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FINANCIAL IMBALANCES AND THEIR IMPACT ON THE DEVELOPMENT OF UKRAINIAN REGIONS IN ECONOMIC INSTABILITY*

Abstract. The COVID-19 pandemic has revealed significant structural flaws, caused deterioration of living and labor conditions, and slowed down economic growth paces for both regions and the country as a whole. It makes the domestic economy vulnerable to various stresses that, in turn, increases the vulnerability of financial systems and reduces their financial resilience. The paper aims to analyze the trends and factors causing financial imbalances of regions in economic instability and substantiate the consequences for their economic growth. The theoretical foundations of financial imbalances are expanded by decomposing financial stability, financial vulnerability, and financial instability. The interpretation of the concept of financial imbalances is expanded. The financial imbalances of Ukrainian regions in 2015—2020 are detected based on the suggested algorithm using the selected indicators. Depending on the year and type, the paper reveals the regions with a consistently low level of financial imbalances, high negative level, and a noticeable accumulation of financial imbalances. The causes of their emergence are explained, including the low capacity of the state to secure a sufficient amount of revenues and thus the budget balance, the low quality of planning and executing the budgets, weak relationship between budget programs and strategic priorities of regional development, domination of consumer expenditures over the development expenditures, inadequate public regional policy, falling volume of capital investment and poor investment attractiveness, declining production and thus deteriorating financial results in basic types of activity in the region, falling income of the population at the background of aggravated social tension and growing unemployment. The author suggests arrange of measures to prevent the emergence of financial imbalances and a set of efficient tools to regulate them. The paper emphasizes the need to develop a unified system of indicators in Ukraine similar to the scoreboard in Europe to measure imbalances on both macro and regional levels in order to detect prospective risks of imbalances emergence and expand the opportunities for their elimination or regulation.

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ФІНАНСОВІ ДИСБАЛАНСИ ТА ЇХНІЙ ВПЛИВ НА РОЗВИТОК РЕГІОНІВ УКРАЇНИ В УМОВАХ ЕКОНОМІЧНОЇ НЕСТАБІЛЬНОСТІ

Анотація. Пандемія COVID-19 суттєво виявила структурні недоліки, призвела до погіршення умов життєдіяльності та праці, сповільнила теми економічного зростання як регіонів, так і країни загалом. Зазначене робить вітчизняну економіку вразливою до різних потрясінь, що, своєю чергою, посилює вразливість фінансових систем і знижує їхню фінансову стійкість. Метою статті є аналіз тенденцій і чинників, які зумовлюють фінансові дисбаланси регіонів в умовах економічної нестабільності та обґрунтування наслідків для їхнього економічного зростання. Поглиблено теоретичні засади фінансових дисбалансів через декомпозиції «фінансової стабільності», «фінансової вразливості» та «фінансової нестабільності». Удосконалено трактування сутності дефініції «фінансові дисбаланси». На основі запропонованого алгоритму, з використанням обраних індикаторів, виявлено фінансові дисбаланси регіонів України за 2015—2020 рр. Установлено, що залежно від року і типу фіксуємо регіони: з незмінно низьким рівнем фінансових дисбалансів; високим негативним і помітним накопиченням фінансових дисбалансів. Аргументовано причини їх виникнення, серед яких виокремлено: низьку спроможність держави забезпечити достатній обсяг надходжень, і як наслідок — збалансованість бюджетів; низьку якість планування і виконання бюджетів; слабкі зв'язки між бюджетними програмами і стратегічними пріоритетами розвитку регіонів; домінування споживчих видатків над видатками розвитку; недосконала державна регіональна політика; зменшення обсягу капітальних інвестицій і низький рівень інвестиційної привабливості; падіння обсягів виробництва, а відтак і погіршення фінансових результатів у базових для регіону видах діяльності; падіння рівня доходів населення на тлі посилення соціальної напруги і зростання безробіття. Запропоновано низку превентивних заходів виникнення фінансових дисбалансів і дієвих інструментів їх регулювання. Наголошено на необхідності формування в Україні уніфікованої системи індикаторів на кшталт європейського «табло» вимірювання дисбалансів як на макро-, так і регіональному рівнях, що дало б змогу вчасно виявляти

потенційні ризики виникнення дисбалансів і розширювати можливості їх нівелювання, регулювання чи усунення.

Ключові слова: фінансові дисбаланси, розвиток регіонів, фінансова нестабільність, фінансова спроможність, фінансова вразливість.

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Introduction. The COVID-19 pandemic has revealed substantial structural flaws, aggravated the conditions of living activity and labor, and slowed down the economic growth paces of both regions and the country as a whole, which remain to be extremely low while the model (growth) is based on domestic consumption. The above mentioned in combination with excessive dependence on remittances from migrants make the domestic economy vulnerable to various shocks. Meanwhile, the uncertainty about the duration of the coronavirus crisis, new challenges, and risks, and thus indefinite perspectives of economic rehabilitation complicate the recovery and future trajectory of sustainable and balanced development. Despite the indisputable fact of emergence of new opportunities (digitalization, the change in the behavior of economic entities, etc.), the recovery of economic growth (less changing, inclusive) with the increasing role of social capital (especially on the level of territorial communities) and growing credit, budgetary, operational, monetary, etc. risks stipulate the increasing vulnerability of financial systems to market changes and hence declining financial resilience.

In this regard, the ability of authorities to with stand unpredictable challenges substantially depends on financial opportunities to allocate funds for unscheduled goals while maintaining their solvency. A mid the mentioned trends, both in global and domestic scientific spaces, the problems of financial vulnerability and financial imbalances are getting more relevant. Moreover, if the research has already been underway on the national level [1], it is still only the stand-alone studies on theme so or basic levels. In turn, it encourages the research of trends and the causes for their emergence and the development of practical recommendations for their regulation in Ukraine.

Analysis of research and statement of the problem. The analysis of scientific studies on the subject shows that the issues of substantiating the causes of emergence of financial imbalances and the mechanisms of their regulation and evaluation are the scientific inquiry subject for both domestic and foreign researchers [2—8]. Domestic researchers Skrypnychenko M. L., Yatsenko H. Y. [3], and Shumska S. S. [8] have made a significant contribution to the development of the methodology to evaluate financial imbalances of economic growth in Ukraine. The substantiation of theoretical aspects of the relationship between financial imbalances, financial resilience, financial instability, and financial security is addressed in the studies of Sidelnikova L. P. et al. [4; 5]. The research [7] dwells on practical aspects of improving the approaches to the evaluation of financial imbalances and the search for ways to eliminate them in the context of increasing national security.

Mean while, alarming trends in the system of public finance of Ukraine and aggravated crisis phenomena caused by external triggers (hard to predict) produce financial imbalances and thus generate multiplications of negative effects.

So financial imbalances constitute the risks for economic growth and obstacles for economic capacity implementation. It is a difficult task to detect and assess them. The timely development of mechanisms to regulate accumulated imbalances will foster the development of scenarios of the public economic growth policy in the medium- and long-term perspectives and help secure the financial stability of economic systems on various levels.

The paper aims to analyze the trends and factors that cause financial imbalances of regions in economic instability and substantiate the consequences for their economic growth.

Methodology and research methods. The research is based on a hypothesis that financial imbalances constitute the risks for economic growth and obstacles for the implementation of regional economic capacity. To verify the hypothesis, the following methods were applied: theoretical generalization, comparison, systematization, and formalization — to substantiate the nature of financial imbalances; analysis and synthesis — to identify and detect financial imbalances of the regions; statistical analysis and mathematical modeling — to estimate the impact of financial

imbalances on regional development. The research conclusions are framed based on systems analysis and scientific abstraction.

Research results. The research of vulnerability of financial systems and financial imbalances requires the focus on basic notions that disclose their nature. The concept of financial vulnerability is mostly used by foreign researchers, interpreting it as the condition of a financial system when a slight shock leads to disproportionately large effects from the viewpoint of changing assets prices or noncompliance with obligations [9]; banking crisis and financial volatility that can transfer to financial instability and cause the production decline in case of negative shocks [10]. Financial vulnerability is caused by the imbalance of the financial system (it can be both inaccurate assets assessment and imbalance of financial flows of some economic entities). Traditionally, the following are the most common vulnerability indicators (on the national level): growing government debt; persistent budget deficit; current account deficit; asymmetry in bank accounts, etc.

The concept of imbalance / disbalance used in scientific discourse means the absence of balance, instability, nonconformity, discrepancy, disequilibrium [11]. One can agree with the opinion of researchers that «imbalance is the intrinsic market economy feature that stems from its nature, while the balance is only a temporary condition» [12]. Another view of the concept stipulates the following interpretation — the lack of correspondence between the actual financial parameters and their planned values or deviation of the dynamics of the financial aggregates from their historical trajectories [13].

In this research, financial imbalances are interpreted as deviations of financial indicators from economically justified values under the impact of external triggers (shocks) that stipulate the changes in the functioning of financial systems of various levels (often shown in the imbalance between the needs and available financial resources necessary for economic entities to meet social needs / secure balanced economic growth), which can lead to financial instability in case of substantial accumulation and long-term action (*Fig. 1*). The lack of efficient measures of eliminating or regulating the financial imbalances can cause the financial crisis*. In other words, the growing financial imbalances boost the vulnerability of financial systems and violate the financial resilience displayed in their incapacity to withstand external shocks.

An other aspect to be taken into account in the research similar to this one is related to the nature of financial imbalances impact (highly questionable!) on the economic growth parameters and factors determining it because it defines what decision is to be made (on countering, eliminating, regulating, or possible support). In this regard, it is important to emphasize the fact that financial imbalances can foster economic growth (e.g. attracting external borrowings can boost economic growth as long as the debt service is lower than the investment profitability), may not impact the economic growth paces, and can constrain economic growth (e.g., the deficit of balance-of-payments financing can cause the growth of goods markets, the enterprises' accounts payable increase, the increase in foreign and domestic loans and thus interest rates, the accumulation of external debt and its service costs, etc.). In other words, not all imbalances carry the risks for economic growth, only those the accumulation of which can be of the threatening events nature (including the expansion of financial-economic crisis). In turn, it requires preventive or adjusting measures.

When researching the financial imbalances problems in the regions and their causes, it is worth mentioning that the current expert-scientific environment doesn't have any unified system of financial imbalances identification and measurement, same as their characteristics, causes, and consequences for the economy. Global practices show some examining of identification and economic imbalances. Meanwhile, the system of such indicators (and their threshold values) cannot be unquestionably borrowed, for instance, for Ukraine. Indeed, the existing differences in the levels of development, availability of resources, economic structure, etc. stipulate different cross dynamics of macro indicators before the crisis.

* A crisis is the consequence of the combination of financial vulnerability and the crisis triggers (internal and external).

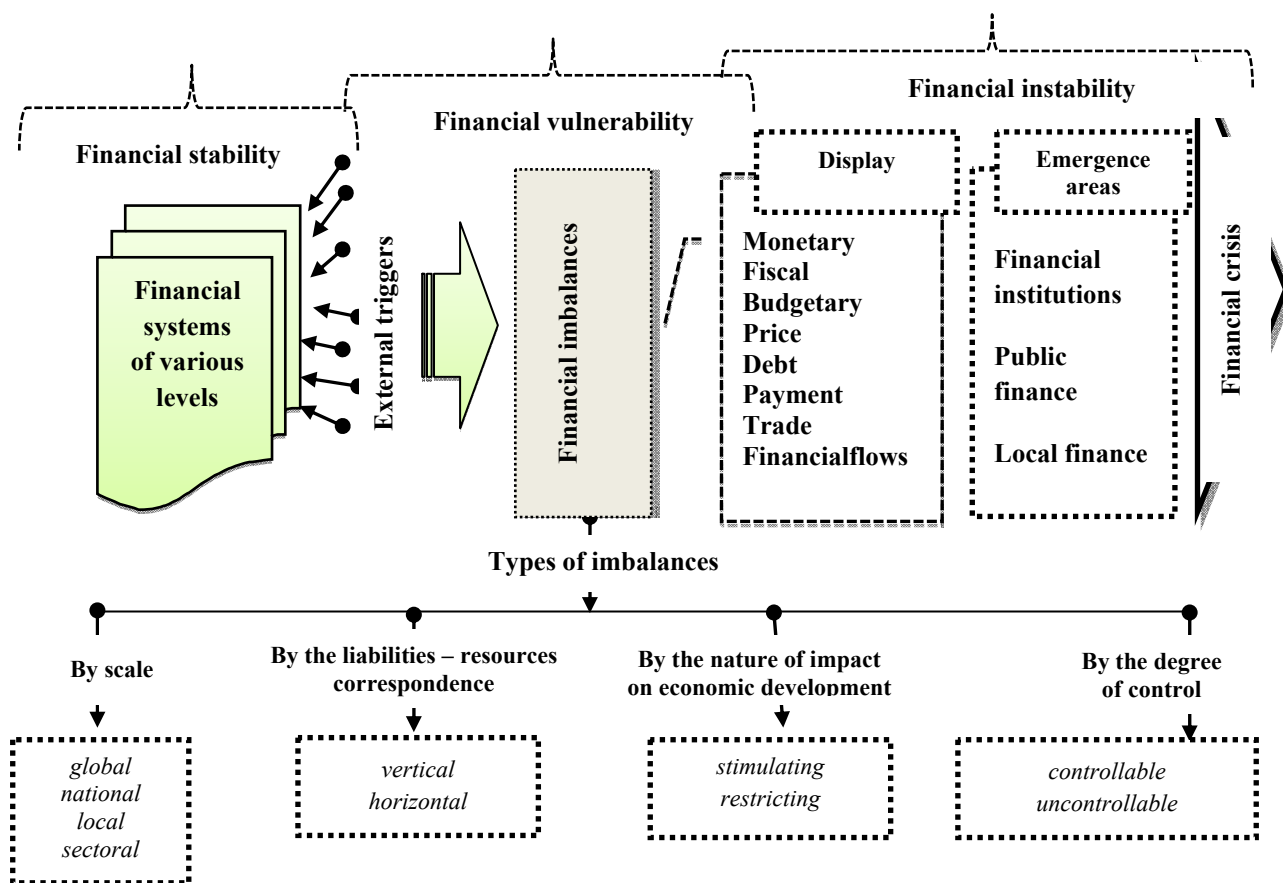


Fig. 1. Decomposition of financial imbalances and their types

Source: developed by the authors.

The financial imbalances of the regions will be evaluated based on the suggested coefficients for all regions of Ukraine, considering the subject of the research and the fact that the unified system of parameters for the evaluation of financial imbalances on the regional level hasn't been developed yet and the single scientific approach to the evaluation of financial imbalances in regions that would be the ground for proving the reason ability of application of some efficient regulation tools is lacking [14] (Table 1).

Table 1

The coefficients for the identification of financial imbalances in the regions

Coefficients	Interpretation
K_1 — Local budget deficit coefficient	The ratio of the deficit / surplus of local budgets to the total amount of local budget revenues (with transfers)
K_2 — Budgetary autonomy coefficient	The ratio of own local budget revenues (without official transfers) to the total amount of local budget revenues (with transfers)
K_3 — Debt dependence coefficient	The ratio of a local government's external debt to GRP
K_4 — Income adequacy coefficient	The ratio of the income of the population in the region to their expenditures
K_5 — Wage arrears per an employee coefficient	The ratio of wage arrears in the region to the number of employees in the region
K_6 — Additional income of the population coefficient	The ratio of average annual wages of the population to the real income of the population in the region
K_7 — Coverage with investment coefficient	The ratio of the total investment in the region to the number of economic entities registered in the region
K_8 — Extended reproduction coefficient	The ratio of fixed investment growth to GRP growth
K_9 — Banking activity coefficient	The amount of lending to GRP

Source: selected by the authors.

The obtained parameters are ranked with in the $[-1; 1]$ range based on the Fechner approach by the formula (1).

$$dis_{ij} = \frac{x_{ij} - x_{\min}}{x_{\max} - x_{\min}} \cdot q - 1, \quad (1)$$

where dis_{ij} — the imbalance rate for the j oblast reduced to the selected range;

x_{ij} — the financial imbalance coefficient;

q — the variable determined based on the beginning and end of the selected range of changes in the values of the examined coefficient $[-1; 1]$;

$dis_{ij} \rightarrow -1$ — the high financial imbalance of a negative nature in the region by the calculated x_{ij} financial imbalance coefficient;

$dis_{ij} \rightarrow 0$ — the low financial imbalance in the region by the calculated x_{ij} financial imbalance coefficient;

$dis_{ij} \rightarrow 1$ — the high financial imbalance of a positive nature in the region by the calculated x_{ij} financial imbalance coefficient.

The consolidated financial imbalance indicators are calculated according to the given values by calculating the arithmetic mean:

$$\overline{dis}_{ij} = \frac{dis_{i_1} + dis_{i_2} + \dots + dis_{i_n}}{n} = \frac{\sum dis_i}{n}, \quad (2)$$

where \overline{dis}_{ij} — the consolidated financial imbalance indicator;

dis_i — the value of the i parameter reduced to the selected $[-1; 1]$ range;

n — the number of the consolidated financial imbalance coefficients.

Where by:

$\overline{dis}_{ij} \rightarrow -1$ — the high financial imbalance of a negative nature in the region that requires a complex approach and implementation of a system of measures to regulate financial imbalances.

$\overline{dis}_{ij} \rightarrow 0$ — the low financial imbalance in the region;

$\overline{dis}_{ij} \rightarrow 1$ — the high financial imbalance of a positive nature in the region.

Detection and elimination of financial imbalances are important for the balanced development of regions as the accumulated problems, in addition to the negative impact on economic dynamics, can have destructive social consequences.

The constructed series of normalized indicators for all Ukrainian regions are the basis for the calculation of consolidated parameters of financial imbalances. The evaluation of financial imbalances of Ukrainian regions conducted based on the suggested indicators for 2015 and 2019 (Fig. 2) allows to draw conclusions and generalizations.

In the analyzed period, Dnipropetrovska oblast was characterized by the persistently low financial imbalances level (0.23 in 2015, 0.24 in 2019). It might show the fact that financial imbalances do not have a noticeable impact on the economic development of the region. Financial imbalances were almost absent in Kyivska oblast (0.08) as of late 2019, and trends shifted from the positively low level (that can indicate the positive impact on the economic development of the oblast) to low. Poltavaska oblast improved its positions essentially, having eliminated slight negative financial imbalances (from -0.05 in 2015 to 0.01 in 2019, respectively). The trends show the leading positions of the mentioned oblasts by the parameters of socio-economic development in the national rankings (which is in line with the results obtained for the previous period).

The noticeable accumulation of financial imbalances is recorded in the industrially powerful oblasts: Donetska, Zaporizka, Odeska, and Harkivska (see Fig. 1). If in Donetska oblast the negative trends of financial imbalances accumulation can be attributed to the consequences of Russian military aggression and the loss of substantial part of the area, in Harkivska, Odeska, and Zaporizka oblasts, financial imbalances are mostly accumulated in economic and financial domains. It is worth mentioning that according to domestic statistics, these regions are gradually pushed to the sidelines of competition (even though they used to traditionally compete for industrial capacity and produce over a third of the country's GRP). The gradual industrial degradation and in capacity to create a favorable business environment are seen as the causes of that.

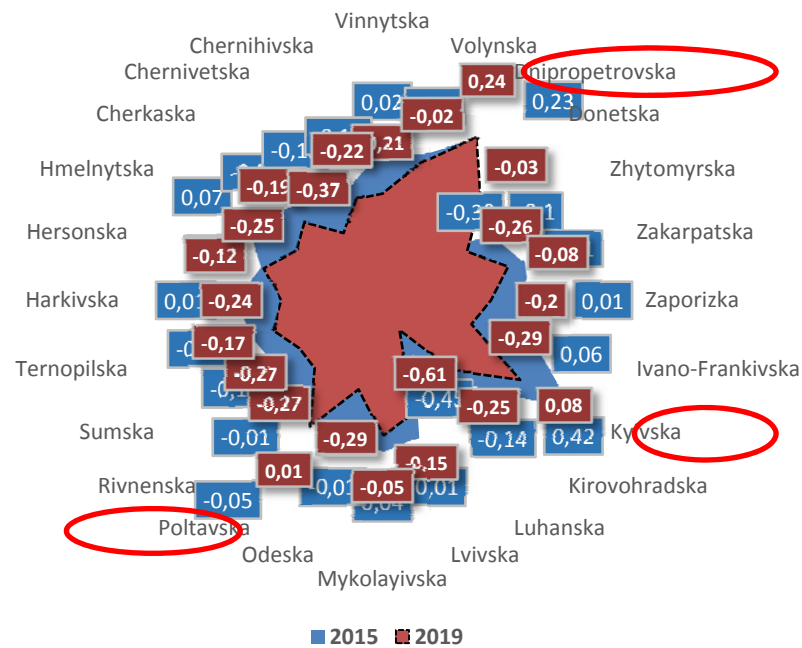


Fig. 2. The results of evaluating the financial imbalances of Ukrainian regions, 2015 and 2019
 Source: the author's calculations.

A consistently high negative level of financial imbalances is peculiar to Luhanska, Rivnenska, Chernivetska, Chernihivska, and Volynska oblasts. The obtained data indicates substantial budgetary and socio-economic imbalances in those oblasts, which is caused by both development features of these are as and the consequences of the administrative-financial decentralization reform. It is also alarming that the protracted nature of financial imbalances is the risk for the economic development of these regions, so they must be eliminated (or regulated), and efficient tools to adjust financial or economic policies should be applied.

The imbalances in the financial domain in Vinnitska oblast are threatening, which is confirmed by low value of banking activity indicator in the region (-0.97) and the worst extended reproduction parameter in Ukraine (-1.0).

The results of financial imbalances evaluation in the regions for 2020 have turned out to be quite interesting from the practical point of view (Table 2).

Table 2

Financial imbalances of Ukrainian regions in 2015—2020, consolidated parameter

Oblast	Year	Consolidated parameter dis_{ij}		
		2015	2019	2020
Vinnitska		0.02	-0.21	0.02
Volynska		0.03	-0.02	-0.20
Dnipropetrovska		0.23	0.24	0.54
Donetska		-0.39	-0.03	0.03
Zhytomyrska		-0.1	-0.26	0.01
Zakarpatska		0.01	-0.08	-0.29
Zaporizka		0.01	-0.2	0.19
Ivano-Frankivska		0.06	-0.29	-0.07
Kyivska		0.42	0.08	0.42
Kirovohradska		-0.14	-0.25	0.04
Luhanska		-0.45	-0.61	-0.41
Lvivska		-0.01	-0.15	0.08
Mykolayivska		0.04	-0.05	0.01
Odeska		-0.01	-0.29	0.19

Table 2 (continued)

Oblast	Year	Consolidated parameter dis_{ij}		
		2015	2019	2020
Poltavska		-0.05	0.01	0.16
Rivnenska		-0.01	-0.27	-0.03
Sumska		-0.1	-0.27	0.08
Ternopil'ska		-0.04	-0.17	-0.10
Harkiv'ska		0.01	-0.24	0.11
Herson'ska		-0.1	-0.12	-0.15
Hmelnytska		0.07	-0.25	0.02
Cherkaska		-0.08	-0.19	0.04
Chernivetska		-0.12	-0.37	-0.30
Chernihiv'ska		-0.14	-0.22	0.06

Source: calculated by the authors.

Indeed, in this period, there is a noticeable growth of positive imbalances in Dnipropetrovska oblast (to 0.54). Despite the negative consequences of the pandemic for the economic development of territories, 2020 is characterized by growing positive imbalances. The highest values of imbalances indicator are observed in financial and budgetary domains. The situation is explained, on the one hand, by growing foreign direct and capital investment paces in the region, and on the other hand, local budgets revenues.

The trends are the same in Kyiv'ska oblast in 2020 (the positive imbalances growth about twice — to 0.42 compared to 2019). The noticeable changes occurred in the industrial regions of Ukraine. Poltav'ska, Odeska, Harkiv'ska, and Zaporizka oblasts in 2020 disposed of the burden of negative imbalances accumulated in along-term period and confidently moved into the positive imbalances zone (Table 2). The trends can indicate the growing regional development a symmetries (e.g., by financial capital concentration parameters in some regions of Ukraine). It generates threats to the balanced development of all other regions.

When providing the assessment to these trends, it is worth mentioning that for a long time, the opinion prevailed that the emergence of leading regions in Ukraine (this refers to Dnipropetrovska, Harkiv'ska, Zaporizka, Donetsk, and Luhanska oblasts (before the war) by industrial development (and at the same time the foreign currency donors of the country) was the positive phenomenon, since high GRP growth paces in times of economic growth were considered as the key to their economic development. Instead, the situation changes with the growing financial-economic instability, the regional policy bottle necks (or errors) become visible. It is especially true with regard to the specifics of the use of economic capacity in these territories and structural modernization of the economy (innovative renewal of production, etc.). In this regard, it is worth mentioning that the investment component substantially impacts the size of financial imbalances, which is observed.

Naturally, the following questions arise: what factors lead to the emergence of financial imbalances in the regions? What impacts the sustainability of financial systems? What regulating measures should be taken to avoid negative consequences of imbalances accumulation for the balanced development of Ukrainian regions?

With regard to the reasons for the emergence of financial imbalances, it is worth emphasizing that so far, many problems stipulating them have jelled in the economy of regions. The lack of coherence between national, regional, and local interests, the deficit of investment resources of regional development, and the bureaucratic complexity of the development and implementation of interregional projects directed at the improvement of regional competitiveness are far from the exhaustive list of problems causing financial imbalances in regions. So they generate the risks for the national financial system resilience.

The other essential causes of imbalances accumulation, especially budgetary ones, include the negative trends in public finance that started in 2018 (and definitely displayed on the regional level) related to the budget revenue short fall and the deficit of external funding (UAH 56 billion of external borrowings were expected to come to the general fund of the public budget, but none of them were actually received). The revenue short fall included excise tax (UAH-7.6 billion), VAT on

imported goods (UAH-5.1 billion), and rent for the use of subsoil to extract natural gas (UAH-2.2 billion) [15]. Strengthening the hryvnya exchange rate and the decline in the official production of excise goods are seen as the reasons for low tax revenues. It is impossible not to mention the problems of excessive debt load as the government debt was almost 61% of the GDP (or UAH 2259.2 billion) as of late 2020. In other words, the budget deficit and debt sustainability serve as expressive markers of the emergence of financial imbalances.

The following similarly essential factors of financial vulnerability in public finance should be emphasized: a) low capacity of the state to secure sufficient amount of revenues and thus the budget balance; b) low quality of budget planning and execution; c) weak relationship between the budgetary programs and strategic priorities of regional development; d) consumer expenditures dominating over development expenditures, etc. It is obvious that such factors do not contribute to improving the business activity in regions, slow down the business capital investment, and retain an unfavorable climate for foreign investment attraction. As a result, budgetary imbalances and threats to the budgetary resilience of regional financial systems are growing.

With regard to imbalances in the financial domain, the following factors can generate the financial system imbalances: remittances of individuals (migrants), dynamics of global prices for domestic export; and those of internal impact — poor solvency and weak payment discipline of borrowers and low paces of the real economy sector recovery in the regions. The monetary factor essentially impacts the financial stability and inflation dynamics in Ukraine, since there is an excessive dependence of regional economies on imports of consumer goods, energy carriers, etc., which play important roles in about all sectors and industries.

In the context of the research, it is worth emphasizing that there are also difficult to predict events (triggers) affecting the regional economy and turning the vulnerability zone into the financial instability catalyzers and thus the financial crisis epicenter. In the first place, it is about the spread of the COVID-19 pandemic, political destabilization, the change of prices in goods markets, military actions in the East of Ukraine, etc.

Conclusions. As a result, it is worth arguing that financial imbalances in Ukrainian regions caused by the impact of both external and internal shocks can accumulate the in stability capacity. The impact of negative imbalances on the socio-economic development of territories stipulates the need to search for the tools to regulate (or eliminate) them to eventually change the trends to the opposite. There are no perfect mechanisms in Ukraine to overcome (regulate or eliminate) financial imbalances and prevent their emergence. On the macro level, the level of economic security of Ukraine calculated by the Ministry of Economy of Ukraine [16] serves as a type of imbalances monitoring. It is based on the evaluation of indicators of production, demographic, energy, foreign economic, investment — innovative, macroeconomic, social, food, and financial security. Yet, one can not affirm that the evaluation is being carried out (it does not follow from open sources).

Thus it is worth recognizing that the need to develop a unified system of indicators similar to the European Score board to measure imbalances on both macro and regional levels is long overdue in Ukraine. It would provide an opportunity to detect prospective risks of imbalances emergence and expand the opportunities to eliminate or regulate them. It is obvious that timely tracking of threatening imbalances based on the successfully selected indicators will contribute to detecting the socio-economic problems that require a solution.

Another conclusion stemming from the research is that the system of measures and tools for financial imbalances regulation in the regions should be based on the use of regulating instruments in correspondence with the level of identified imbalances in the region, substantiation of selection and use of the selected set of regulating tools, and evaluation of the effect obtained from the use of selected tools in each region based on its features. The timely application of the tools to regulate financial imbalances in the regions, along with correct regional development mechanisms, will help minimize the level of negative financial imbalances in the regions and foster balanced regional development.

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