“Main features of Ukrainian monetary policy during the post-crisis economy reformation”

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ARTICLE INFO	Taisiya Krushelnytska, Olena Kakhovska, Oleksandr Kurinnyi and Olga Matveieva (2017). Main features of Ukrainian monetary policy during the post-crisis economy reformation. *Banks and Bank Systems*, *12*(4), 189-202. doi:10.21511/bbs.12(4-1).2017.07
DOI	http://dx.doi.org/10.21511/bbs.12(4-1).2017.07
RELEASED ON	Tuesday, 19 December 2017
RECEIVED ON	Tuesday, 05 September 2017
ACCEPTED ON	Friday, 10 November 2017

JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
43	0	7

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10, Sumy, 40022, Ukraine

www.businessperspectives.org

Received on: 5th of September, 2017
Accepted on: 10th of November, 2017

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MAIN FEATURES OF UKRAINIAN MONETARY POLICY DURING THE POST-CRISIS ECONOMY REFORMATION

Abstract

The article is devoted to the Ukrainian monetary policy in the period of post-crisis structural reformation. Overcoming consequences of the deepest in Ukraine's new history economic, social and political crisis becomes a starting point for modernization of the whole administration system and policy provided. In that period, monetary policy has been changed significantly. It was provoked by necessity for state regulator to respond to act on complex of unexpected challenges. Main features of monetary policy in 2013–2016 (active regulation, stabilization and maintaining proper equilibrium in the economic system; implementation of IMF program; gradual intensification of administrative measures; inflation targeting; influencing the regime of floating exchange rate; prices stabilization; focusing on equilibrium in the balance of payments; mobilization operations restraining; growth of the monetary base; monetary policy measures have generally been a response to fiscal policy and geopolitical policy of Ukraine) are highlighted.

Keywords monetary policy, banking system, economic system of Ukraine, shadow economy sector, state regulation, social and economic crisis, macroeconomic stability, post-crisis reformation

JEL Classification E00, E26, E31, E42, E52, E58, G28

INTRODUCTION

Since the global financial crisis of 2008, fluctuations in the global economy have a great impact on the economies of developed and, especially, developing countries (Hakeem & Suzuki, 2016). Over the last four decades, globalization has mostly proceeded based on the belief in the market self-regulatory capacity without adequate, effective institutional structures and governmental mechanisms. It has become especially evident in cases of developing countries with fragile economies and modifications in their monetary policy. Ukraine is one of such countries. The post-crisis economic fall turned to be much deeper than it was expected here. The recovery was uncertain and slow. Despite the fact that Ukraine's economy has not been closely integrated into the global economic system, lack of own significant points of growth and economic levers of their development considerably slowed down the process of positive changes. Strengthening of the socioeconomic and political unrest in the country in recent years (2013–2016) takes the features of permanence. In this context, the Ukrainian banking system which accumulates most of the macroeconomic and political risks finds itself in a weak position, rapidly losing its regularity, consistency and persistence items. And the monetary policy is inconsistent which couldn't manage to meet the whole set of social, political and economic challenges.

Instability of the monetary policy modernization results in negative consequences for national economic development, causing aggravation of the social and economic crisis threats. Therefore, in current conditions, Ukrainian banking institutions undergo a serious test of time in terms of permanent economic and political transformations. The rate of operating conditions change, the power of the external environment influence, and the need to initiate appropriate internal transformations cause an activation of Ukraine's monetary policy improvement process. On the other hand, the level of the domestic economic system depends greatly on the condition of its banking system. In terms of constant crisis passing, the banking system of Ukraine is losing the possibility to mobilize and implement all the inherent incentive opportunities.

A lot of political and economic problems, which influence the effectiveness of domestic monetary policy, remain unresolved for a long time. These are problems of banks' capitalization level increasing, effective liquidity management and, finally, the stability of the banking system, modernization of the national development strategy, which should contribute to improving the reliability and efficiency of banking activity.

In light of this, the Ukrainian monetary policy requires an improvement – the basic concepts developing and applied tasks solving for its further strengthening, eliminating the negative effects of the economic crisis that has recently characterized the condition of doing business in Ukraine.

We find out that the main features of monetary policy should be determined based on the target reference points of the country's development, rather than on its current well-being and financial capability.

1. LITERATURE REVIEW

The banking system plays a significant role in both the financial system and the economy as a whole. By the end of 2014, Ukrainian banking system plunged into the deepest in country's history crisis (Matveieva, 2016). This affected both the financial system and the Ukrainian economy (Bobrovska, 2017). The importance of the banking system and its role in the economy extends. As Swanepoelet al. (2017) mentioned, the health of this sector has significant effects on overall economic activity, as well as the size and persistence of economic cycles. As a result, the banking sphere has consequently been a subject of extensive government regulation, including interest rates, prices banks may charge, the activities they may engage in, the risks they may take, the capital they must hold, and location they can operate in (Da Silva & Divino, 2013).

Historically, Ukrainian banks were a subject of regulation by multiple regulators at both the Ukrainian state and global organizations levels (Dziubliuk, 2008). The Ukrainian system of regulation and supervision of banking is a complex structure, despite the fact that it is centralized in a single regulator. As is evident, a complex banking structure makes the necessity for complex law. In part, this legal complexity is also a response to the increasing complexity of social interactions and economic exchanges in society (Gambacorta & Rixtel, 2013). Complexity of social interactions and economic exchanges in society become a new driving force for monetary policy developing by Ukrainian government (Kakhovska, 2014). With the acceleration of decentralization reforms which strengthened the role of the society in the national economy (Krushelnytska, 2016) the problem of monetary policy modernization during the post-crisis period reformation became particularly relevant.

The paper contributes to the discussion of the efficiency of Ukrainian monetary policy in the post-Maidan period.

2. DATA

It is reasonable to start with a set of annual data, which reflect the current situation in the banking sector of Ukraine. It was used to investigate the data from sources such as the official statistic information, analytical papers, and results of the previous research.

2.1. Current conditions of Ukrainian banking system development

Strengthening of the social, economic and political instability in the country in recent years becomes dangerously stable. In such circumstances, the Ukrainian banking system had faced a majority of problems constraining its development. Ukrainian banking institutions underwent a severe stress test for their resistance and the ability to work under new political and economic conditions. The national crisis of 2013–2016 has affected the political, economic and social spheres, which was reflected by indicators of the banking activity and stability.

So, what is the present crisis in post-revolution Ukraine? To describe this, we should refer to the history of the problem which has arisen within the state. By the end of 2008, Ukrainian economy had entered a phase of globally synchronized slowdown which, however, lasted much longer than in any other country of Europe. The crisis that engulfed Ukraine adversely affected the overall condition of the Ukrainian banking system. Undoubtedly, banks have a significant market power due to the existence of purchasable products, locational characteristics, and high switching costs (Mulyaningsih et al., 2016). But they are not protected against external economic shocks that hit the base of their activity in the market.

Exacerbation of internal and external political confrontation in 2013–2015 led to a significant capital outflow (Table 1) and increased demand for foreign currency in both segments of the foreign exchange market. Attempts by the state to keep the exchange rate during 2014 were worth USD 3.46 bln from international reserves. That became one of the factors of fixed exchange rate policy refusing.

As the real exchange rate plays a central role in sustaining macroeconomic stability, and the real exchange rate misalignment is crucial to policy makers, it determines the degree of policy intervention needed to correct deviation and achieve stability (Bannaga & Badawi, 2014). Long-run movements in the real exchange rate can be explained by net foreign assets existence, terms of trade, and government expenditure. Ukrainian hryvnia has been overvalued slightly for the period of the country's independence. Therefore, the risks associated with the aggravation of the crisis have shown its external value. When the real sector of the economy is lagging behind, it is hard to overcome the real exchange rate misalignment. Crisis risks only increase that lag.

Since the second quarter of 2014, other system risks were gradually intensified:

- the deterioration of relationships with Russian Federation, which led to a reduction in trade turnover both between Ukraine and

Table 1. The rate of decline in total assets and liabilities of Ukrainian banks (excluding exchange rate differences), UAH mln

Source: Internet site of the National Bank of Ukraine (2016).

Indicator	2008	2009	2010	2011	2012	2013	2014	2015	2016
The number of active banks	175	184	182	176	176	176	180	163	117
Assets of banks	599,396	926,086	880,302	942,088	1,054,280	11,27,192	1,278,095	1,316,852	1,254,385
Equity	69,578	119,263	115,175	137,725	155,487	169,320	192,599	1,48,023	103,713
Liabilities of banks	529,818	806,823	765,127	804,363	898,793	957,872	10,85,496	1,168,829	1,150,672
Net profit	6,620	7,304	–38,450	–13,027	–7,708	4,899	1,436	–52,966	–66,600
Profitability of assets, %	18,264	42,430	–4.38	–1.45	–0.76	0.45	0.12	–4.07	–5.46
Profitability of capital, %	24,807	18,841	–32.52	–10.19	–5.27	42432	0.81	–30.46	–51.91

Note: The table data illustrates the decline in bank assets and capital in the period of the internal political and socioeconomic crisis exacerbation.

Russia (its share in exports has fallen from 23.2% to 17.7%), and with other countries of the Customs Union. Opening of access to EU markets and enhancing competitiveness by reducing the REER (real effective exchange rate) allowed to partially compensate such deterioration – at the end of 2014, exports from Ukraine decreased by 15.0%;

- complication of access to capital markets, which adversely affected the financial condition of borrowers and deepened the deficit of the financial account balance;

- the growth of quasi-fiscal deficit and fiscal dominance which are revealed by significant transfers from the National Bank of Ukraine (NBU) to the state budget, and internal debt monetization (the share of government bonds held by the NBU had increased to UAH 171 bln or enhanced from 58.3% to 69.5% of the bonds in circulation). That led to the further deployment of inflation, limitation of possibilities of the NBU to support commercial banks;

- increase in value of foreign currency loans servicing due to the rapid devaluation of the national currency by 49.3% in 2014. Against the background with significant deterioration in the financial condition of enterprises and households it negatively affected their ability to maintain debts;

- increase in non-performing loans (NPL) share – NPL level in 2014 increased by 6.1% and reached 19%. That necessitated the formation of vast reserves (UAH 103.3 bln). And, as a consequence, it was increase in losses of the banking system (up to UAH 53 bln in 2014);

- the mass recapitalization of commercial banks;

- reduction in resource base of banks through significant outflow of deposits of "Naftogaz Ukraine" National Joint Stock Company, the Individuals Deposit Guarantee Fund, and households, which was due to both objective (reduce in real income) and subjective factors (people's expectations about the future financial and geopolitical uncertainty in the state, the introduction of administrative restrictions on withdrawal of deposits, the existence of households' alternative savings out of banking system);

- in context of economic instability, households show an increase in risk aversion and prefer high liquidity and low-risk financial products (Bernardo et al., 2016);

- shortening of non-financial corporations deposits under the influence of economic activity and foreign trade declining. Over the last years (2014–2016) banks have lost one-third of the deposit portfolio;

- reduction in the resource base and growth of the risks that adversely affected the banking crediting (compared to pre-crisis 2013, in post-Maidan 2014 the amount of loans issued in a national currency decreased by 13%, in a foreign currency – by 46%);

- the loss of paying capacity by individual banks, which necessitated the introduction of the interim administration, and liquidation of 33 commercial banks (more than 10% of total banking system assets at the beginning of 2014);

- a negative result of banks activity – the losses accounted for nearly UAH 53 bln. They were formed primarily by a significant increase in charges to reserves for possible losses from active operations.

In general, the monetary policy in 2014–2016 was conducted under the conditions of rapid changes in the economy, primarily due to macroeconomic imbalances. The adoption and conducting of monetary policy by the central bank was caused by moderate expectations of the government and the rejection of "traditional conservative measures of crisis management" (Griebeler, 2015).

2.2. Fluctuation of currency and price dynamics

The development of negative processes in the economy has been accelerated due to the growth of social and political tension and losing a part of economic potential through the political confrontation with Russian Federation. The reduction of

Table 2. The values of the USD and EUR exchange rate set by NBU

Source: Internet site of the National Bank of Ukraine (2016).

Currency	Year						
	2010	2011	2012	2013	2014	2015	2016
USD	798.5	796.17	798.98	799.3	799.3	1576.856	2378.369
EUR	1144.9	1057.3	1029.8	1053.7	1104.2	1923.291	2555.795

Note: The table shows the dynamics of the national currency per 100 monetary units (cost of 100 USD/EUR in UAH). The data was taken at the beginning of the year.

exports was accompanied by the outflow of capital and the fall of the investment attractiveness in times of growing forecasting uncertainty with critically high political and economic risks. As a result, there was a significant reduction in market expectations, increased demand for foreign currency and growth of the national currency (UAH – hryvnia) exchange rate volatility (Table 2).

Devaluation of the hryvnia, administrative increasing of prices and tariffs with high devaluation expectations of individuals and entrepreneurs could not fail to affect the price dynamics. Under these conditions, the growth of consumer price index in 2014 (24.9%) considerably exceeded the defined mark (19.0%). At the same time, it should be noted that it was permitted by the "Basic monetary policy principles for 2014" (National Bank of Ukraine, 2016) the possibility of deviation of actual inflation rate from the oriented mark. Such deviation was foreseen in case of significant impact on the price dynamics by structural changes in the economy, a hard administrative regulation of prices and tariffs, as well as a number of internal and external shocks acquiring (Table 3).

Inflation rate or the consumer price index characterized the change in the general level of prices of goods and services purchased by the population for non-productive consumption (Gamber et

Table 3. Inflation rates in Ukraine from 2000 to 2016

Source: Internet site of the National Bank of Ukraine (2016).

Year	Month												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
2000	104.6	103.3	102.0	101.7	102.1	103.7	99.9	100.0	102.6	101.4	100.4	101.6	125.8
2001	101.5	100.6	100.6	101.5	100.4	100.6	98.3	99.8	100.4	100.2	100.5	101.6	106.1
2002	101.0	98.6	99.3	101.4	99.7	98.2	98.5	99.8	100.2	100.7	100.7	101.4	99.4
2003	101.5	101.1	101.1	100.7	100.0	100.1	99.9	98.3	100.6	101.3	101.9	101.5	108.2
2004	101.4	100.4	100.4	100.7	100.7	100.7	100.0	99.9	101.3	102.2	101.6	102.4	112.3
2005	101.7	101.0	101.6	100.7	100.6	100.6	100.3	100.0	100.4	100.9	101.2	100.9	110.3
2006	101.2	101.8	99.7	99.6	100.5	100.1	100.9	100.0	102.0	102.6	101.8	100.9	111.6
2007	100.5	100.6	100.2	100.0	100.6	102.2	101.4	100.6	102.2	102.9	102.2	102.1	116.6
2008	102.9	102.7	103.8	103.1	101.3	100.8	99.5	99.9	101.1	101.7	101.5	102.1	122.3
2009	102.9	101.5	101.4	100.9	100.5	101.1	99.9	99.8	100.8	100.9	101.1	100.9	112.3
2010	101.8	101.9	100.9	99.7	99.4	99.6	99.8	101.2	102.9	100.5	100.3	100.8	109.1
2011	101.0	100.9	101.4	101.3	100.8	100.4	98.7	99.6	100.1	100.0	100.1	100.2	104.6
2012	100.2	100.2	100.3	100.0	99.7	99.7	99.8	99.7	100.1	100.0	99.9	100.2	99.8
2013	100.2	99.9	100.0	100.0	100.1	100.0	99.9	99.3	100.0	100.4	100.2	100.5	100.5
2014	100.2	100.6	102.2	103.3	103.8	101.0	100.4	100.8	102.9	102.4	101.9	103.0	124.9
2015	103.1	105.3	110.8	114.0	102.2	100.4	99.0	99.2	102.3	98.7	102.0	100.7	143.3
2016	100.9	99.6	101.0	103.5	100.1	99.8	99.8	99.7	100.0	100.3	101.3	100.0	104.9

Note: The table shows the consolidated indices of inflation (inflation rates) in Ukraine in a per year monthly breakdown.

Table 4. Dynamics of inflation rates and real wages from 2010 to 2016 (cumulative total), %

Source: Internet site of the National Bank of Ukraine (2016).

	Year						
	2010	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Average monthly wage, %	110.5	111	111	106.8	110	105	101
Inflation rate, %	109.1	104.6	99.8	100.5	124.9	143.3	120
Changes	1.4	6.4	11.2	6.3	–14.9	–38.3	–19

Note: The table shows the contrast between consolidated indices of inflation in Ukraine with the average monthly wage in dynamics.

al., 2016). The inflation rate in Ukraine amounted 99.8% in July 2016.

The inflation rate grew faster than average wages, which led to a significant imbalance between incomes and expenditures of Ukrainian households (Table 4).

It is significant that during periods of maximal difference between the levels of the indices of inflation and real wages (2014–2016), a mass outflow of deposits from banks in Ukraine was observed. This has opened one of the key shortcomings of the Ukrainian banking system and its regulatory model. That is a plurality of variants of financial relationships in the country, their liberality, and permissibility. Consequently, we observe a high prevalence of cash in accounting, which minimizes the need for businesses and the population for the banks as those.

In the period of high tension in the monetary market, the main efforts of the National Bank of Ukraine were directed at supporting the banks liquidity to ensure timely fulfillment of all of the obligations to customers. Obviously, on the one hand, that provided timely and opportune payments in the economy, and on the other hand, contributed to maintaining trust in the banking system and the forming of favorable conditions for the further return of depositors' funds to bank accounts. For this purpose, the National Bank of Ukraine supported the liquidity of banks by providing new refinancing loans,

Table 5. The structure of incomes and expenditures of Ukrainian banks

Source: Internet site of the National Bank of Ukraine (2017).

	Indicator	**Amount, January 1, 2015, UAH mln**	**%**	**Amount, January 1, 2016, UAH mln**	**%**	**Amount, January 1, 2017, UAH mln**	**%**
1	Revenues	168,888	100	199,193	100	190,691	100
1.1	Interest income	129,932	78.1	135,145	67.8	135,807	71.2
1.2	Commission income	24,974	14.8	28,414	14.3	31,362	16.4
1.3	Result of trading operations	3,304	2	21,490	10.8	17,848	9.4
1.4	Other operating income	5,112	3	9,567	4.8	3,946	2.1
1.5	Other income	2,404	1.4	2,729	1.4	2,729	1.4
1.6	Recovery assets	3,162	1.9	1,848	0.9	1,728	0.9
2	Expenses	16,7452	100	265,793	100	350,078	100
2.1	Interest expenses	80,881	48.3	96,079	36.1	91,638	26.2
2.2	Commission expenses	3,975	2.4	5,846	2.2	7,182	2.1
2.3	Other operating expenses	12,319	7.3	12,991	4.9	10,920	3.1
2.4	General administrative expenses	40,672	24.3	36,742	13.8	42,445	12.1
2.5	Allocations to reserves	27,975	16.7	114,541	43.1	198,310	56.6
2.6	Income tax	1,630	1	–406	–0.1	–418	–0.1
3	Net profit (loss)	1,436	–	–66,600	–	–159,388	–

Note: The table shows the cut of revenues and expenditures of banks in Ukraine as of January 1, 2017 compared to similar figures as of January 1, 2016 and January 1, 2015, determined share of each of the indicators in the structure of revenues and expenditures. At the beginning of 2016, the banking system has received the biggest in the history of independent Ukraine loss of UAH 66,600 mln. And this trend has continued.

and by reviewing the plans for their return. The requirements for banks' compulsory reserves forming were also liberalized, including the permission of complete releasing of funds from a reserve account.

2.3. Incomes and expenditures of Ukrainian banks

Under current political and economic conditions, the banking sector continued to be exposed to significant risks, including the medium- and long-term loan (Ostropolska, 2015). The deterioration of loan portfolio quality was reflected both in the revenues and expenditures of banks. At the beginning of 2016, the structure of incomes and expenditures of Ukrainian banks in comparison with the previous period was as follows (Table 5).

Thus, the monetary and credit policy pursued by the National Bank of Ukraine was aimed at maintaining the liquidity of banks, which has been affected by the deep structural crisis. This resulted in the prolonged retention of the foreign currency exchange rate and maintaining the liquidity of most stable commercial banks.

However, the national monetary sector is fully integrated into the economic system of the state. Therefore, any imbalances in its development affect the economic system. Obviously, the level of the economic system development becomes the most vivid and evident into the degree of economy "out of the shadows" achieving.

3. SHADOW ECONOMY SECTOR: METHODOLOGY OF MEASUREMENT AND CALCULATION RESULTS

While describing interrelation between financial stability and monetary policy, Smets (2013) expounded the role of central bank and its policy in the national economy. He stressed that 'the need for coordination raises the question of the appropriate institutional set-up. Overall, as a result of the crisis central banks have been given a larger role in maintaining stability' (Smets, 2013). Considering macroprudential monetary policy as a vehicle of financial stability, the author highlighted the impact of this factor on overall economic stability (Smets, 2013), which can be also described through methodology of shadow economy sector measurement, in the context of our investigation.

In this regard, using inductive reasoning method, we view an interrelation between monetary policy tightening and shadow economy sector raising as a consequence of general tightening of operating environment. In the case of Ukraine we can observe situation when monetary policy tightening provokes a range of negative economic effects. For example, while restricting the freedom of purchase and sale of foreign currency for the stabilization of the national currency exchange rate, the so-called "conversion centers" occur in the "black currency market", and most of the deals go into the shadows. With the strict limitation of the growth of interest rates on loans it is also possible to distribute semi-legal lending transactions (enterprises give free financial assistance, during the year such operation is not subject to tax). And fee for the use of financial resources lays under an illegal scheme. Thus, any restriction imposed by the government represented by the central bank on market relations leads to the shadow sector growing, in case of insufficient control of the financial market subjects.

3.1. Methodology of measurement

There are many methods by which you can measure and evaluate the shadow economy sector. In particular, Quintano and Mazzocchi (2016) propose to assess the EU shadow economy using a DEA model (2016). This geographical area is also observed by Williams and Martinez (2014) from the position of startups' chances of doing business. But let us start with a search of the reasons for this problem appearance. Eventually, the problem of the shadow economy existence is today more relevant for developing countries. And the modern Ukraine is one of them.

Many authors consider the issue of taxation avoidance – the basis of the shadow economy formation – from the standpoint of morality and ethics (Horodnic & Williams, 2016). Other researchers explain it through the imperfection of regulations

(Lu et al., 2015). Bureaucracy is also an essential factor – the bureaucratic complexity is sometimes more significant than monetary severity in driving the shadow economy (Goel & Nelson, 2016).

An integrated approach to dealing with this phenomenon suggests analysis of multiply economic and social causes of crisis which lead to shadow sector growing (Igudia et al., 2016). And most often, in scientific works the methods of assessing the health of the economy by using monetary parameters are founded, that is absolutely logical.

The monetary evaluation method is one of the simplest and illustrative methods of measuring the shadow sector of the country's economic system. The reason is that it relies on statistic data that is always available. However, the accuracy of the calculations will directly depend on the reliability of the initial statistical information. We can make a generalized assessment of the size of the shadow economy in Ukraine by applying the monetary method. This is an express method based on the acceptance of normality: the level of the shadow economy is inversely proportional to the level of taxation of businesses and individuals (1) (Kovalenko, 2010):

$$k = \frac{g}{r}, \quad (1)$$

where g – the weighted average tax burden that forms a revenue part of the consolidated budget; r – the share of taxes which form a revenue part of the consolidated budget.

If we substitute the values of monetary aggregates into the general formula (1), we obtain an advanced formula for calculations (2):

$$k = \sqrt{\frac{d_1 \cdot g_1 \cdot r_1}{d_0 \cdot g_0 \cdot r_0}}, \quad (2)$$

where k – the level of shadow economy; d – the ratio of cash and the money supply (3):

$$d = \sqrt{\frac{C}{M}}, \quad (3)$$

where C – the amount of cash; M – the amount of money supply.

Table 6. Dynamics of calculation indices of the shadow economy of Ukraine estimation in 2005–2016

Source: Internet site of the National Bank of Ukraine (2016), Ministry of Finance of Ukraine (2016), National rating agency "Rurik" (2014).

Indicator	2005	2006	2007	2008	2009	2010
Tax revenues, UAH bln	98055	125743	161264	227165	208.1	234.4
GDP, UAH bln	441452	544153	720731	948056	912.6	1082.6
Consolidated budget revenues, UAH bln	134183	171812	219937	297 899	273	314.5
The level of tax burden	0.229	0.230	0.290	0.290	0.280	0.290
The share of budget-forming taxes	0.730	0.730	0.739	0.760	0.760	0.790
The cash, M0, UAH bln	60231	74984	111119	154759	157.0	183.0
Money supply, M3, UAH bln	194071	261063	386156	515727	487.3	597.9
Ratio M0/M3	0.310	0.290	0.280	0.300	0.322	0.306
The level of the shadow economy, %	46.3	48.9	60.9	55.8	51.8	51.2
Indicator	2011	2012	2013	2014	2015	2016
Tax revenues, UAH bln	334.7	360.6	354.0	456.1	409.4	476.1
GDP, UAH bln	1316.6	1408.9	1454.9	1566.7	1979.5	1465.0
Consolidated budget revenues, UAH bln	398.6	445.5	442.8	510.7	534.6	595.1
The level of tax burden	0.254	0.256	0.243	0.291	0.207	0.325
The share of taxes which form budget revenues	0.840	0.809	0.799	0.893	0.766	0.800
The cash, M0, UAH bln	192.7	200.3	237.8	282.8	282.7	293.2
Money supply, M3, UAH bln	685.5	729.7	909.0	953.8	994.1	1073.6
Ratio M0/M3	0.281	0.275	0.262	0.296	0.284	0.273
The level of the shadow economy, %	42.8	47.5	44.7	75.5	76.5	78.8

Note: The table shows statistic data for calculating the level of the shadow economy sector in Ukraine. To calculate and generate the dynamic range of annual indicators by monetary method, database range from 2005 to 2016 was selected – periods of intensified development of the economy (2006, 2010–2013), periods of the recession (2007, 2009), and periods of crisis exacerbation (2008, 2014–2016).

Table 7. Calculations of coefficient of the Ukrainian economy shadowing level in 2006–2016

$k_{2006-2016}$	$k_{2006} = \sqrt{\frac{0.23 \cdot 0.73 \cdot 0.29}{0.23 \cdot 0.73 \cdot 0.31}} = 48.9\%$	
$k_{2007} = \sqrt{\frac{0.29 \cdot 0.73 \cdot 0.28}{0.23 \cdot 0.73 \cdot 0.29}} = 60.9\%$	$k_{2008} = \sqrt{\frac{0.29 \cdot 0.76 \cdot 0.30}{0.29 \cdot 0.74 \cdot 0.28}} = 55.8\%$	$\Delta_{2007-2006} = +12\% \uparrow$ $\Delta_{2008-2007} = -5.1\% \downarrow$
$k_{2009} = \sqrt{\frac{0.28 \cdot 0.76 \cdot 0.32}{0.29 \cdot 0.76 \cdot 0.30}} = 51.8\%$	$k_{2010} = \sqrt{\frac{0.29 \cdot 0.79 \cdot 0.31}{0.28 \cdot 0.76 \cdot 0.32}} = 51.2\%$	$\Delta_{2010-2009} = -0.7\% \downarrow$
$k_{2011} = \sqrt{\frac{0.25 \cdot 0.84 \cdot 0.28}{0.28 \cdot 0.76 \cdot 0.32}} = 42.8\%$	$k_{2012} = \sqrt{\frac{0.26 \cdot 0.81 \cdot 0.28}{0.25 \cdot 0.84 \cdot 0.28}} = 47.5\%$	$\Delta_{2011-2010} = -8.4\% \downarrow$ $\Delta_{2012-2011} = +4.7\% \uparrow$
$k_{2013} = \sqrt{\frac{0.24 \cdot 0.80 \cdot 0.26}{0.26 \cdot 0.81 \cdot 0.28}} = 44.7\%$	$k_{2014} = \sqrt{\frac{0.29 \cdot 0.83 \cdot 0.30}{0.24 \cdot 0.80 \cdot 0.26}} = 75.5\%$	$\Delta_{2013-2012} = -2.8\% \downarrow$ $\Delta_{2014-2013} = +30.8\% \uparrow$
$k_{2015} = \sqrt{\frac{0.21 \cdot 0.77 \cdot 0.28}{0.29 \cdot 0.89 \cdot 0.30}} = 76.5\%$	$k_{2016exp} = \sqrt{\frac{0.33 \cdot 0.80 \cdot 0.27}{0.21 \cdot 0.77 \cdot 0.28}} = 78.8\%$	$\Delta_{2015-2014} = +1.0\% \uparrow$ $\Delta_{2016-2015} = +2.3\% \uparrow$

3.2. Calculation results

Table 6 shows the initial data and estimations for assessing the level of the shadow economy in Ukraine during 2005–2016.

Proceeding from the data of the table, we get the following calculations of the coefficient (k-level) of Ukrainian economy shadowing in 2006–2016 (by prognosed data in 2016) (Table 7).

The given data allow asserting that the level of the Ukrainian economy shadowing has grown significantly in recent years – from 46.3% in 2005 to more than 78.8% expected in 2016. Calculation results have shown a threatening tendency of the real incomes hiding by the citizens of Ukraine and business units.

Largely it depends on the level of trust in the banking system, the effectiveness of financial and credit policy measures aimed at maintaining the stability of banks. According to Han et al. (2014), investor sentiments with the borrowing constraints are the main causes of such asymmetric effects of economic development. Furthermore, such effects, in general, depend on the overall situation in a banking sector, where "default contagion caused by a single bank's initial shock" spreads to all system reflecting the impact on the rest of interbank system (Yao et al., 2016). Another cause is the increasing trend of inflation together with the high rate of unemployment in Ukraine. It has brought "more attention to the effects of monetary policy and central bank power on macroeconomic indexes", as Haghighat and Salahesh (2016) suppose.

4. ANALYSIS OF THE RESULTS OBTAINED

However, such situation depends on a wider range of factors, which are considered below. Barriers to the development of the banking system in the primary approximation can be structured into two groups: external and internal factors.

The existence of barriers in the development of Ukrainian banking system is caused by a number of divergent problems. Most of such problems are external, lying outside the sphere of their control and, therefore, falling out from the area of their influence. The most significant problems are:

- the slow pace of market transformations of the real economy sector;

- a weak and unstable financial position of a significant number of enterprises which traditionally form the basis of the Ukrainian economy;
- a low level of the stock market, land market, and real estate development;
- insecurity of creditors and depositors in the national scale;
- low level of trust in the governing and banking institutions.

However, the development of the banking system is also bounded because of problems which are inherent directly to the banking system. The main among them are the following (Zinchenko, 2008; Klimova, 2009):

- the need for further increasing of the capitalization of banks level to provide the sustainable economic growth with resources required by amount, value, and terms;
- the need to improve the quality and competitiveness of banking services;
- insufficient level of corporate governing effectiveness in commercial banks;
- the low level of banking risks management.

However, the external problems are so complex, that their existence affects all areas of economic activities of banks. Thus, while considering the crisis of the national economic system, it should be mentioned that it is a part of the global social and economic space with its system links, features, and characteristics. These internal features determine the place of the state in a globe and are responsible for the achieved level of its resistance and stability. From this perspective, the crisis is a consequence of the kind of asymmetry into the development of the state, the prevalence of adverse factors on the fundamental values of a healthy and strong democratic society, its economic and financial well-being.

Crisis in Ukraine in 2014–2016 has shown how strong and powerful the relationship can be between single state and the global community, with the changes that occur in it. Many Ukrainian and European experts equate this crisis with the beginning of the governmental coup that took place in Ukraine three years ago. And it is difficult to disagree with. However, it is still unaccounted that the prerequisites for the development of negative economic trends had already taken place here. And instead of preparing itself for the crisis, Ukraine has prepared the crisis for itself.

That is how the situation, which was provoked by internal factors that had worked in the 2013–2014, looks like.

A weak scientific and technical base, high import dependence, low levels of entrepreneurial activity and business innovation – all of these and many other factors have jeopardized the economic system of Ukraine in the period of its peculiar crash test. And we received a very disturbing but predictable picture – the system is cracked at the weakest seams. Those problems the solution of which was delayed for many years and questions that were not solved for a long time have led to the growth of economic threats in Ukraine, an oncoming of the country to the brink of default, and critical shadowing of the economy.

The resumption of economic growth requires new ideas, investments and increasing of competition within the state. For this, in its turn, it is necessary to invest in new sectors and industries. Namely, it is an urgent need of the economy diversifying. And the policy of import substitution may serve a strong impetus for this.

Extension of production capacities on the basis of ecological compatibility, resource saving, expansion of internal markets for manufactured products, are the simplest ways to enhance national economic growth. However, a crucial problem of Ukraine, among others, is rooted ideology which is dominated in the minds of the ruling elites for more than twenty years. This is the recognition of the feasibility of active industrial policy countering. Such policy distorts allegedly free market signals. And certainly, it affects adversely the ecology.

Without going into the discussion as to whether there is, in fact, a free market in the XXI century (Weeks, 2014), it should be noted that all the countries at different stages of their economic development have used an industrial policy instruments to increase the growth rates, create new industries and ensure their stable competitiveness in the global markets. Of course, the using of resource-saving technologies significantly decreases the problem of environmental impact.

The number of Ukraine's current market players, without large-scale industry representatives, will be reduced by 2018 by more than 50% expectedly. And any import substitution splash is not expected by Ukrainians. The main types of industry in Ukraine are underinvested and underfunded: investments have mostly stopped with the beginning of the crisis. It should be concluded that it is not possible to achieve a substantial growth in production without investment resources, especially at the present stage of Ukraine's economic growth. Therefore, we should not rely on a quick update, especially in terms of the national currency volatility and the crisis of liquidity. These factors cannot be avoided without abandoning of the vicious idea of government's struggling against inflation at any cost. Monetary policy, based on this principle, destroys production and the whole financial system, in spite of the theoretical postulates of the liberal school, just provokes inflation (Hayek, 2013).

Do to the expansion of the money supply under the current conditions of the Ukrainian economy, inflation is rising from year to year. Instead, the policy of monetary mitigating at a low rate of the national currency should provide the development of production processes. And stimulation of the production should be made as long as the national economy will not grow in several industrial areas. Then the national currency will strengthen deservedly, investments and GDP will increase consequently. On the other hand, the temporary weakening of the national currency provides some advantages to domestic manufacturers, reducing their costs. Devaluation of the national currency helps, above all, mining companies: their dependence on imported resources is lower. Thus, import substitution will pull the entire economy if the state and the public will actively support domestic producers. That needs to strengthen the positive market trend, which appears due to the fact that the manufacturer's costs are lower than the costs of the importer.

Thus, the current crisis in Ukraine has been generated not by external factors, but by ineffective economic policies pursued in the past 20 years, especially in 2014–2016. Thus, according to Grillo, the president of the Federal Association of German Industry (BDI), a deep economic and monetary crisis in the country is always due primarily to errors committed in the past (Grillo, 2014).

So, the main reason for the current crisis in Ukraine is a one-sided fixation of the national economy. Therefore, to overcome the crisis Ukraine needs a serious strategic plan, which would have changed the paradigm of economic development of the country for future. It is important that this plan, including import substitution, diversification, and active industrial policy, will not suffer the fate of modernization within 5–10 years. Because the prospect of development should be long.

Returning to the problems of the banking sector of Ukraine, its high dependence on an internal economic system of the state with its resources, intellectual, technical, and labor potential should be emphasized. Their development and effective application is a basic factor of positive structural changes – the logical consequence of the shadow economy reduction, and rise in general standards of living. Under these conditions, the main priority of improving the banking regulation and supervision system in the medium term should be implementing the strategy of the banking supervision role activation based on the identifying the problems of banks at the early stages of their appearance with the National Bank's timely response to them for preventing them and avoiding the crises or, at least, mitigating their influence on the economy. On the other side, strengthening of supervision in the banking sector will increase public trust in the banks, which will be an important driver for the expansion of banking assets, preventing the removal of money to the shadow sector of the Ukrainian economy.

CONCLUSION

Despite the Ukrainian government's efforts, the economy of the state fell into a deep recession in 2014. The conflict with neighboring eastern country had a significant impact on the economy, the financial system, and thereafter the banking system and the monetary policy correction. Disruptions in the industrial production and trade with a loss of confidence fueled capital outflows and led to acute exchange

rate depreciation. Ukrainian banks roundly came under increasing stress. As a result of the crisis, the total amount of public debt has been increased and international reserves fell to low levels. In addition to that new financing needs of banks and their potential clients emerged.

To mitigate the impact of a powerful political and socioeconomic crisis, the government began implementing complex structural reforms to correct unsustainable state policies of the past, including fiscal adjustment, greater exchange rate flexibility, holding prices for energy resources, simplifying the regulatory environment for small business activity, and governance modernization. Despite these numerous efforts, meeting the objectives of sustainable development of the state became difficult, taking into account the size and scale of new economic shocks. Restoring external and internal sustainability seems to take longer and require even deeper reforms.

Under such circumstances, the main features and directions of the Ukrainian monetary policy which aims at mitigating the economic stress are the following:

- the macroeconomic stability supporting. Considering the difficult socioeconomic environment, where the real GDP is expected to decrease in the long term, inflation increases in response to the exchange rate depreciation and gas with municipal tariffs grow, deficit multiplies with official borrowings expansion, this direction should become a strategically preferable to improve political, social and economic prospects in the medium-term period;

- public finances strengthening. An expenditure-led adjustment will support fiscal consolidation in the coming periods. This would reduce fiscal imbalances and achieve public debt sustainability with higher probability;

- financial stability securing. This direction includes a strong monetary policy framework to restore price stability, flexibility of the exchange rate to cushion the economy against external shocks, and forming a complex long-term comprehensive strategy to strengthen banks' financial health through recapitalization, reduction of related party lending, and resolution of impaired assets, which are critical to regain public trust and support economic recovery;

- reducing the shadow economy. This direction implies the adoption of measures to restore the health of the economic system and regain public trust. Reducing the shadow economy sector will also demonstrate the improvement of the business environment and the tightening of the rules of accounting;

- structural reforms advancing. Determined efforts will help revitalize the business climate, attract investment, and enhance Ukraine's growth potential. This direction contains governance and banking reforms, including anti-corruption and judicial measures, deregulation and tax administration reforms, and reforms of state-owned enterprises to improve corporate governance and reduce fiscal risks.

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