

resources and knowledge that lead to a stable competitive advantage against the other participants in the market. The companies, engaged in the cluster, receive:

- better conditions in terms of the resources delivery;
- new technologies;
- better specialization and realization of the produce;

All of this creates better conditions for developing innovations in the agricultural companies.

Most of the farms in Bulgaria don't have the chance to enter in the national and international markets on their own, due to the following reasons:

- don't have the capacity to fulfill the desired quantity and quality
- lack of marketing competence
- not knowing foreign languages

That's why the agricultural manufacturers in Bulgaria more and more often establish marketing boards and cooperatives, manufacturers organizations and clusters, as ways to implement innovations, to survive, and to react to the competition [4, p.31].

The agricultural societies form an environment for innovations, because they ensure:

- entrance to new and international markets;
- quality standards for the agricultural production;
- presence in the internet
- actual market information
- register and control functions and more

The Government, using its institutions (The Agricultural Academy, The National Agricultural Advisory Service, The Bulgarian Small and Medium Enterprises Promotion Agency, and more) and policies, must form a stimulating environment for innovations in the agriculture. The inclusion to the united agricultural policy of the EU creates additional benefits that are mainly used by the large agricultural companies.

The wider application of innovations in the farms requires a suitable institutional and economic environment, infrastructures, and functional agricultural societies for generating different forms of mutual marketing. The agricultural manufacturer must integrate at horizontal and vertical levels in order to ensure the production of innovative agricultural products that will make them more competitive. This will also allow them to create products with higher added value, will give them direct access to the markets, will allow them to differentiate, and more.

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LIQUIDITY LOSS & LIQUIDATION SERPANTINE

The article considers insolvency and liquidity risks as core risks in banking. Liquidity is a cash flow of the company and its ratio is an indicator of hidden sight for future insolvency risk. A new understanding of liquidity importance as a measurement of bank stability became after the global financial crisis 2007 – 2008 years. To keep banks away from the serpentine – liquidity loss and liquidation – bankers can produce some remedies to buffer liquidity problems.

Keywords: *liquidity, insolvency, ratio, crisis, banks, loss*

Introduction

Global and regional financial crises, which happen from time to time in the world economy, raise an important question for the banking sector: if we cannot avoid the crises, how can we smooth the curve of depression and avoid insolvency. The origin of classic economic crisis (not

war, earthquake etc.) is in misbalance between regions and sectors of economies which leads to discrepancies in financial sector. Ukrainian crisis of 2014 and Greek crisis of 2015 demonstrate how macro-economic instability negatively impacts on banking sector, when panic leads to massive withdrawal of deposits from the banks so called “bank’s run”. Such “financial hurricane” is well - known from crisis in 1930s, when many banks failed in the United States. In response to this, The Federal Deposit Insurance Corporation (FDIC), as the agency that insures banking deposits, was established by Congress in 1933. Its mission is to maintain stability and public confidence in the U.S. financial system [1].

So the history says that financial crises are unavoidable, but bankers can produce some remedies to buffer liquidity problems and keep banks away from the serpentine: liquidity loss and liquidation.

What does the liquidity mean?

Unfortunately there is no universal definition of liquidity in science of economics. Hubbard R. Glen defines it as a speed of transferring assets into cash [2]. F. Mishkin [3], R. Miller, V. Hoose [4] have nearly the same approach. K. Amadeo has much wider look on liquidity and defines two types of liquidity: business – liquidity as a conversion of assets into cash and general liquidity as a volume of capital which appropriate to accumulation and spending [5].

Joseph F. Sinkey in his book [6] determines banking liquidity as sufficiency of cash to repay deposits and do lending which depends on government guarantees, changes of demand on loans, changes of deposits/loans cash flows. Such approach does not mention liquidity of assets at all but focuses solely on possibility of business entities, incl. banks, to pay for their financial obligations, incl. deposits and borrowings. Following this transferring assets into cash looks only as one of tools for keeping liquidity in any business on the proper level to meet its fiscal obligations. In that case the question about differences between liquidity and solvency is rising automatically. Investopedia explains solvency as the following: “The ability of a company to meet its long-term financial obligations. Solvency is essential to staying in business, but a company also needs liquidity to thrive. Liquidity is a company's ability to meet its short-term obligations. A company that is insolvent must enter into bankruptcy; a company that lacks liquidity can also be forced to enter bankruptcy even if it is solvent” [7]. But this is completely different from previous definitions of liquidity. Freedictionary explains solvency as “Capable of meeting financial obligations” without mentioning terms of obligations [8].

From our point of view, solvency is the fiscal possibility of any business entity, incl. bank, to meet any monetary obligation at any time and we fully agree with Freedictionary definition. Solvency usually estimated by ratio between assets, mostly liquid assets – cash and cash equivalent, and liabilities for the same period of time for mature as assets:

$$SR = ASt / LI_t * 100\% \quad (1)$$

SR – Solvency ratio, %;

LI_t – Liabilities with the certain period of mature *t*;

ASt – Assets for the same period of mature *t*.

If $SR > 100\%$, there is no thread of insolvency, but ASt should be properly estimated as if assets can be converted into cash in that period of time, in other words, are they liquid in that period of time or not. But not only assets can be used to pay for obligations, but other cash inflows too: income, new borrowings, shares and other obligations emission, interbank for banks and many other sources, including even charity. On the other hand, not only well-known obligations may be the reason of cash outflow, but also operational expenses, including interests, salary and other monetary costs (amortization and reserves are not monetary expenses), taxes, penalties and others. Some of them (for example, utilities payments) depend heavily upon price changes and unpredictable. So the real cash inflows and outflows create liquidity turnover of the entity. If inflows exceed outflows in the same period of time, we have positive liquidity ratio and there is no real thread for the solvency of entity:

$$LR_t = CIN_t - COF_t > 0 \quad (2)$$

LR_t – liquidity ratio for *t* period of time;

CIN_t – Cash inflow for t period of time;
COF_t – Cash outflow for t period of time.

The problem will rise if LRT is negative or positive LRT is predicted incorrectly, but it is the separate topic. So, liquidity is a cash flow of the company and its ratio is an indicator of hidden sight for future insolvency risk even if SR is positive.

The history

The notion of liquidity and analyses of risk to loss became very popular from the thirtieth year of twentieth century – years of depression. John Maynard Keynes in General Theory of Employment, Interest and Money (1936) revealed priorities of liquidity in such times when gold became the quiet bay for investors savings. In that time liquidity has been understood as assets/liabilities ratio by terms of mature. Liquidity started to play the secondary role after Bretton Woods's system which was launched in 1944. Monetary emission for credit purposes and free usage of USD in international settlements pushed liquidity to the shadow of business. In that time liquidity was considered as speed of transferring assets into the cash or getting cash elsewhere on the market to meet financial obligations. The interbank money market has started to play the key role here.

A set of banks bankruptcy worldwide in the eighties (only in 1987 in USA 200 banks) and economic decay pushed scientists and regulators to find reliable remedy against crises. But capital adequacy ratio (CAR), not liquidity ratio, became such “safety belt” for measuring banks stability. Some economists at that times (Santomero A., Vinso J. in 1997) estimated the probability of failure for commercial banks and the banking system. Journal of Banking and Finance [9], Wall LarryD.[10] warned that even doubling the capital would not safe insolvent banks from bankruptcy. Despite this, CAR with the minimum level of 8% was launched by Basel I in 1988 as a universal tool for measurement of banks stability and reliability.

A new understanding of liquidity importance as a measurement of bank stability became after the global financial crisis 2007 – 2008 years. As a result, Basel committee issued in 2010 so called Basel III, where two indicators of liquidity level of banks where introduced: Liquidity Coverage Ratio (LCR) to capture short-term (30 days) liquidity risk and Net stable funding Ratio (NSFR) to estimate longer (more than 30 days) liquidity risk. LCR is based on the stress test of liquidity outflow and looks like authentic liquidity ratio. NSFR is based on liabilities/assets ratio and can be called as solvency ratio. The most important thing is that Basel III introduced stress testing of cash outflows caused by different reasons into banks practice of work. Also banks are obliged to keep sufficient liquid assets to buffer cash outflows following different scenarios. What has not been done is that liquidity risk was not proclaimed as a core risk of banking business with submission to it of all other types of risks, including credit and operation risks. The key role in estimation of banks financial stability still plays the capital; despite that it is the only one of numerical sources for keeping liquidity on sufficient level. The capital is usually switched on to feed liquidity ratio only as a source of last resort, when all other resources are already utilized.

What to do?

First of all, it is necessary to proclaim insolvency and liquidity risks as core risks in banking and inaugurate them on the top of Risks Pyramid:

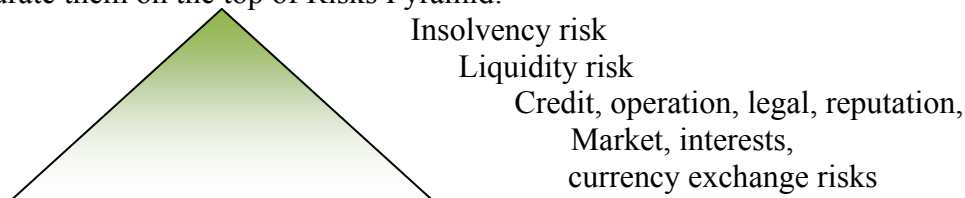


Figure 1. Pyramid of banking risks

In any country all normative and regulatory documents in risks should be based on the principle of estimation the impact of all types of risks on future cash flows (liquidity risk) and calculations on that base probability of bank default (insolvency risk). Liquidity and insolvency risks can be estimated in 3 dimensions: ordinary activity (no dramatic changes in business in

future), stress scenario (can be several scenarios), compensation scenario (the bank uses all sources of liquidity to buffer stress scenario). Five cash flow sources may be estimated: assets, borrowings (liabilities except capital), capital, income (interests, commissions, trade and others), expenses (interests, commissions, salary, taxes, utilities and others), off-balance items. Estimations should be done for some periods of time in future and can be exercised in the following template (table 1, with a sample).

Table 1

Liquidity and solvency ratios, USD

№	Figures	Period days
1	Cash and cash equivalents	10
2	Assets cash inflows and outflows netting:	
2.1	Traditional business (e.g. issuing /return loans and bonds)	+ 5
2.2	Stress case (fewer loans return but support daughters comp.)	- 2
2.3	Compensation of stress (e.g. sells off some assets)	+1
3	Borrowings cash inflows and outflows netting:	
3.1	Traditional business (deposits, current accounts)	+2
3.2	Stress case (e.g. deposits and interbank outflows)	-10
3.3	Compensation of stress (e.g. central bank borrowings)	+5
4	Capital:	
4.1	Dividend payments	0
4.2	Own stocks in reserve sells	+2
5	Income:	
5.1	Traditional business (interests, commissions and other)	+3
5.2	Stress case (some borrowers may not pay)	+2
5.3	Compensation of stress (no way)	0
6	Expenses:	
6.1	Traditional business (interests, commissions and other)	-1
6.2	Stress case (e.g. penalties, extra taxes, new prices for rent)	-2
6.3	Compensation of stress (postpone salary payments)	+1
7	Off – balance:	
7.1	Traditional business (open credit lines, letters of credit)	-1
7.2	Stress case (e.g. exercise more obligations than expected)	-2
7.3	Compensation of stress (no way)	0
8	Balance of cash – flows:	
8.1	Traditional business (pp. 2.1+3.1+4.1+5.1+6.1+7.1)	+8
8.2	Stress case (pp. 2.2+3.2+5.2+6.2+7.2)	-14
8.3	After Stress compensation (p.8.2-2.3-3.3-4.2-5.3-6.3-7.3)	-5
9	Bank obligations, end of period of prognoses	100
10	Liquidity ratio:	
10.1	Traditional business (p. 8.1/ p.1)	+ 0,8
10.2	Stress case (p. 8.2/ p.1)	-1,4
10.3	After Stress compensation (p. 8.3/ p.1)	-0,5
11	Solvency ratio:	
11.1	Traditional business (p. 8.1+ p.1)/ p. 9	+0,18
11.2	Stress case (p. 8.2 + p.1)/p.9	-0,04
11.3	After Stress compensation (p. 8.3+ p.1)/p.9	+0,05

Source: Author`s calculations

Based on the data in table 1, we have calculated liquidity ratio (LR) as a future balance of cash inflow and outflow compared with cash of the bank at the beginning of period and thus proposed the following ratings: $LR > 0,5$ is *A* rating; $0 < LR < 0,5$ is *B* rating; $- 0,5 < LR < 0$ is *C*; $- 1 < LR < -0,5$ is *D*; $LR < -1$ is *E*. When $LR < -1$ it means that negative balance of cash flow is even more in volume than the rest of cash balance and probability of bank default is very high. In our case LR rating for traditional business, stress and compensation scenarios will be *AEC*. The optimum case is *ABA* or *ACB* at least. That means that bank can buffer liquidity stress to the adequate level using compensation measures.

Solvency ratio (SR) reflects sufficiency of cash against volume of obligations at the end of forecast period. In this analysis it is very important to have an indicative level of SR. It may depend

on economic environment, money market liquidity, regulator and the bank liquidity policy. From our point of view it strongly depends on large deposits performance and should not be less than a share of three or five largest deposits in total liability. It is also very important to analyze historic SR and cases of banks which become insolvent. Historic data of SR of Ukrainian banks ($SR = (\text{Cash} + \text{Nostro in Central and other banks}) / \text{Liabilities}$) is represented in table 2.

Table 2

The solvency ratio of Ukrainian banks, %

2007	2008	2009	2010	2011	2012	2013	2014	5m2015
12,0	9,9	12,6	15,0	15,2	17,1	14,9	13,3	14,3

Source: [11]

So, the lowest level of SR was in the crisis of 2008, but in the crisis of 2014/2015 it was still rather high despite that more than 50 banks (near 30% of all banks) in that period became insolvent. That is because the currencies, in which the Nostro accounts were held in foreign banks, revaluated against hryvna near 3 times for the period of 2014 – first half of 2015, and as a result amounts in hryvna equivalent were increased. Without Nostro accounts SR on 1.06.2015 was 4.5% compared 4.9% in crisis of 2008 and 7.7% in stable period of 2013.

Conclusion

Banks liquidity and solvency sufficiency are the core tasks for any banking system. Basel committee should create a well-balanced system of liquidity risk measurement and announce liquidity ratio/ratios as a core indicator compared to capital adequacy ratio. The special infrastructure for liquidity risk management should be created in all commercial banks and central banks. It should capture macro- and micro- risks for banks liquidity analyses and evaluation, forecast of cash flows, creation of buffers for liquidity and insolvency risks. The rescue liquidity plan must be the top priority in any commercial bank and The rescue liquidity of banking system plan must be the main document of the central bank on any country.

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**THEORETICAL APPROACHES TO MANAGING FINANCIAL STABILITY
OF THE ENTERPRISE**

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**ТЕОРЕТИЧНІ ПІДХОДИ УПРАВЛІННЯ ФІНАНСОВОЮ СТІЙКІСТЮ
ПІДПРИЄМСТВА**

In the article the essence of management of financial stability. Vision analyzed the definition of financial stability and management of domestic and foreign scientists and economists. Based on work synthesized the concept of