# CONSIDERATIONS CONCERNING THE MANAGEMENT OF LIQUIDITY RISK IN BANKS

Veronel AVRAM, Professor, PhD.
Marioara AVRAM, Professor, PhD.
University of Craiova

**Keywords**: liquidity risk, leadership, internal control, maturity.

**Summary**: Assuring the liquidity is the main preoccupation for the management of a banking and financial institution. Achievement and preservation of the optimal level of liquidity is a true touchstone for the bank managers because the lack of liquidity as well as the over liquidity generates either supplementary costs or lesser incomes. Management of the liquidity risk means a series of measures that may be grouped as this:

- Supervision and involvement from the persons in charge of the leadership;
- Risks' identification, evaluation and monitoring;
- Control activities;
- Monitoring activities;
- Credible information systems.

A higher complexity of the bank products and services, accompanied by an increase of the competitiveness and the enhanced interest of the economic agents and the population for making deposits as well as obtaining loan and credits, compels the banks to adopt a management of liquidity risk based mainly on prudence. A special importance is given nowadays to the correlation of resources maturity and bank placements, without ignoring the quality of the assets and guarantees accepted.

**Supervision and involvement from the persons in charge of the leadership**

The leadership of the bank must approve the policies for risks' management. These policies must be correlated with the bank's business strategies, the capital's power, the management practical experience, the legal requirements and with all types and values of risks that bank consider to be acceptable.

The persons in charge of the bank leadership should not lose sight of the following aspects:

- The liquidity risk management is a complex process, the crossroad for the majority of banking risks, which brings up the obligation to analyze the implications upon a bank's liquidity before putting on the market any new bank product or service and through internal norms and adequate procedures to be able to identify, evaluate and monitor the liquidity risks;
- A good management of liquidity risk is not possible without a precise knowledge of the attracted funds' and placements' maturity structure and especially without a correlation of the above mentioned.
- A good knowledge about the bank clients, their habits and behavioral characteristics may assure an adequate management of the liquidity risk, allowing to counteract the volatility of attracted funds but also the process of over debt;
- It is preferable a diversity of funds' sources and their maturity as well as a diversification of the credit portfolio in order to avoid the dependence on certain clients.

The mission of the leadership is primarily to create a culture of the organization that will reward values such as: respect for laws and regulations and a professional and responsible work environment in face of the internal control, internal audit and eventually the audit committee.

We must not forget that the capital of the public trust is as essential for banks as their permanent and owned capitals, that the trust is hard to gain and easy to lose, and <when trust is gone, crisis is coming> says an old banking axiom, as actual today as always.

**Liquidity risk identification, evaluation and monitoring**

The liquidity risk can have a significant impact on the bank's activity, reason for which we always must report ourselves to the minimal criteria of liquidity applicable to banks, regulated by the R.N.B. Norms nr. 1/2001 and 2/ 2002, considering the real and the necessary liquidity. Beyond the obligations on the line of R.N.B. regulations, each bank has to quantify and monitor permanently the financing net need by evaluating the cash flows taking into account the economic environment, the market and its specific tendencies.

The applying of scenarios' method is very interesting by evaluating the internal and external factors with the optimistic and pessimistic variants, between those finding the realistic one, not necessary as the average but as predictable tendency of the bank liquidity.

A periodical revision of the work hypotheses can only bring the bank leadership closer to the ever changing realities of the bank market.

The liquidity risk must not be considered only <emergence of losses due to modifications appeared in a bank's capacity of selling or giving up an asset>. The liquidity is for the banks the capacity to correlate through an adequate management the assets and liabilities at any time, on payment/ settling day lines, the ability to make placements which permit payment of all the obligations at the settling day and therefore the liquidity risk resides in the miscorrelation at a certain moment between existing assets and settling day payments.

This affirmation relies on the fact that for a bank following some global indicators is not enough because the principle of continuous activity compels us to consider the resources and placements maturity on settling day lines as follows:

a) Until a month inclusively;
b) Between one and three months inclusively;
c) Between three and six months inclusively;
d) Between six and twelve months inclusively;
e) Over twelve months.

Correlation of the bank assets and liabilities is a common practice for multinational banks. Romanian National Bank has regulated the minimum level of liquidity applicable to banks that are Romanian judicial persons by the Norms nr. 1/2001 and 2/ 2002, considering the real and necessary liquidity.

Real liquidity is determined by summing on each payment lines the balance assets and the received engagements, shown outside the balance sheet.

Necessary liquidity is determined by summing on each payment lines the balance obligations and the engagements given, shown outside the balance sheet.

**Determination of real liquidity**

Norms 1/2001 and 2/2002 decide that for determining the real liquidity it must be applied appendix 1a), <Distribution of balance assets at settling days >, and appendix 1c), <Distribution of off balance sheet received engagements on settling days>, as in the hypothetical example bellow.

The first settling day line takes the balance assets as:

- The balance assets with at sight settling day like the cash and other values, the R.N.B. current account, RNB deposits at sight, bank correspondent accounts, deposits at sight in banks, are written to the diminished accounting value eventually with the provisions made;
- Other assets with at sight settling day such as debt current accounts and the afferent attached claims/debentures are written to a value determined by the application of an adjusting coefficient.

The other settling day lines take over the assets correspondent to the period remained, to an accounting value diminished by the case with the provisions made.

**Table 1a**

**Current period assets**

| Assets | Until one month | 1-3 months | 3-6 months | 6-12 months | Over 12 months | Total |
|---|---|---|---|---|---|---|
| Cash and balances with the central bank | 15000 | 5300 | 2200 | 1000 | 1000 | 24500 |
| Customers' credits and advances | 106200 | 27000 | 15100 | 6000 | 3000 | 157300 |
| Investment securities | 18000 | 3000 | 500 | 500 | 500 | 22500 |
| Placements in banks and other credit institutions | 16000 | 3500 | 2000 | 300 | 500 | 22300 |
| Trading securities | 5000 | 1500 | 3000 | 200 | 2000 | 11700 |
| **Total** | 160200 | 40300 | 22800 | 8000 | 7000 | 238300 |

**Table 1 b**

**Off balance sheet received engagements**

| Liabilities | Until one month | 1-3 months | 3-6 months | 6-12 months | Over 12 months | Total |
|---|---|---|---|---|---|---|
| Guarantees and letter of credits | 1300 | | | | | 1300 |
| Derivatives instruments | 2000 | | | | | 2000 |
| TOTAL | 3300 | | | | | 3300 |

Guaranteed engagements such as securities, guaranties and other guarantees received by the banks are taken in consideration only in the situation when they are irrevocable and unconditional.

All the other received engagements are distributed on the settling day lines taking into account the period remained, at the accounting value or adjusted by each case.

**Determination of necessary liquidity**

Norms 1/2001 and 2/2002 decide that for determining the necessary liquidity appendix 1b), <Distribution of balance liabilities at settling days >, and appendix 1d), <Distribution of off balance sheet given engagements on settling days> must be done, as in the hypothetical example bellow:

**Table 1c**

**Current period liabilities**

| Liabilities | Until one month | 1-3 months | 3-6 months | 6-12 months | Over 12 months | Total |
|---|---|---|---|---|---|---|
| Debts to banks and other credit institutions | 65000 | 10000 | 4000 | 3000 | 2000 | 84000 |
| Certificates of deposit | 45000 | 12000 | 5500 | 1500 | 1500 | 65500 |
| Debts to international credit agents | 5300 | 1000 | 1000 | 1000 | 1000 | 9300 |
| Debts to governmental institutions | 15000 | 5200 | 4100 | 2000 | 2000 | 28300 |
| Subordinated Debts | 10000 | 2000 | 1500 | 500 | 500 | 14500 |
| **Total** | 140300 | 30200 | 16100 | 8000 | 7000 | 188100 |

**Table 1c**

**Off balance sheet given engagements**

| Engagements | Until one month | 1-3 months | 3-6 months | 6-12 months | Over 12 months | Total |
|---|---|---|---|---|---|---|
| Guarantees and letter of credits | | 500 | | - 500 | | 1300 |
| Derivatives instruments | 1800 | | | | | 2000 |
| TOTAL | 1800 | 500 | | - 500 | | 3300 |

The first settling day line takes over the balance liabilities with payment at sight such as banks' correspondent account, current accounts, deposits at sight, to an adjusted value which is determined deducing from the current balance at the end of the reporting month, the medium balance calculated on the last six months, with the condition of the result being positive. The attached debts are written at the accounting value.

Guaranteed engagements such as securities, guaranties and other guarantees given in favor of other banks as well the guarantees given to clients are taken in consideration only if they are irrevocable and unconditional.

**Calculation of the liquidity indicator**

Norms 1/2001 and 2/2002 decide that for calculating the liquidity indicator Appendix 2 which takes over information from appendix 1a, 1c, 1b and 1d.

We find out b analyzing the situation above that he bank in the hypothetical example given has achieved a global liquidity indicator of 1, 27.

The first settling day line achieves the lowest liquidity indicator, respectively 1, 15 but respects the norm because is over unitary.

The management attention must focus on the monthly medium balance of the liquid assets at sight, because the liquidity indicator is low and a massive withdrawal of liquid assets at sight will leave uncovered the placements in the first settling day line.

**Table 2**

**Calculation of liquidity indicators**

| Indicators | Until one month | 1-3 months | 3-6 months | 6-12 months | Over 12 months | Total |
|---|---|---|---|---|---|---|
| Assets total | 160200 | 40300 | 22800 | 8000 | 7000 | 238300 |
| Off balance sheet received engagements | 3300 | | | | | 3300 |
| Real liquidity | 163500 | 61700 | 53800 | 45700 | 45200 | 241600 |
| Balance liabilities total | 140300 | 30200 | 16100 | 8000 | 7000 | 188100 |
| Off balance sheet given engagements | 1800 | 500 | | - 500 | | 1800 |
| Necessary liquidity | 142100 | 30700 | 16100 | 7500 | 7000 | 189900 |
| Liquidity surplus | 21400 | 31000 | 37700 | 38200 | X | X |
| **Liquidity indicator** | **1,15** | **2,01** | **3,34** | **6,09** | **6,46** | **1,27** |

The other settling day lines with the liquidity indicator between 2, o1 and 6, 46 present a situation in which the tactical decisions are important, focused on the monitoring of the real liquidity in comparison with the one necessary at the level of the first settling day line.

Monitoring the assets and liabilities on settling day lines, cumulated with off balance sheet elements that can influence the real and necessary liquidities is a permanent task of the bank management which should follow through internal regulations, beside the R.N.B. regulations, the next aspects:

- A more restrictive liquidity indicator(e.g. 1, 05 instead of 1);
- Shorter settling day lines for periods shorter than a month;
- Minimum target levels for each settling day line;
- Analysis of assets and liabilities' elements separately in lei and in euro or dollars;
- Implementation of an informatics system to monitor daily the achievement of liquidity indicator.

**Control activities**

In order to manage properly the liquidity risk, the banks must have internal control but also internal audit, following their specific tasks by a precise evaluation and report of positions and results, limits' delimitation, a report an acceptance of the exceptions to limits, a safety limit and backup plan.

The internal audit organized within and for the benefit of the bank, has the role to express, evaluate and monitor the adequacy and efficacy of internal control.

The internal control designed and made by the leadership, management and other personnel has a very important mission in the administration of liquidity risk n order to achieve the bank's objectives regarding the credibility of financial reporting, the operations efficacy and efficiency as well as the conformity with the applicable laws and regulations.

Each bank must own adequate internal control system on the management process of liquidity risk expressed in conformity with <The General Frame for Internal Control Systems in Bank Organizations>, elaborated in September 1998 by the Basel Committee on Bank Supervision.

The basic procedures regarding the internal control in the domain of bank liquidity approach traditionally two sectors:

- Operations of treasury and transaction;

- Credits.

The first category represents a strategic approach meant to evaluate the manner in which the leadership applies an official policy for:

- The treasury activity of the bank;
- The dimension of permitted risk positions;
- Risks' evaluation, analysis, supervision and control;
- Operational controls meant to evaluate a corresponding separation of tasks between the *front office* and *back office* activity in the domain of bank liquidity.

The second category refers to problems related to credit risk by approaching the risk inherent to credits and individual transactions but also the entire credit portfolio. The credit risk is studied distinctively from other risks.

**Monitoring Activiti**es

Banks are compelled to improve the models of risk administration methodologies and hypotheses of measurement and administration of the evaluated risks that will be updated permanently for promptly responding to the market's challenges.

The internal audit target is to test periodically the risk management process in order to verify if the policies, norms and work methodologies are respected and the operational controls prove to be efficient. There is a risk of some deviations appearing in the manner in which the controls are applied by the entity. When these types of deviations are detected during controls' testing, he auditor must do specific investigations for understanding the problems that have appeared and their potential consequences.

The majority of the information used in monitoring is produced by the entity's informatics system almost perfectly upgraded in the banks' case. The problem for the auditor is if and what degree he can use the entity's information produced for the monitoring activities, such as the internal auditor's reports, making sure before that they represent a credible ground and are sufficiently detailed for the auditor's purpose.

**Credible Information System**

The bank's information systems must offer momentarily and consequently operational financial data as well as adequate conformity ones in order to manage the liquidity risk. The large volume of operations made compel banks to perfect credible information systems that must respect a series of conditions such as: existence of an internal control system, audit track and control of the information system and files conservation.

**Internal control system**

The existence of an internal control system means the following:

- To verify if the bank operations, internal organization and procedures are in conformity with the current legal dispositions and bank regulations;
- To verify the quality of accounting and financial data, especially the registration, conservation and availability conditions of these information;

The banks must put in practice the following aspects in order to achieve these objectives:

- Elaborating a document which specifies <internal control objectives and the means meant to assure these functions>, known under the name of <Audit book>.

- Designation of a responsible person known as coherence and efficacy evaluator of the internal control;
- Elaboration of an annual report concerning the conditions in which the internal control is assured;
- An annual report elaborated by the structure responsible for coordinating the internal audit and analyzing the material mentioned above by the leadership.

**Audit Track**

The audit track is defined as an assembly of procedures that allows:

- The operations chronological reconstitution;
- Justifying all information concerning the initial statement so to be possible the reconstitution of the track to synthesis documents and backwards;
- Explication of balances evolution from one statement to another as consequence to the modifications in the accounts. Each statement has put in practice an accounts' control and justification system based generally by affecting to each account an responsible which is at the same time user, obliged to control and justify but following a less stricter procedure. These justifications are communicated to various control structures or put at the institution's disposition: accountants, controllers, inspectors, auditors, commissaries. This principle is accepted and applied and thus there are no practical difficulties in applying it.

The main difficulties that might appear are:

- The total amount of the made operations confronts often with stocking problems. The technological progresses allow the stocking of the operations' total amount in micro files, microfilms, disks, permitting the adequacy with the reference system.
- The grouping of the accounting registrations, mainly for payments and cashes, become indispensable for reducing the work volume. With the help of transaction diaries and labels the indispensable junction must be made, in an easy and viable manner.

**The Flux Component**

The flux component is constituted from the necessity to explain the balances evolution by conserving moves that affect accounting positions. Every move must be well understood in order to be justified correctly in front of the illustrated statement.

This obligation to justify balances' evolution from a date to another is not imposed on accounting information that appears in the statements destined for the calculation of the management norms. This information is under a simple obligation to be controllable. The operations on which the registrations rely on can have for source an internal operation or a no banking operation. They always give birth to justifying statements of external, internal or internal and external order. The accounting record must include reference to the initial statement and the system of classification and archiving, and it must be capable to reflect easily and accessibly the information. The procedures must guarantee the immediate, exhaustive and chronological registration of operations.

These records must be included by the internal accounts, the control being made through three techniques:

- Justifying balances by the detailing of the operations that compose the balance for stock accounts;

- The approaching statements for nostro and vostro accounts or the accounts of offices and branches;
- The assembly of the control procedures, as well as direct confirmations for loro accounts, like the clients or correspondent accounts

**The Control of Information Systems**

The system of information treatment must be controllable. It is principally necessary to have a relative documentation of analysis, program and information execution and processing.

**Files Conservation**

The assembly of necessary files for justifying the documents must be conserved from a previous control to the next one.

**Conclusions**

The liquidity risk management proves to be a really complex activity within the bank management because it implies not only the activity of attracting the temporarily available sums from the clients as well as their placements in profitable conditions and conditions of assuming risk by various clients. The banks must always maintain an adequate level of liquidity, to declare the policy of liquidity management and have a roper system for the permanent monitoring of liquidity. By coming in contact with the leadership and management of the banks, and the persons responsible for the internal control and audit, the external auditor must understand very well the problems related to the bank liquidity risk management, which will allow in its turn to evaluate correctly the audit risk.

## BIBLIOGRAPHY


1. Avram, M.; Avram, V. (2007), *Evaluation of liquidity risk in the audit of the banks*, Financial Audit Review nr. 8;
2. Avram, V., (2006), *Monetary Economy*, Universitaria Edition, Craiova;
3. Danescu, T. (2007), *Financial Audit*, Irecson Edition, Bucuresti;
4. Danila, N. (coord.)(2002), *Bank Liquidity Management*, Economic Edition, Bucuresti;
5. xxx, (2007) *Fiancial Audit 2006 – Standards – Ethical Code*, Irecson Edition, Bucuresti.
6. xxx, (1998), Publication 33, *Frame for the internal control systems in bank* organizations, Basel.
7. xxx, (2001), Publication 82, *Principles of risk management in electronic bank operations*, Basel.