of financial market to combat the legalization of criminal income. According to Kozmenko et al (2011) point out that Ukraine repeats the path of financial development of Germany.

Summing up the above calculations, it is fair to say that the amount of money laundering during 2007-2018 was cyclical, with periods of decline in 2012, 2015, and 2016, as well as 2019. Anomalous value of the amount of money laundering in 2018, the average growth rate of this indicator for the period under review will be 20%. This indicates an intensive increase in the volume of criminal proceeds legalization, even after significant periods of its decline. Thus, the correspondence of the trend of volatility of the calculated amount of money laundering to the real political and economic processes in Ukraine confirms the adequacy of the developed approach to its estimation. The methodological approach made it possible to comprehensively evaluate both implicit and explicit flows of money laundering and create an effective information base for evaluating the effectiveness of anti-money laundering instruments in the context of ensuring economic security in the country. The development of methodological support for measuring an amount of money laundering, in fact, serves as an informational basis for sound management for agencies engaged in state regulation, control and supervision – in identifying the risk of money laundering and developing measures to minimize or neutralize it through information systems; during the formation of the macroprudential policy of the state, in developing strategic plans for the development of the country.

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