

## Moral Hazard of Ukraine's External Debt Increase under Economy Dollarization\*

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ABSTRACT. The article provides overview of Ukraine's international debt currency structure, urgency thereof as well as mutual interaction with internal dollarization processes in the country. Determinative analysis of «moral hazard» definition has been conducted.

KEY WORDS: moral hazard, international debt, dollarization, volatility, debt rating, devaluation expectations, neoinstitutionalism, currency substitution.

### Introduction

Alogism and irrationality of the modern world economy system development confirmed by the recent financial crisis despite essential mainstream theories, i.e. Adam Smith's neoliberalism and classical political economy of self-regulation and universal *laissez-faire* principle, provide grounds for permanent need of theories deconstruction and revaluation of selfish, rational behaviour of economic agents as to deviance thereof and axiological component determination not only at micro- but also at meso-, macro-, mega- and meta-levels.

The increasing hazard of countries becoming insolvent regarding debts to their foreign lenders is quite a relevant issue today. The global financial crisis has entailed growth in volatility of loans and payments to service external borrowings and national debts in particular, with the growth rates being unprecedented since the Great Depression, which in turn impairs shaky short-term stability of the globalized financial system. Therefore, aiming to reduce the hazard of default countries keep applying to IMF and other financial institutions for new loan tranches which leads to increasing of their international debts. However, modern economists keep debating about the role, the value and positive or rather negative consequences of such loans, as well as about behaviourism of credit

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resources governmental management, causing «moral hazard» to the economy.

It should be noted that scientific journals of Ukraine have provided extensive coverage of the moral hazard problems in terms of banks and insurance companies, as well as researched international experience in this field, however, the moral hazards of international lending institutions and policy implications of borrowers in relation to the latter require both theoretical and practical justification. In particular, regarding situation of Ukraine this should imply assessment of the international debt increase in terms of transformation, structural shocks and imbalances in Ukrainian economy such as balance of payments deficit, negative trade balance, yield difference as regards UAH bonds and Eurobonds, low level of economy monetization caused by currency substitution – dollarization etc.

The national school of thought is primarily represented by such scholars as: T. Bolgar<sup>1</sup>, O. Vashchenko<sup>2</sup> O. Plastun<sup>3</sup>, who researched risks and moral hazards in banking. Works by O. Vasylyk<sup>4</sup>, A. Halchynsky<sup>5</sup>, H. Klymko, N. Kravchuk<sup>6</sup> and others are dedicated to the international debt increase hazard.

An important contribution to research of the international debt problems was made by Western economists such as A. Laffer<sup>7</sup>, A. Lerner<sup>8</sup>, R. Musgrave<sup>9</sup>, M. Friedman<sup>10</sup>, whereas the hazard has also

<sup>1</sup> Bolgar T.N., A.L. Plastun, Principal approaches to assessment of moral risk of the bank. Electronic Edition. [Access mode] [http://academy.sumy.ua/images/stories/docs/K\\_BOA/plastun\\_001.pdf](http://academy.sumy.ua/images/stories/docs/K_BOA/plastun_001.pdf)

<sup>2</sup> Vashchenko O.M., MORAL risk as a fundamental factor for the illegal sector in the economy. Electronic Edition. [Access mode] <http://dspace.uabs.edu.ua/bitstream/123456789/3928/1/20.pdf>

<sup>3</sup> Bolgar T.N., A.L. Plastun, Principal approaches to assessment of moral risk of the bank. Electronic Edition. [Access mode] [http://academy.sumy.ua/images/stories/docs/K\\_BOA/plastun\\_001.pdf](http://academy.sumy.ua/images/stories/docs/K_BOA/plastun_001.pdf)

<sup>4</sup> Wasylyk O.D., *Theory of Finance*, Textbook (K.: Publisher NIOS, 2000). [in Ukrainian].

<sup>5</sup> A. Galchinsky, V.M. Geets, *Strategy for Economic and Social Development of Ukraine (2004-2015) «Towards European Integration»*, NISS Institute of Economic Forecasting of NAS, the Ministry of Economy and European Integration (K.: PPI Committee of Ukraine, 2004). [in Ukrainian].

<sup>6</sup> Kravchuk N.M, N.V. Zinchenko, *Managing profitability Problems improve infrastructure: Proc. Scientific works № 30* (K.: NAU, 2011): p. 70-75. [in Ukrainian]

<sup>7</sup> Laffer A., «Economic Deviation Theory of such taxes», *The Economics of the Tax Revolt*, jointly with J. Seymour (1979).

<sup>8</sup> Lerner A., «The Economics of Control», *Principles of Welfare Economics* (N.Y.: 1944).

<sup>9</sup> Musgrave R.A, P.B. Musgrave, *State Finance: Theory and Practice*, 5th Eng. ed. (M.: Business Atlas, 2009), 716 p. ISBN 978-5-9900421-3-1.

<sup>10</sup> Friedman M., «Money: A quantitative theory», *Money: the Quantity Theory* (1968).

been the subject of study in the works by A. Alchian<sup>1</sup>, C. Voyfel<sup>2</sup>, S. Woodward<sup>3</sup> and others.

Objective of the article is to define the role and significance of moral hazard in terms of Ukraine's international debt increase, currency substitution and assets substitution.

The «moral hazard» concept was introduced in the insurance business branch implying behaviour results of the insured person after signing contract with the insurer. The definition implies that after signing the insurance contract a rational individual shall act differently than before, because in case of an insured accident or loss, such an individual will no longer bear financial costs, which provides for additional stimulus for the insured to behave carelessly after signing the contract. Thus, risky behaviour poses additional threats to the insurance company, coverage whereof and compensation for damages being disproportionate with the insurance payments, since the frequency of insured accidents, i.e. risk realization cases, is greatly increased. Aiming at specification of the said hazard caused by negligent behaviour or post-contract opportunism, the researchers introduced the term «moral hazard».

In their work *Measuring Real Economic Effects of Bailouts: Historical Perspectives on How Countries in Financial Distress have Fared with and without Bailouts* Michael Bordo and Anna Schwartz argue that according to the modern system of international lending the crucial defect in the models of financial assistance to countries affected by the economic crisis is contributing to the moral hazard occurrence. Assumptions of the lenders that use of financial investments subject to the predefined conditions implying a certain level of performance efficiency posed no risks in any country proved to be false, as borrowers are confident that in case of the economic situation deterioration their debts will be restructured or written-off due to the insolvency.<sup>4</sup>

Moral hazard occurs as a consequence of information asymmetry before or after signing of the contract subject to the existing differences between the benefit of an individual (individual rationality) and the welfare of the community or society (collective rationality). Moral hazard are at the international level caused by

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<sup>1</sup> Alchian A. A., *The firm is dead, long live the firm: a review of O.*

<sup>2</sup> Voyfel C., *Encyclopedia by the bank affairs and Finance*, Vulfel Charles J (M.: Corporation «Fedorov», 2003), 1584 p.

<sup>3</sup> A. A. Alchian, S. Woodward, "Williamson's economic institutions of capitalism," *Journal of economic Literature* 26:1 (1988): p. 70.

<sup>4</sup> Bordo, Michael D. and Anna J. Schwartz, "Measuring Real Economic Effects of Bailouts: Historical Perspectives on How Countries in Financial Distress have Fared with and without Bailouts," *Carnegie-Rochester Conference Series on Public Policy*, Vol. 53 (2000), p. 101

national governments and other international economic law entities by attempting to impose opportunistic behaviour of their own upon other parties in the international relations. Determination analysis of the «moral hazard» concept has demonstrated its complexity and revealed it as a synthesized set of specific relationships as displayed by the dendrogram below (fig. 1).



**Fig. 1.** Moral hazard dendrogram

Source: compiled based on *Gabler Wirtschaftslexikon* economic dictionary

Moral hazard during economic crises of individual states or big companies (Too big to fail) is regarded an involuntary process given which international organizations and big industrial and post-industrial countries are obliged to assist with loans in order to ensure that the debts of companies, corporations or executive power authorities and institutional apparatus of individual countries do not cause default of the national economy or even economy of a certain region, which in turn allows for high-risk behaviour of major economic contractors and national governments.

### **Analysis of the moral hazard dendrogram components.**

«Too big to fail» principle implies that companies and other institutions such as states or cities of a certain scale are *de facto* protected from becoming insolvent global economy entities due to their scale. They are strategic elements of economic architectonics and the first to be preserved through the involvement of the state or international organizations in case of a crisis to prevent jeopardizing national or international economy, or even the entire global

economic system. This is particularly relevant to the banking sector as well as to big industrial companies.

Moral hazard in the team can be observed when considering activities of the work team members indirectly. Performance efficiency of a team is directly related to specialization of labour and each member's area of expertise. As each member of the team is regarded an integral element within the general process of creating employment value chain, coordinated teamwork and elimination of the free-rider principle can be ensured by appointing the team manager for the activity supervision. Individual contribution of each worker can not be separated from the overall performance of the team, since results which can be expressed in the form of income are created by each team member's contribution. Thus, only a victory of the whole team provides benefits to a separate individual through the distribution of all benefits yielded, however it is only a part of the total, while the time costs, member utility for the team, volume of work performed, commitment and scope of efforts are individual for each team member and, hence, different in contrast to the benefits yielded. All of this provides for a motive to unilateral lowering of interest in the teamwork results aimed at shifting certain individual's responsibilities to other team members. Sooner or later, all the team members become aware of this and cause a chain reaction reducing the productivity and performance efficiency of the whole team.

Moral hazard in the team can be modelled using game theory and analyzed at a simplified example of decision-making by a team consisting of two people. Attention is paid to the important hypothesis implying that each team member independently decides on fulfilling the entrusted duties and does so with a certain level of productivity, thus maximizing own utility. There are only two options: «to work» or «to evade» professional duties, which allow to present workers interaction results in the matrix table.

*Table 1. Team Workers Interaction Results Matrix*



















		Worker 2	
		Work	Evade duties
Worker 1	Work	4 4	-3 5
	Evade duties	5 -3	0 0


The results in Table 1 show that equilibrium is established either when the two work (4, 4), or when they evade duties (0, 0). The basis of the moral hazard problem in the team is desire to evade

work, which is advantageous when another worker is working, but the other one having decided to evade will cause zero performance efficiency. Unethical behaviour causing low efficiency is regarded the moral hazard.

A striking example of a moral hazard in the team at the international level is the European Union, since the European Financial Stability Facility established on June 7, 2010 with the purpose of combating the European debt crisis is functioning on the proportionality basis (see table 2, max. Germany 27.13 %, min. Malta 0.009 %) between eurozone countries.

*Table 2. Participation of European Monetary Union Countries in the European Financial Stability Facility [20]*

Country	Initial contributions			Increased contributions	
	Guarantee obligations (mln. €)	Share	€ per capita	Guarantee obligations (mln. €)	Share
 Austria	€12,241.43	2.78%	€1,464.86	€21,639.19	2.7750%
 Belgium	€15,292.18	3.48%	€1,423.71	€27,031.99	3.4666%
 Greece	€12,387.70	2.82%	€1,099.90	€21,897.74	2.8082%
 Estonia				€1,994.86	0.2558%
 Ireland	€7,002.40	1.59%	€1,549.97	€12,378.15	1.5874%
 Spain	€52,352.51	11.90%	€1,141.75	€92,543.56	11.8679%
 Italy	€78,784.72	17.91%	€1,311.10	€139,267.81	17.8598%
 Cyprus	€863.09	0.20%	€1,076.68	€1,525.68	0.1957%
 Luxemburg	€1,101.39	0.25%	€2,239.95	€1,946.94	0.2497%
 Malta	€398.44	0.09%	€965.65	€704.33	0.0903%
 Netherlands	€25,143.58	5.71%	€1,525.60	€44,446.32	5.6998%
 Germany	€119,390.07	27.13%	€1,454.87	€211,045.90	27.0647%
 Portugal	€11,035.38	2.51%	€1,037.96	€19,507.26	2.5016%
 Slovakia	€4,371.54	0.99%	€807.89	€7,727.57	0.9910%
 Slovenia	€2,072.92	0.47%	€1,009.51	€3,664.30	0.4699%
 Finland	€7,905.20	1.80%	€1,484.51	€13,974.03	1.7920%
 France	€89,657.45	20.38%	€1,398.60	€158,487.53	20.3246%
 Eurozone 16 without Estonia	€440,000.00	100%	€1,339.02		

	<b>Eurozone</b> <b>17 with Estonia</b>	€779,783.14	100%
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Amid speeches by anti-globalization activists and opponents of the EU and EMU in particular, opportunism of the member-countries will be observed more often, which is confirmed by the statement of Nicolas Sarkozy, the President of France, that the decision as to admittance of Greece to the eurozone was a misguided one, as was the trial in Germany concerning the eurozone financing and rendering financial assistance to the PIGS countries (Portugal, Ireland, Greece, Spain) at the expense of German taxpayers<sup>1</sup>.

It should be noted that the moral hazard problem in terms of the «Principal-agent theory» has a similar expression. Unlike the agent, the principal has sufficient information as to the business environment state only as per the moment of contract signing. Aimed at avoiding sanctions or gaining more favourable conditions in the future the agent will deliberately provide the principal with false data, thus creating *ex post*<sup>2</sup> information asymmetry, as the consequence of striving to the agent utility maximization.

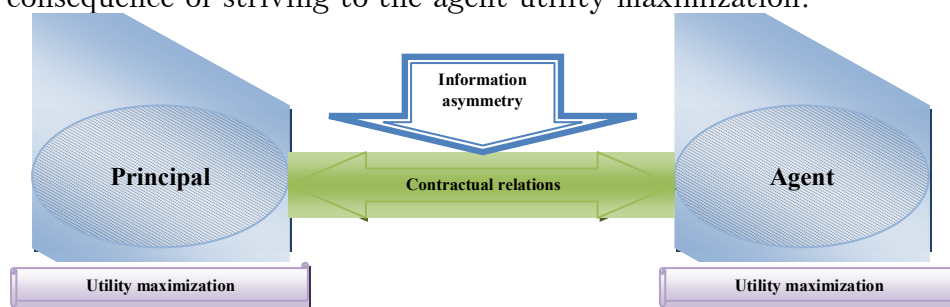


Fig.2. Principal – agent interaction chart<sup>3</sup>

It should be noted that the principal and agent interaction problem was reflected in concealment of Greece budget deficit which exceeded the admissible eurozone limit by 3 – 4 times<sup>4</sup>.

Neoinstitutionalism or new institutional economics in the field of moral hazard is based on the hypothesis that the high level of fixed costs of collection, preparation and transfer of information as well

<sup>1</sup> Germany court upheld eurozone financing [Electronic resource]. Access mode: [http://www.bbc.co.uk/ukrainian/business/2011/09/110907\\_germany\\_court\\_er.shtml](http://www.bbc.co.uk/ukrainian/business/2011/09/110907_germany_court_er.shtml)

<sup>2</sup> Ex post (from Latin «post» – «after») – process or phenomenon evaluation after review or occurrence thereof.

<sup>3</sup> Finance Portal von TU Dresden [Electronic resource]. Access mode: <http://finance.wiwi.tu-dresden.de/Wiki-fi/index.php/Prinzpal-Agent>

<sup>4</sup> European Titanic, Finance and money portal, dated 26.05.2011 [Electronic resource]. Access mode: <http://news.finance.ua/ua/~2/0/all/2011/05/26/239667>

as the need for establishment or expansion of institutions engaged in implementing credit management process on the part of financial institutions with respect to the recipient countries cause incomprehensive control of the latter.

The lender of last resort is an institution which by its own initiative or subject to the legislative imperative shall act as guarantor of the borrower's debt obligations. At the national level, these functions are performed by the central banks of individual countries, whereas at the supranational level — by the International Monetary Fund. The objective is to avoid or to reduce the borrower's insolvency level. It can safely be claimed that such financial doctrine results in moral hazard, since in case of the insolvency risk of individual market participants proving true it is shifted and shared by all participants of the financial fund or at the national level, while ultimately — is borne by taxpayers.

Free-rider principle implies economic effect, a phenomenon caused by behaviour of public goods consumer seeking to evade paying for them. The effect occurs with an individual deliberately evading payments, but still expecting to benefit from consumption thereof. An example of the free-rider problem is the tax evasion process with respect to taxes distributed in the budget for social needs. The international aspect implies aspirations of countries to make use of financial assistance from economic organizations, while paying small fees or evading transferring their shares to the general fund, which adversely affects their liquidity.

Special attention should be paid to highlighting the information asymmetry concept, since this phenomenon is correlated with many of the moral hazard components. Information asymmetry is a subject of information economics as well as economic analysis and is divided into two basic types as follows:

1) *ex ante* — information asymmetry is observed even before contract signing and expressed by a number of hidden characteristics and properties of the contract subject matter;

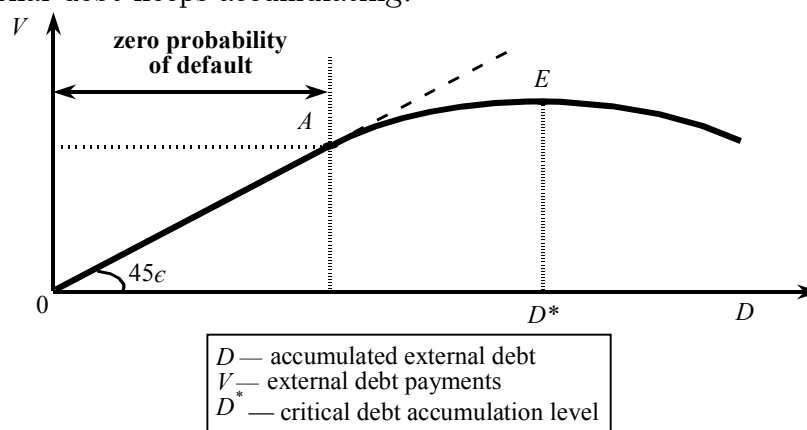
2) *ex post* — information asymmetry is post-contractual and manifested by: hidden action or information regarding the contract subject matter or state thereof.

As a rule, international financial institutions grant loans at low interest rates and for a long term, however, they often require not a cash collateral but reformations, structural changes in the economy and democratization of political regimes. As practice shows, it is not only in Ukraine, but also in other borrowing countries that governments allocate funds for short-term objectives in order to gain political dividends, this being manifestation of *ex ante* and *ex post* information asymmetry. In 2011, under the IMF stand-by



cooperation program Ukraine was supposed to receive four quarterly tranches totalling more than USD 6 billion, however, failure to comply with basic terms of the signed memorandum, i.e. raising gas prices for the population aimed at eliminating budget deficit of *Naftogaz* State Holding Company, has forced the Fund management to suspend lending to Ukraine. However, as shown by statistics, the gross external debt in 2011 still has grown by more than USD 6 billion (see fig. 4), indicating that loans from other financial institutions under worse conditions had been taken out (increase of the short-term debt share)<sup>1 2</sup>.

Interrelation between the moral hazard and international debt increase is confirmed by the Laffer Curve (debt curve invented by a well-known American economist Arthur Laffer). It shows that after reaching a certain threshold level of external debt, the so-called zero probability of default, payments to settle the debt cause gaining slowdown and in a certain time interval tend to decrease, while the external debt keeps accumulating.



**Fig.3.** Laffer Curve<sup>3</sup>

Thus, after passing the zero probability of default limits and the critical level at point E the external debt keeps increasing, which in turn means that the lending institutions do not receive payments of interest under the loan, and conduct no debt servicing activities, this being an example of moral hazard. The states must repay the loans provided to them, however they are borrowers being sovereign

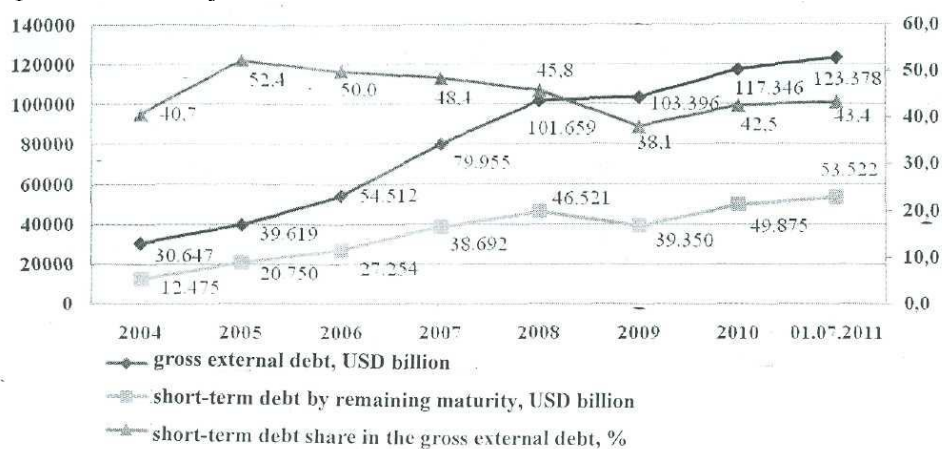
<sup>1</sup> Ukraine will not receive IMF tranche, *Dilova Ukrayina* information platform, dated 03.11.2011 [Electronic resource]. Access mode: <http://project.ukrinform.ua/news/32807/>

<sup>2</sup> When is Ukraine to receive IMF third tranche?, *Obozrevatel* [Electronic resource]. Access mode: <http://ukr.obozrevatel.com/news/koli-ukraina-otrimae-tretij-transh-vid-mvf.htm>

<sup>3</sup> A.A. Tumanov., External debt repayment process modelling (Russia case study) [Electronic resource]. Access mode: [www.mmaetst.narod.ru/archieve/tumanov051013.doc](http://www.mmaetst.narod.ru/archieve/tumanov051013.doc)

entities under international economic law and, hence, independent, thus, there are virtually no enforcement mechanisms for debt repayment. A marginal method of influencing is political confrontation in the form of an embargo, confiscation of foreign property or other assets in any form not prohibited by international conventions and multilateral agreements.

The Laffer Curve is a curve demonstrating the optimal debt level allowing the borrowing country to maintain debt payments sufficient to the creditor. In case the debt amount grows too much, the borrowing country may cease debt payments and default, which will also hit the lending country. Therefore, from creditor's point of view it is more expedient to maintain solvency of the debtor at an optimal level by various measures<sup>1</sup>.



**Fig.4.** Ukraine's gross external debt and short-term debt dynamics in 2004–2011

Source: compiled by the author based on National Bank of Ukraine data<sup>2</sup>

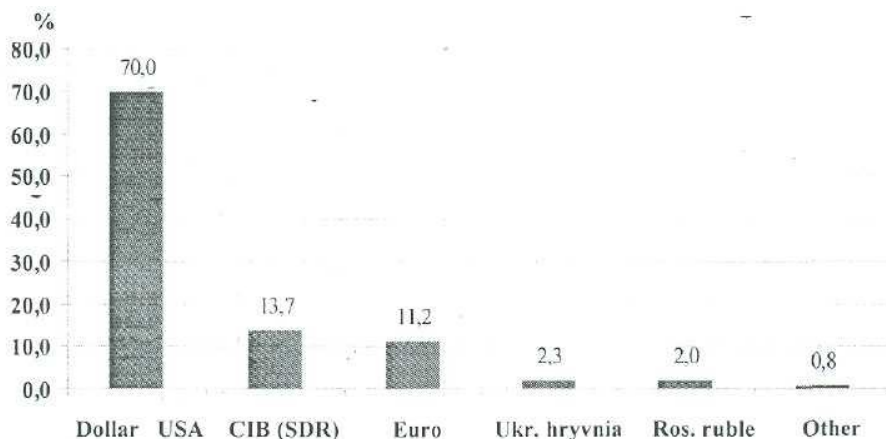
### Moral hazard in terms of Ukraine's external debt increase

An abrupt increase of Ukraine's gross external debt almost fourfold during 2004–2011 was observed, while as of 01.07.2011 the debt amounted to USD 123,378 million, of which the sum of USD 53,522 million was a short-term debt with remaining maturity of the following twelve months, which in turn indicates the debt-

<sup>1</sup> V.Ye. Sakharov, V. Budkin, S. Yerokhin. *International Economics Textbook* (K.: National Academy of Management, 2008), 432 p. p. 188-193. [in Ukrainian].

<sup>2</sup> Information materials of the National Bank of Ukraine website. [Electronic resource]. Access mode: <http://www.bank.gov.ua/doccatalog/document?id=63734>; <http://www.bank.gov.ua/doccatalog/document?id=63738>

based nature of the national economy. Although the short-term debt share in the gross debt makes only 43.4 % (as of 01.07.2011), which is not the highest index within the given sample (with the maximum of 52.4 % observed in 2005), the worrisome fact is that in December 2011 forex reserves of the National Bank of Ukraine amounted to USD 32.4 billion<sup>1</sup> only, which aggravates negative rational expectations as to devaluation of hryvnia, the national currency and causes intensification of dollarization processes in the economy.



**Fig.5.** External debt currency structure as of 01.07.11, %

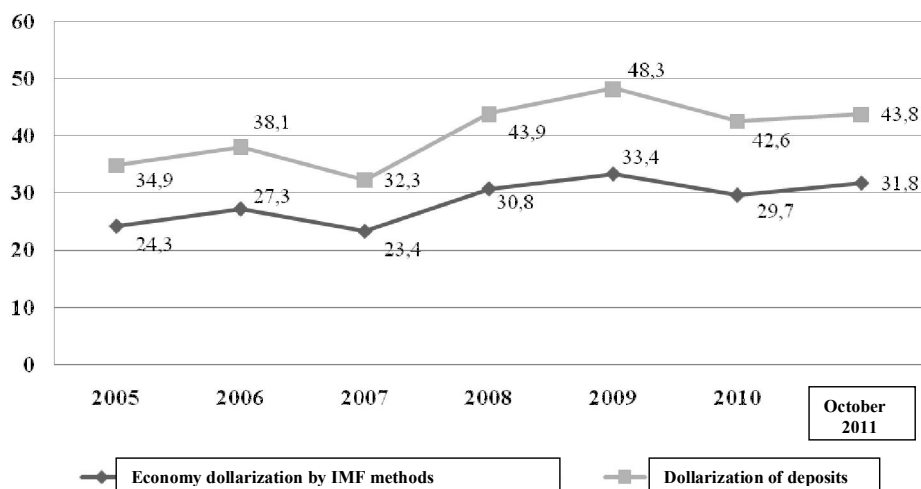
Source: compiled by the author based on National Bank of Ukraine data<sup>2</sup>

U.S. dollar share of 70 % is prevalent in Ukraine's external debt currency structure indicating low diversification of borrowing, as well as dependence on USD/UAH exchange rate fluctuations. Economy dollarization is intensified by the state's extra demand for the currency needed to service debt obligations.

The risk of devaluation accelerates and intensifies currency and assets substitution, whereas devaluation onset implies rising costs of external debt servicing, national currency devaluation and total debt amount increase, hence — economic situation destabilization and debt burden increase because of the need to attract additional credit funds.

<sup>1</sup> Ukrainians devastate NBU foreign currency reserves, information website [Electronic resource]. Access mode: <http://karpatnews.in.ua/news/34370>

<sup>2</sup> Information materials of the National Bank of Ukraine website. [Electronic resource]. Access mode: <http://www.bank.gov.ua/doccatalog/document?id=63734> ; <http://www.bank.gov.ua/doccatalog/document?id=63738>



**Fig.6.** Ukrainian economy dollarization in 2005–2011, %

Source: compiled by the author based on National Bank of Ukraine data <sup>1</sup>

Dollarization or currency substitution indicators are the share of foreign currency deposits in total bank deposits (43.8 %) and, according to IMF methods, the ratio of foreign currency deposits to M2 Money supply, which makes 31.8 % for Ukraine and characterizes national economy as highly-dollarized, since dollarization degree exceeds 30 %. Besides that, the higher the economy dollarization level, the faster the national economy proceeds from the zero probability of default point by Laffer curve to the critical debt accumulation level and certainty thereof.

Results of studies carried out by Federico Sturzenegger, PhD in Economics, the President of *Banco Ciudad de Buenos Aires*, one of the largest banks in Argentina; prove that a country default is usually caused by a series of political decisions entailing economy problems. Political leaders are often guided not by econometric models and economic expediency but by self-seeking goals and those of financial communities supporting them. Sturzenegger drew his conclusions based on studying solvency historic series dynamics of such countries as Argentina, Ecuador, Pakistan, Russia and Ukraine<sup>2 3</sup>.

<sup>1</sup> Information materials of the National Bank of Ukraine website. [Electronic resource]. Access mode: <http://www.bank.gov.ua/doccatalog/document?id=63734>; <http://www.bank.gov.ua/doccatalog/document?id=63738>

<sup>2</sup>Sturzenegger Federico, *Default Episodes in the 90s: Fact book and Preliminary Lessons*, Business School (Universidad Torcuato Di Tella, 2002).

<sup>3</sup> Sturzenegger Federico, "Toolkit for the Analysis of Debt Problems," *Documento de Trabajo* 12/2002, Centro de Investigación en Finanzas (Universidad Torcuato Di Tella, 2002).

*Table 1. Ukraine's Credit Rating (Debt Obligations) Dynamics as of July 21, 2011 <sup>1</sup>*

Rating agency	Foreign currency debt credit rating		National currency debt credit rating		Forecast	Rating date/Justification date
	Long-term	Short-term	Long-term	Short-term		
Fitch Ratings (Fitch)	B	B	B	—	Positive	<b>July 21, 2011</b> — reforecast
Standard and Poor's (S&P)	B+	B	BB-	B	Stable	<b>July 29, 2010</b> — reforecast and rating upgrade
Rating and Investment Information, Inc. (R&I)	B+	—	—	—	Stable	<b>March 31, 2011</b> — forecast and rating justified
Moody's Investors Service (Moody's)	B2	—	B2	—	Stable	<b>October 11, 2010</b> — reforecast

Such global rating agencies as Fitch Ratings (Fitch), Standard and Poor's (S&P), Rating and Investment Information, Inc. (R&I), Moody's Investors Service (Moody's) confirm stable forecast of Ukraine's performing debt obligations, however given the increasing dollarization rates performance thereof will prove more difficult, potentially resulting in a debt crisis in the medium term.

The risks of failure to repay the debts to international financial institutions and domestic creditors in Ukraine are rather high, because when in 1998 Russia defaulted, the event received almost no publicity coverage in our country. In September 1998, the total debt amount was USD 1.422 billion; however, restriction of access to international credit markets, the large share of short-term national loan bonds and maturity of payments by previous issue bonds, as well as poor pumping up the budget caused problems with debt servicing and repayment. Although the amount was not large, the National Bank has in a voluntary-compulsory manner and using monetary lending tools as well as affecting activity of Ukrainian commercial banks delayed repayment of the internal debt and agreed

<sup>1</sup> Finance Ministry of Ukraine, Ukraine's credit rating dynamics. [Electronic resource]. Access mode: [http://www.minfin.gov.ua/control/uk/publish/article?art\\_id=299315&cat\\_id=61736](http://www.minfin.gov.ua/control/uk/publish/article?art_id=299315&cat_id=61736)

the policy of sovereign debt restructuring in terms of payment schedule with foreign creditors, whereas such situation can actually be considered technical default. A new wave of insolvency rocked the country in January 2000, as the basic payments of the previous amounts had been concentrated for this period, which resulted in allocating the accumulated debt obligations into two long-term payment periods with total duration of 7 years and loan rates of 10% and 11% respectively. Macroeconomic implications: devaluation of hryvnia by almost 100%, fleeing of non-residents from the government securities market and from Ukrainian capital market in general, inflation rate of circa 20% in 1998, 1999, reaching 25.8% in 2000, with the real income of population during the first year of the crisis decreasing by one third.

In 2008, Ukrainian hryvnia rate decreased by 45% during the period from July to December. The global financial crisis hit Ukrainian steel sale markets and caused lack of currency in cash at the domestic market, as well as problems regarding servicing of corporate and national debt of USD 105 billion, with Ukraine going down to position four in the global credit risk rating. However, the crisis is not over yet and deterioration of national measures can be still observed in various branches<sup>1</sup>.

According to the Ministry of Finance of Ukraine as of 31.10.2011 the public and publicly guaranteed external debt totals USD 39.98 billion, including USD 9.250 billion of special drawing rights – USD 14.314 billion (1 SDR = USD 1.547420 as of 30.01.2012), or 674.2% of Ukraine's IMF quota and 35.8% of the external debt amount.

Criticism of International Monetary Fund financial assistance is based on the assumption that loans to a country hit by the crisis provide for quasi-insurance and may cause risky behaviour of the latter, which in turn may lead to structural imbalances in the international capital market. At first glance, the creditors lend more money for the debtors to borrow, however, from a different perspective and abstracting away from specifics, they are still funding the inefficient policy of the borrower thus destabilizing the international financial system.

Quite often the moral hazard is studied based on contract theory as a result of information bilateral interaction and asymmetry, however, in practice, trilateral risk modelling proves to be more in line with financial reality. Thus, Barbara Dübeli, the Swiss National Bank economist, and Paolo Vanini, Professor

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<sup>1</sup> Cochrane L., O'Brien E, *Hryvnia Pares Loss as Ukraine Calls Dollar Rate 'Unacceptable'*, Bloomberg (December 18, 2008). [Electronic resource]. Access mode: <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=asLqjDhZ5ZYk>

with University of Zurich, introduce international banks as analysis inputs other than governments and IMF. Moral hazard arises as IMF stand-by tranches cause excessive lending of economy by other institutional bodies and comprises two stages in the real financial environment. In case of solvency problems IMF grants a loan to the respective debtor country for it to manage the credit funds independently. So, firstly, the debtor country may use them to service debt obligations such as repayment of debts to other creditors including internal debts for national loan bonds denominated either in foreign or local currency. Secondly, the debtor may use them at own discretion for national economic purposes. Combinations of these options are also possible and regarded as the third scenario. Each borrower will act rationally along with maximizing utility, however, the behaviour will keep changing correlating with amounts of loan tranches received and i.e. its ordinal utility will change. Debtor behaviour is fundamentally different from the borrower behaviour in the context of IMF loans provision. Thus, there are three possible behaviour scenarios, as also reflected in IMF Working Papers: debtor moral hazard, creditor moral hazard, and debtor-creditor moral hazard. However, Ukraine has not received the planned stand-by credit amounts in full yet, this being one of the basic conditions in *An Analysis of IMF-induced Moral Hazard*, a work by Barbara Dübels and Paolo Vanini, for moral hazard occurrence, as the borrower needs money and would consent to any conditions in order to receive the loan amount in full, whereas it is only after receiving the total amount that the borrower's behaviourism can be observed. In author's opinion, funding in the total amount was not carried out exactly because the Cabinet of Ministers of Ukraine had pursued its own expenditure policy despite IMF recommendations and requirements (see table 3).

Bilateral information asymmetry in terms of credit relations between the bank and the government enables activities of the latter aimed at meeting interests of its own, which in turn prompts a conflict between them as to efficiency of the policy pursued, since the bank seeks to be repaid the money, therefore forcing the government into the expense limitation action out of economic reasons. Such a conflict is a common event in terms of contractual relations between principal and agent being regarded as moral hazard. Aware of potential moral hazard, the bank offers the government a larger loan under normal conditions than during financial crisis.

*Table 3. Ukraine and IMF Credit History, 1995–2012<sup>1</sup>*

	Contract date	Contract expiry date	Contractual amount	Loan amount granted	Loan amount for repayment
Stand-by credit	28.07.2010	27.12.2012	10,000,000	2,250,000	2,250,000
Stand-by credit	05.11.2008	27.07.2010	11,000,000	7,000,000	7,000,000
Stand-by credit	29.03.2004	28.03.2005	411,600	0	0
Extended crediting programme	04.09.1998	03.09.2002	1,919,950	1,193,000	0
Stand-by credit	25.07.1997	24.08.1998	398,920	181,328	0
Stand-by credit	10.05.1996	23.05.1997	598,200	598,200	0
Stand-by credit	07.04.1995	06.04.1996	997,300	538,650	0
Total			25,325,970	11,761,178	9,250,000

Debtor moral hazard intensifies a standard conflict of interest. The government implements inefficient policy not only because of the economic recession, but also because it can rely on IMF financial assistance. Growing controversy regarding interests of the model participants causes difference between the two loans granted within bank-government and IMF-government pairs, as well as forces the government to act still in the interests of the bank. Cooperation model is developed by the bank and provided to the government for reviewing and evaluating loan repayment opportunities in the future. From the perspective of the Government the anticipated utility of the two interrelated loans bears great significance. In particular, the government compares the price of loans to possible alternatives, which is defined in the scientific literature as loan utility ratio<sup>2</sup>, i.e. by accepting a loan agreement the borrower anticipates that the benefits from the loan should

<sup>1</sup> International Monetary Fund, History of Lending Arrangements from May 01, 1984 to January 31, 2012. [Electronic resource]. Access mode: <http://www.imf.org/external/np/fin/tad/extarr2.aspx?memberKey1=993&date1key=2012-01-31>

<sup>2</sup> Loan utility ratio is the analogue of maximum benefit to be gained by the borrower in terms of comparing interest rates, repayment schedule and amount of a loan. In other words, if the actual value of a loan is lower than its economic impact, borrower's rent is created. Therefore, utility ratio is regarded a certain threshold set by exogenous parameters.



exceed the anticipated costs. Therefore, in order for the government to accept the bank's terms the anticipated utility should be equal to the minimum level of the loan utility ratio, however, in case of a bilateral conflict with the anticipated utility equal to the loan utility ratio, the bank grants the government not a larger and not a smaller amount, but one required and accurately calculated. Acute confrontation in terms of the bank's and the government's interests causes loan anticipated utility below loan utility ratio. Thus, under conditions of conflict escalation the bank is ready to perform the lending party duties, but to the government the loan agreement becomes economically unattractive. So, the debtor moral hazard causes difficulty in loan agreement concluding.

Late in 2009, Ukraine was granted a loan of USD 2 billion by VTB Russian bank for the period of the six months and with provision for the possibility of extension for another three six-month periods, but in November 2011 due to the growing current account deficit of Ukraine during the third quarter to USD 2,6 billion as compared to the previous year as well as because of the government securities liquidity decrease, the Cabinet of Ministers negotiated conversion of the loan to a long-term one with coverage by government bonds. Bloomberg international information financial agency reports that the agreement may be increased to USD 6 billion along with higher interest rates. The agreement with VTB is probable to form part of a comprehensive agreement with Russian Federation regulating natural gas supply and trade in services and goods<sup>1</sup>.

Debtor-creditor moral hazard is characterized by a change in behaviour not only on the part of government, but also on the part of the bank, since the latter has effective leverage by determining the loan amount and interest rate. In particular, changes in government behaviour cause credit relationship conflict escalation in terms of bank-government pair. Therefore, the bank further increases credit requirements to cover its unscrupulous debtor risks, or in other words, reducing incentives for conflict eliminating is covered by increasing payments on the loan. However, bilateral moral hazard and credit terms deterioration because of conflict escalation is not regarded an obstacle to the loan agreement signing.

Creditor moral hazard arises of the bank activity and attitude towards borrowers. Bank and government credit relations can be characterized by a standard conflict: the bank seeks to get the highest interests, and the government seeks to meet the loan utility

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<sup>1</sup> Choursina K., "Ukraine Seeks to Enlarge VTB Bank Loan to \$6 Billion," *ICU Says* (Bloomberg: Nov 3, 2011). [Electronic resource]. Access mode: <http://www.bloomberg.com/news/2011-11-03/ukraine-seeks-to-enlarge-vtb-bank-loan-to-6-billion-icu-says.html>

ratio. Fluctuation changes in the bank behaviour are a consequence of IMF credit assistance to the government, which reduces striving of the parties to reach a compromise for resolving the conflict situation and destabilizes relationship between the bank and the government. In order to estimate the level of deviation and destructuring of the international credit market because of IMF loans one should assess the role and value of each tranche in particular. Therefore it is the bank that should be the IMF assistance recipient in order to balance the credit flow deformation and establish equilibrium in the capital market.

The bank may receive IMF financial assistance in full, but it should be enough, if part of a tranche is received by the bank with the other part received by the government. With the bank being the sole recipient of the money, deformation of the international credit flows system would be more serious than in case of dividing the amount between the bank and the government. The hypothesis of bank significance in terms of credit market deformation is based on the fact that it is only in case of a creditor moral hazard and a debtor-creditor moral hazard that a credit agreement should require further evaluation of its execution.

In 2012 Ukraine is supposed to pay as much as SDR 2,435,600 or USD 3.8 billion to IMF alone, however, forecasts as to solvency of the domestic economy leave much to be desired. Thus, according to *Bloomberg* New York agency, Ukrainian officials strive not at meeting IMF conditions for receiving the next tranche, but try to negotiate lower prices of Russian natural gas instead. The risk of national economy default has over the past two years exceeded that of Argentina, therefore solvency of Ukraine obliged to repay USD 11.9 billion of external debt makes experts sceptical, since in terms of growing default probability risk Ukraine has been second only to Greece for the last 6 months.

Sceptical analytic forecasts are based on data regarding balance of payments deficit, credit resources restriction in global capital markets and slowing down economic growth rate in Ukraine, but political factor is the basic: refusal to raise natural gas tariffs for the population, which is the essential condition to unfreeze IMF lending.

According to CMA, being a part of *CME Group Inc.*, Ukraine's state debt insurance cost expressed in credit default swaps (CDS) value for Ukraine up to 5 years has increased from 254 to 780 basis points over the past six months. A basis point makes 0.01 percent; therefore credit-default swaps cost for Ukraine is 7.8%. The credit default swaps cost is nothing else than the risk insurance cost, which is paid by the investor as an insurance payment to a third

party to safeguard repayment of the Ukrainian state debt in case the Ministry of Finance proves unable to service its obligations on securities.

According to government predictions, in 2012 economic growth will go down to 3.9 percent compared to 5 percent in the previous year. Reasons for that include negative steel market conditions in Euroregion as well as abnormally cold weather during wintertime, adversely affecting gross grain yield and that of other crops.

Despite slight decline in the hryvnia against the dollar from UAH 7.9550 to 8.0138 per 1 USD during 2011, forex reserves decreased in absolute terms by USD 3.3 billion and as per the end of 2011 amounted to USD 31.8 billion generally due to increased pressure on the hryvnia because the current account deficit increased from 2.2% to 5.5% of gross domestic product early in 2012.

Abrupt growth in government Eurobond yield spreads with maturity date in 2016, interest by which increased to 8.587% from 6.265% in June of the previous year, reflects aggravation of the problem and the need for foreign currency influx in order to meet credit obligations of Ukraine denominated mainly in U.S. dollars<sup>1</sup>.

According to the National Bank of Ukraine, the population has circa UAH 450 billion in dollar terms, therefore in case of failure to attract this money through the stock market, inflationary tax generating is quite probable because of reducing population's income with consumption in the short term being at a sustainable level and the ratchet effect in long term – economic agents will be forced to spend dollar savings for basic needs thus redistributed in budget income under accelerated inflation rate. In our opinion, even the high interest rate on government bonds of 9.5% in foreign currency as opposed to the banks offering an average of 5–7% will not cause investment hype of the population.

Ukrainian economy unpredictability and, therefore, moral hazard can be monitored with the number of opposite statements by officials on the need for International Monetary Fund loans to the government in the short term, which forces investors to insure and reinsure their risks.

According to IMF recommendations transition to a flexible currency exchange rate should become the basis for reducing exchange rate volatility and stable monetary policy; however implementation and realization of the programme in the Ukrainian situation would mean devaluation of the hryvnia. For several consecutive years IMF recommended that Ukraine should switch to

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<sup>1</sup> Krasnolutska D., Ukraine Fans Default Risk in Russia Bet as Vote Molds Policy (Bloomberg: Feb 22, 2012-2011). [Electronic resource]. Access mode: <http://www.bloomberg.com/news/2012-02-21/ukraine-fans-default-risk-in-russia-gas-bet-as-vote-molds-policy.html>

a more flexible exchange rate formation, which would improve inflationary perturbations control, rates of adaptation to external shocks, as well as reduce economy dollarization degree and the risks of uninsured borrowers. While significant technical assistance had been provided, the weak political will of the Ukrainian authorities prior to the 2008 crisis did not yield great positive results, therefore the hryvnia official exchange rate devaluated<sup>1</sup>.

Moral hazard implies a concept of long-term nature: with moral hazard at the financial markets present the borrowers and creditors take the risks at the moment based on expecting to get support in the future, if certain adverse events occur.

In case of IMF financing the amount of «insurance assistance» shall not imply a loan amount but the difference between the rate at which the country otherwise could have attracted borrowed funds (this rate can be quite high during the crisis) and IMF lending rate (which is correlated with market interest rates in industrialized countries)<sup>2</sup>.

No optimism is caused by annual forward contracts (NDF) quotes in hryvnia terms at the OTC market in London; therefore a surge of inflationary expectations was reflected in the hryvnia NDF rate devaluation to 9.3 per 1 USD with future delivery of currency in mid-February 2013. Under normal conditions deviation between the USD NDF rate and the interbank market rate is below 10%, depending on either revaluation or devaluation expectations. Thus, Ukrainian importers anticipating significant exchange rate fluctuations are forced to hedge their currency risks and buy forward contracts, but this is affordable to large businesses only. For small and medium businesses such financial instruments are, unfortunately, not available. The National Bank forbade trade in futures and forwards in domestic trading markets, as they would to a great extent shape exchange rate expectations of the population.

## Conclusions

The article provides determinative analysis of «moral hazard» concept as well as clarifies important theoretical aspects of the mechanism for occurrence and escalation of opportunism and moral hazard. Interrelation between moral hazard and Ukraine's

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<sup>1</sup> International Monetary Fund, «Ukraine: Ex Post Evaluation of Exceptional Access Under the 2008 Stand-By Arrangement,” *IMF Country Report* 11:325 (July 6, 2011 - November 11, 2011). [Electronic resource]. Access mode: <http://www.imf.org/external/pubs/ft/scr/2011/cr11325.pdf>

<sup>2</sup> Cochrane L., O'Brien E., Hryvnia Pares Loss as Ukraine Calls Dollar Rate 'Unacceptable' (Bloomberg: December 18, 2008). [Electronic resource]. Access mode: <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=asLqjDhZ5ZYk>

external debt increase under economy dollarization has been studied and verified.

The study showed that along with increasing economy dollarization of Ukraine insolvency hazard increases implying non-performance of debt obligations, since currency substitution prompts excess demand for foreign currency, chronic negative balance of payments and trade with the exception of short periods which intensifies negative devaluation expectations and lack of confidence in the government actions and national currency, thus restricting mechanisms of state economy regulation and raising funds for debt servicing and repayment with subsequent debt crisis.

In our opinion, the political and economic metamorphoses do not contribute to stabilization in the post-crisis period and improving confidence in the hryvnia, as well as to reducing net demand for foreign currency and outflow of the hryvnia deposits and conversion thereof into USD; in terms of rational expectations, dollarization and external debt increase in 2011 suggests that we are facing a new phase of the financial crisis in Ukraine.

During the past years debates in academic circles about moral hazard of countries provided with financial support from International Monetary Fund have still been ongoing, and therefore the issue implying assessment of different states behaviour and that of Ukraine in particular remains relevant.

IMF loans weaken incentives of countries to take economically balanced decisions as to expense limitation and use of other preventive methods for effective crisis prevention. One should distinguish between the creditor moral hazard expressed by preparedness to provide risky loans, and the debtor moral hazard implying possibility of unscrupulous debtor risks.

The hryvnia depreciation will increase competitiveness of the economy at the international level by rising exports and Ukraine will reduce state debt in terms of local currency due to inflation, however, external debt will increase on account of currencies purchasing power parity.

The ambivalence of Ukrainian political power does not yield positive results for economic stability, since drastic structural reforming should be carried out aimed at budget balancing, which would provide for the possibility of external debt servicing.

Synergetic effect of external debt growth and simultaneous currency exchange rate decrease as well as internal political instability will cause a new wave of the economy dollarization. Concern is caused by the crisis frequency and duration, which

eventually may transform partial official economy dollarization of Ukraine to total dollarization.

The moral hazard problem is a key component in discussions on reforming the international financial system architecture and the IMF role in its future structure.

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