

## **Budget Safety as the Level of Budgetary Potential of the State**

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**Abstract.** Budget safety, as a component of financial security, depends on the results of the implementation of an effective state financial and economic policy as the basis for the achievement of national interests. Effective using of the budget, namely, effective management of the state's cash flows, should ensure the regulation of economic and social processes in the interests of society, and create stable conditions for economic development of the country. Budget policy is an integral part of the state's financial policy and as one of the driving forces of Ukraine's development implies further stabilization of public finances, ensuring economic growth and raising standards of living for the maintenance of balanced development of the state. In today's conditions of development, the state faces the task of ensuring the balance and stability of the state budget against adverse external influences, establishing effective management of the country's cash flows, establishing an effective budget and monetary policy, as well as long-term fiscal sustainability and stability. In recent years, to overcome this task, control over the activities of financial institutions has intensified, as a result, they guided by the principles of responsible management of public finances, aimed at introducing the principles of medium-term financial planning, the availability of a system of forecasting budget parameters, ensuring the feasibility of economic forecasts, and creating and maintaining necessary financial reserves.

### **Introduction**

The structure and dynamics of the state budget are the main indicators of the financial state of the government. A chronic budget deficit can lead to problems related to the state's failure to perform its functions, ineffective management of public funds and the deterioration of external debt.

To date, many countries in the world have a constantly rising deficit of the state budget, which leads to new debts and exceeds the normative value of this indicator. Taking into account the foregoing, the question of assessing the state of budget safety is relevant and requires a detailed study of it.

Problems with budget safety are increasingly attracting both foreign and domestic scientists.

The question of the economic nature of budget safety of the state is devoted to the research of O.Ya. Kolisnik [1], O.V. Prokazyuk examined the definition of the essence of budget safety of the state and the main threats [2], L.A. Zveryuk and O.G. Bilyk investigated budget safety as an important priority of the development of the budget system of Ukraine [3], M.M. Petritsenko conducted an assessment of the level of budget safety in Ukraine, investigated the problems of evaluation and the ways of their solution [4].

But the analysis of specialized literature has shown that scientists are examining the general indicators of budget safety without calculating the integral indicator of budget safety, in addition, the values differ from the refining indicators provided by the statistics or treasury.

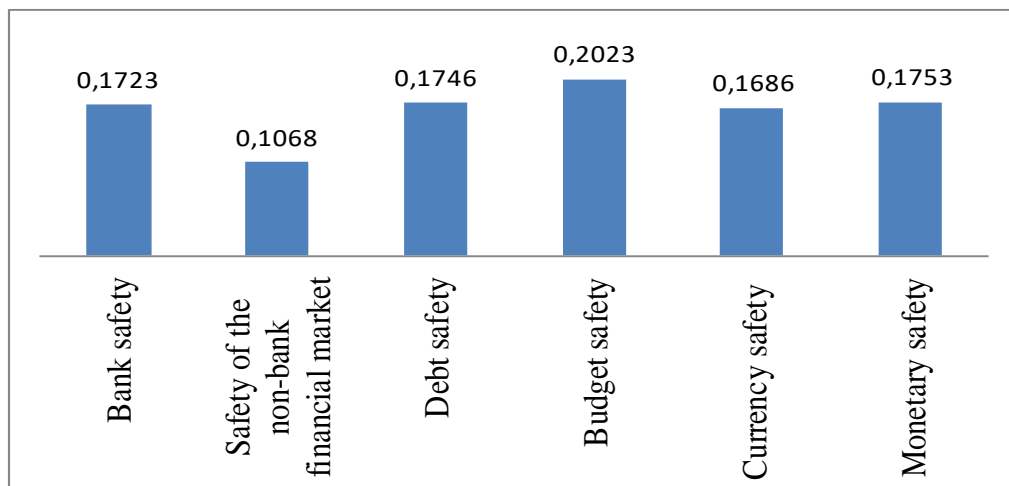
To solve a set of issues, we will clarify the essence of the definition of «budget safety» and analyze the current state of the level of budget safety by its main indicators.

## Theory

Budget safety is an integral part of financial safety that is part of economic safety and is aimed at supporting the country's solvency, ensuring budget balance, and efficient use of budget funds.

If we examine the method that exists in Ukraine to calculate and analyze the state of economic safety, it can be noted that financial safety has a significant weighting factor in calculating the integral indicator of budget safety.

An analysis of the component of financial safety has shown that it has 6 subindices: bank safety, the safety of the non-bank financial market, debt safety, budget safety, currency safety and monetary safety. Since budget safety occupies the largest weighting factor, further research will be devoted to assessing the state of budgetary safety in Ukraine.



**Figure 1.** Weights for the calculation of financial safety.

Examine defining the definition of «budget safety» by different authors.

**Table 1.** Analysis of «budget safety» definition.

| Author                                       | Definition  |
|--|---|
| N.N. Trenev [6, pp.312-318]                  | Budget safety is a key component of financial and economic safety, their foundation and material basis.   |
| O.Ya. Kolesnik [1, p. 376]                   | In the form of manifestation, budget safety is manifested in the system of assessments that characterize its level in dynamics and the relatively optimal value of indicators.  |
| L.S. Guryanova, V. Nepomnyashchii [2, p. 41] | Budget safety - the level of the budget potential of the state in relation to the performance of its functions, taking into account the balance of incomes and expenditures of the state and local budgets, and the expediency, legality and efficiency of the use of budgetary funds at all levels.  |
| O.A. Kirichenko [2, p. 41]                   | Budget safety of the state is the process of developing, adopting and control (monitoring) the implementation of the budget, taking into account the real state of the state economy, the existence of real and potential dangers, threats and risks in the economy, as well as the state and trends in the development of the world economy and its impact on the Ukrainian economy at the next time and during the budget year. |
| S.I. Kireev [2, p. 41]                       | Budget safety is characterized by the degree of budget balance, and hence the size of its deficit or lack of deficit. The level of budgetary safety is inversely proportional to the level of the budget deficit.   |
| B.Yu. Kishakevich [3, p. 37]                 | Budget safety as an important factor in the socio-economic development of the state serves as a unique indicator and criterion for the effectiveness of its budget policy, organization of the budget process and functioning of the budget system as a whole.  |

From Table 1, we see, basically, the authors examine the budget safety as an indicator that characterizes the state budget policy of the country. The authors point out that budget safety is the basis of financial and economic safety, using this indicator, an analysis of budget execution is carried out, and the level of budgetary potential is characterized. Therefore, our research will be devoted to the analysis of budget safety indicators and determination of their level.

## Materials and Methods

For the estimation of the budget safety of Ukraine, the Methodical recommendations are mostly used to calculate the level of economic safety in Ukraine [5], which provides the opportunity to calculate the indicators stated in the methodology and compare them with the limit values. Weights for calculating economic safety sub-indices and integral economic safety indices are also provided.

Table 2 presents budget safety indicators based on the Methodological Recommendations for calculating the level of economic safety in Ukraine and a range of characteristic values.

**Table 2.** Budget safety indicators in accordance with the Methodological Recommendations for calculating the level of economic safety of Ukraine [5].

| Name of the indicator, unit of measurement  | The procedure for calculating the indicator  | Range of characteristic values |
|---|--|--------------------------------|
| The ratio of the deficit / surplus of the state budget to GDP, percentage   | deficit of the state budget, UAH million / GDP, UAH million x 100  | 3-10                           |
| Deficit / surplus of budget and extrabudgetary funds of the state-owned sector, percentage of GDP                   | (deficit of the general government sector, UAH million - consolidated budget deficit, UAH million) / GDP x 100         | 0-5                            |
| Level of GDP redistribution through consolidated budget, percentage   | consolidated budget revenues, UAH million / GDP, UAH million x 100   | 28-37                          |
| The ratio of total payments for servicing and repayment of the state debt to the state budget revenues, percentages | (public debt servicing, UAH million + repayment of state debt, UAH million) / State budget revenues, UAH million x 100 | 6-16                           |

Thus, the indicator of the ratio of the deficit/surplus of the state budget to GDP should vary in the range from 3 to 10%. The gradation on this indicator will be as follows: the optimal indicator is 3%, satisfactory - 5%, unsatisfactory - 6%, dangerous - 8 and critical - 10.

Indicator value deficit/surplus of budget and extrabudgetary funds in the sector of national administration, percent to GDP varies in the range from 0 to 5%. The gradation for this indicator will be as follows: optimal - 0%, satisfactory - 1%, unsatisfactory - 2%, dangerous - 3% and critical - 5%.

The value of the indicator of the level of GDP redistribution through the consolidated budget ranges from 28 to 37%. The gradation for this indicator will be as follows: optimal - 28%, satisfactory - 30%, unsatisfactory - 33%, dangerous - 35% and critical - 37%.

The indicator of the ratio of the amount of aggregate payments for servicing and repayment of the state debt to the state budget revenues ranges from 6 to 16%. The gradation on this indicator will be as follows: optimal - 6%, satisfactory - 7%, unsatisfactory - 10%, dangerous - 13% and critical - 16%.

## Model Specification

The normalized value of the indicator we calculate using the normalization method relative to the variation scale [4]:

for stimulants:

$$z_i = \frac{x_i - x_{min}}{x_{max} - x_{min}} \quad (1)$$

for the disintegrators:

$$z_i = \frac{x_{max} - x_i}{x_{max} - x_{min}} \quad (2)$$

where  $z_i$  - the normalized value of the indicator of budgetary safety;

$x_i$  - the statistical significance of the budget safety indicator;

$x_{max}$  - maximum value of the budget safety indicator;

$x_{min}$  - minimum value of the budget safety indicator.

According to "Methodological recommendations for calculating the level of economic safety in Ukraine" [5], we will calculate the integral indicator of budgetary safety:

$$I = \sum_{i=1}^n a_i z_i \quad (3)$$

where  $a_i$  - weight coefficients determining the degree of influence of the  $i$ -th indicator on the integral indicator of budget safety;

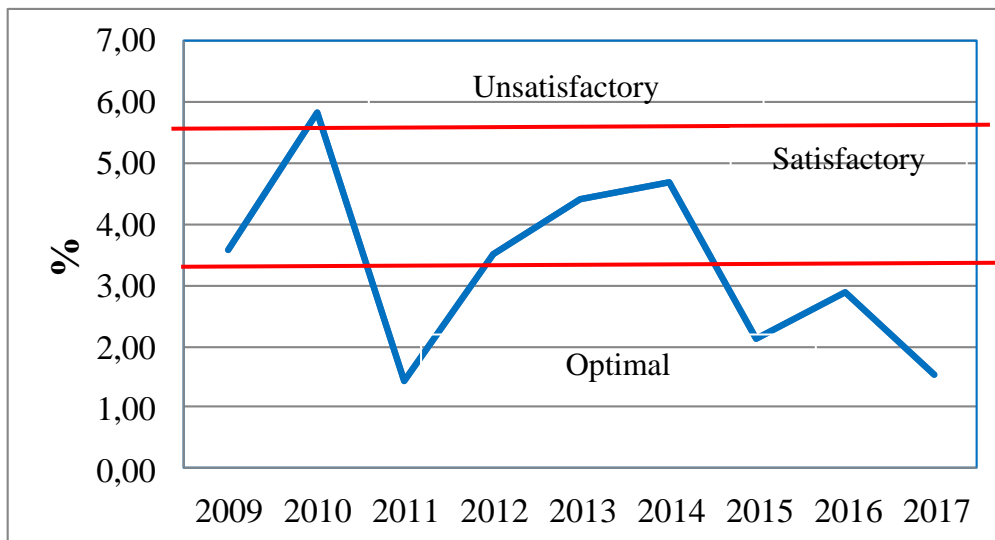
$z_i$  - the normalized value of the indicator of budget safety.

## Results and Discussion

According to the indicators of the Methodical recommendations analyze the state of budget safety of Ukraine.

**Table 3.** The ratio of the deficit/surplus of the state budget to GDP, percentages.

| Years | Revenues of the state budget, million UAH | Expenditures of the state budget, million UAH | Deficit of the state budget, million UAH | GDP, million UAH | Indicator, % | Characteristic values of the indicator |
|-------|---|---|--|------------------|--------------|--|
| 2009  | 209700.3                                  | 242437.2                                      | -32736.90                                | 913345           | -3.58        | satisfactory                           |
| 2010  | 240615.2                                  | 303588.7                                      | -62973.50                                | 1082569          | -5.82        | unsatisfactory                         |
| 2011  | 314616.9                                  | 333459.5                                      | -18842.60                                | 1316600          | -1.43        | optimal                                |
| 2012  | 346054                                    | 395681.5                                      | -49627.50                                | 1408889          | -3.52        | satisfactory                           |
| 2013  | 339180.3                                  | 403403.2                                      | -64222.90                                | 1454931          | -4.41        | satisfactory                           |
| 2014  | 357084.2                                  | 430217.8                                      | -73133.60                                | 1566728          | -4.67        | satisfactory                           |
| 2015  | 534694.8                                  | 576911.4                                      | -42216.60                                | 1979458          | -2.13        | optimal                                |
| 2016  | 616274.8                                  | 684743.4                                      | -68468.60                                | 2383182          | -2.87        | optimal                                |
| 2017  | 793265                                    | 839243.7                                      | -45978.70                                | 2982920          | -1.54        | optimal                                |



**Figure 2.** The value of the ratio of the deficit / surplus of the state budget to GDP, percentages.

As we can see from Table 3 and Fig. 2, the indicator of the ratio of the deficit/surplus of the state budget to GDP varies from a satisfactory level to an optimal.

So, for the period from 2012 to 2014, the value was satisfactory, and since 2015 it becomes optimal. This means that Ukraine has an optimal deficit of the state budget in this period, its value ranging from 2% to 3%, which corresponds to all norms of this indicator.

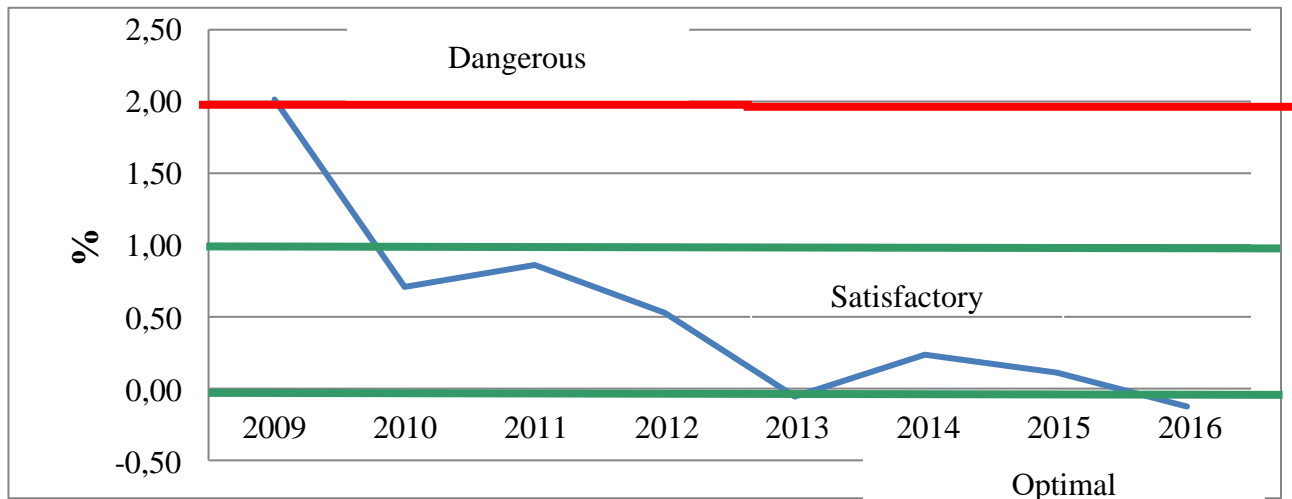
If we compare this indicator with world standards, according to the methodology of the International Monetary Fund, the acceptable level of budget deficit for IMF debtors is 7-8%. For the EU, the threshold of the budget deficit according to the Maastricht criteria is 3% of GDP. If we examine the world practice, the acceptable value of this indicator is 2-3% of GDP.

If we examine the EU countries at the level of the deficit, there are countries with a low GDP deficit in 2017, there are countries with a balanced budget, and there are countries that violated the rules of the Maastricht Treaty 3% of GDP.

Countries that had a surplus in 2017: Malta (+ 3.9%), Cyprus (+1.8%), the Czech Republic (+1.6%), Luxembourg (+1.5%), Sweden and Germany (both +1.3%), the Netherlands (+1.1%), Denmark (+1.0%), Bulgaria (+0.9%), Greece and Croatia (both +0.8%) and Lithuania (+0.5%). Slovenia reported a government balance. The lowest government deficits as a percentage of GDP were recorded in Ireland and Estonia (both -0.3%), Latvia (-0.5%) and Finland (-0.6%). Two Member States had deficits equal too higher than 3% of GDP: Spain (-3.1%) and Portugal (-3.0%) [9].

**Table 4.** Deficit/surplus of budget and extrabudgetary funds of the sector of national administration of GDP, %.

| Years | The deficit of the state-owned sector, million UAH | Consolidated Budget Deficit, million UAH | GDP, million UAH | Indicator, % | Characteristic values of the indicator |
|-------|--|--|------------------|--------------|--|
| 2009  | 55716.9  | 37258.1                                  | 913345           | 2.02         | dangerous                              |
| 2010  | 72320.4  | 64684.9                                  | 1082569          | 0.71         | satisfactory                           |
| 2011  | 34399.9  | 23057.9                                  | 1316600          | 0.86         | satisfactory                           |
| 2012  | 58281.5  | 50785.7                                  | 1408889          | 0.53         | satisfactory                           |
| 2013  | 62819.1  | 63590.3                                  | 1454931          | -0.05        | optimal                                |
| 2014  | 75602.8  | 72030.5                                  | 1566728          | 0.23         | satisfactory                           |
| 2015  | 33168.8  | 30898.2                                  | 1979458          | 0.11         | satisfactory                           |
| 2016  | 51668.8  | 54682.6                                  | 2383182          | -0.13        | optimal                                |
| 2017  | Missing data                                       | 42093.8                                  | 2982920          |              |  |

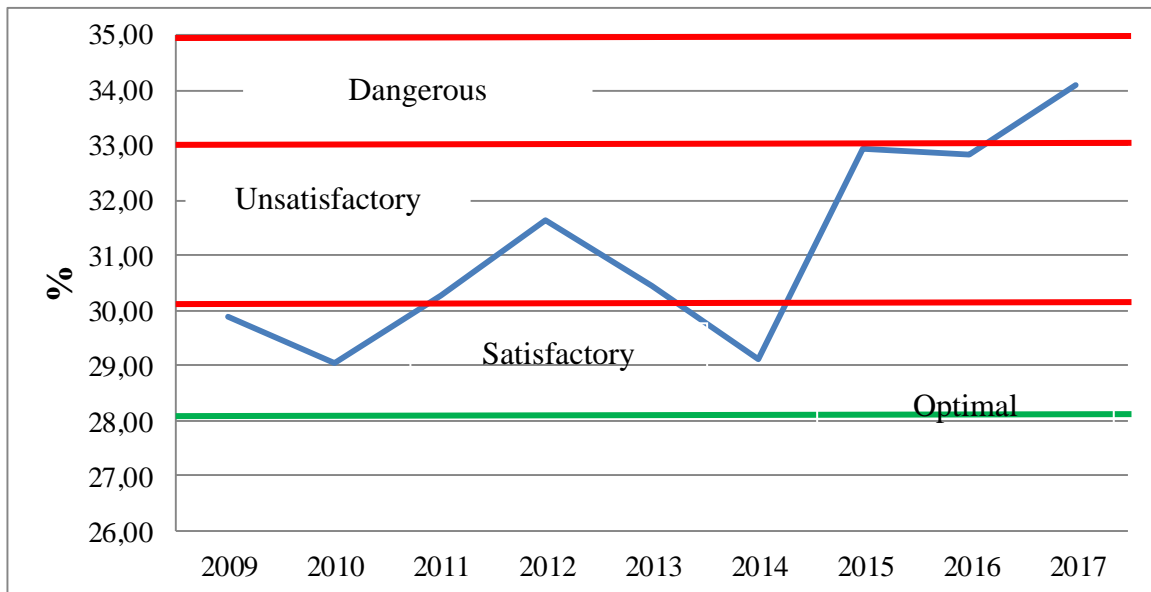


**Figure 3.** Value of indicator deficit/surplus of budget and extrabudgetary funds of the sector of national administration of GDP, %.

The next indicator is the deficit/surplus of budget and extrabudgetary funds of the sector of national administration of GDP. As we see from Table 4 and Fig. 3, the value of this indicator in 2009 was unsatisfactory, from 2010 to 2012 and from 2014 to 2015, the indicator value turned into a satisfactory range, and in 2013 and 2016 it was optimal.

**Table 5.** Level of GDP redistribution through consolidated budget, %.

| Years | Consolidated Budget Revenues, million UAH | GDP, million UAH | Indicator, % | Characteristic values of the indicator |
|-------|---|------------------|--------------|--|
| 2009  | 272967                                    | 913345           | 29.89        | satisfactory                           |
| 2010  | 314506.3                                  | 1082569          | 29.05        | satisfactory                           |
| 2011  | 398553.6                                  | 1316600          | 30.27        | unsatisfactory                         |
| 2012  | 445525.3                                  | 1408889          | 31.62        | unsatisfactory                         |
| 2013  | 442788.7                                  | 1454931          | 30.43        | unsatisfactory                         |
| 2014  | 456067.3                                  | 1566728          | 29.11        | satisfactory                           |
| 2015  | 652031                                    | 1979458          | 32.94        | unsatisfactory                         |
| 2016  | 782748.5                                  | 2383182          | 32.84        | unsatisfactory                         |
| 2017  | 1016788.3                                 | 2982920          | 34.09        | dangerous                              |

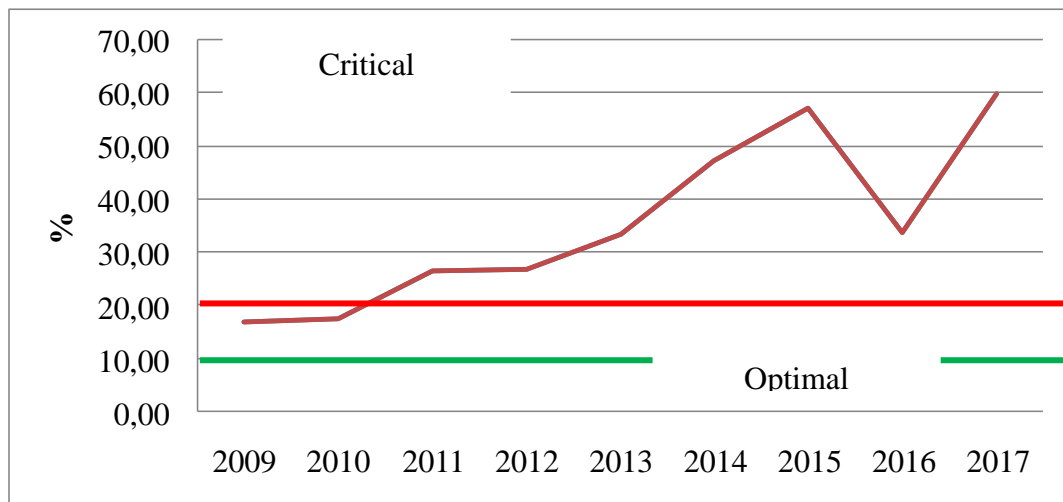


**Figure 4.** Value of the indicator the level of GDP redistribution through consolidated budget, %.

The indicator of the level of GDP redistribution through the consolidated budget has a dangerous value in 2017, since it exceeds the 33% and goes to the critical 35%. From the analyzed period, this indicator was not optimal.

**Table 6.** The ratio of aggregate payments for servicing and repayment of the state debt to the state budget revenues, percentages.

| Years | State debt service, million UAH | Public debt repayment, million UAH | State budget revenues, million UAH | Indicator, % | Characteristic values of the indicator |
|-------|---------------------------------|------------------------------------|------------------------------------|--------------|--|
| 2009  | 8749                            | 26714.6                            | 209700.3                           | 16.91        | critical                               |
| 2010  | 15188.8                         | 26859.8                            | 240615.2                           | 17.48        | critical                               |
| 2011  | 22014.3                         | 61493.1                            | 314616.9                           | 26.54        | critical                               |
| 2012  | 24196.6                         | 68125.3                            | 346054                             | 26.68        | critical                               |
| 2013  | 31690.8                         | 81068.4                            | 339180.3                           | 33.24        | critical                               |
| 2014  | 47976.7                         | 120819.8                           | 357084.2                           | 47.27        | critical                               |
| 2015  | 74660                           | 230483.5                           | 534694.8                           | 57.07        | critical                               |
| 2016  | 95800                           | 111400                             | 616274.8                           | 33.62        | critical                               |
| 2017  | 110456                          | 363500                             | 793265                             | 59.75        | critical                               |



**Figure 5.** Value of indicator of the ratio of aggregate payments for servicing and repayment of public debt to the state budget revenues, percentages.

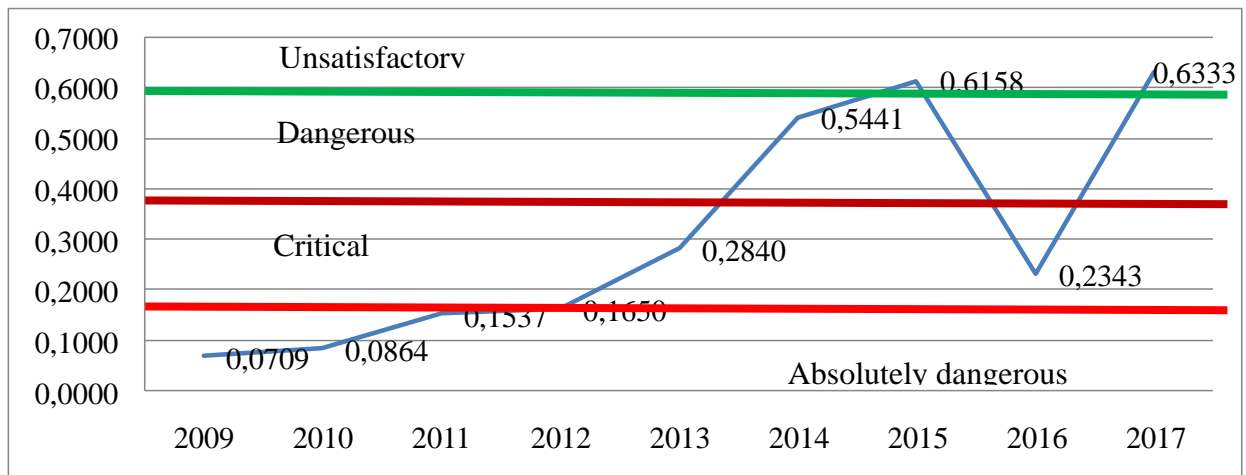
The indicator of the ratio of aggregate payments for maintenance and repayment of public debt to the state budget revenues, Table 5 and Fig. 5, we see that its significance is critical and over the years the situation is getting worse.

Thus, the analysis of indicators showed that there are threats to budget safety. Among the four indicators, two have an optimal level, and two are unsatisfactory and critical. The state should pay particular attention to three of the four indicators.

But because of the constant and chronic growth of the budget deficit, there is an increase in borrowings, which are the main source of its repayment.

**Table 7.** Calculation of the integral indicator of budget safety of Ukraine.

| Years                   | The ratio of the deficit / surplus of the state budget to GDP, percentage | Deficit/surplus of budget and extrabudgetary funds of the state-owned sector, percentage of GDP | Level of GDP redistribution through consolidated budget, percentage | The ratio of total payments for servicing and repayment of the state debt to the state budget revenues, percentages | Integrated Budget Safety Indicator |
|-------------------------|---|---|---|---|------------------------------------|
| 2009                    | 0.1510  | 0.1224  | 0.6256  | 1.0570  | 0.0709                             |
| 2010                    | 0.0114  | 0.2868  | 0.5817  | 1.0922  | 0.0864                             |
| 2011                    | 0.2856  | 0.2673  | 0.6459  | 1.6589  | 0.1537                             |
| 2012                    | 0.1548  | 0.3085  | 0.7170  | 1.6674  | 0.1650                             |
| 2013                    | 0.0991  | 0.3816  | 0.6544  | 2.0778  | 0.2840                             |
| 2014                    | 0.0833  | 0.3465  | 0.5847  | 2.9544  | 0.5441                             |
| 2015                    | 0.2417  | 0.3607  | 0.7863  | 3.5668  | 0.6158                             |
| 2016                    | 0.1954  | 0.3908  | 0.7813  | 2.1013  | 0.2343                             |
| 2017                    | 0.2787  | 0.3750  | 0.8467  | 3.7342  | 0.6333                             |
| Gravimetric coefficient | 0.2671  | 0.2482  | 0.2203  | 0.2644  |                                    |



**Figure 6.** Value of integral indicator of budget safety of Ukraine

Thus, according to the calculations, we see that the level of budget safety in 2017 is estimated as unsatisfactory, since it is in the range of 0.6 to 0.8. In addition, in comparison with 2016, there is an improvement in the situation, as the transition from the critical level to the unsatisfactory. The analysis of indicators shows that only one of the four indicators has an optimal level - this is the ratio of the deficit/surplus of the state budget to GDP.

### Conclusion and Recommendation

Methodological recommendations for calculating the level of economic safety of Ukraine are used mainly to assess Ukraine's budget safety. The methodology provides an opportunity to analyze the composite indicators and calculate the integral indicator for each safety sector. Weighting factors are also provided for calculating the integral index of economic safety.

The methodological recommendations for calculating the level of economic safety in Ukraine are mainly focused on the analysis of budget safety from only one point of view - in terms of budget deficit and its financing through external borrowing. The methodology does not pay attention to the assessment of the volume and the value of domestic indebtedness, the structure of income and expenditure is not considered.

According to the analysis, it has been found that budget safety indicators are in unsatisfactory ranges. The level of budget safety in 2017 is estimated to be unsatisfactory since it is in the range of 0.6 to 0.8. In addition, in comparison with 2016, there is an improvement in the situation, as the transition from the critical level to the unsatisfactory. The analysis of indicators shows that only one in four has an optimal level - this is the ratio of the deficit/surplus of the state budget to GDP.

But the situation may worsen, as in 2018, the situation with external debt is intensifying - over the next five years, the largest percentage of debt payments is over \$ 40 billion, which can lead to an increase in the country's deficit.

### Conflict of Interest

The author declares that there is no conflict of interest.

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