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MASTER'S DIPLOMA IN ECONOMICS
FINANCIAL STABILITY OF A BANK
METHODS OF ESTIMATION AND REINFORCEMENT

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Introduction

In spite of being quite young, the banking system of Ukraine has passed through the stages of primary foundation and reformation. The basic laws, regulations, instructions and other normative and legal acts were accepted and the basis for functioning and development of banking sector in economy was made. However, there are many unsolved problems and special theoretic issues concerning the modern interpretation of money, credit and banking activity which appeared in the process of direct banking transactions. Each of the mentioned above unsolved problems has the corresponding points of intersection with the problems of estimation and regulation of financial state and financial stability of commercial banks.

The regulation of commercial banks' financial stability is in the focus of managerial activity of almost all the central banks of the developed countries in the world. After all not every commercial bank, but the whole banking system of the country are interested in the financial stability. At present, many domestic banks have unstable financial state and this factor is very destabilizing for the whole banking system of Ukraine. That is why the problem of security of financial stability of both separate banking institutions and banking system at the government level is gaining special importance.

However, the domestic science does not provide banking performance with the theoretical basis dealing with the problems of estimation of bank financial stability and control. The definition of financial stability, the implementation of an adequate estimation system of financial state and financial stability, the choice of the optimal analysis' method are still the subjects of the scientific discussions. The scientific literature does not pay enough attention to the problem of bank financial state control and there is a lack of such managerial models.

Therefore, the subject of the research in this diploma paper is the process of the development of financial state control and financial stability of the bank and methods, estimating these categories.

The object of the research is one of the ten biggest banks of Ukraine, which according to the classification of the commercial banks occupies the seventh place by

the amount of its assets – this is the joint-stock Commercial Innovative Bank “UkrSibbank”.

The goal of the research is the examination of the theoretical issues and practical aspects of the financial stability estimation and the elaboration and scientific substantiation of the financial state control model and financial stability of the commercial bank.

In compliance with the goal, the work is trying to reach the following objectives:

- to formulate the definition of bank financial stability;
- to set up the connection between the notions of financial stability and financial state;
- to consider the existing methods and methodology and approaches to the estimation of financial state and financial stability of the commercial bank;
- to define optimal type of modern financial state control of the bank;
- to characterize the JSCIB “UkrSibbank” as an object of the research.
- to analyze the financial state of the JSCIB “UkrSibbank”, and to make its integral estimation;
- to elaborate the trends of management improvement of financial stability and financial state of the bank;
- to suggest the methodological basis or the model of bank financial estimation.

The basic methods of the research are: description, examination, generalization, grouping, comparison, economic and statistic analysis, the method of analogy and economic modeling.

The legal acts of Ukraine, the instructive materials of the National Bank of Ukraine, the works of domestic and foreign authors concerning the issues of estimation, regulation, diagnoses, financial state and financial stability control served the methodological basis for the research and writing of the diploma paper. It has also defined:

- the essence and content of commercial bank stability;

- the factors influencing financial bank stability;
- the essence of the concept of the management process and management cycle.

There has been researched and analyzed:

- modern domestic and foreign methods and approaches to the estimation of bank financial state and financial stability;
- types of management of enterprises activity as well as the activity of banks;
- financial state of the JSCIB “UkrSibbank” for the period from 1998 till 2004;
- elaboration of conceptual basis of the financial state model and financial stability control of the commercial bank.
- system of the National Bank of Ukraine dealing with timely prevention of financial problems of the bank performance.

There has been carried out:

- integral estimation of the JSCIB “UkrSibbank” financial state;
- elaboration of the conceptual basis of the financial state and financial stability model of the commercial bank.

The scientific result of this paper is:

- the construction of general management model of the commercial bank financial state, which can serve as structural and functional stem for a number of managerial models;
- elaboration of the quantitative and qualitative estimation model of the bank financial state in order to define its financial stability;

The major elements of the received results of the scientific innovation are:

- setting up the definition of the notion “financial stability” and “absolute stability” of the commercial bank on the ground of the system and logic approach;
- the more precise definition of bank financial stability types;
- elaboration of general model of financial state and financial stability control, which is integrated into financial control of the bank;

- introduction of the notion “rapidity of financial state change” into the financial control concept.
- modeling of the financial estimation, known as “Financial clock”, which is based on the rapidity of the financial state change and duration of the supposed existing period of the bank.

1. Modern Theoretical Basis of Bank Financial Stability Control.

1.1. Financial Stability Essence and Content.

Financial stability from the view point of scientific and theoretical substantiation is not a sufficiently investigated category, because in the Ukrainian economic literature there is no approach to the definition of financial stability. Especially it concerns banks as specific commercial enterprises. Absence of the precise definition leads to its identification with other economic categories: financial state, reliability, durability, solvency, liquidity etc.

A. M. Gerasimovich considers the concept of financial state to precede the concept of financial stability, but it is possible to estimate the financial situation of the bank relying on the estimation of financial stability, business activity, liquidity, management effectiveness [7, p. 286]. In other words, financial stability is an integral estimation component of the financial state. Thus, the understanding of financial stability is diminished to its identification with the capital adequacy. Such approach to the definition of bank financial stability prevails in domestic and foreign literature. For example, experts of the Bank of England define the concept of bank stability in a similar way: stability is the ratio of the resources of the private (or equity) capital to current financial liabilities (which are equal to deposits) [23, p. 72].

L. O. Primostka emphasizes, that the components of financial stability are liquidity, responsibility, reliability, financial state [83, p. 41]. Thus, on the contrary, financial stability is the primary and wider concept than the concept of financial state,

but the author does not give a concrete definition of bank financial stability [76, 77, and 81].

V. I. Grushko and L. Y. Petrichenko consider the concept of financial stability to be an organic unity of the capital adequacy, liquidity, profitability. They don't connect the concept of financial stability with the concept of financial state [40, p. 20]

V. A. Zabrodskij and M. O. Kyzym suppose from the position of the system and logic approach, that financial stability is ability of material and financial flows of the capital turnover to come back to the position, which provides correct proportions in their movement, despite of the influence of destabilizing factors [56, p. 50]. The definition of financial stability is connected, to a certain extent, with financial state, which is a wider concept in comparison with the financial stability concept.

R. I. Shiller doesn't give the concrete definition of the financial stability concept but he emphasizes, that financial stability together with capital bank stability, commercial stability, organizational stability and functional stability is the structural element of general commercial bank stability, but, thus, its concept [financial stability concept] of bank activity is revealed through the basic indexes, which express and synthesize the other components of productivity of the financial and credit institution. First of all, these are such indexes as: volume and structure of their own funds; level of return and profitability; return rate of the owned capital; the established indexes of liquidity; multiplicative efficiency of the owned capital; volume of the added value." [121, c. 31-32]. Therefore, there is a certain contradiction: financial stability is a structural element of general bank stability, but its content includes all the other structural elements, so it is possible to make the conclusion that financial stability in this sense reveals general stability of the commercial bank.

From N. Sheludko's view point, commercial bank financial stability is a dynamic integral characteristic of bank ability as a transformation system of resources and risks to perform its functions properly (with maximum efficiency and minimum risk), and to withstand the influence of the internal and external environment factors [120, c. 43]. It is necessary to notice, that the above mentioned

definition is not concrete and pithy, in fact, it can define first of all bank efficiency, i.e. ability of the bank to carry out its functions, as the author has specified. It is important that commercial bank's finances were not mentioned in the definition, though financial bank stability has been defined by this author.

L. T. Gilyarovskaya thinks that financial stability is economic and financial state of an organization. It is the process of dividing and using of the resources that provides its gradual development of increasing profit and capital and maintaining its responsibility [37, p. 13]. So the author considers, financial stability to be a financial economic state, and under certain conditions to identify two different concepts: the concept of stability and the concept of situation which is wrong. Nevertheless, analyzing the given definition it is possible to conclude that there is a strong and indissoluble link between financial stability and financial state.

E. S. Stoyanov, considering features and management methods of the commercial bank to be financial stability, does not give any definition of the financial stability concept, and, in this way, he doesn't accept the object of management [114, p. 528-601].

"The Economic encyclopedia" and "the Bank encyclopedia" do not contain articles concerning either financial state or financial stability [19, p. 123].

Before defining the financial stability concept independently, we should refer to the definition of the financial stability concept, as extremely polysemantic in the scientific literature.

The concept "stability" came from mechanics. Outstanding mathematicians and mechanics all over the world were engaged in the problem of stability, and each scientist has differently defined that concept. The most widespread and generalized among them are given in encyclopedia dictionaries. Therefore, Russian "Big encyclopedic dictionary" includes three definitions of stability.

- Stability of balance is the ability of mechanical system to keep balance under the influence of some forces, and after the insignificant rejection to come back to the equilibrium.

- Stability of movement is the ability of mechanical system to move under the influence of applied forces and not to be rejected from this movement under any minor influences.
- Stability of the power-supply system is the ability of power-supply system to restore its initial condition after any rejections of indexes of the system from standard value [30, p. 1387].

Thus, stability of something is always ability. If it is necessary to define financial stability of the commercial bank, it will be its definite ability.

If stability is financial, it will be wrong to identify it only as capital stability or personal funds stability, or stability control.

Further it is necessary to note, that the commercial bank can be either financially stable or financial unstable. Nevertheless, the commercial bank always has certain financial state, i.e. the concept of financial state is wider than the concept of financial stability.

Therefore, financially stable bank is a bank which financial state can be characterized as stable and which quantity of financial ratio is within the limits of standard values. Therefore, the characteristic of financial stability of the bank is not necessary connected with its financial state and can be or can not be necessary for the bank (as, for example, universality).

It is necessary to notice, that financial ratio is only the quantitative reflection of the specific financial and economic ratio of the bank performance and consequently it cannot be the proper basis of the financial activity concept.

Thus, on the basis of the carried out analysis it may be drawn the conclusion that financial stability of the bank, as economic category is the ability of the bank to maintain stable financial state under the influence of external and internal factors, if the major financial and economic ratio of the bank performance is correct and provides its constant development.

Liquidity, responsibility, capital adequacy, business activity, and bank profitability are understood as the main financial and economic ratio.

Therefore, the financially stable bank is the bank which is under the influence of external and internal factors maintains its stable financial state if the values of liquidity, responsibility, capital adequacy, business activity and profitability correspond to the standard values. The bank that does not meet these requirements is financially unstable.

Based on all said above, the following statements will be correct:

1. Financial state of the commercial bank is the wider concept than the financial stability concept.
2. Financial stability of the commercial bank depends on its financial state.
3. Financial stability of the commercial bank has an integral, dynamic, quantitative and qualitative character.
4. From the viewpoint of its financial stability the commercial bank can be either financially stable or financially unstable.

From the author's viewpoint, it is important to differentiate between the financial stability and other kinds of bank stability and to consider its classification.

The most widespread idea of the Ukrainian researchers in the field of financial management is that financial stability is an element of the general stability of the bank [23, 32, 63, and 85].

Therefore, the basic elements of bank stability are:

- capital stability (a commercial bank is considered to be stable, if it has enough capital to meet its commitments to shareholders and investors);
- commercial stability is the commercial bank state which is expressed by its connection with other subjects of market infrastructure and state; integration into the system of interbank relations; bank activity dependence on the external factors; quality of customers' service);
- organizational stability is the ability of the bank to build up such organizational structure which could provide performance of operations and thus wouldn't require the staff expansion;
- functional stability is the ability of the bank to depend on the bank specialization, i.e. on those operations and functions which it carries out;

- financial stability [65].

Russian authors, for example, L. T. Gilyarovska, N. A. Savinska, T. N. Vinogradova and others define the following kinds of stability:

- internal stability is such state of the manufacturing structure and providing services to the organization, which brings highly stable results;
- external stability is determined by the stability of economic environment, within which the institution operates. It is reached by corresponding control system within the whole country;
- “inherited” stability appears as a result of the certain stock of financial stability of institution which protects it from odd and unexpected unfavorable changes and destabilizing factors during several years;
- general stability reflects efficiency of capital investment projects; a level of logistical support, organization of manufacture, work, management;
- financial stability is an economic and financial condition of an organization in the process of distribution and usage of the resources that provide its graduate development aimed to increase profit and capital preservation of solvency [37, p. 15].

As the author supposes, the following way to structure financial stability is more expedient:

- current financial stability is financial stability of the bank at the definite moment of time;
- real financial stability is the financial stability of the bank during the definite period of time;
- potential financial stability is financial stability estimated by consideration of the bank potential.

1.2. Financial Stability as an Object of Management and Factors That Influence It.

First of all, it is necessary to note, that scientists differently interpret the meaning of the term “managerial process”. Under the process of management, some authors understand the purposeful influence of the subject of management (managed

subsystem), on the object of management that provides saving, functioning, and development of the system [9; 11]. Other authors emphasize that managerial process is a set of actions of the subject of management that carries out management of an economic system and corresponding behavior of the object of management [25, 96]. There are also other definitions of the concept of “managerial process” [23; 41; 43; 54; 65; 74; 80; 84]. The fact that definitions, mentioned above, do not contradict each other is essential.

In this diploma paper it is the set of consecutive actions of operating subsystem directed to the operated subsystem which helps to achieve the commercial bank goals. [56, p. 9].

It should be mentioned that managerial activity is not only a process of the consecutive actions but it is also a repeated cyclic process; i. e. a managerial process is a closed managerial cycle, which is constantly repeated.

Managerial activity can be considered as a cycle process from three basic points of view: structure, functions and process.

According to the structural approach, the managerial cycle consists of such stages:

- 1) managerial decision making;
- 2) realization of the managerial decision;
- 3) control over realization of decision.

According to the process approach, the managerial cycle consists of such stages as:

- 1) statement of purposes;
- 2) definition of a situation;
- 3) revealing a problem;
- 4) choice and decision-making;
- 5) realization of decisions;
- 6) realization of decisions arrangements;
- 7) control over realization of decision;
- 8) accounting of results of decision realization.

According to the functional approach, the managerial cycle consists of such functions:

1) analysis; 2) planning; 3) organization; 4) regulation; 5) coordination; 6) accounting; 7) control. [56, p. 9].

All three approaches characterizing managerial cycle are correlated with each other. This correlation is shown in table 1.1 [56, p. 12].

Table 1.1

Correlation of Three Approaches to the Characteristic of Managerial Activity.

Structural approach (stages of managerial (administrative) cycle).	Process approach (phases of managerial (administrative) cycle).	Functional approach (functions of managerial (administrative) cycle).
1	2	3
1. Managerial decision-making.	1. Statement of purposes; 2. Definition of a situation; 3. Revealing a problem; 4. Choice and decision-making.	1. Analysis 2. Planning
2. Realization of the managerial decision.	1. Organization of the decision realization; 2. Orders, concerning decisions realization.	1. Organization 2. Regulation 3. Coordination
3. Decision realization control.	1. Decision realization control; 2. Accounting of decision realization results.	1. Accounting 2. Control

Managerial process is always complex enough and depends on many factors which can be divided into factors of operating subsystem and factors of operated subsystem.

In this case the operating subsystem is a bank management system, and the operated system is a bank general financial situation and actually, bank financial stability.

Factors influencing financial stability of the commercial bank, are divided as a rule into internal and external or micro and macro-factors. Different authors give a different list of both internal and external factors, and this, first of all, depends on their detailed elaboration [37; 54; 61; 62; 76; 81; 121].

While generalizing all approaches to the definition of the factors, influencing bank financial stability, given in literature, it is possible to present the following:

External factors:

1. General social, economic and political situation of the country:

- Dynamics of Gross National Product;
- Trade balance;
- Price dynamics of the consumer market and inflation;
- Level of income of the population;
- Degree of the population trust to the banking sector;
- Manufacture development level;
- Updating of the capacities;
- Enterprises responsibility;
- Investment climate;
- Opportunities of interbank capital mobility;
- Political climate;
- Government policy.

2. Financial market state:

- Legislative base of financial market operation;
- The mechanism of legislative acts realization;
- Currency and bank regulation;

- National currency stability to fluctuations and its exchange rate;
- Degree of development of payment system;
- Degree of mutual trust of financial market participants;
- Degree of the stock market development;
- Level of money market development;
- Banking system state;
- Competitiveness of banking products and services;
- Volume of banking market sectors;
- System of deposit insurance (Fund activity which guarantees the security of natural persons' deposits);
- Interest rates dynamics;
- Efficiency and completeness of the information in financial market.

3. Vis - major circumstances.

The external factors influencing the commercial bank financial stability involve:

1. Bank mission and strategy.
2. Quality of bank management:
 - quality of personnel management;
 - quality of bank transactions efficient control;
 - quality of capital control;
 - quality of assets and liabilities control;
 - quality of liquidity control;
 - quality of risks control;
 - quality of earnings and expenses control;
 - quality of income control.
3. Competence of shareholders, management, personnel and clients.
4. Abuse of shareholders, management, personnel and clients.
5. Vis-major circumstances.

Factors influencing bank financial stability are shown on fig. 1.1.

Vis - major circumstances

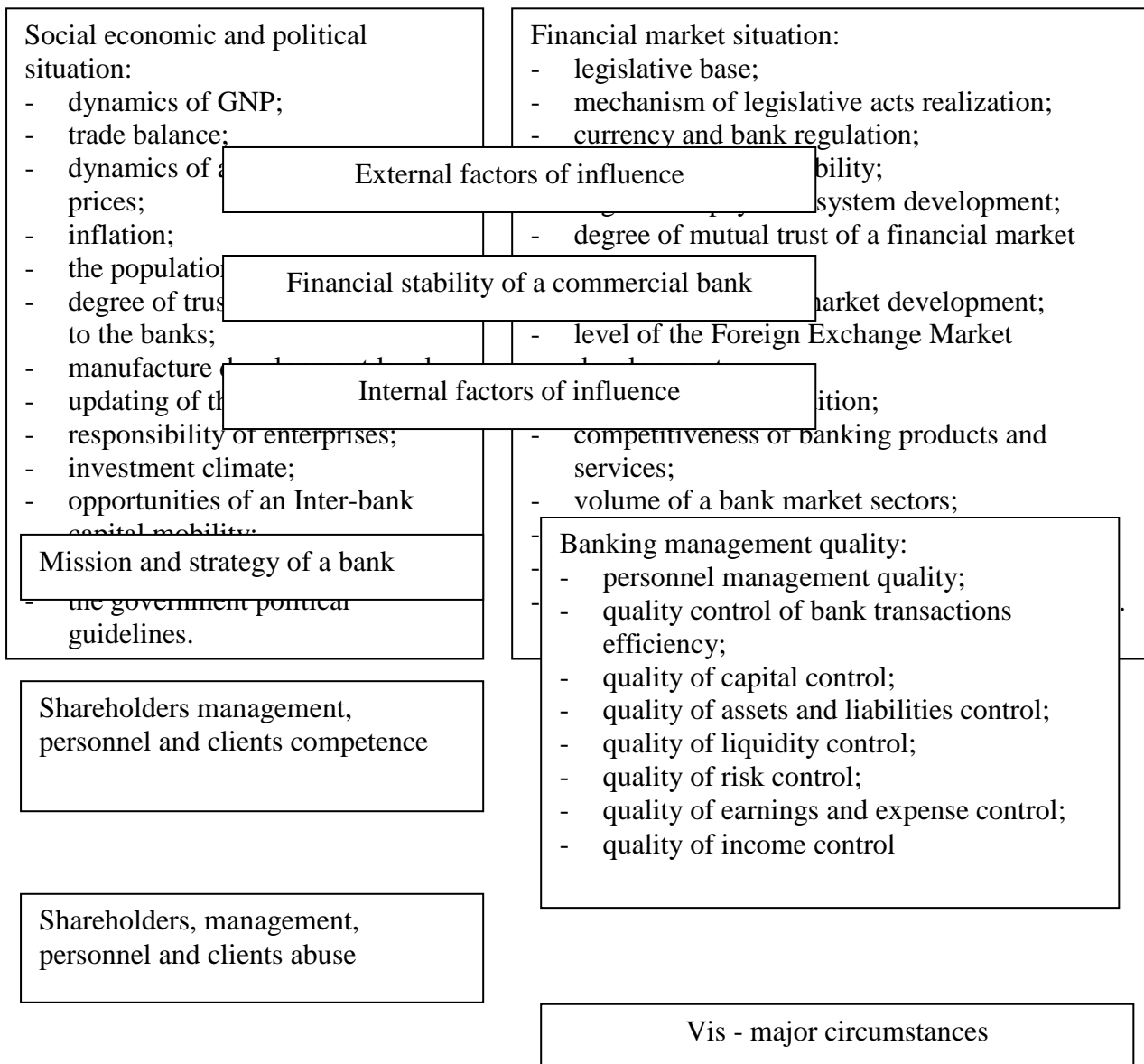


Fig1.1 Factors influencing financial stability of the commercial bank

Thus, the presented factors of an operated subsystem of bank financial stability have proved the complexity of its estimation and investigation and have defined that the place of financial stability is not only in the financial bank management system, but in the macro-level management system.

Theory and practice of management activity determines four basic types of industrial and economic activity management:

- 1) deviations management;
- 2) results management;

- 3) management upon stimulation;
- 4) parametrical adaptive management considering the timely preventive results [9, 10, 56].

The essence of deviation management consists of the control, which is directed to the elimination or minimizing of an actual magnitude deviation of the regulated index from the planned one, but not to the compensation of external destabilizing factors, which have caused this deviation. This type of management concerns the planned directive economy that has a stable environment, where changes occur more slowly, than the subjects of entrepreneurial business make their decisions. Thus, changes of environment are assumed by analogy with the past [10].

The second type of enterprise (or bank) management is management by results, from the view point of domestic scientists; it is the most wide spread in Ukraine today. The essence of this type of management is in the managerial action directed to the correction of the planned values of regulated indexes which takes into account their actual magnitudes. Thus, the external destabilizing factors influence the actual results only when the planning period had been completed. After that, the managerial action in the form of the concrete measures, directed to the compensation or complete elimination of the external factors takes place. Nevertheless, as practice testifies, the reaction of the managerial action, as a rule, appears late and if the instability of the external environment increases, the intensity of instability and regular increase of financial crisis phenomena needs more adequate managerial methods. [11]

In that case, the most suitable type of management among the well known and theoretically developed ones is management of stimulation. The essence of this type of management of the household subject activity is in discovering the external destabilizing factors at an early stage, which can cause the deviation of the regulated indexes from the planned (scheduled) values and direct administrative action to their offsetting or full elimination, thus, having supported the planned value of the regulated index.

This type of enterprise management is the most convenient to the work in unstable and dynamic environment, because it provides minimal productive and

financial losses caused by the influence of external destabilizing factors and also by their compensation costs or full elimination. Besides, the period when the external destabilizing factors influence the enterprise performance is essentially reduced [56].

However, it is necessary to notice that the practical use of the above mentioned management has certain negative features:

- “weak signals” that testify the beginning or intensity of influence of the external destabilizing factors on an enterprise are not always true. Therefore, at the end of the planning (scheduled) period, it is necessary to specify the actual results of the external factors’ influential power, and the adjustment of actions directed to their compensation or full elimination. However, this action directed to their compensation or full elimination is not considered in management of stimulation.
- influence of the external destabilizing factors, despite of their early recognition cannot always be compensated or fully eliminated.

As a result, an enterprise cannot always keep up the planned (scheduled) indexes in the frames of set values. At the same time, this type of management does not provide the adjustment of the set values of indexes [10].

From the viewpoints of the most authors and scientists, the fourth and the best type of management in the present unstable and dynamic environment is parametrical adaptive results’ management with the elements of timely prevention.

The essence of this type of management is that its operating subsystem discovers with the help of the express-diagnostic method, the beginning of external destabilizing factors by means of “weak signals” at an early stage and tries to compensate or fully eliminate them with the help of managerial action. Upon termination of the period scheduled by the actual magnitudes, the fundamental diagnostics has been carried out, which helps to find out whether the influence of the destabilizing factors has been compensated or fully eliminated. If it has not, it is necessary to define their power and to specify relationships of cause and effect. After that, the adjustment of the set values of indexes is carried out [56].

This type of management saves minimally possible production and financial losses from the influence of external destabilizing factors and can be used to build the general model of financial stability of a bank management [10, 56].

1.3. Modern Approaches and Methods of Bank Financial Stability Estimation.

Not all domestic and foreign authors recognize financial stability of a commercial bank to be an independent object of analysis and the basis of the most effective bank management decisions. Therefore, it is necessary to note, that the research of financial stability control is not paid much attention to in the domestic financial literature and there are no national methods and techniques of financial stability control, but there are only separate researches of domestic scientists, for example L. O. Prymostska, M. O. Kysym and V. A. Zabrodskij, R. I. Shyller.

Russia is one-step forward in solving this issue, where some techniques have gained popularity in terms of determining the degree of bank financial stability. The method elaborated by a group of economists under the supervision of V. S. Kromonov has become the most widespread [15, 25, 26, and 28]. It involves the grouping of assets and liabilities in economically homogeneous groups. However, from the viewpoint of domestic researchers, there are some drawbacks in the logic of such grouping [83, 121].

In establishing bank financial stability an important role is given to the solution of an issue: to what ratio the financially stable bank should aim. The general reliability ratio R_1 denoting the ratio between private capital and working assets is suggested to be amounted to one, but having this value, the bank should invest such amount of bank resources in working assets that totals the value of its own capital [121, c. 39].

In the Kromonov technique there is another ratio (R_2), which is called cross ratio and has the value of 3. It expresses the total liabilities to working assets ratio. The value of this ratio means that the bank must have the volume of bank liabilities

three times exceeding the volume of its working assets. The remarks concerning ratio R_1 should also refer to this ratio.

Another ratio R_3 is general liquidity ratio. It shows the ratio of total liquid assets, protected capital and required cash reserves to total liability. This ratio, according to Kromonov, should be equal to one, and it means that a bank has assets, both in a liquid form and in the form of capital investments, is equal to the volume of total liability.

The system of ratio weighing is based on the rule according to which the most important ratio is the general reliability ratio R_1 , (i.e. the degree of covering risky investments by its own capital). The greatest weight given to it is 45%, R_2 is 30%, and R_3 is 25% [121].

The bank technique has the following algorithm:

1. Key indexes of bank balance of payments are determined. Secondary balance accounts are grouped in economically homogeneous groups.

2. Ratio which characterizes the structure of bank assets and liabilities, degree of liquidity, reliability, and earning capacity are formed.

3. The regular ratio is defined by means of the system of ratio weightings. The liquidity ratio is considered to be the major ratio of a bank reliability that is why it gives the greatest weight – 35%.

4. The limit of depositary operations is defined to the formula 1.1.

$$\text{Limit (depo)} = \text{Capital} * 10\% * \text{synthetic ratio (1.1)}$$

This technique provides the system of elimination of loans to a category of unsecured loans – this is the specific weight of bad debts in a loan portfolio which should not exceed 3%.

The system of ratio, which is included in the technique, is in the appendix A.

If the share of bad debts in a loan portfolio exceeds 3%, calculation of bank limits stops automatically.

If the volume of received inter-banks loans (IBL) exceeds 50%, and more, so the assets quality ratio is multiplied by 25%.

The synthetic ratio (R_c) is defined according to the formula 1.2.

$$R_c = R_s * 0,15 + R_l * 0,35 + R_{e.c.} * 0,15 + R_{a.q.} * 0,20 + R_{r.b.} * 0,15 \quad (1,2)$$

where R_s , R_l , $R_{e.c.}$, $R_{a.q.}$, $R_{r.b.}$ –mean the ratio of: reliability, liquidity, earning capacity, assets quality, own funds (Appendix A).

Limit on credit is calculated according to the formula 1.3.

$$\text{Limit of credit} = \text{Capital} * 10\% * \text{Synthetic ratio.}$$

Another technique of calculating indexes of financial state of the commercial bank, which is also proposed by the Russian authors, is shown in the appendix B [113, 118, 121].

Also in Russia, there is a technique which draws up a rate of commercial bank reliability. It is supposed to use such ratio:

A_1 – general ratio of reliability which is equal to the ratio of bank capital to the working assets (a degree of bank risky investments security in its own capital);

B_1 – ratio of quick liquidity, which is equal to the ratio of bank liquid assets to its liabilities till called for (the use of clients' money as its own credit resources);

C_1 – cross-ratio, which shows the ratio of the whole bank liability to the granted loans;

D_1 – general liquidity ratio, which is equal to the ratio of liquid assets of the “protected capital” (real estate and valuables) to bank total liabilities that allows the bank to meet the lenders' demands within reasonable terms if the granted loans have not still been paid back.

E_1 – ratio of capital protection, which is equal to the ratio of the “protected capital” to the owned capital and shows, which share of its assets the bank allocates in real estate, valuables and equipment;

F_1 – ratio of share capitalization of earnings that shows the relation of the bank owned resources to the money invested by the founders.

To draw up the general formula of the commercial bank reliability some regulated ratio is applied A_i , B_i , C_i , D_i , E_i , F_i ; they are determined on the ground of expert estimation.

The general formula of reliability looks like this:

$$R = 0,45A_i + 0,2B_i + 0,1(0,33C_i) + 0,1D_i + 0,05E_i + 0,1F_i(1,4)$$

i.e., generalizing index R displays a degree of bank reliability [28, 37].

There are also some international techniques of generalizing estimation of bank financial state. Their essence is put into the creation of bank rating. The most widespread estimation is the bank rating system CAMEL. The name of the system is built up by the first letters of the key estimation indexes.

“C” (Capital adequacy) is adequacy of capital; estimation of the bank capital in terms of its adequacy of protection of investors’ interests.

“A” (Assets quality) is quality of assets; ability to maintain returning of assets and also influence the problem of credits’ general position in a bank;

“M” (Management) – management; estimation of managerial methods of the bank control, taking into account its efficiency, work accuracy, monitoring methods and performance of the established laws and rules;

“E” (Earnings) – cash receipt or profitability; estimation of bank’s profitability in terms of sufficiency of its profits for the prospects of banking activity expansion;

“L” (Liquidity) – liquidity; the system determines the level of bank liquidity in terms of its sufficiency to perform both current and unexpected liabilities.

Some components of the CAMEL system can be estimated with the help of public reports of the bank given to the NBU, but some of them require local reliability qualification to have more precise estimation. Thus, bank estimation made with the help of this system is a continuous process.

Experts consider capital to be the main means of investors’ assets protection. The bank with the adequate capital can sustain heavy expenses without any risk for its clients. To estimate the capital adequacy, the supervisory bodies use mainly the analysis of ratio [7].

While calculating the ratio, the notion of “capital” is used. It consists of:

- the paid part of the share capital, unshared income; and also general reserves or legal reserves, (fixed capital);

- other kinds of capital which can also be used when ratio is calculated (additional capital). They cover the reserves of fixed assets value, general reserve deductions of possible credit losses in future, and different kinds of credit instrument, which are subordinated relatively to the depositors' interest.

One of the mainstreams of bank supervision is the definition of assets' quality revealing the tightened assets, which cannot be accumulated or which real value is lower than that, specified in the banking accounts. To achieve this purpose a number of measures is taken:

- on site inspection;

- problem credits' classification which is based on the analysis of its possible repayment (it is carried out by the inspectors who have a sufficient qualification for estimation of credits and other credit instruments);

- determination of qualitative (objective) rating of the general bank assets according to the CAMEL system, the estimation of reserve deductions sufficiency of the bank to cover credit losses.

- banks are inspected on- site by the specialists in the field of credit analysis to appraise bank activity in details.

The third component of CAMEL rating system is management. As a rule, management is estimated in the latter case, as it is important to generalize the other important components of the analysis. It is clear that managerial methods should be estimated subjectively and ratio indexes can't be used for this purpose. (in comparison with the other components of the CAMEL system).

The estimation of management begins from the review of the overall bank activity. Banks with qualitative management have the adequate capital, sufficient assets, sufficient revenue and an appropriate liquidity level [7, 23, 96].

While estimating the methods of management, it is no less important to analyze the banking policy and its organizational structure, including the monitoring system. The banking policy specifies the state of banking operations (e.g. providing loans,

participating in monitoring operations, managing the liquidity) and, thus it forms the basis for making administrative decisions by a bank manager. Systems and monitoring methods provide an effective observance of the basic directions of the banking policy. The bank management is also subjected to the estimation of the observance of established laws and rules, including duly presenting of the reliable reports to the NBU.

The fourth component of the CAMEL rating system is the estimation of bank earnings, i.e. what profit a bank gains [23].

It is necessary for banks to be profitable and to increase capital. Despite of the fact that the fresh capital of the bank can come from the external sources, for example, from new shares issue or money injection of its owners, the significant part of fresh capital comes due to the profits. These bank earnings are valuable only when they are not spent, because the bank which pays dividends as the most part of its profits, does not provide increase in capital.

Earnings, as well as capital, can be quantitatively calculated by means of ratio. The index of earning capacity ratio is the most widely used. It is a feedback on the average value of assets. It is calculated as the ratio of revenue, collected after paying taxes to the value of assets due to which it was received.

The final component of the estimation of the CAMEL score rating system is an estimation which influences the ability of the bank to carry out its operative liabilities. Liquidity management involves management of two balance sides, i.e. an opportunity to use the liquid funds at the cost of available resources quickly.

After estimation of five CAMEL rating components the integral score rating of the bank is estimated or summed up [7, 23].

As it has already been noted, there are no national methods and techniques estimating financial stability control in the Ukrainian practice, and there are only separate researches of the domestic scientists devoting to this topic, for example, L.O. Prymostska, M.O. Kyzym and V.A. Zabrodskiy, R.I. Schiller.

L.O. Prymostska suggests exercising the financial stability control of a commercial bank made up with the help of the dynamic standard [83].

R.I. Schiller suggests calculating and analyzing five general indexes which should become the basis for making effective administrative decisions and practical estimation of bank stability control [121].

The most common index, which reflects financial state stability of the commercial bank, is surplus or deficit of sources of bank capital (RFS_1). This index must exceed zero. Its continuous increasing changes testify to the purposeful policy of the bank, directed to the financial state improvement and vice versa. Its sharp cyclic variations prove that bank formation has not been finished and that banks depend on the market.

The additional and evaluative index which confirms, that the conclusion drawn with the help RFS_1 is correct, is the ratio between the net and gross weight of the bank capital (RFS_2). This index must exceed zero.

Zero indexes testify that the bank is not mobile if any bank risk occurs. The risk may concern the credit and interest rate operations, new types of activity, market, the change of customers' structure, formation of deposit portfolio etc. Together with the structure of the bank capital, the general bank mobility is influenced by the allocation of debt capital and readiness for manoeuvre in case of unforeseen situations.

The estimation of autonomy and, therefore the bank stability concerning market shifts are carried out with the help of analysis of the owned and debt capital (RFS_3). The RFS_3 dynamics confirms the increase of bank stability, if the index increases and the decrease of stability if the index decreases. "Arrhythmia" of index testifies to the risk of losses during the process of bank recourse formation, and acts as an attribute of aggravation of the current liquidity problem.

The risk of unbalanced bank stability is defined by the value of "long-term" deposits in the structure of debt capital (RFS_4). The increase of RFS_4 provides assets and liabilities control over the banking operations, which are balanced in terms of time, formation and allocation of capital supplies. The decrease of the index testifies to the ability of the bank to accept any changes of the financial market.

The increase of the security level by means of resources borrowed by the bank (RFS₅) reflects the increase of financial stability and, at the same time, testifies to the reduction of its efficiency and about decrease of feedback from the use of financial leverage. The decrease of RFS₅ during some period of time is still being analyzed. It may also witness about the aggressive credit policy and potential credit risks.

Indexes of bank financial stability and algorithms of their calculation are depicted in table 1.2. [121, p. 48].

Table 1.2.

Indexes of bank financial stability, their essence and calculation

Index	Calculation of the index	Content of the index
State of owned means (RFS ₁)	Net weight of owned means	Sufficiency of cash facilities, which have been taken from the productive circulation, against the owned means
Mobility (RFS ₂)	Net weight of owned means	The degree of mobility of owned means
	$\frac{\text{gross weight of owned means}}{\text{gross weight of owned means}}$	
Autonomy (RFS ₃)	$\frac{\text{gross weight of owned means}}{\text{gross weight of owned means}}$	The degree of dependence on borrowed funds
	$\frac{\text{gross weight of owned means}}{\text{gross weight of owned means}}$	
Raising cash facilities with different allocation terms	$\frac{\text{liability}}{\text{liability}}$	The degree of stability due to the funds control and manoeuvrability of allocation terms of stock floatation
	$\frac{\text{liability}}{\text{liability}}$	
Financial reliability	Net profit (bottom line) – liability	The degree of sufficiency of borrowed means against the owned means
	$\frac{\text{Net profit (bottom line) – liability}}{\text{borrowed means}}$	

The essence of the approach offered by M.O. Kyzym and V.A. Zabrodska shows that financial stability control consists of two basic stages: the first is system estimation of financial state and stability, the second one is diagnostics of financial condition and reliability [56].

The system of financial state and financial stability estimation consists of nine basic stages:

1. Calculation of indexes which quantitatively characterize four interdependent core principles of financial stability of the enterprise (appendix B, table B.1).

2. By means of indexes which characterize a rhombus of financial stability of enterprise activity (appendix B., fig. B.1), and (formula 1.5) its actual financial state tests by means of a special model at a certain period of time $t = t_1$ [56, c. 55].

$$Y_1(L) = (D(x_1), H(x_2), O(x_3));$$

$$Y_2(H) = (D(x_1), O(x_2), L(x_3));$$

$$Y_3(O) = (D(x_1), H(x_2), L(x_3));$$

$$Y_4(D) = (H(x_1), O(x_2), L(x_3));$$

This model represents a number of aggressive models with consecutive interchange ability of functions and arguments and shows quantitative measure of indexes' interrelation which characterizes principles of financial stability of the enterprise.

3. Calculation of normative values of indexes which characterize a rhombus of financial stability by means of a special algorithm (appendix B, fig. B.4)

4. Firstly, two two-dimensional planes are built (appendix B, fig. B.2, B.3). They combine principles of financial stability with the help of which previous qualitative and quantitative estimations of financial state criteria are carried out (appendix B., fig. B. 2).

5. Static qualitative estimation of financial state at a certain period of time by means of a two-dimensional matrix of zones of four criteria estimation of financial state types (appendix B, fig. B. 3).

6. Building of trajectory of qualitative changes of enterprise financial state at a certain period (appendix B, fig. B. 4).

7. The dynamic qualitative estimation of the capital circulation process of the enterprise at a certain period of time by means of two-dimensional matrix of estimation zones built according to two qualitative characteristics of “stability” and “balance” (appendix B, fig. B. 5, fig. B. 6).

8. Calculations of integral indexes of estimation of financial state of enterprise activity at a certain period of time (formula 1.6).

$$K = \sum_{z=1}^m \frac{a \frac{\phi}{z}(t)}{a \frac{H}{z}(t)}, t = t_i \quad (1.6)$$

where $a \frac{\phi}{z}(t)$, $a \frac{H}{z}(t)$ – are correspondently actual and normative value of z^{th} index of financial state at a certain moment of time $t = t_i$,

m – number of indexes which characterize financial state of the enterprise activity.

9. Building of trajectory of quantitative change of the integral index of enterprise financial state at a certain period of time (appendix B, fig. B. 5).

Diagnostics of financial estimation allows showing infringement of proportions in material-financial flows movement and comprises two stages: 1) express-diagnostics; 2) fundamental diagnostics [56].

Express-diagnostics is a stage of diagnostic cycle which provides “weak signals” which reveal the infringements of proportions in phases of capital turnover. At this stage, such goals are achieved:

1. The previous urgent qualitative and quantitative estimation of the financial state and stability is carried out by means of “weak signals” both at a certain point of time (static), and at a certain time interval (dynamic).

2. The estimation of the direction altering an enterprise financial illness is carried out.

3. The results of financial state and financial stability estimation are finally generalized.

Fundamental diagnostics of financial state and stability is a stage of the diagnostic cycle which allows revealing the infringement of proportions in phases of capital turnover.

At this stage the following goals are achieved:

1. The size of the infringement of proportions in phases of capital turnover has been quantitatively estimated in static and dynamics, i.e. syndrome of financial illness is subjected to the fundamental research.

2. The reasons of the infringement proportions in phases of capital turnover and dynamics of changes of their influence on financial illness of an enterprise were revealed.

3. The casual relations between financial illness of an enterprise and their reasons were revealed.

4. A quantitative influence on the reasons which have caused this or that financial illness was defined. For this purpose regression equations have been used.

5. The method and means of treatment of the revealed financial illness; the choice and substantiations of the most effective measures, directed to the compensation or elimination of destabilizing environment factors, which influence the enterprise; and improvement of its financial state and stability were determined [56].

Five foreign and three domestic, mentioned above, techniques of estimation and control of bank financial stability differ from each other. Let us analyze each of them. The first among them is a technique of the establishment of financial stability level invented by V.S. Kromonov which is based on three calculated ratio. (Table 1.3).

V.S. Kromonov's Ratio of a Technique, Defining the Level of Financial Stability

The name of a ratio	Calculation formula	Optimal value
General reliability ratio	ratio of owned capital to working	1

	assets	
Cross-ratio	ratio of total liabilities to working assets	3
General liquidity ratio	ratio of liquid assets, protected capital and reserved means to total liabilities	1

This technique consists of clustering assets and liabilities in economically homogeneous groups. As this technique has the specific classification of assets and liabilities, and the least number of ratio (only three), let us analyze it more deeply. From the point of view of domestic researches clustering method according to V.S. Kromonov has sufficient drawbacks:

1. A group of liquid assets does not involve calculation, reflecting the portfolio of bank securities nominated in foreign currency (e.g. government bonds of Russian Federation, securities of the CIS countries etc). Although, they have the same level of liquidity and reliability as the state treasury liabilities which are involved in a group of liquid assets.

2. According to the V.S. Koromonov's technique, assets are strictly differentiated into liquid and working (risky) ones. It is considered that liquid assets are non-working assets, and working assets are not liquid. Such approach to the assets' grouping is not correct. Banks have a great number of working assets, particularly, "short-term" interbank loans with various securities at zero risk (in the form of government securities, deposits), and this category of assets is unequivocally referred to liquid. This property of assets, of course, cannot be defined from a balance sheet, however. Only the dissociation of liquid assets as to the terms of their allocation and forms of security gives us insights of asset liquidity [121]. Thus, the same assets can be both liquid and illiquid.

Another issue of controversy is what optimal values of calculated ratios should be. Therefore, if the owned capital and working assets ratio should be equal to one, it means that a bank does not require any borrowed funds, and in theory, it has only to

work due to its owned capital, but this is neither rational nor reasonable. If a bank still uses raised funds it will hardly be able to pay off all its creditors since its profit has been included in its owned capital structure and makes up its minor share, i.e. it (profit) is a minor share of its working assets, and it will be spent as an interest payment for the received credits. That means that the bank will be unprofitable in future. Similar conclusions can be made as to the cross ratio.

The rating technique of the bank – partners' responsibility and the technique offered by R. I. Schiller, as well as the one suggested by V.S. Kromonov, are, in fact, ratio analysis that is simple enough, available and easy to be carried out. Having evident advantages, the ratio analysis has also some disadvantages. Firstly, the absence of forms of correlation between particular ratios, their relative autonomy, different levels of critical values make the general rating almost impossible to be formed.

Secondly, the ratio analysis are also complicated by some analytical indexes characterizing the bank performance positively, meanwhile others - negatively, i.e. e. the same ratio values can be aftereffect of different causes.

Thirdly, the procedure of choosing relevant ratio itself is not often well grounded, as they number nearly two hundreds, and each of the techniques offers no more than ten, fifteen ratio.

As to the rating technique of a bank responsibility and all other score ratings, including the CAMEL system, it is worth to note that they are directed to the majority of banking establishments and to comparative rating (of the most effective, responsible and stable establishments). Although the estimations based on such techniques are useful, they are not adjusted to rate the performance of a particular bank in the context of its goal achievement and to make the appropriate management decisions.

It is also worth to note that such rating estimations are more effective for the external bank bodies (supervising bodies, clients, partners, competitors, etc.) and they deprive bank managers and a bank governing body of an opportunity to react promptly to changes of internal and external environment and to make appropriate

decisions, i.e. e. rating scores and their various modifications are rating estimations of performance of both financial management in particular and a banking institution in general.

Therefore, any rating scoring technique is not an analysis and, moreover, it is not a complex analysis, it is only an expertise method of ranking a particular bank among other lending institutions using the limited set of indexes [14, 27].

Nowadays the priority-oriented tendency in the scientific research is an analysis of the performance of bank institutions with an allowance for a dynamic component, i.e. e. analyzing, rating and managing not only statically but also dynamically.

Proceeding from all approaches and techniques investigated in this research proposal, only L. O. Primostko's technique and M. O. Kyzym and V. A. Zabrodskij's approach investigate a financial stability analysis and management with the allowance for the dynamic component of economic processes and phenomena.

Thus, L. O. Primostko's technique of forming the dynamic standard of financial stability has a number of advantages in comparison with other analysis techniques (particularly, techniques based on ratios):

- it reduces the leak of information to minimum as each index keeps its value;
- it eliminates the effect of mutual offsetting of negative and positive changes of the bank performance, recorded in values of different indexes;
- it shows the dynamics of indexes in their interrelation;
- it does not depend on the past achievement;
- it has a complex nature as the standard can comprise some indexes that characterize any aspects of the bank performance neglecting the applied units of measure;
- it enables to realize the bank business activity goals that cannot be defined by any particular index;
- it enables to rate the degree of the achievement of set goals and to exert control over the goal achievement [83].

From the viewpoint of management cycle integrity and the functional

approach, L. O. Primostko's technique reflects only its first function, specifically, the financial stability analysis based on the dynamic standard, and, consequently, it (technique) is not absolute from the management viewpoint, and it can be used only as one of variants of the financial stability analysis.

The approach to management of the enterprise financial stability offered by M. O. Kyzym and V. A. Zabrodskij is the most logically complete in the sense of this term. According to the latter approach, as stated above, the management process consists of two stages: the rating system of financial stability and its diagnostics that enables not only to analyze, but also to perform other functions of management cycle: planning, organizing, regulating, coordinating, accounting and auditing.

The present technique has, nevertheless, certain disadvantages as to its practical application. This technique is aimed at investigating the process of control of the enterprise financial stability to some extent separately from the process of control of liquidity, responsibility, capital, etc. However, all the listed above managerial processes are, in practice, difficult to distinguish one from another, as they are closely interrelated.

Nevertheless, the main difficulty in applying this technique that does not depend on the technique itself, is the fact that the offered rating system of financial stability control refers to a greater extend to the enterprises, furthermore, the industrial enterprises. Although banks are the specific commercial enterprises, it is the irritating fact that they have a number of significant range of differences from their organization to financial statements, the latter being an important source of information. For the following reason the present technique in its absolute form cannot be applied to financial stability management of the banking institution.

2. Modern Analysis and Rating System of Financial State and Financial Stability of the Commercial Bank

2.1. The Financial and Economic Characteristics of the Joint-Stock Commercial Innovative Bank ‘UkrSibbank’.

The full name of the bank is the Joint-stock Commercial Innovative Bank ‘UkrSibbank’ (hereinafter the JS CIB ‘UkrSibbank’).

The JS CIB ‘UkrSibbank’ was registered at the National bank of Ukraine - № 57, dated October 28, 1991.

The legal status of the JS CIB ‘UkrSibbank’ is a joint-stock company with a collective pattern of ownership.

It is run by: its main governing body – the general meeting of shareholders; the supervisory board of the bank; the bank management; the auditing committee.

The key shareholders of the bank are six Ukrainian industrial businesses, together holding over 90.58% of all issued shares (tab. 2. 1. [90]).

Table 2.1.

The List of Key Shareholders of JS CIB ‘UkrSibbank’ as of July 1, 2004.

№ 1	Shareholder 2	Percentage of authorized capital (%) 3
1	<i>Redan Ltd.</i>	6.74
2	<i>Grand + Ltd.</i>	8.03
3	<i>Ukrinvest JSC cl.</i>	8.14
4	<i>Alternative + Ltd.</i>	8.17
5	<i>Independence I Ltd.</i>	9.70
6	<i>Ukrainian Metallurgical Company JSC</i> cl.	49.80

The bank has the license, granted by the NBU, to carry out all kinds of the banking activities statute-permitted in Ukraine.

Specifically, it is NBU State License - № 75, dated December 24, 2001, permitting the JS CIB 'UkrSibbank' to carry out the following banking operations:

- deposit - taking from legal entities and natural persons;
- opening and operating current accounts of customers and correspondent banks, including transferring money funds from and into these accounts through payment instruments and entering money into these accounts;
- investing of raised funds on bank's behalf, on its conditions and at its own risk;
- undertaking operations with currency valuables;
- issuing its own securities;
- purchasing and selling securities by customer's request;
- undertaking operations in the securities foreign exchange market on its own behalf;
- giving guarantees and other securities in terms of money for provided goods or services, assuming the risk of nonpayment of such debts and the receipt of payments (factoring);
- leasing;
- keeping valuables and important documents in custody in personal safety cases;
- issuing, buying, selling and servicing of checks, promissory notes and other negotiable orders to pay;
- issuing and servicing bank debit cards;
- giving advisory services and checking of banking transactions.

According to Permit -№ 75-2, the bank is also authorized:

- to make investments into statutory funds and shares of other legal entities;
- to transport currency valuables and collect cash proceeds;
- to carry out transactions by customer's request or on its own behalf:
 - a) through money-market instruments,

- b) through financial instruments based on rates of conversion and interest rates;
- c) with financial futures and options;
- to act as a principal carrying out management of funds and securities under the arrangements with legal equities and natural persons;
- to perform depositary activities of a custodian of securities;
- to keep file of registered stocks.

The activity carried out by the JS CIB 'UkrSibbank' on the stock market is permitted not only by the licenses and by permits listed above; the bank is also in the possession of the following:

- The State Committee on Securities and Stock Market License to carry out activity on issue and circulation of securities - AA -№ 241777 dated 22. 10.2001.
- The State Committee on Securities and Stock Market License to carry out depositary operations. - AA -№ 24617 dated 19. 10.2001.
- The License of the Ministry of Finance of Ukraine to perform depositary activities of investment fund and Investment Company.

The bank began its activities on 18 June 1990, with the Commercial Innovative bank "Харківінкомбанк" (Kharkivincombank) being registered by the State bank of the USSR.

In 1991 the bank went public and was renamed as the joint-stock commercial innovation bank "Харківінкомбанк" (Kharkivincombank), and later it was registered by the National Bank of Ukraine.

In 1992 the JS CIB "Харківінкомбанк" (Kharkivincombank) became a member of the Ukrainian–Siberia corporation "УкрСибінкор" (UkrSibincor) and was renamed as the JS CIB 'UkrSibbank'.

The same year the bank was granted the license by the NBU to perform transactions in currency valuables and it opened the first correspondent foreign exchange account in the "Skalber DuPont" bank (Lille, France).

Since the beginning of 1993 the JS CIB 'UkrSibbank' has offered its services to natural persons.

The year of 1994 was remarkable for commissioning the ‘Client – Bank’ program system, membership in Ukrainian Bankers’ Association and conclusion of American Express agency agreement on distribution of traveler’s checks. The bank became a full-member of S.W.I.F.T. in 1995. The same year the bank was granted the License by the Ministry of Finance in Ukraine to carry out capital issue and securities circulation.

In 1996 the bank stock ownership was modified. The statutory fund increased up to UAH 90 mln. The bank established its branches in Cherkassy, Severodonesk, Zhitomir; it was granted licenses to conduct banking operations in international foreign exchange markets.

In the spring of 1998 the JS CIB ‘UkrSibbank’ entered PFTS Securities Trading System and it was granted the State License to keep file of registered stocks and to carry out depositary activity, a bit later it started providing settlement and cash services to local budgets [87].

The further expansion of the branch network was continued in 1999. The JS CIB ‘UkrSibbank’ established its branches in Poltava, Sevastopol, Odessa, Kryvyi Rig, and a division in Dneprodzerzhinsk. The same year the bank became the member of the Kharkiv Bankers’ Union.

A year later the branches located in Mykolayiv, Dnipropetrovs’k, Donetsk, Mariupol and general representative office in Kyiv were established. In 2000 the bank became the member of the Europay International Association and it was involved in implementation of "ГЕО"card project and started carrying out operations using the Western Union money transfer system.

In 2001 net assets of the bank exceeded UAH 1 billion; emission of Master Card cards was launched. The JS CIB ‘UkrSibbank’ became a member of Ukrainian Europay International Members’ Association ‘EMA’. Branches in Zaporizhzh and Lviv were established; the bank launched its project of developing the regional network of the bank in the territory of Ukraine.

At the end of 2001 the bank acquired the right to service activities for pension accounts and to make pension payouts and other pecuniary aid and, therefore, expanded its custom [89].

The year of 2002 was remarkable to the JS CIB ‘UkrSibbank’ for the following events – the establishment of its branches in Sumy, Zaporizhzh, Kirovograd, Vynnytsa, Kherson, Rivne; the issue of fifty- thousandth “ГЕО” (GEO) card; the launch of the long - term lending project to the enterprises in Ukraine; the introduction of new technologies of remote banking for its clients and the self - service teller terminal; the beginning of its activity in the “АНЕЛІК” (ANELIK) Money Transfer System; the emission of plastic cards for clients through a corporate web-site; the realization of major projects on corporate bonds allocation of large Ukrainian enterprises, such as ДАК “Титан” (‘Titan’ JSC JV), ДМА “Борисполь” (‘Boryspil’ SMA), ЗАТ “Сармат” (‘Sarmat’ CJ SV), to the total amount of UAH 100 mln; the continuation of its activities of corporate bond management of ЗАТ “Київстар Дж.Ес.Ем” (‘Kyivstart JSM’ JSC) begun in 2001 [90].

In 2003 the bank continued its expansion of a branch network and divisions, developing its retail business and keeping a leading position in the Securities Market. In 2003 the bank became a Principal Member of the VISA International Payment System. At the end of the year, the branches in Chernihiv and Simferopol were established; the regional network comprised 219 branches and divisions. The bank won recognition as "The 2003 Best Investment Bank of Ukraine".

The clients of the JS CIB ‘UkrSibbank’ are more than ten thousands of Ukrainian enterprises and six-hundred thousands of natural persons [90, 91].

Except for its main business activity, the JS CIB ‘UkrSibbank’ successfully participates in the social and public life of Ukraine. For several years the bank has been cooperating with the Kharkiv City Fund “Тимур” (‘Timur’) whose employees set up a children's theatre, an organizational and educational complex, they also provide advisory psychological services and practical medical aid.

Table 2.2

The Key Indexes of the JS CIB ‘UkrSibbank’ Growth

indexes	01.01.2001	01.01.2002	01.01.2003	01.01.2004
net assets, thousands of hryvnias	842522	1265903	1898358	3692442
loan portfolio, thousands of hryvnias	604970	901797	1276928	2614673
amounts owned to legal entities, thousands of hryvnias	218949	490065	793415	1820356
amounts owned to natural persons, thousands of hryvnias	98887	235525	449326	887600
equity, thousands of hryvnias	148379	163625	171400	280608
profit before tax, thousands of hryvnias	14241	21004	11963	71766
net profit, thousands of hryvnias	7424	15741	7770	41258

employees, total	679	1146	2441	3363
number of branches and divisions, total	29	83	168	219

The bank has sponsored the Kyiv – Pecherska Lavra to publish the edition of the book “ЧЕТІ МІННЕ” (the Life of the Sacred) that has been the third one for the past three hundred years.

Today the JS CIB ‘UkrSibbank’ is one of system banks in Ukraine with a great potential. The bank is dynamically developing and it plays an active part in economic changes of the country. The JS CIB ‘UkrSibbank’ is one of leading operators in the financial market of Ukraine.

According to its finance indexes (tab. 2.2), the bank is one of the ten top banks of the Ukrainian Bankers’ Association rating, with the volume of its assets exceeding UAH 1 billion, it was referred to one of the largest bankers of Ukraine by the National bank of Ukraine [89, 90, 91].

2.2. The Analysis of Financial State of the Joint-Stock Commercial Innovative Bank ‘UkrSibbank’

Carrying out a financial analysis of the bank, it is extremely important to make correct selection of relevant analytical ratio.

In tab. E.1 to appendix E there are some ratio offered by scientists for carrying out a financial analysis of a business bank [5, 7, 28, 39, 40, 42, 52, 54, 58, 60, 61, 63, 65, 76, 83, 121].

The calculation algorithm and the economic value of indexes are in tab. ЖЕ1 to the appendix.

According to the data in tab. E1 to appendix E, one can conclude that each researcher, having his own results, selects these or those indexes and analytical ratios that keep proving the absence of the unified system of indexes which would

characterize the financial state of a bank in a general way. A particular commercial bank uses in exactly the same way the self-developed techniques that include different indexes that are often considerably different.

The selection of indexes for the financial state analysis to be carried out in this research proposal should be done with an allowance for the following:

- obligatory uniqueness of an index (i.e. exception of duplication);
- the economic value of an index;
- its calculation can be made using the data of the public reporting of a bank.

Basic data of the calculation of financial ratio are in tab. 3.1 to appendix 3.

The first set of the analysis of the JS CIB ‘UkrSibbank’ financial state is an analysis of capital adequacy.

The basic ratio are regulatory capital adequacy ratio, total capital adequacy ratio, reliability ratio, financial leverage ratio, autonomy ratio, equity protection ratio, interest-earning assets protection ratio, capital multiplier ratio, bank own funds ratio [5, 7, 54, 58].

The data of the calculations of analytical capital adequacy ratio of JS CIB ‘UkrSibbank’ are in tab. 2.3.

Table 2.3

The Data of Calculations of Analytical Capital Adequacy Ratio of the JS CIB ‘UkrSibbank’

analytical ratio	01.01. 1998	01.01. 1999	01.01. 2000	01.01. 2001	01.01. 2002	01.01. 2003	01.01. 2004
1	2	3	4	5	6	7	8
regulatory capital adequacy ratio					21,16 2	16,94 7	13,21 0
growth rate H2, %						80,08 4	77,95 0
total capital adequacy ratio (H3)	36,90 4	47,30 6	45,33 3	20,99 3	21,30 3	9,213	7,303
growth rate H3, %	-	128,1	95,82	46,30	101,4	43,24	79,27

		86	9	8	77	8	3
reliability ratio	0,740	0,907	0,725	0,305	0,165	0,123	0,089
growth rate of reliability ratio,%	-	122,5 67	79,99 9	42,04 2	54,11 6	74,74 4	72,19 3
financial leverage ratio	1,696	1,195	1,469	4,411	7,074	8,723	12,14 8
growth rate of financial leverage ratio	-	70,45 3	122,9 31	300,3 73	160,3 76	123,3 05	139,2 60
autonomy ratio	0,371	0,456	0,405	0,176	0,116	0,103	0,076
growth rate of autonomy ratio	-	122,8 29	88,90 3	43,47 5	65,89 8	88,61 8	73,89 2
equity protection ratio	0,057	0,045	0,070	0,303	0,514	0,568	0,516
growth rate of equity protection ratio		79,07 0	154,8 63	430,8 18	169,9 88	110,4 77	90,83 6
interest - earning assets protection ratio	0,289	0,400	0,379	- 0,032	- 0,155	0,022	- 0,074
growth rate of interest - earning assets protection ratio	-	138,4 18	94,71 1	- 8,467	481,5 93	- 14,21 0	- 337,0 25
capital multiplier ratio	3,360	2,806	3,407	0,815	1,225	1,772	3,222
growth rate of capital multiplier ratio	-	83,50 2	121,4 17	23,92 6	150,2 52	144,6 55	181,8 59
bank own funds ratio	0,590	0,837	0,681	0,227	0,141	0,115	0,082
growth rate of bank own funds ratio	-	141,9 39	81,34 7	33,29 2	62,35 3	81,09 9	71,80 8

From the data in tab. 2.3, it is obvious that the JS CIB 'UkrSibbank' adheres to

the adopted standards of the National Bank of Ukraine, namely, regulatory capital adequacy standard (H2), total capital adequacy standard (H3). According to the Instruction on the Procedure of Banks' Activity Regulation in Ukraine, H2 should be no less than 10% and H3 no less than 4%. H2 made 13,21%, and H3-7,30%, as of 01.01.2004. But it is worth to note, that for the past three years values of the standards have considerably decreased, and it is due to, first of all, a problem of raising the capital of the bank. That means that the rate of bank assets growth considerably outpaces the rate of capital growth.

It is necessary to emphasize, that the problem of undercapitalization concerns almost all commercial banks of Ukraine, and it concerns to a greater extent the ten largest banks including the JS CIB 'UkrSibbank'. Commercial banks do not raise their capital to the level adequate to secure the lowest level of risk to its clients.

Very low values of capital standards are the first signs of the problem of undercapitalization.

This tendency is also confirmed by the reliability ratio (bank capital to raised funds ratio). For seven years it has greatly decreased, more than 8,5 times: from 0,740, as of the beginning of 1998, to 0,089, as of the beginning of 2004. Minimum allowable value of the ratio makes 0,05 or 5%. If growth rates of the given ratio keep the value equals the value of the past three years, the value of the reliability ratio of the bank will be less than the minimum allowable value in eighteen months.

High level of undercapitalization of the bank owned capital forces the bank management to raise funds in the money - market and the dynamics of the financial leverage ratio (total liabilities of the bank to its owned capital) proves this situation. Since the beginning of 1998 the volume of bank liabilities exceeded its owned capital only more than 1,7 times, but, keeping the annual growth rate of the given index of 120 - 300%, since the beginning of 2004 the volume of liabilities of the bank was 12 times more than the one of its shareholders' equity.

With its share in bank's liabilities decreasing, bank's dependence on raised and borrowed capital increases. Thus, since the beginning of 2004 the autonomy ratio of the bank made up only 7,6%, whereas its minimum allowable value was 10%.

Despite the general undercapitalization, the level of owned capital protection was being observed to increase due to the growth of investments in its own capitalized assets. Thus, for the period of six years (1998 - 2004), the equity protection ratio had increased and since the beginning of 2003 it reached the values of 56,8%, and during the following year it (the ratio) decreased to 9,16% and since the beginning of 2004 it was 51,6%.

The capital multiplier ratio is a direct index of the level of the bank's financial leverage, i.e. it demonstrates the amount of assets for each hryvnia of equity. In developed countries the capital multiplier is 15-20 points, and this value is considered ordinary. As the shareholders' equity should cover the assets losses, the higher the level of the multiplier is, the higher the risk of bankruptcy is. Although the more the value of the multiplier is, the more the bank potential for higher outpayments to its shareholders is.

The capital multiplier ratio of the JS CIB 'UkrSibbank' does not exceed 20 points and during quite a long period from 1998 till 2004 its value was not less than 4 points indicating the availability of bank's assets against shareholders' equity. However, this value also meant that the bank was incapable of high payments to shareholders.

However, at this point the issue of controversy arises: according to bank's financial statements, the value of the regulatory capital of the bank is 3 times less than the value of its shareholders' capital. For this reason, we can conclude that the level of availability of bank's assets against regulatory capital is low, while the one of the shareholders' equity is rather high.

Thus, the analysis of capital adequacy of the JS CIB 'UkrSibbank' testifies the first sings of problem of undercapitalization

The second set of the financial analysis of the JS CIB 'UkrSibbank' is a liquidity analysis.

Results of calculations of analytical ratios characterizing liquidity of the JS CIB 'UkrSibbank' are in tab. 2.4.

Table 2.4.

**Results of Calculations of Analytical Liquidity Ratio of the JS CIB
'UkrSibbank'**

Analytical ratio	01.01 1998	01.01 1999	01.01 2000	01.01 2001	01.01 2002	01.01 2003	01.01 2004
quick liquidity ratio	3,422	2,285	0,962	0,157	0,058	0,181	0,146
The growth rate of quick liquidity ratio, %	-	66,759	42,107	16,318	36,733	314,285	80,357
bank own funds liquidity ratio	1,406	1,667	1,610	1,028	0,933	1,022	0,932
The growth rate of bank own funds liquidity ratio, %	-	118,507	96,594	63,823	90,753	109,641	91,147
General liquidity ratio	0,309	0,507	0,292	0,128	0,106	0,174	0,149
The growth rate of general liquidity ratio, %	-	115,558	91,500	76,578	94,621	91,515	97,180
liquid assets to working assets ratio	0,176	0,261	0,149	0,055	0,036	0,103	0,112
The growth rate of liquid assets to working assets ratio, %	-	148,382	57,309	36,691	64,948	290,790	108,605
granted loans to collected deposits ratio	5,032	5,302	5,274	2,461	1,568	1,265	1,053
The growth rate of granted loans to	-	105,382	99,469	46,664	63,692	80,678	83,274

collected deposits ratio, %								
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For the data in the tab. 2.4, the values of the quick liquidity ratio and general liquidity ratio for the past four years, namely, from 2001 to 2004, are less than minimum allowable values.

Each value of the ratios should not be less than 0,2% or 20 %. As of 01.01.2004, the quick liquidity ratio made 0,146% or 14,6 %, i.e. it was 5,4% less than the minimum regulatory value. It means, that in case of the customers' run on the bank only 14,6 % of the whole amount of the deposits could be payable right away owing to the money in cash departments and funds on correspondent accounts.

The similar situation is observed with the value of the general liquidity ratio that made 0,149% or 14,9% since the beginning of the year, and but it should not be less than 20%.

Such situation with quick liquidity of the bank is, first of all, due to the increase of the depositary portfolio of the bank, in particular, and the volume of its liabilities, in general, and it develops much more rapidly than the increase of its quick liquid assets, the amount of money in cash departments and funds on correspondent accounts.

It is interesting to mention, however, in spite of the critical situation with quick liquidity, the values of such ratio as the general liquidity ratio and the liquidity ratio of bank own funds as well as the granted loans to collected deposits ratio are within limits of permissible and regulatory values.

The bank own funds liquidity ratio should be more than 0,7%- 0,8%. For the investigated period and the financial statements of the seven years, the values of the mentioned above ratio have been more than the minimum permissible values, but its values tended to decrease and since the beginning of 2004 year it equaled 0,932% or 93,2%, i.e. it was very close to the rejection limit. That means the decrease of availability of liabilities of the bank against its earning assets.

The complimentary ratio of bank own funds liquidity ratio is the ratio of granted loans to collected deposits. As you can see from table 2.4, the value of this ratio was decreasing from 1998 to 2004. That means that the risk of paying off the bulk of liabilities to its clients tended to decrease. Thus, granted loans are mainly secured against the volume of the collected deposits, and the bank is not under the threat of unbalanced liquidity.

The value of the total liquidity ratio (total assets to total liabilities) should be more than one. However, its regulatory value is 1,1, and that value meets in full the requirements to capital adequacy (in fact the capital should have at least 10% of assets, and, correspondingly, 90% of liabilities). Thus, the value of the total liquidity ratio that during six years had a constant downward tendency did not make the sign of the regulatory value at the beginning of 2004 and was only 1,083%, however, the deviation from the standard made only 0,017, i.e. it was insignificant.

Therefore, the calculated and investigated in tab. 2.4 system showed that the JS CIB 'UkrSibbank' has certain problems with liquidity. Firstly, the asset structure of the bank is not optimal in terms of its liquid covering; secondly, bank's ability to pay off its liabilities to clients who placed their money in this bank on current, savings, deposit accounts is not secured against assets. However, it is worth to notice, that though a situation is problematic, but it is not critical, and, in fact, the bank meets in full its commitments on economic and financial activities to the creditors, as well as to its shareholders, and it has coped with the problem of unbalanced liquidity.

The third analytical direction of the financial analysis of the bank is the analysis of its economic activity that literature on economics recommends to analyze through interrelation of an estimation of the potential of bank own funds and the use of this potential in assets as well as in some of its independent investments - in investment and credit portfolios of the bank, logistical support.

Results of calculations of analytical ratio that characterize the activity of the JS CIB 'UkrSibbank' are in tab. II.1 to the appendix II.

The business activity is determined by both the rate of borrowed funds and the rate of their use in assets, therefore, it is advisable, first, to investigate the group of

ratio that characterize the rate of business activity of borrowing funds, and further - their allocation in certain groups of assets. This group of ratio is used as a measuring instrument of a level of bank's performance in the financial market.

The increasing value of the activity ratio of attracting borrowed and raised funds testifies a high business activity of the bank. Therefore, from 1998 till 2004 the value of the mentioned above ratio increased from 0,629 up to 0,923. Nevertheless, while drawing a parallel, it is necessary to emphasize, that such high activity of attracting funds is due to the reduction of its owned capital adequacy. Moreover, the optimal value of the ratio is considered 0,70.

The similar tendency is observed with the activity of collecting deposits. From 1998 till 2004 the activity ratio of collecting term deposits increased correspondingly from 0,051 up to 0,672, i.e. more than 10 times. The increase of depositary portfolio of the bank testifies not only the growth of the business activity of the JS CIB 'UkrSibbank' but it is also the evidence of gaining confidence of its clients and their confidence in the bank's ability to use effectively clients' money for both parties.

The ratio characterizing the rate of activity of bank funds allocation is also on a high level. The activity ratio of using raised funds as earning assets during the investigated period exceeded the minimum regulatory value 1, and, as of 01.01.2004, it equaled 1,008. However, during the period of 1998 – 2004, the ratio tended to decrease constantly and if such tendency keeps the following fiscal year, this ratio will not equal its regulatory value.

From 1998 till 2000 the activity ratio of investing raised funds in an credit portfolio increased and since the beginning of 2000 it reached the peak sign of 1,424 , i.e. the most active credit policy of the bank for the whole investigated period. Although the value of the ratio decreased, it had remained its high rate.

The ratio of credit activity that had the maximum value of 0,795 since the beginning of 2004 confirms this fact. Since the beginning of 2004 it equaled 0,708, but it remained on a very high rate.

High values of activity ratio of using raised funds in a credit portfolio and credit activity ratio testify that credit transactions of the JS CIB 'UkrSibbank' have a

large share of its total transactions, which, at the stage of its development, characterize the banking system of Ukraine as a whole.

It is worth to notice, that high credit activity of the bank did not affect the quality of its credit portfolio, in fact, since the beginning of 2004 the ratio of outstanding loans had the lowest value for the whole investigated period. In general, it is typical to the JS CIB 'UkrSibbank' to have a low share of outstanding loans, and, actually, during its seven-year activity period this ratio had never exceeded the limit value of 3%, and during past six years the value of the ratio was less than 1%.

Comparing to high values of the ratio of credit activity, the ratio of the total investment activity was at a rather low rate, but it tended to increase 0,054 or 5,4% in 1998 and 0,103 or 10,3% in 2004. It testifies the bank's successful attempts to diversify assets, and it proves that the bank is an active participant of a stock market of Ukraine, the fact that is constantly emphasized by the bank.

All-time high values of the asset management efficiency ratio (0,766 – 0,907) show a significant weight of bank's assets and their return.

Thus, the business activity of the JS CIB 'UkrSibbank' during 1998 - 2004 was on a high level and was characterized not only by all-time high credit activity of the bank at a stable low level of outstanding loans, but also by increasing investment activity at a stable high level of asset management efficiency.

The next and the last stage of financial state analysis of the JS CIB 'UkrSibbank' is the analysis of the bank performance, namely, the analysis of the bank return and profitability.

The effective ratio of the bank performance is its volume of the earned profit. As under the modern circumstances bank spendings that are affected by economic downturn in the country often increase irrespectively of a level of economic and financial activities of a bank; the profit which in terms of volume is frequently rather low, is unable to characterize the level of payback possibilities, i.e. there is a necessity to define the level of bank's management efficiency of profit as well as of return. Hence, analysis of the bank earning capacity is expedient to calculate using indexes of the bank profitability of earnings and the bank earning capacity of net

profit.

Proceeding from the results in tab. K.1 to appendix K, the total level of profitability of earnings that shows the amount of profit before tax per 1UAH keeps an average level. Therefore, from this viewpoint the most profitable year for the bank was the year of 1998 with the bank profit being 36, 6 kopecks per 1 UAH, while the most unprofitable year was the year of 2001, though in 2004 the total level of bank earning capacity was 13, 9 kopecks per 1 UAH.

The net interest margin shows a level of the bank profitability of interest margin. From 2000 till 2004 this ratio kept being equal 5% for the JS CIB 'UkrSibbank'. Nevertheless, the net interest margin shows the level of return on interest earning assets as well as characterizes efficiency of the bank control over interest earning assets and cheap funds.

The net spread, that during 2001 was on the level equaled 10-9%, indicated not only the decrease of a level of return on earned interest, but also characterizes, the difference between the acquisition price of funds and the price of their allocation in assets (mainly in the credit portfolio).

At the same time a stalemate of the bank profitability which shows the minimal value of profit margin that allows to cover all spendings and to earn profit, had decreased to 1, 4 kopecks per 1 UAH of earning assets in 1998 up to 0,005 kopecks per 1 UAH of earning assets in 1999, but then in 2000 with the accelerated rate of the amount of 92110,7 % annually it made 4,4 kopecks, and since the beginning of 2004 - 6,1 kopecks per 1 UAH of earning assets. The level of a stalemate of profitability, less than 10 kopecks per 1 UAH of earning assets, is an optimal value of this index, therefore, in spite of its growth from 1998 till 2004, it is possible to speak about effective work of the bank management on advancing growth of return on interest earning and non interest earning transactions as compared to the similar operations on spendings.

The maximum value of the index of earning capacity of equity was registered on 01.01.1999 and made 17,7%; i.e. that the equity capital equaled 17, 7 kopecks of the bank profit per 1 UAH. Nevertheless, during the following five years this index

considerably decreased: the year of 2000 was unprofitable for the bank, although, since the beginning of 2002 its earning capacity of equity made 1, 5 kopecks per 1 UAH, though the value of 1, 5 kopecks is a low one of this ratio, but with the loss of value of 0, 5 kopecks per 1 UAH of equity – it was a quite good result. Since the beginning of 2004 bank's earning capacity of capital equaled 3, 6 kopecks per 1 UAH of equity. However, such low values are due to the revaluation of equity done up to the international standards in 2000. Because of this, stockholders' equity had increased more than 10 times, and at the same time, net profit had increased only more than 3-4 times.

In some way similar situation occurred with the index of return on bank assets that had rather low values: ranging from 0, 2 kopecks per 1 UAH of assets in 2003 to 6,3 kopecks per 1 UAH of assets in the above mentioned year of 1999 that can be considered the most profitable year for the bank in terms of bank's performance.

Similar conclusions can be made while investigating the indexes of return on spendings and earning capacity of return.

Therefore, by the results of the analysis of efficiency of the JS CIB 'UkrSibbank' performance, it is possible to draw a conclusion that the bank considering its high performance and low value of a stalemate of profitability does not use all its potential for the achievement a maximum of profitability. Though the bank earns high profits in correspondence to its absolute value and as compared to other banks, but in terms of profitability of its performance, it is not the leader, and does not rank as one of the ten most profitable banks. Nevertheless, such situation is characteristic to all large as to their size of assets banks of Ukraine.

2.3. An Integral estimation of Financial Performance of JS CIB 'UkrSibbank' Based on the Technique of the National Bank of Ukraine

There was developed a technique of an integral estimation of financial performance of banks by the Bank Reorganization and Liquidation Department of General Bank Control Division of the National Bank of Ukraine with the assistance

of the economists K.Klotsa and M.Luchinski at the Warsaw Center of Social and Economic Researches [39].

The integral estimation of financial performance is calculated based on eleven detailed indexes divided into four groups. While selecting indexes, crucial importance was paid to their information pithiness, and selecting of groups – complete descriptions of financial performance of the bank.

1. The index of return on assets (ROA), i.e. the ratio of return on bank's assets that determines their earning capacity. The values of this ratio should be as high as possible, as, in fact, the main goal of the bank is profit making. It gives more useful information for bank control than the ratio of return on equity which is more important for bank's owners.

2. The index of return on sales (ROS), i.e. the profit to returns ratio that determines the weight of profit to the volume of returns. Thus, as far as ROA correlates return to the volume of assets for a definite period (therefore, it has a static nature), so accordingly ROS does the profit to the volume of returns for the whole accounting period (therefore it has a dynamic character). The earning capacity of return on sales is calculated as profit to returns ratio of the bank.

3. The index of marginal propensity to save (MPS) estimates whether the bank was unprofitable during the previous accounting periods and whether it is capable (and to what extent) to cover the spendings against current profits. If the bank has current spendings, MPS shows, the level on which the financial performance of the bank worsens:

In case of profit, MPS is calculated to the following formula:

$$\text{MPS} = (1 - \text{income tax rate}) \cdot \text{profit} / \text{spendings suffered} \quad (2.1)$$

In case of spendings, MPS is calculated to the following formula:

$$\text{MPS} = \text{current spendings} / \text{spendings suffered} \quad (2.2)$$

To the group of detailed indexes of bank liquidity belong:

4. The index of reliability (R) is the standard estimation of a level of bank reliability and equals to shareholders' equity to assets weighed at a risk rate.

5. An index of liquidity (L), is the amount of cash and securities to market to current deposits ratio that estimates whether the bank is in capacity to cover the needs in monetary funds in case of possible withdrawal of these deposits:

6. The index of capital adequacy (ZK) estimates the bank soundness in case of deterioration of its credit portfolio quality:

$$ZK = (\text{bank own funds} - (0,5 \cdot \text{doubtful debts below the standard}) - \text{arrears of bad interest}) / \text{bank resources}$$

To the group of detailed quality indexes of a credit portfolio of the bank belong:

7. The index of acceptable quality level of unweighed credit portfolio (AQ) which defines specific weight of irregular arrears of bank credit portfolio neglecting their categories (below the standard, doubtful or bad debts), nevertheless it does not estimate the threat for the bank resulting from deterioration of its credit portfolio quality.

8. The index of weighed credit portfolio quality (WCR) estimates responsibility of certain categories of irregular arrears to the bank. If the value of WCR is approximate to the value of AQ, it means that specific weight of bad debts and irregular arrears of bad interest is very high, i.e. it is necessary to expect aggravation of the bank earning capacity:

$$WCR = ((0,2 \cdot \text{debts below the standard}) + (0,5 \cdot \text{doubtful debts}) + \text{bad debts} + \text{arrears of bad interest}) / \text{debts.}$$

To the group of detailed indexes of dynamics and structure belong:

9. The index of dynamics of deposits (DI) estimates a level of depositors' confidence in the bank and equals gains on deposits to a total sum of deposits ratio.

10. An index of dynamics of irregular arrears shows a state of deterioration of bank credit portfolio (but certain categories of irregular arrears do not differ) and equals gains of irregular arrears to the total amount of irregular arrears.

11. Participation of other items in the assets structure (S) determines an optimality of a structure of balances of bank. Other items mean other banking operations whose big specific weight means less participation of working assets that causes the decrease of the bank earning capacity.

Every mentioned above detailed index has two values to be investigated: its absolute value and variability of absolute value.

Tab. 2.5 contains the information concerning criteria of absolute value, estimation of absolute value and estimation of variability of absolute value.

Table 2.5

Criteria of Absolute Value, Estimation of Absolute Value and Estimation of Variability of Absolute Value of Indexes of Financial Performance of Bank

Detailed index	Criterion of absolute value	estimation of absolute value, score	estimation of variability of absolute value, score
1	2	3	4
ROA	0%	0-4	0-2
ROS	0%	0-2	0-2
MPS	missing value as no calculation technique	0-4	0-2
R	8%	0-2	0-2
L	100%	0-4	0-2
ZK	0%	0-4	0-2
AQ	Average value	0-4	0-2
WCR	Average	0-4	0-2

	value		
D1	Average value	0-4	0-2
D2	0% -as a result of no aggravation of the bank credit portfolio activity	0-4	0-2
S	Average value	0-2	0-2

The integrated index of bank's financial state based on these data is calculated.

If we designate the following by symbols:

u – number of a detailed index ($i=1, \dots, 11$);

j – number of group of detailed indexes ($j=1, \dots, 4$);

$G(j)$ – score of general estimation of group of detailed indexes;

$M(j)$ – a multiplier for group of detailed indexes;

$S_B(i)$ – score of an estimation of absolute value of a detailed index;

$S_Z(i)$ – score of an estimation of variability of absolute value of a detailed index, hence the formula of integrated index W of financial state of the bank will be the following:

$$W = G(1) + G(2) + G(3) - G(4), \quad (2.3)$$

where

$$G(1) = M(1) \times [S_B(1) + S_Z(1)] + [S_B(2) + S_Z(2)] + [S_B(3) + S_Z(3)];$$

$$G(2) = M(2) \times [S_B(4) + S_Z(4)] + [S_B(5) + S_Z(5)] + [S_B(6) + S_Z(6)];$$

$$G(3) = M(3) \times [S_B(7) + S_Z(7)] + [S_B(8) + S_Z(8)];$$

$$G(4) = M(4) \times [S_B(9) + S_Z(9)] + [S_B(10) + S_Z(10)] + [S_B(11) + S_Z(11)];$$

In case of profit, MPS is calculated to the following formula:

$$\text{MPS} = (1 - \text{income tax rate}) \cdot \text{profit} / \text{spending suffered} \quad (2.1)$$

In case of spending, MPS is calculated to the following formula:

$$\text{MPS} = \text{current spending} / \text{spending suffered} \quad (2.2)$$

To the group of detailed indexes of bank liquidity belong:

4. The index of reliability (R) is the standard estimation of a level of bank reliability and equals to shareholders' equity to assets weighed at a risk rate.

5. An index of liquidity (L), is the amount of cash and securities to market to current deposits ratio that estimates whether the bank is in capacity to cover the needs in monetary funds in case of possible withdrawal of these deposits:

6. The index of capital adequacy (ZK) estimates the bank soundness in case of deterioration of its credit portfolio quality:

$$\text{ZK} = (\text{bank own funds} - (0,5 \cdot \text{doubtful debts below the standard}) - \text{arrears of bad interest}) / \text{bank resources}$$

To the group of detailed quality indexes of a credit portfolio of the bank belong:

7. The index of acceptable quality level of unweighted credit portfolio (AQ) which defines specific weight of irregular arrears of bank credit portfolio neglecting their categories (below the standard, doubtful or bad debts), nevertheless it does not estimate the threat for the bank resulting from deterioration of its credit portfolio quality.

8. The index of weighed credit portfolio quality (WCR) estimates responsibility of certain categories of irregular arrears to the bank. If the value of WCR is approximate to the value of AQ, it means that specific weight of bad debts and irregular arrears of bad interest is very high, i.e. it is necessary to expect aggravation of the bank earning capacity:

$WCR = ((0,2\# \text{ debts below the standard}) + (0,5\# \text{ doubtful debts}) + \text{bad debts} + \text{arrears of bad interest})/\text{debts}$.

To the group of detailed indexes of dynamics and structure belong:

9. The index of dynamics of deposits (DI) estimates a level of depositors' confidence in the bank and equals gains on deposits to a total sum of deposits ratio.

10. An index of dynamics of irregular arrears shows a state of deterioration of bank credit portfolio (but certain categories of irregular arrears do not differ) and equals gains of irregular arrears to the total amount of irregular arrears.

11. Participation of other items in the assets structure (S) determines an optimality of a structure of balances of bank. Other items mean other banking operations whose big specific weight means less participation of working assets that causes the decrease of the bank earning capacity.

Every mentioned above detailed index has two values to be investigated: its absolute value and variability of absolute value.

As to the value of the integrated index of bank's financial state, banks are divided into five groups: if the value is in the range of the score of 0-10 the financial state of the bank can be characterized as crisis or critical; if the value of an integral estimation is in the range of the score of 10-20 the financial state of the bank can be characterized as unstable; the score of 20-30 - with signs of problematical character; score of 30-40 - with presence of temporary complications; with the score of 40-50 - the financial state of the bank is stable.

Basic data for calculation of an integral estimation of financial state of the bank of the JS CIB 'UkrSibbank' are in tab. L.1 to the appendix.

Results of calculation of detailed indexes of financial state, their absolute variations of the JS CIB 'UkrSibbank' are in tab. M.1 to appendix M.

The rating score of detailed indexes and their absolute variations are in tab. 2.6

Table 2.6

The Rating Score of Detailed Indexes, and Their Absolute Variation and Integral Estimation of the Financial State of the JS CIB 'UkrSibbank'

Detailed index	The rating score of the index, years						
	1998	1999	2000	2001	2002	2003	2004
1	2	3	4	5	5	6	7
ROA	2	3	2	0	1	1	1
ROS	4	3	2	0	1	2	2
MPS	4	3	2	4	4	1	4
R	4	4	4	2	1	1	1
L	4	4	3	0	0	1	1
ZK	3	3	2	1	0	0	0
AQ	3	3	3	3	3	3	4
WCR	2	2	2	2	3	3	4
D1	4	4	3	4	4	3	4
D2	3	3	2	3	2	4	3
S	4	3	2	3	3	3	4
Pure gain ROA	-	2	0	0	1	0	1
Pure gain ROS	-	0	0	0	2	0	2
Pure gain MPS	-	2	2	2	2	2	2
Pure gain R	-	2	0	0	0	0	0
Pure gain L	-	0	0	0	0	2	0
Pure gain ZK	-	0	0	0	0	2	0
Pure gain AQ	-	0	2	0	2	0	0
Pure	-	0	2	0	0	2	0

gain WCR							
Pure gain D1	-	0	0	2	0	0	2
Pure gain D2	-	2	2	0	2	0	2
Pure gain S	-	2	2	0	2	0	2
integral estimation of financial state	-	39	33	20	28	23	32

Judging by the results of tab. 2.6, the financial state of the JS CIB ‘UkrSibbank’ according to classification of a technique since the beginning of 1999, 2000 and 2004 can be characterized as good, but with presence of temporary complications. However, since the beginning of 2001, 2002 and 2003 the financial state of the bank had signs of problematical character.

Thus, the calculation of an integral estimation characterizes the financial state of the JS CIB ‘UkrSibbank’ with integrity, and sums up the carried out analysis, and unequivocally determines whether the bank is financially reliable or financially unstable at this or that moment of time.

Considering the results of the analysis and appropriate integral estimation, it is possible to draw the following conclusions concerning the financial state of the JS CIB ‘UkrSibbank’:

1. For seven years of the bank management performance they had never succeed in bringing the bank financial state up to the level of financial reliability and stability.

2. The year of 2000 was unprofitable for the bank at a loss of the amount of 1,6 million UAH, that it definitely affected its financial state, and resulted in the lowering its position and the bank was characterized as one with signs of problematical character as to the integral estimation of the financial state.

3. The following years, 2001 and 2002, in spite of bank's performing profitable activity and improvement of some indexes of capital adequacy, profitability and increase of bank management activity the bank didn't succeed to return a position of the financial state to a category of banks with temporary complications.

4. Its integral estimation testifies that since the beginning of 2004, the financial state of bank has considerably improved, but there were certain unresolved problems, the main ones among which are the following:

- owned capital undercapitalization due to rather fast escalating volume of assets and, as compared to it, very slow escalating of bank's stable funds;
- unsatisfactory liquidity state of the bank, which is connected, first, with low specific weight of liquid assets in a balance composition and fast growth of liabilities of bank, including depositary portfolio.
- low earning capacity of assets and the owned capital of bank with its high business activity.
-

3. Directions of Improvement of Financial State Control and Financial Stability of the Commercial Bank

3.1. The System of Timely Prevention of Financial Problems of Banks' Performance

As it stated above financial stability of a banking system in general and each participant is an object for proper attention and management of relevant competent authorities in each developed country of the world.

Therefore, in Ukraine according to the current legislation the matters of regulation of banking activity, including financial stability of a banking system in general and its each participant are under the jurisdiction of the National bank of Ukraine [2, 3].

The Division of Banking Supervision of the National bank of Ukraine within the limits of their powers stated by the current legislation and statutory acts by the NBU that rather rigidly and thoroughly regulate procedures of banking supervision, carries out daily monitoring over their reliability, liquidity and quality of management of bank risks. The Division gives special attention to timely identification of financial problems of bank activity, their reasons and nature of expansion. In case of identification of problems, the NBU has the power to impose different sanctions - from concrete sanctions such as penalties, warnings and requirements to a withdrawal of the bank license.

The withdrawal of the bank license is an extreme sanction imposed on the bank activity which results in a number of negative consequences not only for a commercial bank with the withdrawn license, but also for its corresponding banks, other partners, shareholders, the personnel, clients. For this reason, the mechanism of imposing such sanctions should be motivated, grounded, backed up by the proper information [39].

Director of Department for Banking Reorganization and Liquidation of General Department of Banking Supervision, I.Gorjachek, emphasizes, that supervising bodies should adhere strictly to the important factor of supervision technique, namely: criteria of an estimation of the bank activity with signs of problematical character and financially unstable banks should identify financial complications before to their transformation into inevitable negative consequences.

While investigating this problem, loss of responsibility and liquidity have been referred to convincing signs of problematical character of the bank activity; a clear proof of that are significant volumes of insiders' outstanding loan, violations of the regulatory standards by the bank, inobservance of reserve requirements, extreme fluctuations of demand balances on its corresponding accounts, existence of bad payment documents of its clients as well as presence of damage. To the signs of problematical character which should serve as disturbing signals can be referred the following: imbalance of terms of borrowing and allocation of funds by the bank, its activity in highly - risky markets with the low prospects of development, high

specific weight of interbank credits in the structure of the attracted funds, accumulation of substantial sums on accounts of nostro type, dividend payments to shareholders (participants) during the period of unsatisfactory financial state, wide use of advertising to attract funds at the interest rate higher than the market interest rate, giving the NBU wittingly doubtful financial reporting as well as the negative information on the bank activity from the ministries, departments, mass media, individuals and legal entities [39].

For the timely prevention of financial problems in the bank activity, and also timely decision-making on withdrawal of the bank license and liquidation of bank, in case of unsettlement of these problems, the NBU has set the goal to introduce the system of timely prevention of financial problems in bank activity which has been developed by the expert of the NBU with the assistance of economists K.Klots and M.Luchinski at the Warsaw Center of Social and Economic Researches.

This system comprises the classification of banks as to their financial state and immediate identification of such banks that are under the threat of insolvency [39].

The System consists of several stages:

1. Daily monitoring of indexes of financial state of the bank.
2. Calculation and comparison with regulatory standards of the basic (detailed) indexes.
3. Calculation of an integral index of financial state of the bank.
4. Classification of commercial banks of Ukraine as to the value of an integral index.
5. Imposing of appropriate sanctions on those banks whose financial state is lower than the value of stable regulatory standard.

The integral estimation of financial performance is calculated based on eleven detailed indexes divided into four groups. While selecting indexes, crucial importance was paid to their information pithiness, and selecting of groups – complete descriptions of financial performance of the bank

A group of detailed indexes showing the efficiency of a bank's performance consists of:

1. The index of return on assets (ROA), i.e. the ratio of return on bank's assets that determines their earning capacity. The values of this ratio should be as high as possible, as, in fact, the main goal of the bank is profit making. It gives more useful information for bank control than the ratio of return on equity which is more important for bank's owners.

2. The index of return on sales (ROS), i.e. the profit to returns ratio that determines the weight of profit to the volume of returns. Thus, as far as ROA correlates return to the volume of assets for a definite period (therefore, it has a static nature), so accordingly ROS does the profit to the volume of returns for the whole accounting period (therefore it has a dynamic character). The earning capacity of return on sales is calculated as profit to returns ratio of the bank.

3. The index of marginal propensity to save (MPS) estimates whether the bank was unprofitable during the previous accounting periods and whether it is capable (and to what extent) to cover the spending against current profits. If the bank has current spending, MPS shows, the level on which the financial performance of the bank worsens:

In case of profit, MPS is calculated to the following formula:

$$\text{MPS} = (1 - \text{income tax rate}) \times \text{Profit} / \text{spending suffered} \quad (2.1)$$

In case of spending, MPS is calculated to the following formula:

$$\text{MPS} = \text{current spending} / \text{spending suffered} \quad (2.2)$$

To the group of detailed indexes of bank liquidity belong:

4. The index of reliability (R) is the standard estimation of a level of bank reliability and equals to shareholders' equity to assets weighed at a risk rate.

5. An index of liquidity (L), is the amount of cash and securities to market to current deposits ratio that estimates whether the bank is in capacity to cover the needs in monetary funds in case of possible withdrawal of these deposits:

6. The index of capital adequacy (ZK) estimates the bank soundness in case of deterioration of its credit portfolio quality:

$$ZK = (\text{bank own funds} - (0, 5\% \text{ doubtful debts below the standard}) - \text{arrears of bad interest}) / \text{bank resources}$$

To the group of detailed quality indexes of a credit portfolio of the bank belong:

7. The index of acceptable quality level of unweighted credit portfolio (AQ) which defines specific weight of irregular arrears of bank credit portfolio neglecting their categories (below the standard, doubtful or bad debts), nevertheless it does not estimate the threat for the bank resulting from deterioration of its credit portfolio quality.

8. The index of weighed credit portfolio quality (WCR) estimates responsibility of certain categories of irregular arrears to the bank. If the value of WCR is approximate to the value of AQ, it means that specific weight of bad debts and irregular arrears of bad interest is very high, i.e. it is necessary to expect aggravation of the bank earning capacity:

$$WCR = ((0, 2\% \text{ debts below the standard}) + (0, 5\% \text{ doubtful debts}) + \text{bad debts} + \text{arrears of bad interest}) / \text{debts.}$$

To the group of detailed indexes of dynamics and structure belong:

9. The index of dynamics of deposits (DI) estimates a level of depositors' confidence in the bank and equals gains on deposits to a total sum of deposits ratio.

10. An index of dynamics of irregular arrears shows a state of deterioration of bank credit portfolio (but certain categories of irregular arrears do not differ) and equals gains of irregular arrears to the total amount of irregular arrears.

11. Participation of other items in the assets structure (S) determines an optimality of a structure of balances of the bank. Other items mean other banking operations which big specific weight means less participation of working assets that causes the decrease of the bank earning capacity.

Every mentioned above detailed index has two values to be investigated: its absolute value and variability of absolute value.

According to the design procedure of the National Bank of Ukraine (the detailed information about it is given in the section 2.3) the maximum value of an integrated index of the financial state is 50; the larger is the value, the better is the financial state of a bank.

The integrated index has sufficiently abstract character because it does not exist as the value calculated on the basis of bank accounts.

Therefore the design procedure suggests two interpretations of the integrated index's value simultaneously:

- Ordinate value, which defines a place of the bank in score rating, depending on its financial state.
- Coordinate value, which doesn't only estimate a place of the bank in score rating, but is a well-defined interpretation of its financial state, made by means of an integrated index.

If the value is in the range of the score of 0-10 the financial state of the bank can be characterized as crisis or critical; if the value of an integral estimation is in the range of the score of 10-20 the financial state of the bank can be characterized as unstable; the score of 20-30 - with signs of problematical character; score of 30-40 - with presence of temporary complications; with the score of 40-50 - the financial state of the bank is stable.

The maximum attention of the bank supervision services should be concentrated on a group of banks which integrated estimation is found in a 0-20 interval, and especially on those banks of this group, which integrated index of financial state is the lowest [39].

It is important to distinguish the following advantages of the timely prevention system of bank financial state problems. They are:

- Detailed indexes, containing full information about the financial state of the bank, which do not duplicate operating standards of the National Bank of Ukraine (NBU);
- Index structure, which includes full descriptions of the financial state of the bank: profitability indexes, liquidity indexes, business activity in crediting and

funds/assets formation indexes, indexes of dynamics and structure of assets and liabilities of a bank;

- Calculation of an integrated index, which considers the dynamic structure of the financial state of the bank;
- Technique, which enables not only to make up the rating of the bank financial state, but also to define the financial state of the concrete bank.

It is necessary to emphasize, that the above mentioned system is the first system which applies to necessity of the centralized regulation of bank financial state. It includes a procedure which considers the financial state of the bank as a complex, instead of component wise. It is also a powerful, additional element of the banking system of Ukraine.

3.2 General Model of Bank Financial Control Building as a Conceptual Basis of Bank Financial Stability

The strengthening of bank financial stability may be achieved by different means. The study and analysis of modern scientific research works, concerning the economic regulations and activity of economic subjects, make the process of appropriate control the most effective at the modern stage of economic development of the world in general and economic development of Ukraine in particular. It means that it is necessary, first of all, to create and strengthen the appropriate system of bank financial stability control with the integrated, dynamic, qualitative and quantitative characteristics, depending on the financial state of a bank and many other factors (fig. 1.1).

Management of the economic objects, which are different from each other in their goals and level of hierarchy, is based on the general principles. They include information about the final goal of control, initial conditions of objects' operation, their internal structure and environment.

The goal-setting of control (building and existence of financial stability control system) is the starting point of managerial modeling process and determinative criteria of the objects' operation.

Let us specify that the goal of bank financial state control is the receptions and

funds on the one hand and strengthening of bank financial stability on the other.

In order to create a model of financial state control, firstly, it is important to choose the main concept and economic categories, to define both, the basic type of control and the conceptual pattern of a model.

So, the financial stability is understood as the ability of the bank to operate under the influence of changeable external and internal factors; to maintain stable financial state of the bank, its correct major financial and economic proportions, which provide constant development of the bank i.e. to keep balance between the liquidity ratio, solvency/responsibility, capital adequacy, business activity on the one hand and profitability and their standard value on the other hand.

A bank which matches the financial stability conditions is considered to be a financially stable bank. And on the contrary, a bank which does not match the financial stability conditions is a financially weak bank.

If the financial state of the bank is considered from the view point of its quantitative and qualitative estimation, it is evident that its absolute financial stability is impossible.

Managerial process is a set of the successive actions of the administrative subsystem control directed to the controlled subsystem in order to achieve the purposes of a commercial bank.

In the frame of this model, bank financial control is the controlling subsystem, while the financial state of the bank is the controlled subsystem.

The characteristic and brief analysis of these types of management is described in the first part of the diploma paper. They allow defining the best type of bank management in the true dynamic, unstable environment using the technique of the parametrical adaptive and timely preventive control of the bank activity results [11, 32, and 56].

In general, the model of the parametrical adaptive and timely preventive control of the bank activity results is described by Kizima M.O., Zabrodskyi V.A., Zinchenko V.A. in the monograph entitled ‘The estimation and diagnostics of the enterprise financial stability’ [56]:

$$U_{PA}(C) = (U_{III}(U_{IIP}(C))), \quad (3.3)$$

Where $U_{PA}(C)$ is parametrical adaptive and timely preventive control of the bank activity results;

$U_{PA}(C)$ is parametrical preventive control;

$U_{PA}(C)$ is parametrical adaptive control of the bank activity results;

Parametrical adaptive and timely preventive control of the bank performance results is calculated according to the following equation:

$$U_{PP}(C) = \langle C_P(U), E \rangle, \quad (3.4)$$

Where $C_P(U) = \{C_{Pli}\}$ is an i -x set of indexes estimating the financial state of the bank which regulates and removes the process of destabilization of the environmental factors;

$E = \{E_j\}$ is a set of j -x destabilizing environmental factors.

Parametrical adaptive control of bank activity results looks like that:

$$U_{PP}(C) = \langle C_P(U), R \rangle, \quad (3.5)$$

Where $C_P(U) = \{C_{n_i}\}$ is a set of n -x indexes estimating the real financial state of the bank by means of which the results of control are realized. $R = \{RM\}$ is a set of m -x indexes estimating the real financial state of the bank, which differs from the standard value [56, c. 23].

The essence of parametrical adaptive and timely preventive control of bank financial state makes up a controlled subsystem, i.e. bank management reveals the destabilizing factors by monitoring and estimating the “weak signals” and tries to compensate or entirely remove them by means of timely control. The next managerial stage is realization and reevaluation of the fundamental analysis of the control, in order to reveal whether the destabilizing factors may be removed or compensated. If it is not done, it is necessary to define how strong they are and to specify their cause and effect. After that the planned or scheduled indexes are necessary to correct.

It is necessary to emphasize, that bank financial state control cannot be separated from other directions of the financial control of the bank, such as:

- Asset-liability control;

- Liquidity control;
- Funds/capital control;
- Efficiency of banking operations' control;
- Risk control;
- Income control;
- Cost formation control;
- Profitability control;

There are some reasons which don't allow separating them. They are:

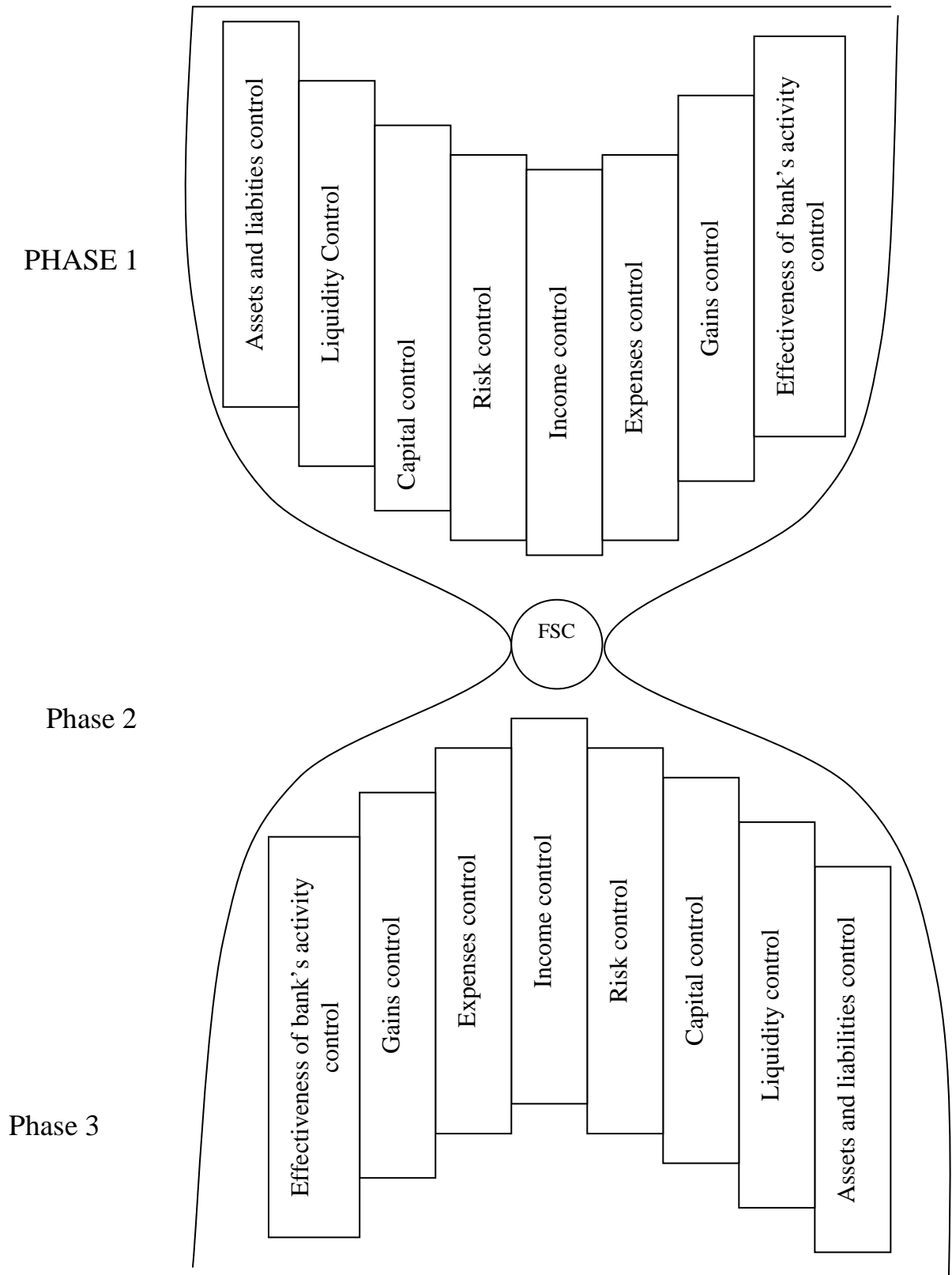
- Complex character of the financial state of the bank, such as: liquidity, sufficiency of funds/capital, business activity and profitability, which are the compounds of financial control;
- Impossibility of general financial and financial state control duplication;
- Necessity of complex control of the financial system and its components to meet internal and external quantitative and qualitative requirements.

Thus, the model of financial stability control should be integrated into the system of financial control of the bank, and become one of its basic elements.

Taking into consideration all said above, the system's model of financial control can be presented as a scheme (fig. 3.1).

The scheme of the system's model reflects firstly, integration of financial state control into the system of entire financial control of the bank, secondly, correlation of financial state control with other elements of financial control system.

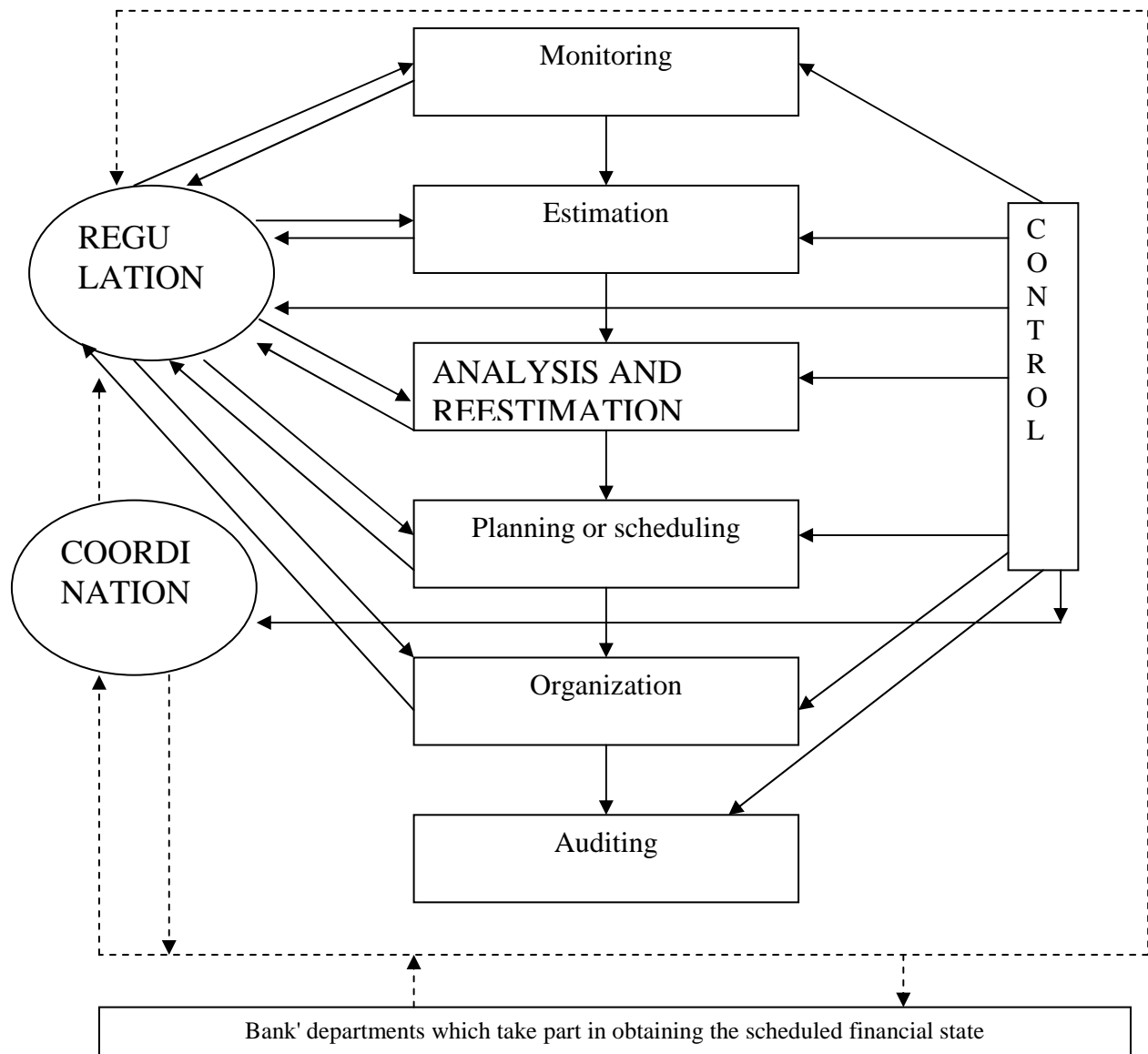
The model of financial state and financial stability control system of the commercial bank is depicted on figure 3.



The model includes three phases of management. Phase 1 is characterized by realization of control carried out by other objects, except for financial state control. It also shows their dependence on the other elements of financial control system.

Phase 2 shows the functional approach to the control process over financial state and financial stability of the bank, which consists of nine basic stages. (Fig. 3.2).

Fig. 3.2 The scheme of the financial state control cycle



The main stages of financial state control of the bank are:

- 1) Evaluation of the financial state and stability of the commercial bank;
- 2) Detailed analysis of bank financial state (if the evaluation does not meet the requirements of a bank) and reevaluation of the effectiveness of the bank managerial activity;

- 3) Planning of indexes necessary to characterize the financial state and stability of the bank;
- 4) Plan (scheduled) realization;
- 5) Plan (scheduled) fulfillment control;
- 6) Coordination of work of every department which is involved in the fulfillment of planned (scheduled) financial state of the bank;
- 7) The results accounting;
- 8) The overall control cycle;

Phase 3 is the final stage of each control cycle which is much repeated times and is a feedback between financial state control and other elements of financial control. It is carried out when administrative decisions are accepted by the authority of the bank.

Periodicity of a control cycle may freely fluctuate: from one day to one week, month, quarter, etc. It depends on the character of the data ware of management accounts in each separate bank and on the process of generalization of information, necessary for the control realization. But the efficiency peak of the control process can be reached at the minimum period of time.

3.3. Model of Estimation of the Financial State and Stability of a Bank.

“Financial Clock”

The study of the special economic literature, devoted to the methodology and technique of the efficient estimation of financial state control of commercial enterprises (including banks) under the undetermined and variable environmental conditions allow formulating the following problems of estimation of the financial state of the commercial bank:

- To make quantitative and qualitative analyses of the financial state of the bank, both in a certain period of time, and in a period when the dynamic component was accounted;
- To carry out an integrated estimation of financial state and stability of the bank;
- To establish causal relations of financial state control of the bank;
- To estimate the time of possible existence of the commercial bank.

The first of the above mentioned problems was solved by means of the detailed analysis of ratio reflecting financial state of the inquiry subject (subitem 2.2) that has been carried out for a period of time from 01.01.1998 till 01.01.2004. The evaluation of bank activity indexes was carried out for the concrete period of time (the first of January of a corresponding year). The growing index rates and their general dynamic changes during seven years helped evaluate the financial state of the bank for a certain period of time.

The estimation of bank financial state by means of detailed analysis of the financial state ratio is volumetric enough and is absolutely concretized. Many researchers consider that the method of ratio analysis should take a special place in the system of analysis, although it is both the most effective and problematic enough. Economic efficiency of ratio is defined by its ability precisely to reveal the weakest and the strongest points of bank activity, to determine the problems which require further research, to outline the directions of the dynamic changes of indexes and factors they are influenced on. The main disadvantage of this method is the impossibility to give general and unequivocal estimation of bank financial state and to compare the results of several banks.

The unequivocal estimation of bank financial state can be carried out by means of the integrated index which will allow to define a direction of change and development of financial activities of the bank, and also to estimate qualitatively financial state and stability of the bank.

Among many methods of integrated indexes' construction it is possible to mark out the following: 1) expert; 2) total count method; 3) product; 4) arithmetical mean; 5) geometrical mean 6) a method of distances; 7) standard dynamics method; 8) factor analysis, etc.

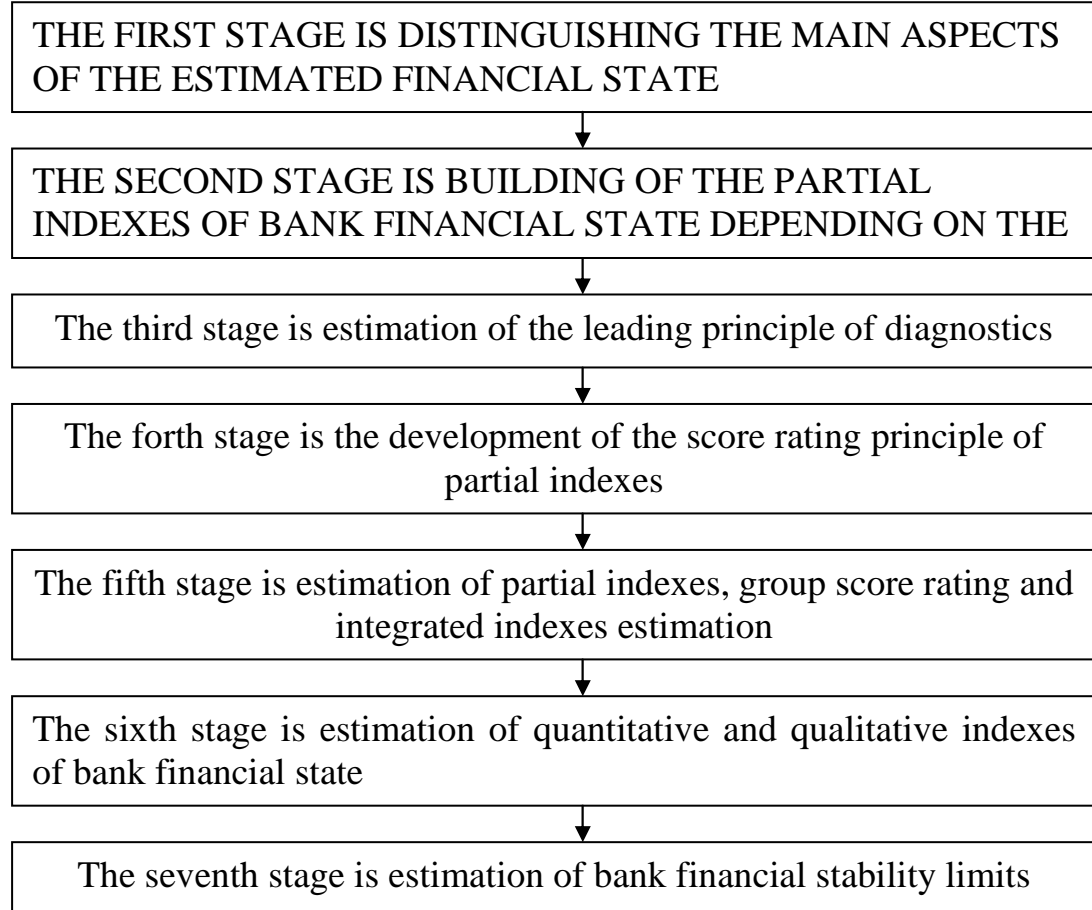
Today there is no uniform well-defined idea concerning the priority of the integrated index building in the scientific and special economic literature. Each of the mentioned above methods has advantages and disadvantages. The total count method of point analysis of partial indexes is used in this diploma paper. The choice of this method is specified by the following factors:

- Partial indexes, which are used to construct the integrated index, are not joined in action i.e. it is impossible to say whether the increase or decrease of any index expresses the improvement of bank financial state. In fact, the positive tendency of one index is its increase, and of another is its decrease;
- The qualitative component of the financial state evaluation and change, and determination of financial stability require the exact definition of the best possible and the worst possible financial state, i.e. it is necessary to know precisely the minimum and maximum values of integrated estimation.

The following principles of integrated index building of bank financial state have been accepted:

- The system of partial indexes which is integrated into the uniform index was used. It displays the basic parameters of bank financial state;
- The comparison of actual values of partial indexes with the standard ones was used on the basis of integrated estimation;
- The integrated index which sums up the concrete partial indexes is built on the following chain basis: the relative value of partial index – the score value of partial index – the total score of each group of partial indexes – and the integrated index.
- The integrated index building was carried out stage by stage (fig. 3.3).

Fig 3.3 depicts the logic block scheme of integrated evaluation building of bank financial state.



The allocation of stages is the result of generalizing the examples of the integrated index's building technique and the system of rating estimation of bank financial state and the threat of bankruptcy of an enterprise or a bank.

The main parts of bank financial state which should be estimated are defined at the first stage. There are four directions of estimation of bank financial state, carried out in this diploma paper, which proceed from the results of the research techniques and approaches to the estimation of bank financial state, analyzing of the research subject (subitem 2.2) and the defining of the financial stability of the bank. They are:

- Sufficiency of capital;
- Business activity;
- Liquidity;
- Profitability.

At the second stage, the groups of partial indexes evaluating the financial state of the bank were selected. The list of indexes analyzing the financial state of the bank, offered by different scientists and researchers, were investigated in the subitem 2.2 of the diploma paper. After that 48 partial indexes have been selected (tab. Ж1 to the appendix Ж). But not all of the selected indexes suit the integrated estimation because some of them have no regulated standard values offered by the National

Bank of Ukraine or international rating agencies. Therefore 28 indexes were selected for realization of the integrated evaluation; each group had 7 indexes, including those presented by the National Bank of Ukraine (subitem 2.3). The rates of growth of each partial index were also included in the list (tab. H.1 to the appendix).

The third stage is characterized by the definition of the main diagnostic principle. Here are the following possible variants of methodological approaches:

- Establishing of standard value indexes;
- Establishing of the permissible changing of indexes
- Defining of the permissible tendency of indexes' changing;
- The combined approach.

In this paper the combined approach which considers the specific features of separate indexes is applied. In fact it consists of such indexes that have no unequivocal criteria.

The fourth stage represents the development of the principles of point analysis of each partial index. There are various approaches to the point analysis determination:

- Establishing of conformity between the amount of points and the class of financial state of the enterprise;
- Depending on the subjective evaluation (for example, excellent, satisfactory, unsatisfactory);
- Point analysis of each partial index depends on the range of its actual value deviation.

Within the frames of this work the author considers the approach offered by Y.V. Kuznetsova to be the most valid one [55]. According to this approach, point analysis is based on the following principles:

1. The availability of the optimum index value. If the index value of the enterprise achieves the optimal value or has different value (larger or less in each special case), characterizing the positive tendency, it is evaluated by the maximum number of scores (in this case 5 scores). If the actual value of the partial index does not fit with optimum value a number of points decreases according to the

certain scale. For example, the optimum value of independence ratio makes 10 %, and actual value makes 7, 6 %. Then the actual index value is stated of 3, 8 scores ($7, 6/10 * 5 = 3, 8$).

2. Under the criteria delimitation the value index is estimated. If the actual index value is below the lowest criteria, the limit of the index value is estimated as zero. If it exceeds the top limit, the index value is estimated as a maximum score. If it is in the middle (between the bottom and top limit), the index value depends on the top limit. For example, the actual value of activity ratio of attracted and borrowed funds makes 0,821, and the criteria value limit is 0,7-0,9, then the achieved index level is stated of 3 scores ($((0,821-0,7) / (0,9-0,7)) * 5 = 3,025$).

The fifth stage is the direct calculation of partial indexes, the score analysis of groups and definition of the integrated estimation.

Estimation of all the necessary partial indexes is made in the second part of the diploma paper. Score analysis of the partial indexes' groups is put in table 3.1, tab. 3.2, tab. 3.3, and tab. 3.4.

Table 3.1

Score analysis of the capital sufficiency of the partial indexes

INDEX SYMBOL	01.01. 1998	01.01. 1999	01.01. 2000	01.01. 2001	01.01. 2002	01.01. 2003	01.01. 2004
1	2	3	4	5	6	7	8
H 1	5	5	5	5	5	5	5
H 2	5	5	5	5	5	5	5
H3	5	5	5	5	5	5	5
K H	5	5	5	4	3	2	1
KY	5	5	5	5	5	5	5
K3B	1	1	1	3	5	5	5
MK	5	5	5	5	5	5	5

ВСЕГО	31	31	31	33	33	32	31
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Score analysis of liquidity partial indexes

INDEX SYMBOL	01.01. 1998	01.01. 1999	01.01. 2000	01.01. 2001	01.01. 2002	01.01. 2003	01.01. 2004
1	2	3	4	5	6	7	8
H 4	5	5	5	5	5	5	5
H 5	5	5	5	5	5	5	5
H 6	5	5	5	5	5	5	5
КШЛ	5	5	5	4	1	4	4
КРЛЗ	5	5	5	5	5	5	5
КГЛЗ	5	5	5	3	3	4	4
КЗЛЗ	5	5	5	5	5	5	5
ВСЕГО	35	35	35	32	29	33	33

It is necessary to note, that indexes H4, H5, H6 are the standard guidelines of liquidity which were introduced by the National Bank of Ukraine only in September, 2001. The guidelines of liquidity, which had been accepted before, were obligatory performed by all banks; therefore point analysis was carried out on the basis of the previous guidelines of liquidity and their standard values.

Table 3.3

Score analysis of partial indexes of business activity

INDEX SYMBOL	01.01. 1998	01.01. 1999	01.01. 2000	01.01. 2001	01.01. 2002	01.01. 2003	01.01. 2004
1	2	3	4	5	6	7	8
КДА1	0	0	0	3	4	5	5

Продолжение табл. 3.3

1	2	3	4	5	6	4	8
КДА2	5	5	5	5	5	5	5
AQ	5	5	5	5	5	5	5
WCR	0	0	0	0	5	5	4
DI	3	0	0	5	3	0	4
D2	4	3	0	3	2	4	3
S	5	5	4	5	5	5	5
ВСЕГО	22	18	14	26	29	29	31

Score analysis of partial bank performance indexes

INDEX SYMBOLS	01.01. 1998	01.01. 1999	01.01. 2000	01.01. 2001	01.01. 2002	01.01. 2003	01.01. 2004
1	2	3	4	5	6	7	8
ROE	5	5	5	0	1	0	3
ROA	5	5	5	0	2	1	2
ROS	5	5	4	0	4	1	5
MPS	5	4	3	5	5	0	4
РДВ	5	5	4	0	3	3	5
РДД	4	5	3	0	3	3	5
ЧПМ	0	0	3	5	5	4	5
ВСЕГО	29	29	27	10	23	12	29

Score analysis of partial indexes' growth rates is available in the appendix II. Let us notice, that the scores were allocated as follows: if the growth rate testifies to positive change of the index, it was allocated 2 scores; the negative change was allocated 0 and if growth rate was up to 0 (i.e. there were no changes of a partial index) the evaluation makes 1 score.

The results of the general integrated evaluation of the financial state of JS CIB 'UkrSibbank' are resulted in tab. 3.5.

Table 3.5

The integrated evaluation of financial state of JS CIB 'UkrSibbank'

Index	01.01. 1998	01.01. 1999	01.01. 2000	01.01. 2001	01.01. 2002	01.01. 2003	01.01. 2004
Sum total partial score estimation	117	113	107	101	114	106	124
Sum total estimation of the partial score rating	-	27	28	20	28	24	33
General integrated score rating	-	140	135	121	142	130	157

The following VI stage of an integrated index building is the definition of quantitative and qualitative characteristics of the financial state classes of the bank.

It is necessary to emphasize, that according to the above mentioned technique, the maximum integrated estimation of the financial state of the bank makes 196 scores. If the integrated estimation is divided into five intervals, it is possible to allocate five classes of the financial state of the bank according to the National Bank of Ukraine technique: crisis, problematic, satisfactory (with some attributes of problematic character), good and excellent. Characteristics of each class are resulted in tab. 3.6.

Table 3.6

Characteristics of the bank financial state classes

The name of the financial state class	The Interval estimations (scores)	The financial state characteristics
1	2	3
Crisis	0-39,2	- More than 80 % of partial indexes of the bank financial state do not fit with the normative value;

		<ul style="list-style-type: none"> - Unsatisfactory structure of assets and liabilities;
		<ul style="list-style-type: none"> - Absence of profit (availability of losses);
		<ul style="list-style-type: none"> - Low activity or diminishing of activity; - Critical undercapitalization
Problem	39,2-78,4	<p>From 60 to 80 % of partial indexes of the financial state do not fit with the normative value;</p> <ul style="list-style-type: none"> - Problem structure of assets and liabilities; - Profit close to zero or absent; - Low activity; - Critical undercapitalization
With some attributes of problematic character	78,4 – 117,6	<ul style="list-style-type: none"> - From 40 to 60 % of partial indexes of the financial state do not fit with the normative value; - Satisfactory structure of assets and liabilities; - Presence of normal profits; - Average activity; - Sufficient capitalization
Good	117,6 – 156,8	<ul style="list-style-type: none"> - From 20 to 40 % of partial indexes of the financial state do not fit with the normative value; - Liquidity balance close to optimum structure of assets and liabilities; - Presence of normal or high profit; - High activity; - Sufficient capitalization; <hr/> <p>The majority of growth rates of partial indexes testify to positive changes of the financial state;</p>

Excellent	156,8 – 196	<ul style="list-style-type: none"> - From 0 to 20 % of partial indexes of the financial state do not fit with the normative value; - Optimum structure of assets and liabilities; - Availability of normal or high profits; - High activity; - Excellent capitalization; <p>Growth rates of partial indexes testify to positive changes of the financial state</p>

The VII stage of the integrated estimation of the bank financial state is the delimitation of the financial stability of the bank, i.e. the determination of such value of the integrated estimation that can prove the financial stability of the bank. According to the special technique and the proposed classes of the financial state of the bank such value is considered 156, 8 scores. It means that if the financial state of the bank is excellent, i.e. if its integrated estimation doesn't exceed 156, 8 scores, the bank is considered financially stable.

Although the integrated evaluation considers the dynamic compound, in fact it also contains the estimation of the growth rates' indexes, but does not display the estimation of the financial state of the bank for a certain period.

To solve the problem of estimation of the financial state of the bank for a certain period it is necessary to introduce the concept of the changing rate of the financial state of the commercial bank into the system of economic categories.

The changing rate of the financial state is expressed by a ratio between the integrated evaluations of the financial state of the bank in two different periods of time. They are a certain time period and the whole time period (the formula 3.6).

$$v = \frac{IO_{t2}^{\phi c} - IO_{t1}^{\phi c}}{T}, \quad (3.6)$$

Where v is the changing rate of the financial stability of the commercial bank (a score per time unit);

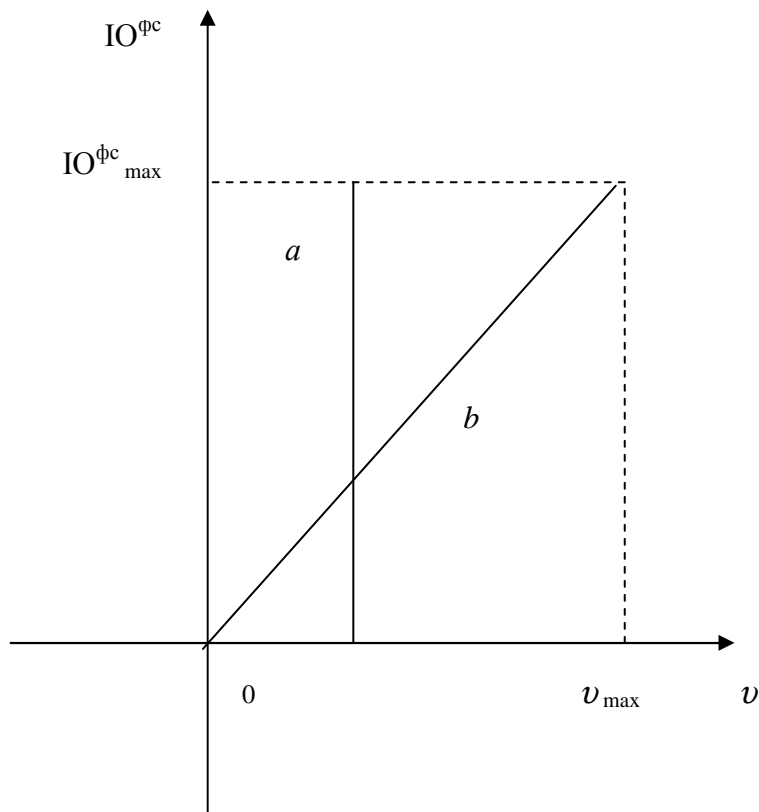
$IO_{t1}^{\phi c}$, $IO_{t2}^{\phi c}$ is the integrated estimation of the financial state at a point of time $t1$ and at a point of time $t2$ (points);

T - duration of the time period $t1$ $t2$ (time unit).

Graphically the ideal trajectory of the financial state changing can be presented in two-dimensional system of coordinates, where abscissa expresses quick growth rate of the financial state, and ordinate axis expresses an integrated estimation of the financial state of the bank (fig. 3.4).

In practice any bank has no ideal trajectory of the financial state changing (fig. 3.5, fig. 3.6), but should strive for it.

The results of the estimation of the changing rate of the financial state of JS CIB 'UkrSibbank' are displayed in tab. 3.7.



Straight line *a* is an ideal trajectory of the financial stability changing, under the condition of the chain points of time

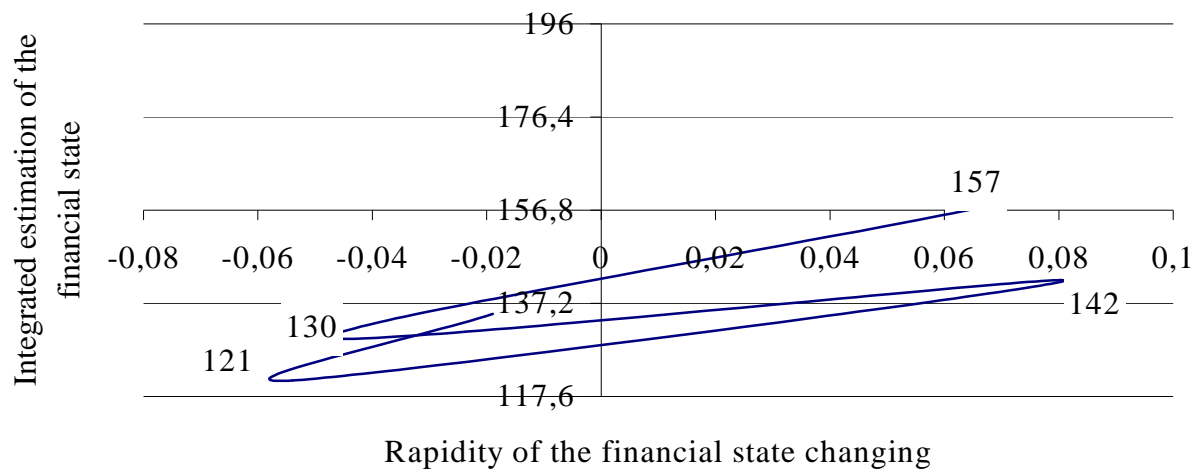
Straight line *b* is an ideal trajectory of the financial stability changing, under the condition of $t_1 = \text{const}$.

Fig 3.4 depicts the graphic interpretation of an ideal trajectory of the financial state changing.

According to the data shown in tab. 3.7, it is possible to draw a conclusion about the unstable financial state of JS CIB ‘UkrSibbank’, in fact the changing rate of the financial state, which is done under the chain method of estimation, has been decreasing for a long period of time, since 1999 till 2003. Only at the beginning of 2004 the index had shown the increase. But it is necessary to note, that for the last six years the financial state of a bank has not dropped lower than the class “good”, and for the last two years the financial state control of JS CIB ‘UkrSibbank’ has proved the financial stability of the bank.

Table 3.7

The integrated evaluation and changing rate of the financial state of JS CIB ‘UkrSibbank’



Point of time (date)	the integrated evaluation of the financial state IO_t^{fc} (SCORES)	T1 \neq CONST		T1 = CONST	
		duration of the period T1T2 (DAYS)	changing rate of the financial stability ν (SCORES/DAYS)	duration of the period T1T2 (YEAR)	changing rate of the financial stability ν (SCORES/YEAR)
01.01.1999	140	261	-	1	-
01.01.2000	135	260	-0,019	2	-2,5
01.01.2001	121	259	-0,054	3	-6,3
01.01.2002	142	260	0,081	4	0,5
01.01.2003	130	258	-0,047	5	-2
01.01.2004	157	261	0,065	6	2,8

Graphically the trajectory of the financial state changing of a commercial bank is presented in fig. 3.5 and fig. 3.6.

Fig. 3.5. A trajectory of changing of the financial state of JS CIB 'UkrSibbank'

t1 \neq const

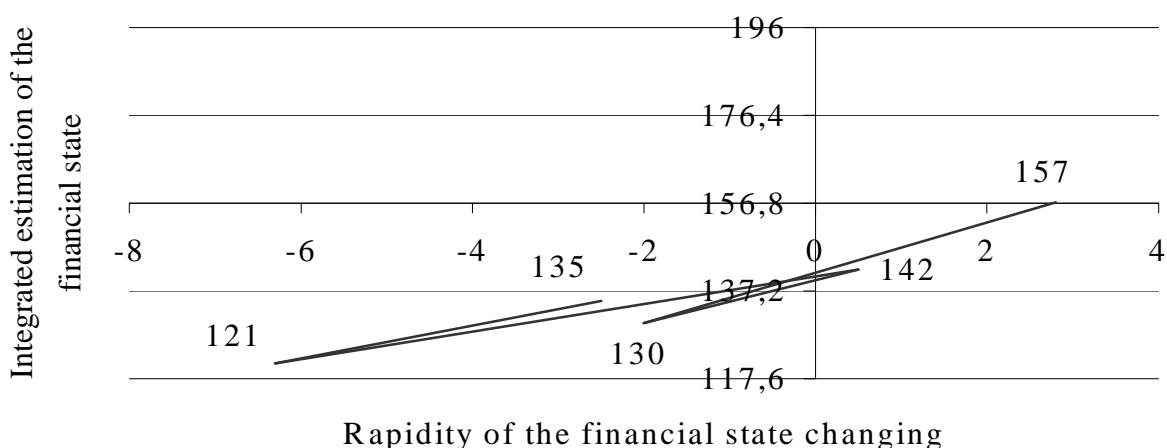


Fig. 3.6 depicts the trajectory of changing of the financial state of JS CIB 'UkrSibbank', $t_1 = \text{const}$

As it may seem from fig. 3.5 and fig. 3.6 JS CIB 'UkrSibbank' has a good financial state, but it was not able to show the financial stability within the period of 1999 – 2003. Only from 01.01.2003 till 01.01.2004 the changing rate, integrated evaluation of the financial state and financial stability had increased.

In order to solve the problem of the evaluation of a possible duration period of the commercial bank's existence, it is necessary to solve the equation where the rapidity of the changing rate of the bank financial state and the rate of its final integrated evaluations are known, and a period when the bank reaches a zero level of the financial state under the low level of changing is unknown (the formula 3.7).

$$T = \frac{0 - IO_t^{\phi c}}{v} \quad (3.7)$$

It is necessary to note that the calculation of the possible existence period of the bank should be logically carried out only when the financial state of the bank has worsened. But if the financial state of a bank becomes better, it is necessary to calculate the period when it achieves the required level of the financial stability. If such level has already achieved, it is necessary to calculate the period of absolute financial stability of the bank. It is practically impossible, but it should be aspired.

In our example, it is interesting to know, when JS CIB ‘UkrSibbank’ achieves an absolute financial stability (if $T = (196 - 157) / 2,8 = 13,9$ years). It means that if the financial state of the bank has been quickly improved at 2,8 scores a year, it may have achieved an absolute financial stability in 13,9 years.

Thus, summing up, it is possible to say, that the second stage of the bank financial state control (an estimation of the financial state) consists of three basic problematic stages:

1. The integrated evaluation of the static financial state of the bank is made by means of the integrated index, which characterizes the financial state of the bank and defines whether the bank has proved its financial stability.
2. The integrated evaluation of the dynamic financial state of the bank is made by means of defining the rate of its financial state changes and constructing of the trajectory of these changes.
3. The determination of duration of one of three alternative periods:
 - a) The period, at which the bank can become completely bankrupt if administrative decisions, necessary to improve the financial state of the bank, have not been made;
 - b) The period, at which the bank can achieve the level of the financial stability;
 - c) The period, at which the bank will achieve the highest level of the financial stability - absolute financial stability.

CONCLUSION

The problem of maintenance of the commercial bank financial stability takes on special significance for the development of the banking system of Ukraine. However, there is no unified integrated approach to the definition of the financial stability in the Ukrainian economic literature. That is why the main task of the diploma paper is analyzing of the existing definitions of the financial stability and choosing and suggesting of the scientifically proved definition of an investigated category.

Both the domestic and foreign scientists and researchers were engaged in solving the financial stability problem. Among them there are such scientists as A. M.

Geracimovich, L.O.Primostkaya, V.I.Grushko, L.J.Petrichenko, V.A.Zabrodskiy, M.O.Kizima, R.I.Schiller, P.Rose, V.S.Kromonov, L.T.Giljarovskaja and others.

On the basis of the analysis of the financial stability determination made by different authors and the received conclusions, the following definition of the financial stability has been presented. The financial stability of the bank, as an economic category, is the ability of the bank to support the stable financial state activity when its major financial and economic proportions provide its constant development. Liquidity, solvency, and sufficiency of capital, business activity and profitability of the bank are considered to be the major financial and economic proportions.

On the basis of all these factors, the author considers the following statements to be fair:

1. The financial state of the commercial bank is the wider concept than the financial stability;
 2. The financial stability of the commercial bank depends on its financial state.
 3. The financial stability of the commercial bank is characterized by the integrated, dynamic, and quantitative and qualitative development of the bank.
 4. The commercial bank can be either financially stable or financial unstable.
- The evaluation of the financial stability as an economic event was done by certain methods and techniques, or their interrelated complex which expressed information about the object of evaluation in corpora.

The evaluation presents a certain element of the control system from the system-logic view point. According to the functional approach to the control cycle used in this diploma paper, the evaluation of the financial stability is one of the functions of the financial stability cycle.

At present the characteristics and brief analysis of the types of control, carried out in the first section of this diploma paper, allow defining precisely, that the best type of a bank control in the dynamic and unstable environment is (parametrical) adaptive control of the results with early preventive elements.

It is necessary to emphasize, that the financial state control of the bank cannot

be separated from other elements of the bank financial control. The reasons for that are:

- Complex character of the financial state of the bank. Liquidity, sufficiency of the capital, business activity, profitability are the components of the financial state;
- Inexpediency of duplication of the control elements of general financial control and the financial state control;
- Necessity of the complex control of all components of the system and the system itself, which is to meet internal and external qualitative and quantitative requirements.

Thus, the model of the financial stability control should be integrated into the system of the financial control of the bank, and one of its basic elements.

The general model of bank financial state control includes three main phases of management. The first phase is the initial one and is characterized by the realization of other objects' control (apart from the financial state) and the dependence of the financial state control of other elements of the financial system control.

Phase 2 reflects the financial state and financial stability control of the bank which consists of nine basic stages allocated on the assumption of the functional approach to the control process.

Phase 3 is the last in each control cycle which is repeated a lot of times and is characterized by a feedback between the financial state control and other elements of financial control which is conducted after making the administrative decisions of the bank.

To create the effective model of the financial state and financial stability evaluation of the bank, the following tasks have been formulated:

- Quantitatively and qualitatively estimate the financial state of the bank, both for a certain period of time, and for the whole period, i.e. taking into account the dynamic component;
- To appraise an integrated evaluation of the financial state of the bank and to determine its financial stability;

- To appreciate the period of possible existence of the commercial bank.

The first of the problems was solved by means of detailed ratio analysis of the financial state of the bank (subitem 2.2) that has been carried out for the period from 01.01.1998 till 01.01.2004. The evaluation of the bank activity indexes was appraised for a certain period of time (the first of January of corresponding year). To evaluate the financial state for a certain period of time was possible by means of the growth rates' indexes and their general dynamic changes which took place during seven years.

A well- defined evaluation of the financial state of the bank is carried out by means of the integrated index building.

To evaluate the financial state of a bank for the whole period, it was necessary to introduce the concept of the rapidity of change of the financial state of the commercial bank into the system of economic categories.

The rapidity of change of the financial state is expressed by a ratio of inequality of integrated evaluation of the financial state in two different periods of time to duration of time interval between them.

Practically any bank has no ideal trajectory of the financial state changing, but it should be aspired.

Summing up, it is necessary to note, that the offered model of the bank financial state and financial stability estimation has a number of advantages:

- Complex character, because it is possible to use any index (on the approval of a bank authority) leaving out the applied units of measurement;
- Opportunity to evaluate the financial state of the bank, both for a certain period of time, and for the whole period, taking into account the dynamic component;
- Simplicity of evaluation and interpretation of its results;
- Ease of integration into the general control system of the financial state;
- Opportunity to determine the goals of the bank activity which is impossible to describe by any separate index;
- Opportunity to evaluate a degree of realization of goals setting before the financial state control.