



Emerging Markets Queries in Finance and Business

The methodology of financial stability assessment of Republic of Moldova through macroeconomic indicators

Perciun Rodica^a, Stratan Alexandru^{a*}, Timush Angela^a

^aThe Institute of Economy, Finance and Statistics of the Academy of Science of Moldova, 45, Ion Creanga street., Chisinau, MD-2064, Republic of Moldova

Abstract

Paramount importance in the creation of financial security system in the Republic of Moldova acquires the financial stability assessment methods based on international methods of management of security risk. In this paper are examined the important indicators of early warning of crisis in Moldova: the ratio of savings and investment, the balance of the current account balance, GDP growth rates, import and export, the dynamics of growth of money supply and gold reserves. Analysis of the indicators of the external sector in the Republic of Moldova show multidirectional nature of change.

© 2014 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Selection and peer-review under responsibility of the Emerging Markets Queries in Finance and Business local organization

Keywords: financial stability assessment; thresholds; indicators of early warning of crisis; financial security system; Republic of Moldova.

Of paramount importance for Moldova, in creating the financial security mechanism, is the security systems method based on EU norms and standards. Financial sector indicators are related, in particular, to the integration process, as out of four principles of convergence for countries that tend to join the EU, three conditions relate to the financial sector, such as: sustainability of public finances, stable exchange rates, stable prices level. Moldova's wish to integrate into the EU, opens up possibilities to use the historical experience of European countries for the creation of an efficient system for the management of the financial sector. For

* Corresponding author. Stratan Alexandru Tel.: +37369105921; fax: +37322743794.
E-mail address: alex_stratan@yahoo.com

Moldova it is important to take into consideration that increased interaction offers advantages to both regions, but also means that economic shocks in a region are increasingly reflected in another, and the bilateral consequences are displayed in all areas of economy and finance.

For sustainable development, countries in Western Europe must adapt continuously to conditions of global economy development by means of modifying the existing structure of national economies. Strategic objectives related to financial stability of these countries involves the creation of a flexible, efficient system aimed at ensuring economic growth and modernization in the context of global competitiveness. The timeliness of structural changes can contribute both to increasing competitiveness on foreign markets and mitigation of social consequences.

For Baltic and Central European countries, financial stability objectives involve two stages:

- convergence of national interests with European interests;
- political, economic, institutional, cultural transformation, etc. in line with EU standards

For Eastern European countries with economies in transition, these objectives are related to the creation of a new management mechanism and the creation of a new system of financial security. The main security threats are:

1. Economic backwardness of the regions of Central and Eastern Europe compared to the countries of Western Europe,
2. Hurdles of transition to a market economy,
3. Problems of creating democratic and market institutions, etc.

Thus, the organization and implementation of the financial stability system in Moldova at present has the task of identifying security threats based on the specific interests of the period:

- Achieving the objectives set by the Government in socio-economic policy;
- Condition of stability of economic development;
- Increased competitiveness;
- Addressing access to raw materials markets and markets per se;
- Elimination of illegal economic activities (tax evasion, drug trafficking, laundering criminal money, taking over foreign businesses, etc.).

In Moldova the harmonization of accounting and reporting in the financial sector is at an early stage. Economic reforms should provide for the introduction of international standards of main systems, and namely:

- Prepare periodic reports on financial stability indicators of financial and non-financial institutions and household sector;
- Using International Financial Reporting Standards;
- Implement administrative supervision principles of banks (Basel)
- Monitor systemic indicators for early crisis warning .

It is necessary to create a system of interaction between state bodies involved in the systemic management of the financial sector of the Republic of Moldova. It is important to keep in mind that financial stability depends on the effectiveness of risk management and the trust of the population in the financial system. Therefore, of great importance in the practice of assessing financial stability and creation of the financial security system in Moldova are international management methods of security risks such as:

- 1. Monitoring financial stability indicators;**
- 2. Strategic planning;**
- 3. International security systems mechanism.**

1. **Monitoring financial stability indicators** shows the current state of the financial system and allows to quickly monitor all changes. The indicators are part of a big block of information, which is used to monitor the financial stability. Among the tools that can be used to assess the risk of the financial sector are the indicators used in early warning models. Early warning models are systematic, objective and consistent methods of forecasting / anticipation of crises, but they show ambiguous results regarding the actual accuracy of the

forecast, and therefore, are only one of the whole set of elements, which are used for supervision.

2. **Applying the method of strategic planning** allows to identify the sources and factors of stability threat, to forecast the evolution of the development of events, to prevent acts of showing real threats and to assess the level of risk.

The analysis of financial stability indicators can be supported by using stress tests. Stress tests are used as a method of evaluating certain types of risks that are difficult to measure accurately with the help of financial stability indicators. Stress tests are a tool for the analysis of the financial system that is future-oriented, meaning that their task is to assess the impact of possible macroeconomic events whose probability is not known precisely. The type of shock is chosen so that it represents a measurable risk, and the model is adapted so as to reflect the structure of the financial system. For Moldova, the model can be quite simple - a spreadsheet of balances and reports regarding the revenues of the banks. During the stress test one assesses the changes in the financial sector working capital as a result of specific macroeconomic events, such as, for example, reduction of the exchange rate or asset quality deterioration due to the economic recession (Trunin, Kamenskih, 2007).

3. **International financial stability mechanism systems** enable to neutralize many security threats, especially external ones at the expense of the global community under international law. Such mechanisms are formed at international and regional levels, and contribute to expanding trade and economic relations between the participating countries and reduce the need for global currency reserves. Main Basel principles provide information on those risks that can not be properly calculated using indicators of financial stability, for example, operational and legal risks.

According to the authors, the key issue to be resolved in the near future is to:

1. develop specific criteria that will determine the country's financial stability;
2. identify a set of indicators that **monitor the status of the country's financial system**;
3. set the threshold value for the abovementioned indicators;

This will allow the complex estimation of real financial security in Moldova, including objective evidence of trends, especially of those that are dangerous for economic development.

Of all the **indicators related to financial stability**, we consider it appropriate to highlight those that reflect the critical points of the country's financial system functioning. Namely these indicators should be used as basic criteria of financial security.

The threshold values of indicators must obtain a status of quantitative parameters accepted or approved at the state level, the observance of which should become a mandatory element of economic government programs. Unfortunately, so far, this has not happened in Moldova.

Currently there is no system of threshold values approved for financial stability indicators and quantitative parameters.

In our opinion, it is reasonable to begin to develop more components of the indicators system, reflecting:

- the macroeconomic situation;
- prices;
- the level of savings and investment in the economy;
- financial processes and state of the financial markets;
- banking activity;
- the foreign exchange market and the domestic currency exchange rate.

As a result of research, there were identified and fundamented the indicators of the Financial Stability System (about 90). The indicators were grouped into components and set their threshold values. Therefore, we present a calculation exercise of the most relevant indicators arguing the accuracy of the proposed system.

First, one considers the **dynamics of GDP growth. Threshold criteria are: reduction of GDP growth by 4-5**

percentage compared to the previous year, this represents an alert for the macroeconomic situation and the likelihood of the crisis obviously increases.

The economic and financial system of the country is characterized by a high degree of instability. Annual growth of GDP in Moldova in the period under review, is within -6.4% and +7.8%. As shown in Figure 1, the deviation of GDP growth is insignificant, but it has no constant tendency, and in the years of crisis the decrease of economic growth is sudden. Thus, we believe that repeated fluctuations are already a warning sign, while a reductions of the growth rate to 4 pp is no danger (eg 2007 when the decline of 1.4 pp had no negative effects over 2008 when GDP growth was at its highest - 7.8%).

The same situation is noticed during the last three years, when we see a continued reduction in GDP. In November 2012 we notice, a considerable reduction in the growth rate of GDP (7.2 pp) above the threshold criterion – there is an imminent risk for financial stability for the country. Finally, tracking this indicator is fundamental and must be constantly monitored.

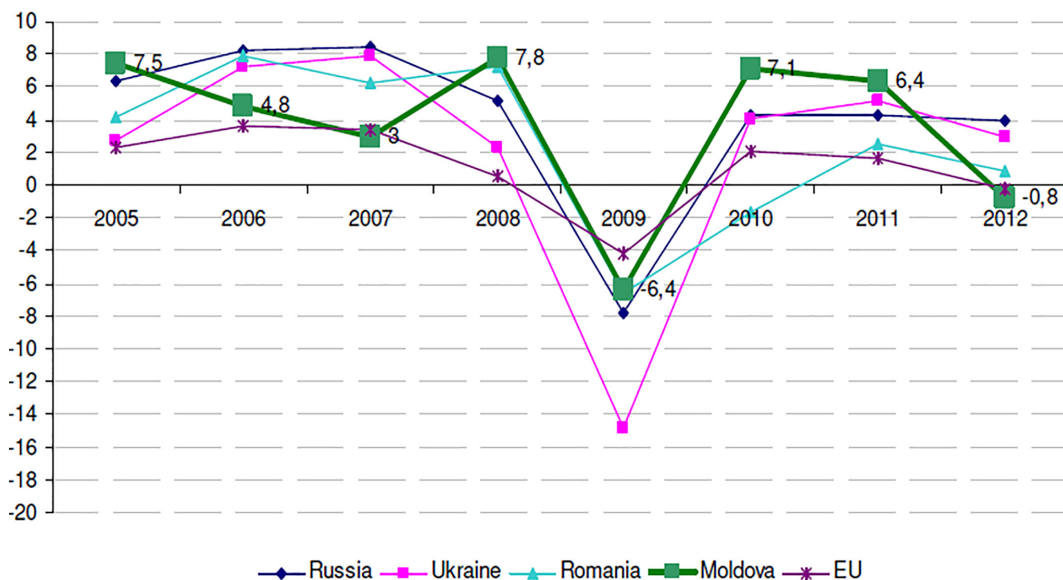


Fig. 1 Dynamics of GPD growth, comparative analysis.

Another indicator which represents the macroeconomic developments is **the current account balance of the balance of payments**, which shows the gap between national savings and investments. **Moldovan economy structure is featured by a significant deficit of the current operations account of the balance of payments and the excess of savings over investment, especially private investment.** (Fig.2).

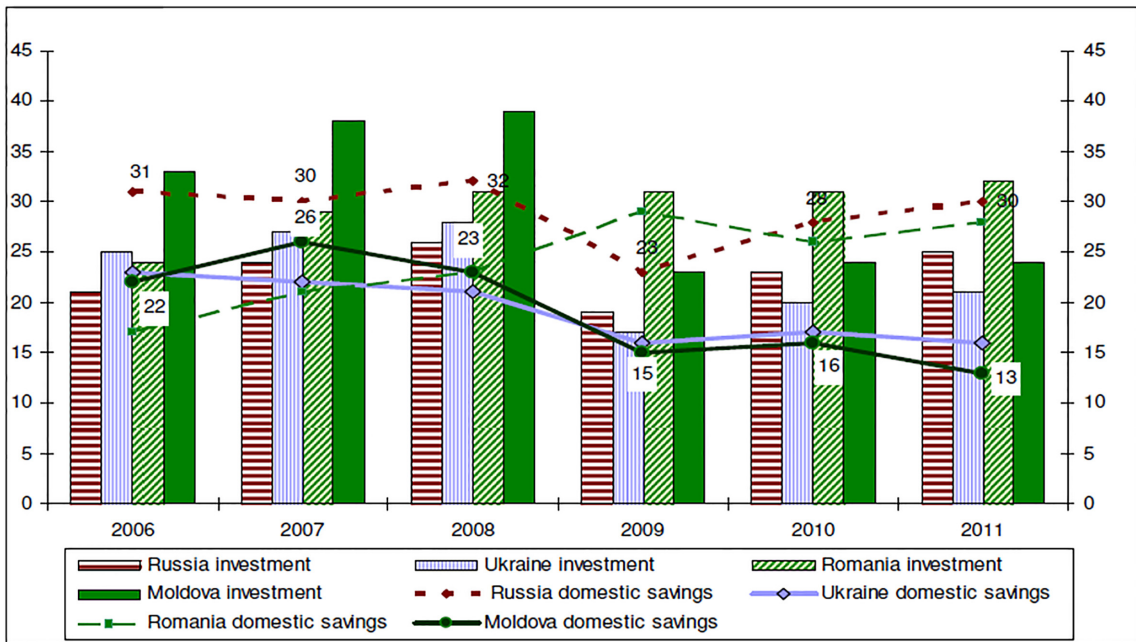


Fig. 2 The ratio of internal savings and investments to GDP (in%): comparative analysis*
 *The additional axis on the right indicates the savings, the axis on the left – investments.

The analysis of the weight of savings and domestic investment shows a major discrepancy between their weight, especially before the crisis in 2009. This discrepancy is observed not only in Moldova, but in all countries (Figure 2).

Another indicator that we must take into account is **the current account deficit of the balance of payments to GDP, which according to experts opinion, should not exceed 8% of GDP.**

Conversely, the excess of the threshold value indicates a degree of instability of the economy and of the banking system in particular.

In Moldova this indicator, during the entire analyzed period is below the threshold of 8%, and falls within the -7.9% to -16.2% (see Figure 3).

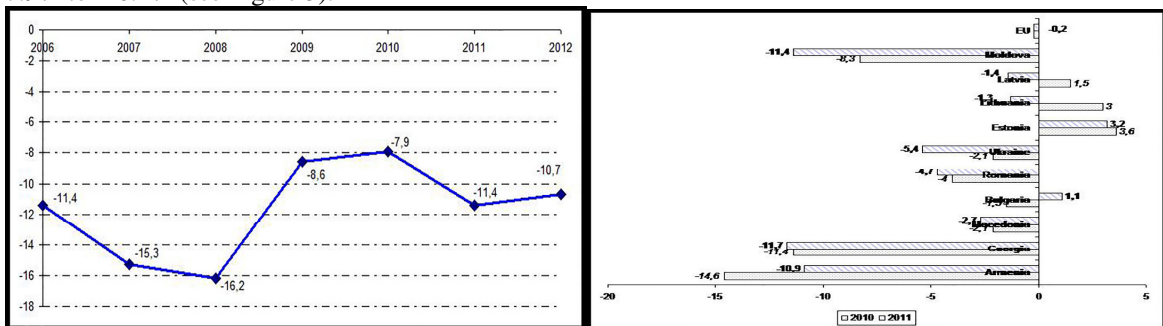


Fig.3. The ratio of current account deficit to GDP, %: comparative analysis

From the comparative analysis that we made, according to the IMF criteria, *Moldova is in a state of alert*, as it is overtaken (in the negative sense) only by 2 countries, Armenia and Georgia.

This indicator in Moldova is formed as a result of low efficiency of foreign trade and dependence on

remittances. If we compare the growth rate of GDP with the ratio of balance of payments deficit to GDP, we find the following: when the growth rate of GDP was 7.8% (year 2008), the ratio of balance of payments deficit to GDP in this year is maximum (and is -16.2%) and vice versa in the crisis years (2009, 2012) indicators take a lower value -8.6% and -10.7% respectively. This trend is explained by the fact that in the RM there is an economy based on consumption and dependent on remittances. **Thus, we believe that the threshold value of this indicator, for the RM must be within 10-12%.**

We also consider that the current account deficit of the balance of payments / GDP should be analyzed and monitored in tandem with the indicator of correlation between import and export. International experts warn of a situation where import growth might exceed export growth.

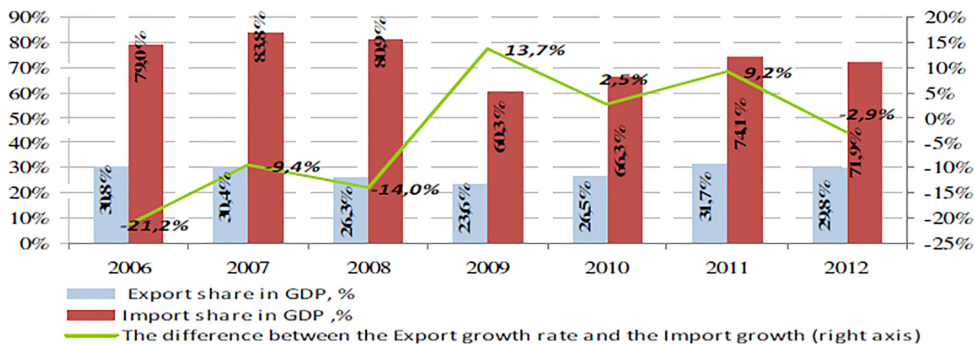


Fig. 4. Evolution of the main indicators of exports and imports in Moldova (National Bureau of Statistics of the Republic of Moldova)

In Moldova this *criterion requires an adjustment* because one feature of it is that the national economy is based on import. What can be seen in Figure 4 justifies this assertion. In the period under review (2006 - 2012) there is a continuously growing trend of imports relative to exports, which leads to a trade deficit. While in 2011, the share of exports in the GDP has increased compared to previous years, the share of imports in GDP continues to be impressive, reaching in 2012 the size of 71,88%.

The difference between the growth rate of exports to that of imports outlines an oscillating trend, falling into excessive limits to -21.2% (a.2006) to 13.7% (a.2009).

RM trade deficit in 2012 amounted to USD 3051.3 million, which would increase the deficit by 2.6% compared with 2011. Import growth is a common situation in many countries, however, the trade balance deficit of Moldova (about - 41%) is considerable by international comparison.

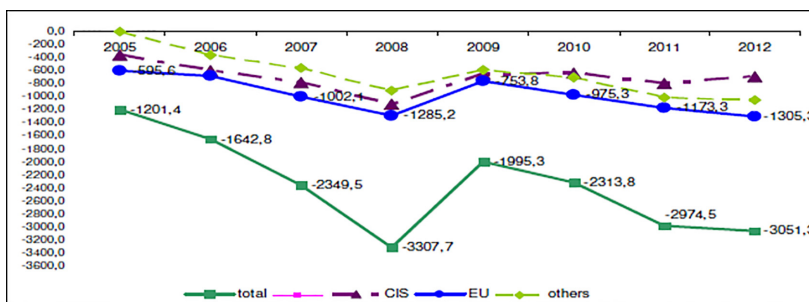


Fig. 5. Commercial balance of the Republic of Moldova (mil. USD) (National Bureau of Statistics of the Republic of Moldova)

The negative balance of trade of Moldova is linked to poor competitiveness of goods on the European markets and uncertain and complex conditions on CIS markets. However, there are other factors such as poor quality of export, a certification system that is not adjusted to European standards, a poor customs management with

negative impact on foreign trade, which makes the commercial deficit grow every year.

Another criterion related to financial stability of the state is the level of the monetary base coverage thorough foreign exchange and gold reserves of the State (IMF recommends that this indicator is equal to at least the amount of imports for 3 months). This indicator of adequacy is proposed to ensure exchange rate stability and regulation of inflation level. The development of mandatory reserves both in lei (MDL) and in freely convertible currency, is correlated with the change in the amount of funds raised for reserves.

If the increase in foreign exchange and gold reserves over the two quarters is less than M2 monetary base growth, then this is evidence of financing the economy through emission, as a prerequisite for the development of inflationary processes in the economy.

For countries with low GDP per capita it is advisable to accumulate reserves, it accelerates economic growth. **NBM currency reserves reached \$ 1.9 billion. in 2011, representing 3.6 months of imports.** However, under increased foreign liabilities, foreign exchange and gold reserves volume is insufficient. As per end of May 2012 situation, the total volume of outstanding loans and loans received from the IMF amounted to SDR 356.6 million (about 541 million U.S. dollars). **The expansion of domestic credit, including by increasing the share of "bad" lons often preceded financial crises.** In the first half of 2012, foreign exchange reserves of NBM amounted to 2.058 billion U.S. dollars, the amount of bad loans in Moldova increased by 24.3% and their share in total loans increased by 2.4 pp up to 15.3%.

In October 2012, M2 monetary base increased by 0.3% compared with September and by 20.9% compared with the same period of 2011 (see Figure 6). This increase is due to the dynamics of the net assets of the Bank which increased by 174.7 million lei (3.9%), while foreign assets decreased by 17.1 million MDL (0.1%).

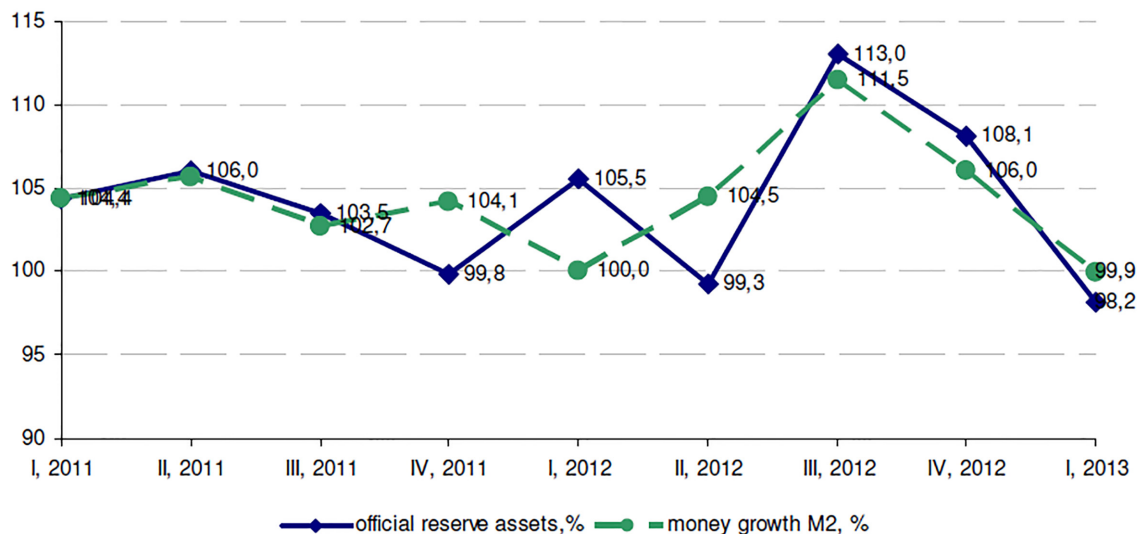


Fig. 6. The growth of official reserve assets and growth of M2 monetary base (National Bank of Moldova)

The level of inflation in a normal economy of developed countries and in developing countries of industrial and postindustrial type is 2-5% annually. Inflation makes the national currency more expensive. Before the crisis it is likely that consumer prices will increase. But the sharp drop in inflation also can lower nominal income and money flows, which could undermine the stability of financial institutions. Thus, in Moldova before the crisis of 2009, inflation, calculated as CPI fell from 112.7% to 100.0%. From September 2011 to September 2012 inflation dropped considerably and amounted to 4.9% and the level of household consumption fell by 0.4%. The instability of inflationary risks balance is dictated by external and internal

factors.

This foreign risk is related to external attempts of paying off sovereign debts in the euro zone and the complicated situation on the oil market.

The evolution of prices of different categories of goods and services and their level of threshold values should be determined subject to:

- the structure of income and consumption of domestic consumer and imported goods and goods intended for production;
- structure of income and consumption of paid services, including social ones,
- ratio of prices on domestic and foreign markets to the main groups of goods for import and export.

For Moldova's emerging economy, the level of prices should be at least 30-40% less than the prices for similar types of goods on western markets according to PPC, which is regularly calculated by Eurostat. This stems from the need to ensure the competitiveness of the Moldovan economy. Inflation in Moldova in 2012 (9 months) was 5.1% and is down compared to 2010, 2011 (fig. 7)

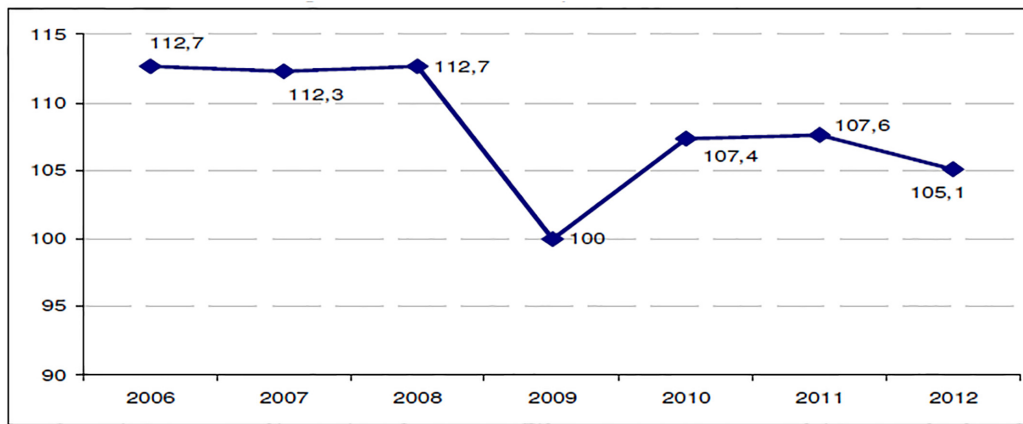


Fig. 7. Pace of inflation level in Moldova (National Bureau of Statistics of the Republic of Moldova)

Convergence criteria are the economic test for assessing the preparedness of an economy to participate in the third stage of Economic and Monetary Union. These criteria were established by the Maastricht Treaty, ratified by all EU member states in 1993, and refer to the targets in the area of inflation, public finances, interest rates and exchange rates.

In this article the authors analyze only criteria related to public finances, namely - the budgetary position of a country must be sustainable, ie that there is no excessive budget deficit. In particular:

- the consolidated state budget deficit should not exceed the level set by the Treaty of **3 percent of GDP**. If this value is exceeded, the budget deficit should be reduced substantially and continuously to a value close to the reference, or exceeding the reference value should be temporary and exceptional;
- gross public debt **should not exceed 60% of GDP**, or if it has higher values it should be reduced significantly and approach the reference value at a satisfactory pace.

Strong fiscal and budgetary consolidation during 2010-2011 has led to a reduction of the budget deficit up to 2.4 percent of GDP by the end of 2011. (Fig. 8).

At the same time, low income levels, partly due to the economic downturn and partly due to losses caused by imperfect taxation framework and tax administration issues and taking on new spending commitments have slowed down the process of fiscal and budgetary adjustment.

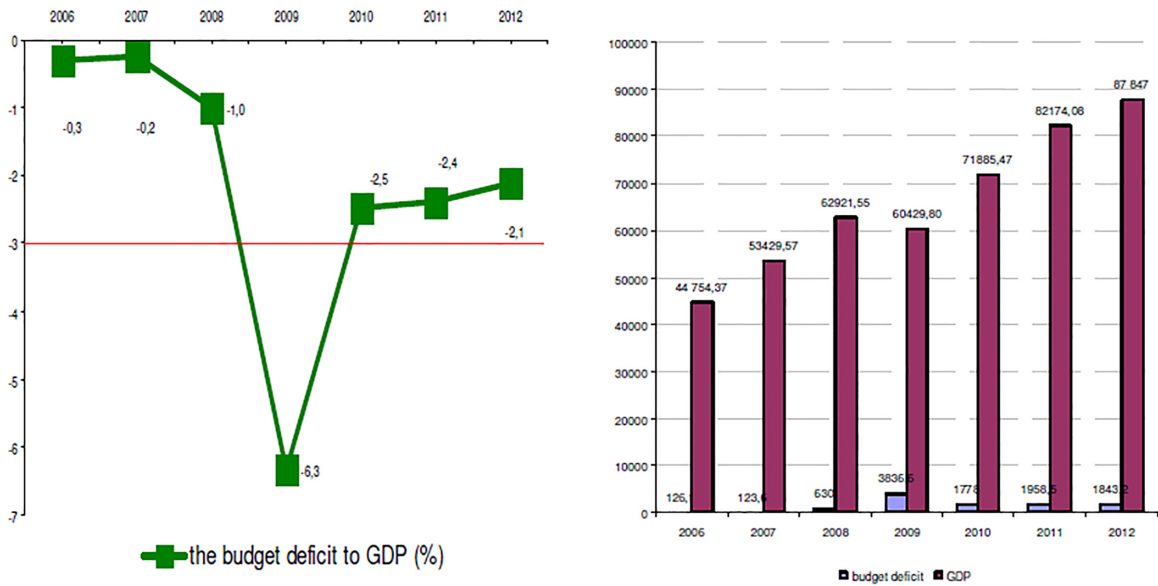


Fig. 8. a) Evolution of the share of budget deficit in the GDP (%) b) The dynamics of national public budget deficit related to the GDP.

For 2012, data are available only for 9 months. The state *budget revenues* equaled to **14.3 billion lei**, which represents an increase of 10.0 percent compared with the same period of the last year. *State budget expenditures* followed a more moderate upward trend, increasing by 6.4 percent compared to the corresponding period of 2011 and reached the value of **15.2 billion lei**. *The budget deficit* amounted to **0.9 billion lei**, by 58.4 percent less than the amount provided for this period, or by 30.8% lower compared to the same period of 2011.

In 2012, the *balance of public debt* increased by 4.14 billion lei compared to the previous year (or by 16.7%) and amounted to **29.02 billion lei**. The debt-to-GDP ratio remains at approximately the same level over several years, being 33.0% in 2012 (Fig. 9).

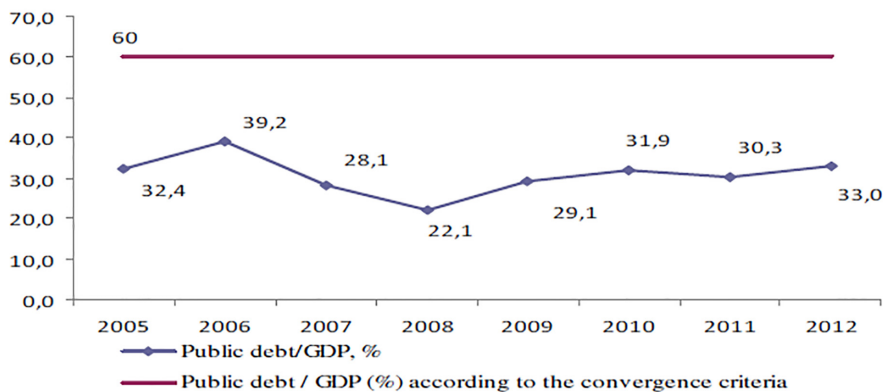


Fig.9. Ratio of public debt in the increasing GDP

In conclusion, the authors may mention that the most significant indicators for early warning of crisis (*unstable economic growth rates, faster growth of imports over exports, the current account deficit of the balance of payments, lack of foreign exchange and gold reserves in relation to increased external commitments, etc.*) were very close or even exceed some threshold values.

One of the threats to financial stability and overall economic security is the high dependence of the most important areas of the national economy on the foreign market conditions and trade shocks, political and economic decisions of groups of foreign countries, international financial and trade organizations. Side effects in financial and commercial areas are interrelated. Moldova, more than other countries remains vulnerable to terms of trade shocks. Terms of trade are closely linked to growth indicators of the real effective exchange rate of the national currency, which causes slower economic growth and reduces the competitiveness of domestic producers.

The evolution of financial stability indicators of the Republic of Moldova shows the multilateral features of changes made. Unstable rhythms of GDP growth cause solvency worsening of Moldova and increase credit risk. The increase in remittances from overseas workers has led to overvaluation of the MDL, which in turn stimulated the import consumption. Crisis trends adversely affect financial stability and the overall economic system of the Republic of Moldova.

In terms of increasing the risk of a slowdown of the global economic growth, Moldova may face a sharp drop in demand, directing the flow of capital and higher funding costs, which could influence the stability of the national financial sector.

The main preventive measure of the anti-crisis state policy of the Republic of Moldova in conditions of instability of the external sector should be the implementation of the analytical system of assessment of financial stability based on the analysis of financial stability indicators. The proposed financial stability indicators system allows:

First, to get certain information on the trends created within the area of financial instability;

Second, to assess the safety of the financial system;

Third, to track long-term trends of economic development and to take appropriate preventive measures.

References

- Trunin, P., Kamenskih, M, Monitoring Financial Stability In Developing Economies (Case of Russia) /Трунин, П. В. Мониторинг финансовой стабильности в развивающихся экономиках (на примере России)/ М: ИЭПП, 2007., ISBN 978-5-93255-239-1
- National Bureau of Statistics of the Republic of Moldova, www.statistica.md.
- National Bank of Moldova, www.bnm.md