INTERNATIONAL RESERVES MANAGEMENT IN THE REPUBLIC OF MOLDOVA

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The actuality of the given research is determined by the importance of establishing the adequate volume of international reserves held by the Central Bank. The main purpose of the article is investigation of new methods of calculating the adequate level of international reserves for emerging economies, proposed by the IMF and those existing in international practice. The main research methods were systemic analysis and logic synthesis. The main result obtained in this article, as a result of the research, is proposing a special approach in applying the IMF methodology in the Republic of Moldova, considering the dependence of the economy on the export of labor. The conducted calculations show a significant decrease in the level of international reserves of NBM over the past two years and their approach to the critical value. To overcome internal imbalances, the international reserves management should suppose the accumulation of a higher volume than the average, which would partly compensate the shortcomings in implementing reforms of transforming the economy of the Republic of Moldova, improving their efficiency and quality of domestic policy.

Keywords: *economic growth, reserve assets, central bank, official foreign exchange reserves, capital adequacy, broad money, short-term debt, International Monetary Fund.*

Actualitatea prezentului studiu este determinată de importanţa stabilirii volumului adecvat al rezervelor internaţionale deţinute de către Banca Centrală. Scopul principal al studiului este investigarea unor noi metode de estimare a nivelului adecvat al rezervelor internaţionale pentru economiile emergente, propuse de FMI şi cele existente în practica internaţională. Metodele principale de cercetare au fost analiza sistemică şi sinteza logică. Rezultatul important, ca urmare a cercetării, este propunerea unei abordări diferite în Republica Moldova, reieşind din aplicarea metodologiei FMI şi considerându-se dependenţa economiei naţionale cu privire la exportul forţei de muncă. Calculele efectuate arată o scădere semnificativă a nivelului rezervelor internaţionale ale BNM în ultimii doi ani şi apropierea acestora de valoarea critică. Pentru a depăşi dezechilibrele interne, gestionarea rezervelor internaţionale trebuie să presupună acumularea unui volum mai mare decât media, ceea ce ar compensa parţial deficienţele în punerea în aplicare a reformelor de transformare a economiei Republicii Moldova, îmbunătăţirea eficienţei şi a calităţii politicii interne a acestora.

Cuvinte-cheie: *creştere economică, active oficiale de rezervă, banca centrală, rezerve valutare, adecvarea capitalului, masa monetară amplă, datorii pe termen scurt, Fondul Monetar Internaţional.*

Актуальность данного исследования связана с важностью определения необходимого объёма международных резервов Национального Банка. Основная цель статьи – исследование новых методов расчётов адекватного уровня международных резервов для стран с формируемой экономикой, предложенных МВФ и существующих в международной практике. Основные методы исследования: системный анализ и синтез логики. Основные результаты, полученные в статье, предложен особый подход в применении методики МВФ в Республике Молдова, учитывающий зависимость экономики от экспорта рабочей силы. Проведенные расчёты показывают значительное снижение уровня международных резервов БНМ за последние два года и

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приближение их к критической величине. Управление международными резервами в целях преодоления внутренних диспропорций предполагает накопление большего по сравнению со средними значениями объёма международных резервов, которые могут частично компенсировать недостатки в проведении реформ по трансформации экономики Республики Молдова, повысить их эффективность и улучшить качество внутренней политики.

***Ключевые слова**: экономический рост, официальные резервные активы, центральный банк, валютные резервы, достаточность капитала, широкая денежная масса, краткосрочный долг, Международный Валютный Фонд.*

JEL Classification: E51, E58.
UDC: 336.711.642(478)

Introduction. Solid reserve management policies are important because they can increase a country's resilience to shocks that could result from global financial markets or within the domestic financial system. The scope followed by central banks is to create appropriate principles of the country's official reserve management and implement adequate institutional and operational infrastructure for optimal reserve management practices. At the same time, within the process of managing international reserves, central banks often face the problem of determining what their adequate level is. It is important to review the existent methodologies for calculating the optimum amount of reserves, as well as new approaches proposed by IMF.

At present, there are multiple indicators that create different criteria which could be used to determine an adequate level of international reserves a country should hold. Nevertheless, it is important to consider all limitations and possible problems that a specific methodology implies.

Literature review and empirical evidence. According to IMF (2009), foreign exchange reserves are foreign currency deposits of central banks or other monetary authorities. These reserves currencies are used to guarantee central bank's liabilities, such as the local currency issued, the reserve deposits of various deposit money banks, government or other financial institutions [4]. The central bank has an exclusive responsibility of managing the country's foreign reserves. In the Republic of Moldova this responsibility is ensured by the *Law on National Bank of Moldova*, according to which one of the attributions exercised by the National Bank of Moldova is maintenance and management of the country's foreign exchange reserves [13]. Also, according to art. 53 of the above mentioned law, the National Bank maintains the international reserves at a level which according to its vision is adequate to achieve monetary and exchange rate policy of the state. If the volume of the international reserves reduces or the National Bank appreciates that there is a danger of their declining to a level that would jeopardize the execution of foreign exchange policy or execution of international transactions in time, the National Bank will submit to the Parliament and Government a report on the international reserves and causes that led or could lead to their reduction.

Approaches relating to the management of foreign reserves vary from country to country and depend on the objectives fallowed by central monetary authority. According to some economists (Carlos, Cardon, etc, 2004) in the context of fixed or managed exchange rate regimes, foreign reserves act as a buffer against capital outflows in excess of the trade balance [3]. Holding foreign reserves within fixed and floating exchange rate regimes also acts as a "shock absorber" for fluctuations in international transactions, such as fluctuations in import activities resulting from trade shocks, or in the capital account due to financial shocks. According to the European Central Bank (2006), the holding of foreign reserves as self-insurance against currency crisis is important if a currency is overvalued. Lawrence (2006) argued in his studies that the management of international reserves does not necessarily suppose holding large amounts: foreign reserves will help in combating inflation or deflation, but large foreign reserves accumulation serves more for precautionary purposes. At the same time, in his opinion, the precautionary motives of maintaining foreign reserves are not significant in advanced economies due to the flexible exchange rate and strong macroeconomic policies [13].

Other economists argued that stockpiling of foreign reserves is critical in this era of open capital markets as a means of safeguarding against capital account crisis [4]. Thus, Fischer (2001) noted that reserves are important because they represent the key determinant of a country's capacity to avoid economic and financial crisis. The availability of capital flow to offset current account shocks reduce the amount of reserves a country needs. Also, Fischer pointed that lessons from the financial crisis of the late 1990s and the recent global financial crisis showed that countries with robust foreign reserves, by and large, did better in withstanding the contagion than those with smaller foreign reserves [8].

A strong study on reserves adequacy and reserve management was written by Pablo Guidotti, former Argentine deputy minister of finance, in 1997. He suggested that a country's reserves should equal its short-term external debt (of one year or less maturity). The rationale was that countries should have enough reserves to resist a withdrawal of short-term foreign capital and the closure of capital markets for refinancing [8]. In subsequent researches, the economists Guzman Calafell and Padilla del Bosque found that the ratio of reserves to external debt is a relevant predictor of an external crisis [12].

In its April 2015 report, the IMF declared that mature market economies are increasing to build reserves to protect against disorderly markets. The IMF has also stressed a need for a more flexible assessment of reserves adequacy.

Methodology and data. The analyzes are based on IMF Reports on assessing international reserve adequacy, as well as revised Guidelines for Foreign Exchange Reserve Management and other related reports and work papers of some selected economists.

Regarding the Methodology of research on management of international reserves, the complexity and diversity of the addressed problems have required the use of the following Methods, Techniques, and Procedures tools, as well as interpretation of scientific Investigation:

- Documentation – studying and analyzing reports and working papers elaborated by international financial organizations, as well as economists and researchers;
- Analysis and synthesis, abstraction and concretization, comparison, generalization and systematization;
- Statistical methods, through the use of descriptive statistics and statistical analysis;
- Data analysis and interpretation through the use of graphs, charts and figures to highlight evolution of official foreign reserves in different countries and international reserve adequacy according to indicators.

Own contribution of authors resulted in calculation of reserve adequacy according to new IMF methodology.

Foreign reserve management: strategies, policy objectives and recent trends. Central banks are institutions which are responsible for controlling and management of the country's international reserves to meet in the best way national objectives and ensure financial stability. In this way, the official foreign exchange reserves are held by central banks to meet the following objectives [16]:

- Helping governments to face foreign exchange needs and external debt obligations;
- Ensuring financial resources in case of emergencies or national disasters;
- Covering domestic currency by external assets;
- Absorbing internal and external disequilibrium;
- Strengthening confidence in monetary policy which is promoted by central bank.

At the same time, the strategies of foreign reserves management should consider policies for adequate management of the country's external debt in order to reduce external vulnerability. An important component of the reserve management strategy is investment policy. While selecting the optimal policy of reserves' allocation, a high attention should be paid to the risk of possible disturbing impact on credit and financial markets and of excessive liquidation or high acquisition costs. The risk of an impact on markets depends on external market conditions, volume of transactions performed and speed of the portfolio adjustment [16].

Within the process of the foreign exchange reserves management, it is important to determine the optimal volume of reserves that will be capable to reduce disequilibrium on internal and external markets. Foreign reserves in emerging countries together with sound policies and economic determinants, can bring significant benefits in the Government's efforts to reduce the probability of balance of payments' crisis and maintain economic and financial stability" [11]. At the same time, central banks should be able to liquidate reserves in a prompt and efficient manner to provide the necessary quantity of foreign exchange for the implementation of policy objectives, market interventions or limiting external shocks.

According to the international statistics data, over the last decade, all countries have been increasing their foreign exchange reserves at an impressive rate, especially after the world financial crisis. Thus, if, in 2004, advanced economies held nearly 20% more reserves in comparison to emerging and developing economies, by 2013 this relationship changed: thus emerging and developing economies were controlling more than double of the reserves of the advanced economies (7,9 trillion US$ to 3,8 trillion US$). During the Great Recession of 2007-2009 the global reserves dropped from 7,5 trillion US$ in mid-2008 to just under 7 trillion US$ in February 2009, due to the fact that countries tried to manage currency depreciation and used reserves to finance the Government' stimulus packages. By the end of the first quarter of 2009, the foreign reserves started to increase. Thus, the total volume of foreign exchange reserves in the first quarter of 2015 was 11,433 trillion US$ (although decreasing from $11,589 trillion in the fourth quarter of 2014).

According to some estimations during the periods of the exchange market pressures, emerging countries with higher reserve holdings were more able to maintain stable consumption growth (relative to the pre-event trend) than those with lower reserve funds. These economies were also more able to expand fiscal policy to help offset the effects of the crisis, whereas low levels of reserves were associated with pro-cyclical fiscal contraction. In both cases the effects were more apparent in moving from low to moderate levels of reserves than in moving from moderate to high levels [1, 2]. In these countries the foreign exchange reserves are massively used to diminish macroeconomic and financial risks and prevent development of crisis scenario. During the last years characterized by increase of financial and macroeconomic vulnerabilities the foreign exchange reserves decreased in low income countries like Romania, Belorussia, Ukraine, as well as Moldova (table 1)[1].

Table 1

Official foreign exchange reserves in some low and middle income countries, in million US dollars (2013-2015)

Years	Bulgaria	Romania	Azerbaidjan	Belorussia	Armenia	Georgia	Ukraine	Moldova
2015	20783,3	35166,7	-	2743,6	1771,2	2520,7	12368,1	1740,4
2014	20129,7	43186,3	15816,4	5067,7	1489,4	2699,2	7538,8	2156,7
2013	19883,3	48827,6	15175,7	6655,1	2251,6	2823,4	20413,6	2820,6

Source: http://data.worldbank.org

In comparison to other emerging markets, in the Republic of Moldova the volume of accumulated reserves of the National Bank of Moldova in 2015 was much lower, reaching 1740,4 million US$, compared to Georgia, for example, where the volume of reserves registered 2520,7 million US$.

Estimation of international reserves adequacy of the Republic of Moldova according to traditional indicators. In the Republic of Moldova, in the context of the financial and banking crisis, a decline in economic growth, an increase in inflation, speculation in the foreign exchange market, and insufficient financial supervision, the problem of international reserve adequate management and use becomes of crucial importance.

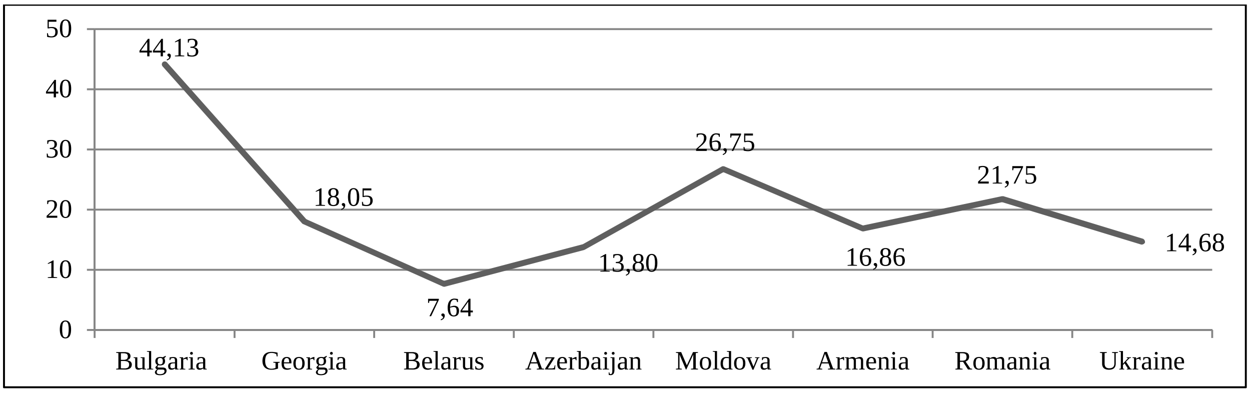

Figure 1. Level of official foreign exchange reserves related to GDP in selected countries, in 2014, in %

Source: Compiled by authors according to the data from http://data.worldbank.org

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[1] *As of 1st July 2014, low income countries are those where GNI per capita (calculated by the method of the World Bank Atlas) in 2013 was no more than 1045 US$. Within this category the following countries are included: Armenia, Georgia, Ukraine, Moldova, Uzbekistan. The group of middle-income countries supposes the GNI per capita higher than 1045 US$, but less than 12746 US$. Countries with high income register the value of 12746 US$.*

Within the group of middle-income countries two segments are emphasized: countries with lower middle income (GNI per capita ranges from 1046 to 4125 USD), and those with incomes above the average (from 4125 to 12746 US dollars) – Bulgaria, Belarus, Azerbaijan, Romania.

There are not so many theoretical studies on the problem of foreign exchange reserve adequacy. Still, ***the ratio of the international reserves relative to GDP remains one of the key indicators of the financial strength of countries, which serves as a benchmark for global rating agencies in the assessment of the country's credit risks.***

In the Republic of Moldova a significant increase in the foreign exchange reserves was attested in 2013, reaching 2820,63 million US$, also constituting 35.4% of GDP. Due to the intensification of financial and bank crisis, during the following periods the volume of foreign exchange reserves decreased by 8,28 pp.

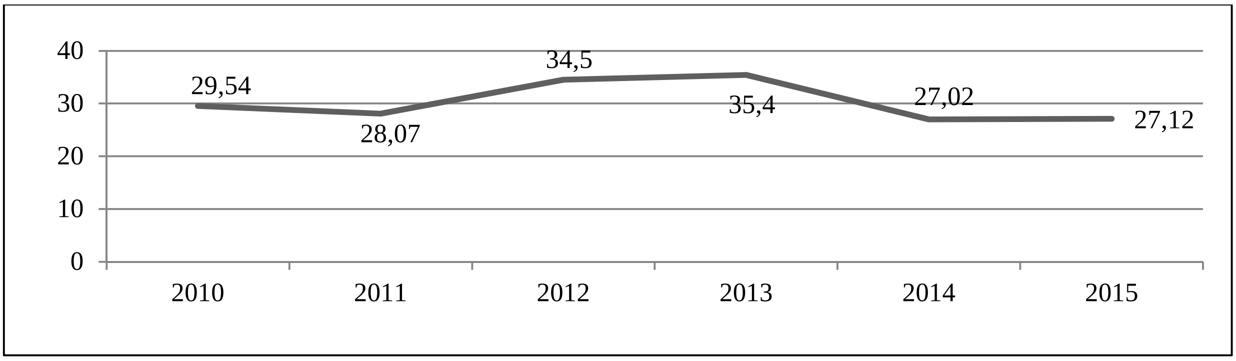

Figure 2. Evolution of foreign exchange currency reserves in ratio to GDP in Moldova
Source: Compiled by authors according to the data from http://www.bnm.md/

In determining the minimum required volume of the international reserves in international practice, the central monetary authorities traditionally rely on some indicators such as: ***reserves in months of imports of goods and services; providing a broad base of international monetary reserves; ratio of international reserves to short-term external debt of the country, reserves over broad money, reserves over short-term external debt*** [5].

1. Import-based measures of reserve adequacy has lost a part of its attractiveness due to the financial integration and especially due to the fact that financial flow prevail over trade flows. Also, empirical works demonstrated a weak relation between reserves over imports and the occurrence or depth of crises in a recent period characterized by financial shocks. Still, ***for the Republic of Moldova this indicator is actual, as the volume of imports remains too high*** (representing nearly 80.3% in total volume of GDP during all five years from 2010 till 2015).

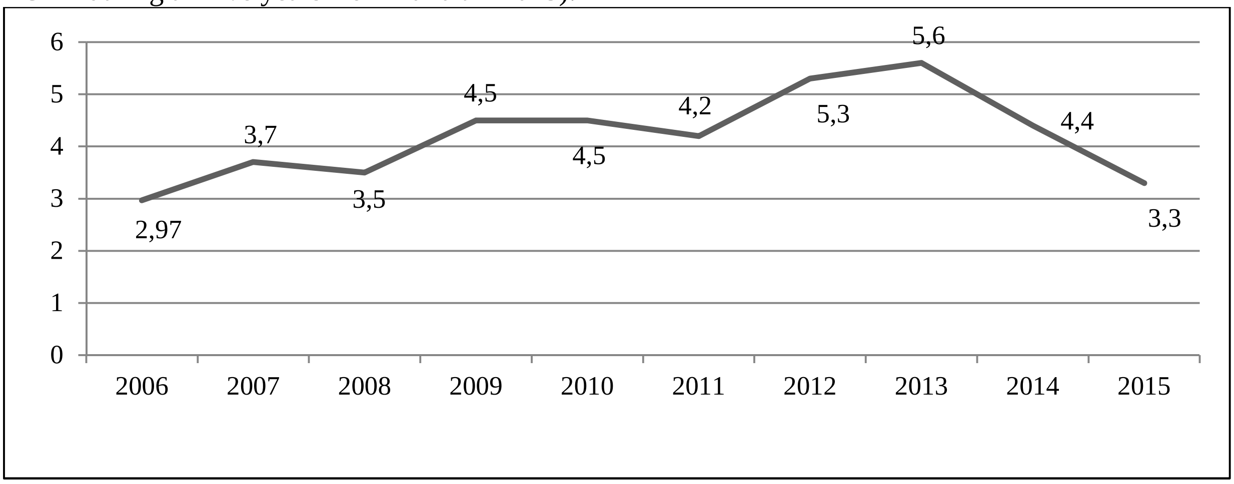

Figure 3. Dynamics of import-based measure of reserve adequacy in Moldova, in months
Source: Compiled by authors according to the data from http://www.bnm.md/

It is considered that the volume of reserves should cover three or four months of imports and goods to be able to face some disequilibrium in exports or other foreign exchange inflows. The level of international reserves of the NBM according to this indicator in 2014 reduced by 0.4 months, and in 2015 by 1.5 months. At the same time, increase in imports has been reduced accordingly by 9.07% in 2014 and by 21.82% in 2015 compared with the previous period (figure 3).

2. Reserve to monetary base ratio is one of the most conventional measures of estimating the country's capital flight exposure. Still, empirical studies suggest that it indicates a potential capital flight, but say nothing about its probability.

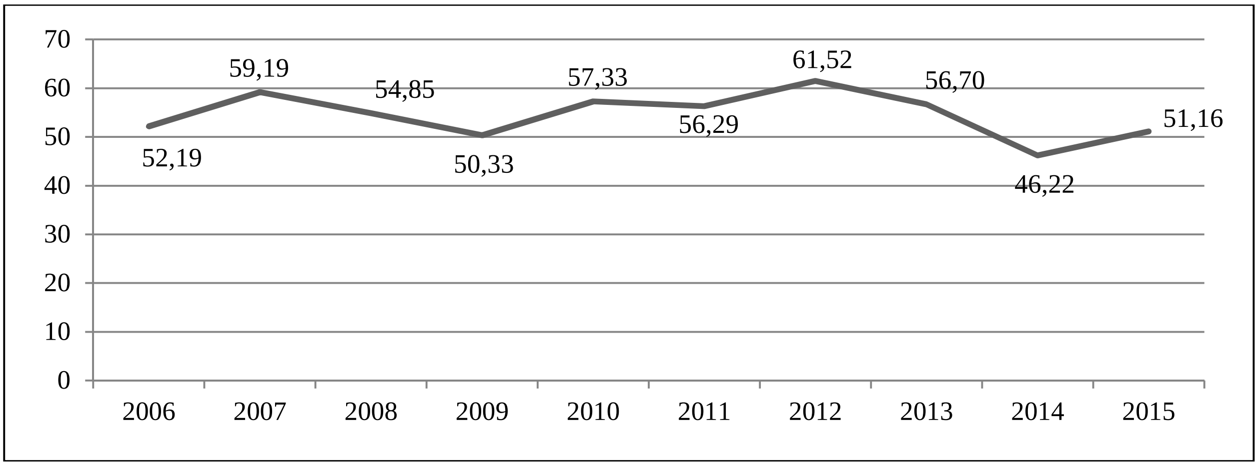

Figure 4. Dynamics of ratio of NBM official international reserves to broad money (M3), in %

Source: Compiled by authors according to the data from http://www.bnm.md/

The recommended coverage value for countries with regulated floating exchange rate is 10-20% of the broad money (M2 or M3). In 2015, the level of the NBM international reserves estimation according to this criterion after the decline in 2013-2014 remained almost at the level of 2014, which significantly exceeds the threshold level of 20% of the broad money supply and registered 51.16%.

3. Short-term debt (STD) is considered an indicator of the crisis risk and is assessed as ratio of the volume of international currency reserved to short term debt – the so called "*Greenspan-Guidotty*" rule. If the country's currency reserves cover 100% of the short term external debt and the forecasted deficit of the current account of the balance payment for one year, their level is considered sufficient for preventing a currency crisis. If this level is lower than 100%, a probability appears that the government or country's residents will have difficulties or delays in realizing payments on external debt.

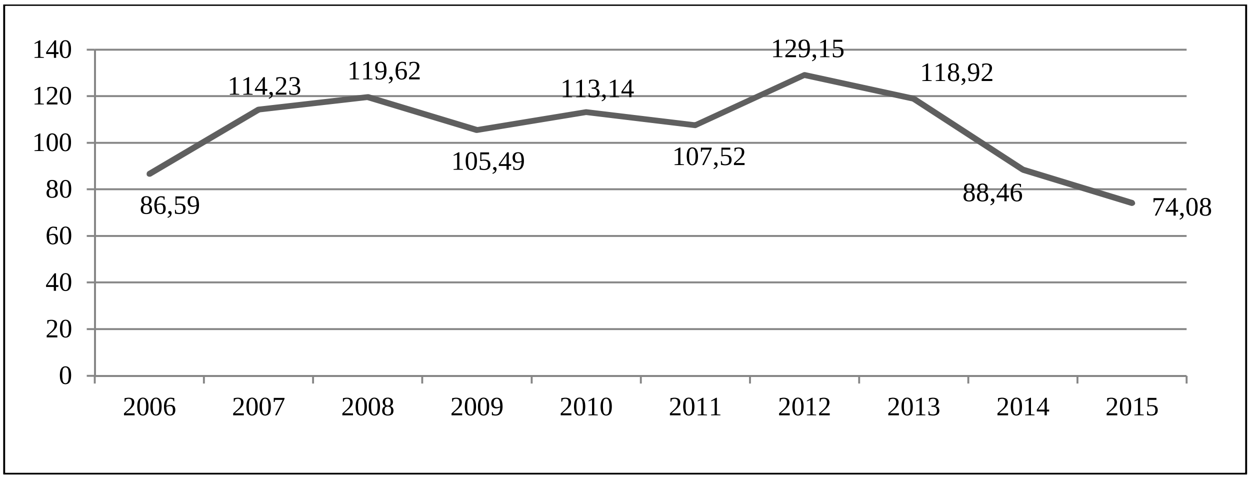

Figure 5. Dynamics of ratio of NBM official international reserves to short-term debt, in %

Source: www.bnm.md/ro/content/datoria-externa-2015-date provizorii

According to figure 5, the level of the international reserves of NBM is below the minimum value of the "empirical rule", which should be not less than 100%, This indicates a high vulnerability of the Republic of Moldova to "external pressure", as our country is not able to avoid new borrowings. In 2014, the level of evaluation according to this criterion fell by 30.46 p.p., and in 2015 by another 14,3 p.p. amounting to 74.08%.

Still, experience of several countries raises questions on both the relevance of STD as an exclusive indicator of reserves held, and of 100 percent as the threshold level. In recent IMF studies on the adequacy of international reserves, specific examples show that traditional indicators are often poorly adapted to specific circumstances in different countries and can give conflicting results on the adequacy of reserves in a crisis situation [2].

Criteria for the sufficiency of international reserves should take into account all sources of risks faced by emerging market countries. In such countries, external shocks can affect the performance of both the financial account and the current balance of payments account. In addition, there is instability of demand for the national currency and its sharp fluctuations under the influence of negative expectations of market participants.

Assessing international reserve adequacy in the Republic of Moldova according to new IMF methodology

In 2011 IMF experts have developed new indicators for assessing the adequacy of reserves, which complement the traditional thresholds. The new framework classifies countries based on the degree of access to markets, depth and liquidity of their markets and flexibility of their economies. Based on the relevant characteristics and external risks, countries were divided into three groups (mature markets, emerging financial markets, and emerging economies which are limited in access to the capital market).

For emerging markets with limited access to the capital market, various methods were used to assess the adequacy of the level of reserves:

- mathematical models based on the actual data on outflow of capital or on the reduction of incomes during crisis periods in different low- and middle-income countries to determine the relative level of risks of potential sources of instability on the part of the balance of payments;

- expert assessments of the level of requirements for international reserves to cover certain sources of risks.

The IMF methodology is based on the sources of problems that occur on the foreign exchange market:

1) The decrease in the receipt of currency due to the decrease in export earnings (EX);

2) Growth in demand for currency due to repayment of external debt (STD – short-term, LTD – long-term debt);

3) The growth in demand for currency due to the desire of the population and organizations to maintain the purchasing power of savings.

The IMF experts propose to estimate ***the minimum allowable level of international reserves in the fixed exchange rate regime*** using the following formula:

Capital Adequacy of gold and foreign currency reserves in the fixed exchange rate regime	=	30**% of short-term external debt**	+	**15% of foreign portfolio investments**	+	**10% of broad money M2(M3)**	+	**10% of exports of goods and services**

Within a regulated floating exchange rate, the monetary authority is not responsible for retaining the pre-set exchange rate values, so it can afford to have lower amounts of gold and foreign exchange reserves.

Capital Adequacy of gold and foreign currency reserves in the regulated floating exchange rate regime	=	30**% of short-term external debt**	+	**10% of foreign portfolio investments**	+	**5% of broad money M2(M3)**	+	**5% of exports of goods and services**

The IMF methodology takes into account specific sources of risks, which in crisis conditions turn into channels for withdrawing international reserves. In emerging markets, for precautionary purposes of smoothing negative trends during stressful events, the threshold levels of international reserve adequacy can be increased from 100 to 150 percent of the estimated reserve adequacy. Within these limits, the international reserves are recognized by the IMF as "broadly adequate" [1]. The calculation of the threshold levels of the adequacy of the international reserves should be adjusted for the specific features of the economic development of each particular country.

A special approach in the implementation of the methodology in the Republic of Moldova will be consistent with the conclusions justified by the IMF:

- The weight of exports, should be much higher in case if exports rely on special goods.

- The level of demand for reserves in terms of dollarization of the economy or their demand for foreign currency may differ from other countries.

- A country which is dependent on remittances can supplement the proposed assessment with weight conditions for this source of risk [1].

The Republic of Moldova, being the poorest country in Europe with an emerging market, an economy based on exports of commodities and labor, and as a country with low credit ratings, has limited access to international capital markets. In these conditions, for effective management and overcoming of internal imbalances, the ***NBM should accumulate a larger amount of international reserves in comparison with the average values.***

Calculation of an adequate level of international reserves of the NBM should be supplemented with data on the export of labor. The level of remuneration of workers of residents and personal transfers to the Republic of Moldova registered 26.2% of GDP in 2014 and 23.7% in 2015. At the same time, according to the World Bank, official transfers of migrants constitute only 29% of real money transfers. To calculate the adequate level of the international reserves, it is necessary to take into account this circumstance and the fact that the volumes of income from the export of labor as well as the revenues from the export of goods and services reflect the potential losses of international reserves.

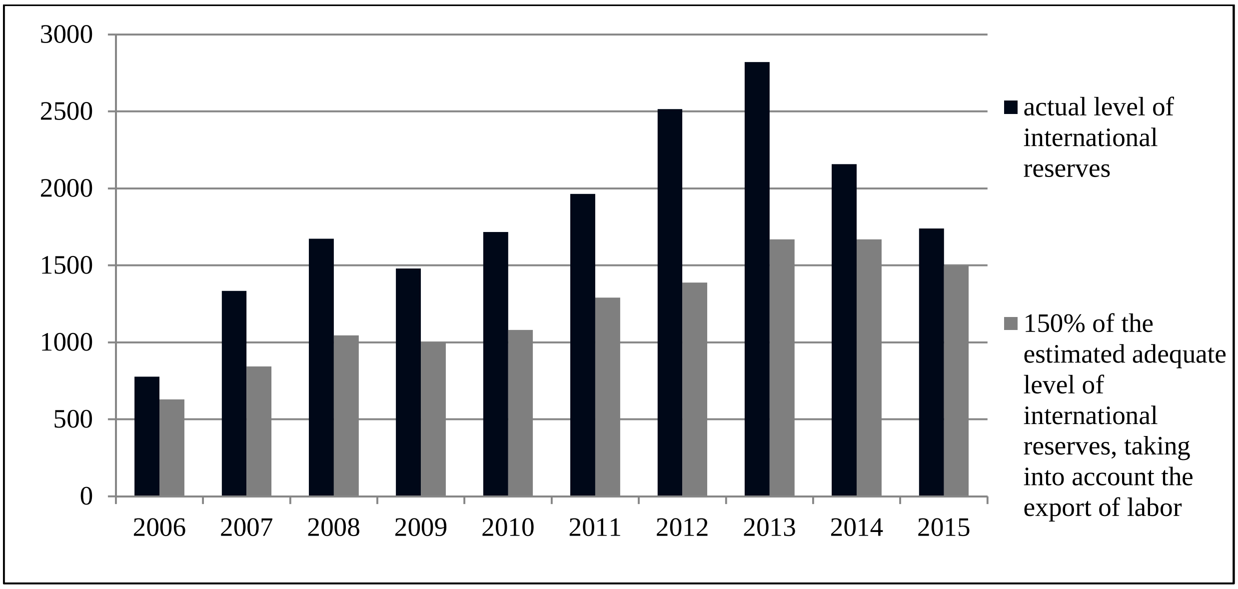

Figure 6. Threshold level of sufficiency of official international reserves of NBM[1]

Source: Compiled by authors according to the data from http://www.bnm.md/, calculations made by authors.

The figures calculated according to data from the national statistics show that the official gold and currency reserves of the NBM approach the threshold level.

Alongside the falling indicators of GDP growth rates and investments in fixed assets, an even more important criterion for estimating the level of international reserves for the Republic of Moldova is associated with the growth of foreign trade debt. In countries with emerging economies, the country's total external obligations represent the best indicator for assessing the risks associated with the instability of the financial account of the balance of payments. Therefore, in some studies, ***it is suggested as a key indicator in the analysis of external vulnerability – the use of the ratio of international reserves to the total***

[1]*In this calculation, the income from the export of labor is represented by such indicators of the balance of payments as "wages" and "remittances of workers"*

external obligations of countries [1]. The cost of debt is usually higher than the profitability of reserves. Taking into account the structure of external obligations (the ratio between direct, portfolio investments, foreign loans and between long-term and short-term external obligations), different quantitative indicators of international reserve valuation relative to the country's total foreign liabilities should be used [6]. According to the national statistics of the Republic of Moldova, in 2014 the level of coverage of external debt by international reserves decreased by 9,45 p.p. and in 2015 by another 5,09 p.p., which is the lowest level since 2006 (figure 7).

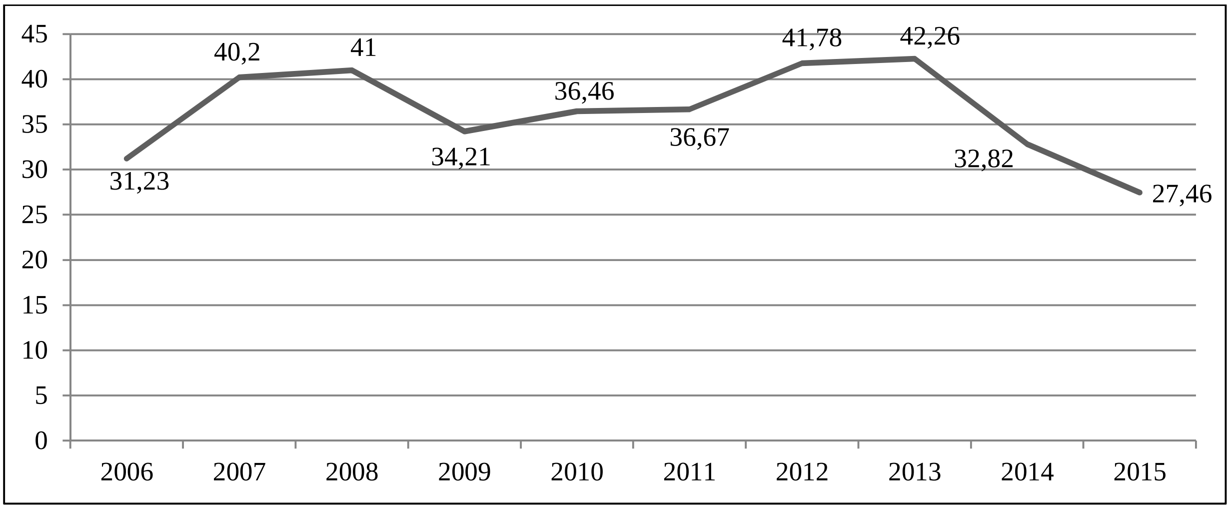

Figure 7. The level of coverage of gross external debt by official international reserves of NBM, in %

Source: NBM http://www.bnm.md/

Despite the fact that there is no definite threshold level of covering the countries' external debt with international reserves, ***this indicator shows an increase in the severity of the external debt for the economy of the Republic of Moldova. The volume of accumulated reserves seems to be not enough to withstand sudden outflows of capital and a currency crisis.***

Conclusions

For the Republic of Moldova as a country with an emerging market in the context of globalization, the effective management and accumulation of sufficient international reserves become particularly important. ***A new methodology for assessing the adequacy of international reserves in countries with less developed markets allowed to improve the analysis of reserves in comparison with traditional criteria.***

However, all thresholds proposed by the IMF do not have clear theoretical grounds and should be regarded as a guide rather than a strict criterion. Nevertheless, the reviewed indicators of the level of official international reserves of the NBM and a certain tendency of a sharp drop in the accumulated international reserves can lead to an inadequately low level. Considering the weak of the banking sector, the decline in the level of gold and currency reserves of the NBM may entail a deepening of financial imbalances. When forecasting the situation for the future, it should be considered the fact that a reduction in the international reserves will reduce the level of confidence of foreign investors in economic agents and that foreign exchange reserves are costly for storage, as the yield of reserve assets is generally lower than interest rates on Long-term debt or the costs of frozen capital. Therefore, they must serve some specific purpose of management.

Given the specific circumstances of the economic development of the Republic of Moldova, an assessment of the level of sufficiency of international reserves for effective management makes it possible to draw the following conclusions:

- A significant decrease in the level of gold and currency reserves of the NBM and their approach to a critical value indicates an increase in the degree of vulnerability of financial and macroeconomic stability of the economy of the Republic of Moldova.
- The increase in the volume of international reserves can partially compensate the shortcomings in the transformation of the economy of the Republic of Moldova, improve its efficiency and the quality of management.

REFERENCES

1. Assessing Reserve Adequacy. Prepared by Monetary and Capital Markets, Research, and Strategy, Policy, and Review Departments. 2011, february 14 [accesat 17 februarie 2017]. Disponibil: http://www.imf.org/external/np/pp/eng/2011/021411b.pdf
2. Assessing Reserve Adequacy – Specific Proposals. 2015, april [accesat 21 ianuarie 2017]. Disponibil: http://www.imf.org/external/np/pp/eng/2014/121914.pdf
3. BERNADELL, C. et al. Risk management for central bank foreign reserves. 2004, may [accesat 17 februarie 2017]. Disponibil: https://www.ecb.europa.eu/pub/pdf/other/riskmanagecbreserves2004en.pdf
4. CLICHICI, D. Rethinking the institutional framework for financial stability in the Republic of Moldova. In: Journal of Financial and Monetary Economics. Bucharest, 2015, vol 2, issue 1, pp. 59-66 [accesat 10 februarie 2017]. Disponibil: ftp://www.ipe.ro/RePEc/vls/vls_pdf_jfme/vol2i1p59-66.pdf
5. IREFIN, David, YAABA, Baba N. Determinants of foreign reserves in Nigeria: An autoregressive distributed lag approach. In: CBN Journal of Applied Statistics. 2011, vol. 2, no. 2 [accesat 17 februarie 2017]. Disponibil: https://www.cbn.gov.ng/out/2012/ccd/cbn%20jas%20vol%202%20no%202_article%20five.pdf
6. Public information notice: Debt- and Reserve-Related Indicators of External Vulnerability. International Monetary Fund. 2000 [accesat 17 februarie 2017]. Disponibil: http://www.imf.org/external/np/sec/pn/2000/pn0037.htm
7. Debt- and Reserve-Related Indicators of External Vulnerability. International Monetary Fund. 2000 [accesat 17 februarie 2017]. Disponibil: https://www.imf.org/external/np/pdr/debtres/
8. FISCHER, S. IMF/World Bank International Reserves: Policy Issues Forum. Opening Remarks. 2001, april [accesat 21 ianuarie 2017]. Disponibil: www.imf.org/external/np/speeches/2001/042801.htm
9. SMITH, Gary, NUGEE, John. The changing role of central bank foreign exchange reserves. 2015, september [accesat 26 februarie 2017]. Disponibil: https://www.omfif.org/media/1122865/jn-gs-report-master.pdf
10. Guidelines for Foreign Exchange Reserve Management. 2001, september [accesat 21 februarie 2017]. Disponibil: https://www.imf.org/external/np/mae/ferm/eng/
11. Tackling Challenges Together: IMF anual report 2015 [accesat 17 ianuarie 2017]. Disponibil: https://www.imf.org/external/pubs/ft/ar/2015/eng/pdf/ar15_eng.pdf
12. CALAFELL, J.G., PADILLA DEL BOSQUE, R. The ratio of international reserves to short-term external debt as an indicator of external vulnerability: some lessons from the experience of Mexico and other emerging economies [accesat 10 februarie 2017]. Disponibil: https://g24.org/wp-content/uploads/2016/01/Session-1_5.pdf
13. SUMMERS, Lawrence H. Reflections on Global Account imbalances and Emerging Markets Reserves Accumulation. 2006, march [accesat 6 februarie 2017]. Disponibil: http://www.harvard.edu/president/speeches/summers_2006/0324_rbi.php
14. Legea cu privire la Banca Naţională a Moldovei: nr. 548-XIII din 21.07.1995. In: Monitorul Oficial al Republicii Moldova. 1995, nr. 56-57, art. 624.
15. TIPA, Pavel. Foreign exchange risk management in the Republic of Moldova in conditions of currency crisis. In: Economie şi Sociologie = Economy and Sociology. 2016, nr. 3, pp. 88-93.
16. Revised Guidelines for Foreign Exchange Reserve Management. 2014 [accesat 11 februarie 2017]. Disponibil: http://www.imf.org/external/np/mae/ferm/2014/revgudferm14.pdf

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