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SCORING STRUCTURIZATION MODEL OF COMMERCIAL BANKS BORROWERS' CREDITABILITY ASSESSMENT UNDER THE GLOBAL FINANCIAL CRISIS

Abstract. This article reveals the essence of bank lending structuring. The borrower's creditworthiness was assessed on the example of JSC "STATE SAVINGS BANK OF UKRAINE" (JSC OSCHADBANK). The study scientifically substantiated the scoring model of information and analytical provision for commercial bank borrower creditworthiness assessment in the global financial crisis. It was proved that the results of commercial bank lending directly depend on the quality of the bank lending process structuring as well as of the legibility of the tasks for principal stages of the process and the responsibilities of employees in charge of credit operations conducting. Customers credit worthiness determination was analyzed as one of the stages of the lending process and the principal condition of lending relations since its reliability significantly affects both the results of specific loan agreements and the efficiency of lending activities in general. The accuracy of the assessment is also important for the borrower since it depends on the decision to grant a loan and its volume limit. The studies on the recommended method of the borrowers' creditworthiness assessment have shown their effectiveness in its implementation in the scoring model of borrowers' creditworthiness assessment. It has been scientifically substantiated that the scoring model makes it possible to assess the borrower's creditworthiness, assessing the lender's credit risks based on the calculation of quantitative indicators (economic creditworthiness) and qualitative characteristics (personal creditworthiness) of the borrower. Consequently, the application of this scoring model involves conferring the borrower points based on the analysis of special forms and questionnaires completed by the lender.

Key words: assessment, creditworthiness, borrower, lender, collateral, property, mortgage, lending, model, credit, risk, commercial bank, project.

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Скорингова модель структуризації забезпечення оцінки кредитспроможності позичальника комерційних банків в умовах глобальної фінансової кризи

Анотація. Метою даної роботи є наукове обґрунтування теоретичних, методологічних та практичних аспектів формування та управління кредитного портфеля банку на прикладі

комерційного банку АТ «Державний ощадний банк України». Для досягнення поставленої мети потрібно вирішити наступні завдання, а саме: теоретично обґрунтувати економічну сутність та розкрити структуру кредитного портфеля комерційного банку; розкрити принципи та особливості формування кредитного портфеля комерційного банку; визначити методи оцінки якості кредитного портфеля комерційного банку; проаналізувати фінансово-економічну діяльність в АТ «Державний ощадний банк України»; провести аналіз кредитного портфелю комерційного банку; оцінити показники фінансового стану та визначити проблеми і напрями підвищення ефективності кредитного портфелю вітчизняних комерційних банків; запропонувати шляхи вдосконалення управління кредитного портфеля; розглянути банківський моніторинг заставного майна, як спосіб підвищення рівня забезпеченості кредитного портфеля.

Для досягнення визначеної мети застосовувався комплекс загальнонаукових методів. У процесі дослідження застосовувалися такі методи дослідження: спостереження (систематичне вивчення банку, отримання первинної інформації у вигляді показників фінансової звітності за аналізований період), порівняння (зіставлення аналізованих параметрів, коефіцієнтів, статей балансу між собою або з базовим показником, нормативним значенням), абстрагування (відхід у визначеннях категорій від несуттєвих властивостей та виділення декількох суттєвих характеристик), метод групувань (при розгляді класифікації кредитів); різноманітні прийоми статистичних методів, зокрема порівняння – при зіставленні фактичних даних за відповідні періоди; спостереження були використанні для вивчення і оцінки фінансового стану Креді Агріколь Банку, методи аналізу та синтезу, індукції та дедукції.

Результати кредитної діяльності комерційного банку безпосередньо залежить від того, наскільки якісно здійснена структуризація процесу банківського кредитування, наскільки чітко визначені завдання основних етапів цього процесу та функції працівників, що відповідають за проведення кредитних операцій. Одним з етапів кредитного процесу та визначальною умовою кредитних відносин, без сумніву, є визначення кредитоспроможності клієнтів, її достовірність істотно впливає як на результати конкретних кредитних угод, так і на ефективність кредитної діяльності банку загалом. Точність оцінки важлива й для позичальника, адже від неї залежить рішення про надання кредиту та про можливий його обсяг.

Помилки комерційного банку в оцінці кредитоспроможності позичальників можуть привести до погіршення якості кредитного портфеля, через що банк змушений збільшувати витрати на додаткове резервування. У кращому випадку це призводить до погіршення фінансового стану банку, у гіршому - до його банкрутства.

Щоб уникнути такої невтішної перспективи, слід розробити і застосовувати єдину науково обґрунтовану методику оцінки кредитоспроможності позичальників. Однак про яку єдину науково обґрунтовану методику (чи навіть - про підхід) можна говорити, якщо немає єдиного науково обґрунтованого визначення самого поняття кредитоспроможності?

Під кредитоспроможністю позичальника розуміють здатність фізичної особи повністю та у визначений кредитним договором строк виконати зобов'язання перед кредитором. Кредитоспроможність позичальника була, є і лишається одним з головних критеріїв щодо доцільності встановлення кредитних відносин між кредитором та позичальником. Крім того, кредитоспроможність нерозривно пов'язана з особистими якостями позичальника (репутацією, принциповістю, надійністю, щирістю тощо), його соціальним статусом (місцем роботи, типу зайнятості, кваліфікації, сімейного стану тощо), наявністю капіталу (наявність власного майна позичальника).

З метою мінімізації ризиків кредитодавця за кредитними операціями для визначення кредитоспроможності позичальника рекомендуємо використати запропоновану методику оцінки кредитоспроможності, що базується на аналізі семи кредитних факторів, а саме:

- оцінка правового статусу позичальника;
- оцінка особистих якостей позичальника;

- оцінка соціального статусу позичальника;
- оцінка капіталу позичальника;
- оцінка забезпечення позичальника;
- оцінка доходу позичальника;
- оцінка покриття боргу позичальником.

Використання кредитодавцем зазначеної методики дозволить встановити наступне:

- чи може позичальник отримати кредит взагалі;
- чи може позичальник отримати бажану суму кредиту;
- яку суму кредиту може отримати позичальник.

Рекомендована методика оцінки кредитоспроможності позичальника реалізована у формі скорингової моделі оцінки кредитоспроможності позичальника.

Скорингова модель дозволяє провести оцінку кредитоспроможності позичальника, оцінити кредитні ризики кредитодавця на підставі розрахунку кількісних показників (економічна кредитоспроможність) та якісних характеристик (особиста кредитоспроможність) позичальника.

Суть зазначеної скорингової моделі полягає у присвоєнні позичальнику балів за результатами аналізу заповнених ним спеціальних форм і анкет, що розроблені кредитодавцем.

За результатами набраних балів рекомендована скорингова модель дає можливість кредитодавцю зробити висновок щодо доцільності надання кредиту позичальнику та визначити його клас:

клас А – позичальнику рекомендується видача кредиту. Видача кредиту відповідному позичальнику несе мінімальний ризик для кредитодавця;

клас В – позичальнику може бути виданий кредит. Видача кредиту відповідному позичальнику несе допустимий ризик для кредитодавця;

клас С – позичальнику може бути виданий кредит. Видача кредиту відповідному позичальнику несе середній ризик для кредитодавця;

клас D – позичальнику не рекомендується видача кредиту. Видача кредиту відповідному позичальнику несе максимальний ризик для кредитодавця;

клас Е – позичальнику не рекомендується видача кредиту. Видача кредиту відповідному позичальнику несе критичний ризик для кредитодавця.

Схематичне зображення скорингової моделі візуально репрезентує алгоритм дій кредитодавця в особі кредитного інспектора під час оцінки кредитоспроможності позичальника.

Україна відноситься до країн, які мають найнижчі розміри середньої заробітної плати порівняно із розвиненими країнами. Тому українці, щоб покращити своє матеріальне становище змушені виїжджати за кордон у пошуках більш прийнятних умов та рівня оплати праці. А частина населення, яка залишилася проживати в країні отримують заробітну плату в “конвертах”, працюють на не вигідних умовах і є соціально незахищеними. Тому держава, для покращення рівня добробуту населення, повинна установити мінімальний розмір заробітної плати на рівні реального прожиткового мінімуму; легалізувати виплату заробітної плати; надати пільги та субсидій бідному та малозабезпеченому прошарку населення із перевіркою їхнього рівня життя; припинення воєнних дій; залучити інвестиції та інновації у виробничі процеси, які зумовлять ріст заробітної плати; знизити та спростити рівень оподаткування, що впливає на зменшення тіньового сектору економіки; стримувати рівень інфляції; створити умови для розвитку малого та середнього бізнесу, а це створить нові робочі місця; знизити рівень корупції тощо.

Отже, банківське іпотечне кредитування має великий потенціал щодо забезпечення суттєвих якісних зрушень в економіці України, оскільки воно вважається ефективною формою залучення довгострокових дешевих фінансових ресурсів для інвестування у розвиток реального

сектору господарства. Проте лібералізація кредитної політики в умовах конкуренції, що посилюється, формує загрозу підвищення рівня кредитних ризиків, які беруть на себе банківські інституції. Тому у даний час необхідно особливу увагу приділити формуванню ефективного механізму банківського іпотечного кредитування з урахуванням особливостей інституціонального середовища України. Важливими факторами формування і розвитку механізму іпотечного банківського кредитування є міжнародний досвід та його адаптація до вітчизняної законодавчої бази з урахуванням умов, притаманних сучасній економіці України, зокрема нестачі довгострокових ресурсів і підвищених ризиків. Виходячи з цього обґрунтовано, що розвиток системи іпотечного кредитування доцільно починати з інвестицій у житлове будівництво, оскільки при будівництві житла період від початку інвестицій (видачі іпотечного кредиту) до одержання закінченого будівництвом об'єкта значно коротший, ніж при кредитуванні промисловості.

Ключові слова: оцінка, кредитоспроможність, позичальник, кредитор, застава, власність, іпотека, кредитування, кредит, ризик, комерційний банк.

Introduction. Mortgage market implementation in Ukraine is among the crucial issues that need to be addressed immediately. Ukrainian mortgage lending has lagged behind that of the countries of Eastern and Central Europe which negatively affects the pace of the country development and solving socio-economic problems. The revival of the mortgage institution and the mortgage market establishment in the country is an objective necessity caused by the need to introduce housing construction lending mechanisms instead of its budget financing. The mortgage housing market is to create a multiplier effect of accelerated development of many sectors of the economy, the domestic market, increasing effective demand and sustainable growth of the national GDP. The mortgage market is a developed form of mortgage relations that has emerged in foreign countries in recent decades. The mortgage market is a pattern of modern economy though the institution of mortgages was not recognized in the Soviet times.

The bank's lending activities are among the key sources of raising funds in the national economy and its optimal functioning support. In addition, banks' lending operations increase the activity of the state as well as the business sectors of the economy. However, current bank lending needs to be improved. The same is true for the formation of the loan portfolio, which is a key position in the commercial banks priorities as it allows to more clearly develop the banks strategy and tactics and identify opportunities for lending money to customers and business development. An efficient and high-quality loan portfolio helps to maximize the profitability of both an individual bank and the overall performance of the banking system. Research on this topic is quite relevant and appropriate at the current stage of Ukraine's banking system development since compared to the past, Ukraine's economy has changed radically due to its political and economic independence, as well as its transition to a market economy.

Currently, the leading Ukrainian investment and construction companies and banks have accumulated positive experience in implementing mortgage financing mechanisms for housing construction. This have had a positive impact on the economic development of many regions, the pace of solving the housing problem, the financial condition of economic entities.

In this regard, the study on mortgage lending in Ukraine is of particular importance, which determines the relevance of the study and the feasibility of research on this issue.

Literature review. The study of the problems of various aspects of studying the question of the scoring model of the structuring of the security assessment of the borrower's creditworthiness of commercial banks in the conditions of the global financial crisis, which are acutely related to the modern banking system in the country, were studied by such domestic scientists, Antonov G.D., Vasyurenko O.V., Dzyublyuk O.V., Yepifanov, A.O., Ivanova O.P., Paska I.M., Tumin V.M. and many others.

The above-mentioned authors determine that in order to achieve the general goal of rapid, inclusive economic growth, it is important to fulfill the goals of anticipated public finances, ensure access of businesses and citizens to significantly cheaper financial resources, reduce debt servicing costs, protect citizens from abuses by monopolists, etc. The National Bank and the Cabinet of Ministers of Ukraine will contribute to the achievement of these goals and support the economic policy, subject to the support of construction market participants.

The aim of the article is to provide scientific substantiation of theoretical, methodological and practical aspects of the bank's loan portfolio formation and management on the example of a commercial bank JSC "State Savings Bank of Ukraine". The following tasks are to be carried out to achieve the aim: to theoretically substantiate the economic essence of a commercial bank's loan portfolio of and reveal its structure; to reveal the principles and features of a commercial bank's loan portfolio formation; to determine methods for assessing the quality of a commercial bank's loan portfolio; to analyze the financial and economic activities of JSC "State Savings Bank of Ukraine"; to analyze the loan portfolio of the commercial bank; carry out the assessment of financial performance indicators and identify problems and areas for improving the efficiency of the national commercial banks' loan portfolio; to suggest ways to improve loan portfolio management; to consider bank monitoring of mortgaged property as a way to increase the loan portfolio security.

Materials and methods. A set of general scientific methods was used to achieve this goal. The following research methods were used in the research process: observation (systematic study of the bank, obtaining the primary information in the form of financial statements for the analyzed period), comparison (comparing the analyzed parameters, coefficients, balance sheet items interest or with the baseline and normative value), abstraction (omitting insignificant characteristics and pointing out a few essential ones in defining the categories), the method of grouping (in considering the classification of loans); various techniques of statistical methods, in particular, comparisons - when comparing actual data for the relevant periods, observation technique - were used to study and assess the financial condition of Credit Agricole Bank, methods of analysis and synthesis, induction and deduction.

Results and discussion. The results of lending activities of a commercial bank directly depend on the quality of the bank lending process structuring, as well as on the degree of clearness of the process main stages tasks definition and the functions of employees in charge of lending operations. Determining the creditworthiness of customers is, undoubtedly, one of the stages of the credit process and the defining essential condition of loan relations since its reliability significantly affects both the results of specific loan agreements and the bank's loan activities efficiency as a whole. The accuracy of the assessment is also important for the borrower as it predetermines the decision on granting a loan and its volume limit.

Irregularities in assessing the borrowers' creditworthiness can result in the loan portfolio quality deterioration which makes the bank increase the cost of additional provisions. At the best, this causes a deterioration in the financial condition of the bank, at the worst - its bankruptcy. [15, 17, 20]

To avoid such a disappointing prospect, a single scientifically sound methodology for assessing the creditworthiness of borrowers should be developed and applied. However, the unified scientifically sound methodology (or even an approach) cannot be considered due to the fact that there is no single scientifically sound definition of the very concept of creditworthiness.

The creditworthiness of the borrower is the ability of an individual to fully fulfill obligations to the lender within the period specified in the loan agreement. The borrower creditworthiness has been one of the main criteria for the feasibility of establishing a credit relationship between the

lender and the borrower. In addition, creditworthiness is inextricably linked to the borrower's personal qualities (reputation, integrity, reliability, sincerity, *etc.*), their social status (place of work, type of employment, qualifications, marital status, *etc.*), availability of capital (property owned by the borrower).

We recommend using the method of assessing creditworthiness, based on the analysis of the following seven credit factors aimed to minimize the risks of the lender on credit operations through determining the creditworthiness of the borrower. These include:

- assessment of the legal status of the borrower;
- assessment of personal qualities of the borrower;
- assessment of the social status of the borrower;
- assessment of the borrower's capital;
- assessment of the borrower's security;
- assessment of the borrower's income;
- assessment of the borrower debt coverage.

The use of this method by the lender can establish the following:

- whether the borrower can get a loan at all;
- whether the borrower can get the desired loan amount;
- the loan limit the borrower can get.

The recommended method of assessing the borrower's creditworthiness is implemented in the form of a scoring model of the borrower's creditworthiness assessment. [13, 14, 17]

The scoring model allows assessing the borrower's creditworthiness, assessing the credit risks of the lender based on the calculation of quantitative indicators (economic creditworthiness) and qualitative characteristics (personal creditworthiness) of the borrower.

The essence of this scoring model involves assigning points to the borrower based on the analysis of special forms and questionnaires developed by the lender and filled out by the borrower.

Based on the results of the points scored, the recommended scoring model allows the lender to make a conclusion about the appropriateness of lending money to the borrower and determine their class:

A class - the borrower is recommended to be issued a loan. Issuing a loan to the class A borrower carries minimal risk for the lender;

B class - the borrower may be issued a loan. Issuance of a loan to the class B borrower carries a tolerable risk for the lender;

C class - the borrower may be issued a loan. Issuing a loan to the borrower carries a medium risk for the lender;

D class - the borrower is not recommended to be issued a loan. Issuing a loan to the borrower carries the maximum risk for the lender;

E class - the borrower is not recommended to be issued a loan. Issuing a loan to the relevant borrower carries a critical risk for the lender.

The schematic representation of the scoring model visually represents the algorithm of the lender's actions to be carried out by the credit inspector in the assessment of the borrower's creditworthiness.

The following elements make up the organization of the lending process in the institutions of JSC «State Savings Bank of Ukraine» (Fig. 1).

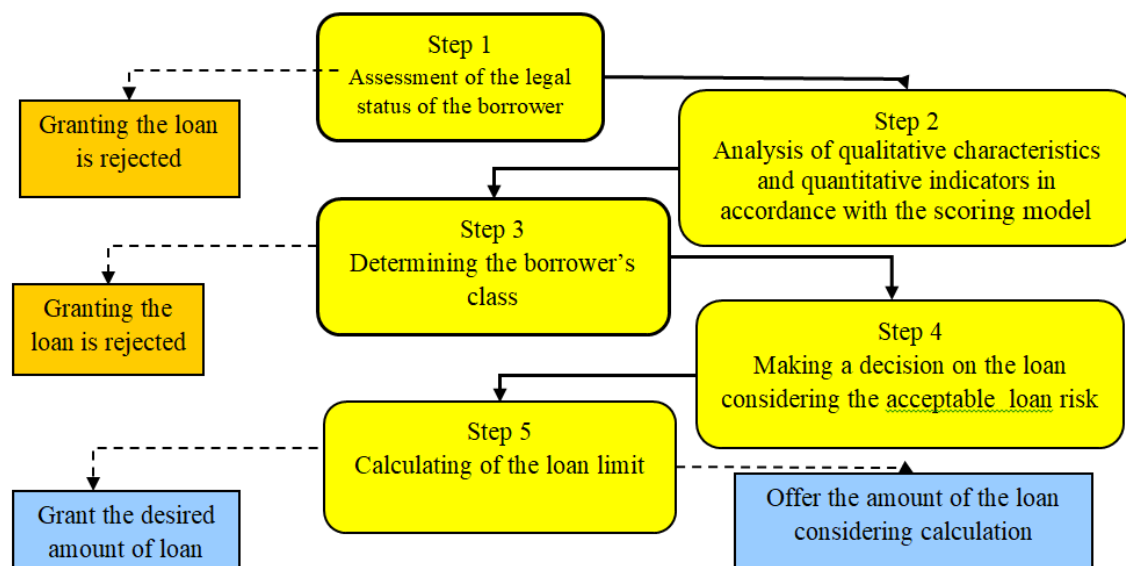


Fig. 1. Schematic representation of the scoring model for the borrower's creditworthiness assessment

Source: compiled by the authors based on their own research

To obtain a loan, the borrower - a legal entity - submits the following documents to JSC "State Savings Bank of Ukraine" at the first stage:

- loan application;
- business plan or feasibility study of the loan project;
- balance sheets and reports on financial results for the period provided by the Procedure for classification of credit operations in institutions of JSC "State Savings Bank of Ukraine", approved by the Board of JSC "State Savings Bank of Ukraine" of 22.09.2003 №190 (as amended), depending on the type of economic activity and organizational and legal form of the business entity; [6-10]

- other documents in accordance with the requirements of JSC "State Savings Bank of Ukraine";

At the first stage, a business entity without establishing a legal entity submits the following documents to the State Savings Bank of Ukraine JSC:

- loan application;
- passport of a citizen of Ukraine;
- certificate of assignment of the taxpayer identification number;
- certificate of state registration of a physical person - a business entity;
- declaration of income or report of a small business entity individual - payer of the single tax;
- the loan project feasibility study;
- other documents in accordance with the requirements of JSC "State Savings Bank of Ukraine".

JSC "State Savings Bank of Ukraine" carries out a preliminary assessment of the borrower's financial condition, credit project and credit risk, classifies the loan transaction, determines the possibility of further consideration of the full package of borrower documents on the basis of the above documents. The assessment of the borrower's financial condition and determination of their creditworthiness is carried out in accordance with the procedure regulated by a separate provision of JSC "State Savings Bank of Ukraine". [6-10]

Lending process organization	
1.Stages of the lending process	8.Control over the mortgaged property (property rights)
2.Assessment of the borrower's creditworthiness	9.Control over loan repayment and interest payments
3.Consideration of the full package of documents and concluding a loan agreement	10.Deferred loan repayment
4.Securing a loan	11.Actions of the Bank in case of overdue loan and interest arrears
5.Issuance of loan funds	12.Credit operations monitoring
6.Credit case formation	13.Formation of a reserve for possible losses on credit operations
7.Control over the intended use of the loan	

Fig. 2. Organization of the lending process in JSC «State Savings Bank of Ukraine»
Source: compiled by the authors based on their own research

If the results of the analysis of the borrower's activity carried out by the credit office reveal that the activity is significantly related (not necessarily on the legal basis of the parties) to the activities of other economic entities and they are interdependent, granting credit to such borrower can be allowed upon assessment of activity and financial condition of all entities related by joint activity. In this case, the assessment of the financial condition of such related parties is carried out taking into account the type of such entity (legal entity or an individual - a private entrepreneur) according to the relevant methodology approved by the Bank.[15]

Assessment of the creditworthiness of the individual entity borrower is carried out on the basis of the borrower's credit application. Assessment of the creditworthiness of the guarantor is carried out on the basis of the guarantor's application (the property guarantor), certificate of the borrower's income for the previous three months from the main workplace unless otherwise provided by the relevant decision of the authorized collegial body of the Bank, other documented sources of income for a certain period of time and the amount of expenses incurred. All the certificates must be valid at the time of the loan decision (certificate from the borrower's main place of work is valid for one month following the last month of income). The calculation of the borrower's creditworthiness may also include the income of:

- wife / husband;
- other adult able-bodied persons - members of the borrower's family (parents, children).

Accounting for the income of other adults and able-bodied members of the borrower's family (parents, children) is only permitted if the loan is provided for the purchase of residential real estate (including land intended for construction and maintenance of housing and outbuildings), or for the construction of real estate. The borrower submits certificates of their income.

If the results of the preliminary assessment meet the requirements of JSC "State Savings Bank of Ukraine", the borrower is invited to form and submit for consideration a complete package of documents, depending on the organizational and legal form of the business entity. The borrower bears responsibility for the accuracy of the information contained in the documents in accordance with the current legislation.

The set of documents submitted by an individual borrower to obtain a loan depends on the purpose of the loan (purchase of consumer goods or services, construction or real estate purchase) and it is determined by the Bank for each particular case.

In order to draw an objective conclusion on the possibility of providing a loan to the borrower, the documents set is considered in the regional office and central office by relevant offices (credit office, legal office, banking security, problem assets, risk management offices) which perform certain functions regarding their participation in the crediting process.

Based on the results of consideration of the borrower's documents set, each office provides conclusions on the issues within its competence.

The conclusions of are considered confidential information and is not subject to disclosure. It is not to be disclosed to the borrower as well. The conclusions of the offices are marked "Bank secrecy".

The loan application along with with the conclusions of the above services shall be submitted to the Credit Committee, which shall decide on the loan within the powers granted.

Credit relations between JSC "State Savings Bank of Ukraine" and the borrower are regulated by credit agreements, which determine the obligations and responsibilities of the parties. The decision of the relevant credit committee on granting a loan makes the basis for concluding a loan agreement with the borrower.

The standard form of the loan agreement shall be concluded in writing. It shall be endorsed by the credit and legal offices and signed by the authorized representatives of the parties on each sheet. The change of the agreement terms shall be made with the consent of the parties through the additional agreement to the credit agreement.[15, 17, 20]

The pages of the loan agreement shall be numbered.

The loan agreement, subject to agreement of the parties, provides for the right of the Bank to write off contractual funds from the borrower's current accounts in national and foreign currency and use them to repay overdue loans and interest, as well as the right of the Bank to issue an order to enforce the debt. The loan agreement provides for the right of the Bank to disclose banking secrecy in the event of default by the borrower.

Credit funds can be provided to borrowers in the form of credit lines (revolving or non-revolving) or overdraft.

Credit line is a form of bank loan in tranches (installments) in amounts not exceeding a predetermined amount (credit line limit), for a certain period, with or without renewal of the credit limit depending on the type of credit line (renewable or non-renewable) and repayment of the loan received by the borrower or part thereof (in the case of providing the borrower with a revolving credit line).

Overdraft is a short-term loan provided by the Bank to a client in excess of its current account balance in the Bank through debiting its current account within the amounts determined by the relevant calculations according to the methodology established by the Bank.

When considering the provision of loans under non-standard terms and / or products, one of the main requirements should be partial financing of costs by the borrower at its own expense in the amount of at least 30 percent of the cost of the event (goods, works, services) credited persons for the construction or purchase of real estate - 30 percent of the construction budget or the value of real estate). Construction loans are provided on the basis of a non-revolving credit line agreement. .[15, 17, 20]

Borrowers can be provided loans upon concluding an agreement to open a revolving credit line if they have current accounts opened with JSC "State Savings Bank of Ukraine", which are systematically credited with income in the form of salaries, pensions, *etc.*

Borrowers who systematically direct their cash receipts (pension, salary and other income) to current accounts opened with the Bank may use an overdraft.

An overdraft can be drawn up in a separate agreement or in an additional agreement to the current account maintenance agreement. The agreement (additional agreement) determines the credit limit, terms of the loan and repayment.

The loan agreement shall be concluded in writing and cannot be changed unilaterally. Changes in the terms of the agreement shall be made upon agreement of the parties and shall be drawn up as an additional agreement to the loan agreement.

The loan agreement provides for the right of the Bank to issue an order for the forced payment of the debt.

The loan agreement shall be registered in the credit agreements register. The main types of credit security are:

- mortgage;
- pledge of liquid (personal) assets, owned by the borrower and / or property guarantor on the right of ownership and in accordance with the legislation of Ukraine that may be alienated by the mortgagor and which may be levied;
- pledge of property rights to funds owned by the borrower or property guarantor and placed on a deposit account set up in the institution of JSC "State Savings Bank of Ukraine" that provides the loan.

Additional types of security can be represented by the following ones:

- guarantee of an individual or a legal entity;
- credit risk insurance, in accordance with the requirements of the Procedure for conducting insurance operations in the system of JSC "State Savings Bank of Ukraine" approved by the resolution of the Board of JSC "State Savings Bank of Ukraine" of October 17, 2005. №100 (with changes and additions);
- pledge of securities.

Mortgage agreements or pledges of liquid personal assets (which can be alienated by the mortgagor and can be recovered in accordance with applicable law) are drawn up to ensure the fulfillment of obligations under the loan agreement.

If diverse property (real estate, goods in circulation, future harvest, livestock, transport, agricultural machinery, equipment, grain, *etc.*) is pledged concurrently to ensure the fulfillment of obligations, pledge agreements are drawn up separately for each type of movable property.

The subject of the pledge is subject to mandatory assessment by the appraiser. The subject of the pledge or mortgage is subject to compulsory insurance in favor of JSC "State Savings Bank of Ukraine" throughout the currency of the mortgage or pledge agreement, except for the agreements on pledge for deposited money, pledge agreements, securities pledge agreements.

In the event of an insured event, the subject of the pledge (mortgage) becomes the right of claim against the insurer.

For drawing up surety agreements or credit risk insurance, the Bank is to make sure that the guarantor or insurer is reliable. When accepting a guarantee to ensure the fulfillment of obligations under the loan agreement, JSC "State Savings Bank of Ukraine" assesses the solvency of the guarantor. For greater reliability, the surety agreement shall be drawn up in the form of a tripartite agreement: the Bank - guarantor - borrower. When concluding a credit risk insurance agreement, a bilateral agreement is drawn up between the Bank and the insurer.

Given the imperfections of current legislation that governs insurance issues, as well as the rare use of credit risk insurance by insurance companies in Ukraine, we recommend an insurance contract involving three parties - the borrower (insurer), insurer (insurance company), lender (bank). [13, 15, 17]

Pledge agreements (mortgages) shall be concluded in accordance with standard forms of agreements, endorsed by the credit and legal offices, the office dealing with problem assets, and then signed by authorized representatives of the parties on each sheet.

The mortgage agreement must be notarized at the property location.

After acceptance of liquid assets as a pledge of encumbrance, the rights to such property is registered by the JSC "State Savings Bank of Ukraine" in the State Register of encumbrances of liquid assets in the manner prescribed by applicable law. On the basis of the registration, the priority of encumbrance is established (the preemptive right of the Bank as an encumbrancer over the right of other persons to the same movable property).

Mandatory state registration is subject to encumbrance of rights to immovable property, which is mortgaged, in the manner prescribed by the applicable law.

After concluding the loan agreement and collateral agreements (or additional agreements to them), the JSC "State Savings Bank of Ukraine" supplements the counterparty card with the parameters of the credit operation on the basis of the order, opens accounts for off-balance sheet credit obligations accounting, for debt and accrued income accounting.

Institutions of the JSC "State Savings Bank of Ukraine" can use a guarantee and loan insurance as the main type of credit security in accordance with the requirements of the Procedure for insurance operations in the system of JSC "State Savings Bank of Ukraine" approved by the Bank Board of October 17, 2005 № 100 (as amended). Credit security can be applied exclusively in accordance with the standardized terms of lending to individuals, approved by the Credit Committee of the Bank.

The use of securities as the main type of loan collateral may be carried out only upon permission of the Bank Committee considering the assessment of the securities liquidity for each issuer.

When providing long-term loans (except for those provided under standardized banking products) secured by movable property, except for new vehicles, a guarantee of an individual or legal entity or credit insurance can be additionally accepted as the credit security in accordance with the Regulations on the Insurance system of the JSC "State Savings Bank of Ukraine".

The amount of collateral should be sufficient to repay the loan debt and interest on its use in the event of the borrower's default on their obligations under the loan agreement. The acceptability and sufficiency of collateral are determined by the institution of the Bank taking into account the requirements for the formation of a reserve for possible losses on credit operations.

Jointly owned property may be pledged with the consent of all co-owners.

At the request of the Bank, any movable property accepted to secure the loan repayment, may be provided by the mortgagor in the possession of the Bank for the term of the loan agreement (until the borrower fully fulfills the terms of the loan agreement), *i.e.*, the property can be pledged.

By agreement of the parties, an individually determined thing that is the subject of the pledge may be left at the mortgagor with the imposition of signs certifying the pledge.

When accepting property rights as collateral, the term of the loan agreement must be shorter than the term of the right that is the subject of the pledge.

Loans for the purchase or construction of real estate are secured by other real estate owned by the borrower or property guarantor. After acquiring the right of ownership of a real estate object (purchased or built with credit funds) a pledge agreement of purchased or constructed real estate or additional one may be drawn up instead of a pledge agreement of other real estate, at the request of the Bank.

Property that is the subject of the pledge and remains in the possession and use of the mortgagor, must be insured in favor of the Bank, in accordance with the requirements of the Regulations on the Insurance system of the JSC "State Savings Bank of Ukraine".

If the subject of the pledge is real estate or a vehicle, the pledge agreement must be notarized (real estate - at the location, vehicles - at the place of its registration).

The pledge of real estate is subject to state registration in accordance with the current legislation of Ukraine (the pledge agreement must provide for the imposition of a ban on alienation).

Issuance of credit funds is carried out in accordance with the terms of the loan agreement.

Loans are provided in non-cash form by paying for settlement documents for goods and services or its transferring to current accounts on the basis of the borrower's instructions, the loans can be provided in cash as well.

In order to reduce the risk, loans for construction are provided through concluding a non-revolving credit line agreement, which provides for the gradual loan drawdown, *i.e.* in the course of the credited activity implementation. In this case, the provision of credit funds begins after the borrower confirms the costs incurred at the expense of own funds provided for financing this event. Each subsequent tranche of credit funds is provided after the borrower submits a report on the use of the previously received loan amount.

The total amount of funds provided during the operation of the non-revolving credit line (the amount of funds granted on the loan debit account) may not exceed the maximum loan amount stipulated by the non-revolving credit line agreement. In case of partial or full repayment of the credit debt, the credit line limit is not renewed.

The duration of non-revolving credit line use is determined depending on the duration the credited activity, the creditworthiness of the borrower, but it should not exceed the credit term determined by the central office.

The credit limit that the borrower may use in lending under a revolving credit line agreement is determined by the JSC "State Savings Bank of Ukraine" institution within the limits of its powers.

The revolving credit line opens for a period determined under agreement of the parties. The duration of the loan and its amortization frequency are determined separately for each tranche (part of the loan) and stipulated in the revolving credit line agreement or in additional agreements to it. The credit line limit is restored to the amount of repayment and the borrower can further get a loan within the unused limit. During the validity of the revolving credit line, the borrower has the right to early payoff the loan.

The credit line may be extended for a new term provided that the borrower duly fulfills their obligations under the agreement.

Subject to the borrower has not follow out the entire credit line limit specified in the agreement, the Bank's terminates its obligations to provide credit for the amount not used by the borrower on the last day of the credit line.

A separate package of working documents (credit file, file package) is formed for each borrower.

Working documents are grouped on the subject and stored in chronological order depending on the date of their compilation:

- documents received from the borrower before granting the loan;
- documents prepared by the Bank offices before granting the loan;
- decision to grant a loan made by an authorized collegial body (extract or copy) if any;
- loan agreement and additional agreements to it (copies);

- loan agreements and documents on the loan security (copies);
- documents on the accounting of credit operations (orders, statements of accounts, *etc.*);
- documents confirming the targeted use of credit funds;
- documents on control over the condition of the mortgaged property;
- other documents related to granting and servicing the loan.

The Bank exercises preliminary and subsequent control over the targeted use of credit funds.

Preliminary control is carried out on issuing credit funds to the borrower by checking the compliance of the payment provided for in the payment order, the terms of the loan agreement, as well as checking the compliance of payment order details with the details specified in the agreement (contract).

Subsequent control is carried out on the basis of documents that confirm taking goods paid for at the expense of the loan or services rendered by the borrower. These documents comprise invoices for the receipt of material and technical assets, invoices, acts of acceptance and transfer of material values or services provided, *etc.*

Subject to the borrower has not submitted documents confirming the intended use of credit funds, the Bank conducts directly the inspection of the borrower.

In case of revealing the facts of the credit fund misuse, the borrower is fined up to 25 percent of the amount of unused credit in accordance with the Regulation "On lending to legal entities and other business entities", approved by the Board of JSC "State Savings Bank of Ukraine" of December 26, 2002 № 171. [7-10]

Repayment of the loan recovery and payment of accrued interest (commissions) is made by the borrower in the manner and terms specified in the loan agreement.

The Bank monitors the timely settlements of the borrower with the JSC "State Savings Bank of Ukraine", accrued interest and fees. If the borrower fails to pay on the loan agreement, the Bank applies the sanctions provided for in the loan agreement, including writing off the amount of debt from the current account of the borrower under the loan agreement on the basis of the order.

The Borrower may repay all or part of the loan in advance on the terms specified in the loan agreement.

During the term of the loan agreement, the Bank institution carries out the control over the mortgaged property (property rights) through inspections.

Checks are carried out in order to establish:

- the fact of the property being at the location in accordance with the pledge agreement;
- compliance of the subsumed characteristics of the available property with the characteristics it was accepted as collateral;
- conditions of the property storage and operation.

If the mortgaged property is found to be stored or operated in improper conditions, *i.e.* it does not meet the requirements of the pledge agreement, that results in the insufficient liquidity of the property to ensure the borrower's obligations under the loan agreement, the Bank must require the borrower to replenish or replace the subject of the pledge within the stipulated period, demand for changes in the conditions of its storage or operation or to recover the mortgaged property before the maturity of the loan.

Repayment of the loan and payment of accrued interest for its use are carried out by the borrower in the manner, priority and within the time specified in the loan agreement.

Borrowers can pay the loan and interest liabilities in cash or non-cash (transfers, transfers from deposit, current and card accounts, as well as through withholding funds from wages, pensions and transfer them to repay debt based on the borrower order).

The Borrower may make early repayment of all loan arrears or make separate payments to repay the loan arrears in advance on the terms specified in the loan agreement. Before granting a loan, banks check the solvency and creditworthiness of borrowers. As a rule, each bank has its own method to check the creditworthiness of the enterprise regulated by internal instructions.

Table 1

JSC "State Savings Bank of Ukraine" method of checking the creditworthiness

Stage	Indices
1. Determination of the basic records of the legal entity	<ul style="list-style-type: none"> - defining the size and reporting type of the enterprise (large, medium, small, small with simplified reporting); - reporting cycle (quarterly, annually); - activity code based on the Statement of financial performance and financial results
2. Calculation of the integrated factor	<p>Discriminant model: $Z = a_i * \min K_i, 100 - a_0$ a_i – parametres considering financial ratios; K_i – financial coefficients; a_0 – absolute term, updated annually by the NBU</p>
3. Calculation of financial indicators: K_n - for medium and large enterprises; MKn - for small businesses	<ul style="list-style-type: none"> 1. K_1, MK_1 - coverage; 2. K_2, MK_2 - intermediate coverage factor; 3. K_3, MK_3 - financial independence; 4. K_4, MK_4 - coverage of non-negotiable assets with equity; 5. K_5 - return on equity; 6. MK_5 - turnover of accounts payable; 7. K_6, MK_6 - financial results of operating activities profitability (EBIT); 8. K_7 - return on sales (EBITDA); 9. MK_7 - financial results of operating activities profitability before taxation; 10. K_8, MK_8 - return on assets for net income; 11. K_9, MK_9 - turnover of current assets; 12. K_{10} - financial results of loan capital turnover (EBITDA); 13. MK_{10} – financial results of loan capital turnover before taxation.
4. Determination of the debtor class	Diagnostic range values of the integrated indicator of the activity

Source: compiled by the authors based on their own research

The theoretical basis of the algorithm for assessing the creditworthiness of the borrower - a legal entity - is significantly supplemented with the practical application. Given the above, we illustrate the calculation of the creditworthiness of the borrower - a legal entity - on the example of PJSC "Ukrhydroenergo" using the current methods of JSC "Savings Bank of Ukraine". To determine this indicator, we calculate the necessary financial indicators. Table 2 shows the required calculated indicators and their regulatory values.

Table 2

Finance indicators of PJSC «Ukrhydroenergo»

Indicator	Value for 2019	Regulatory value
Coverage	1.2	> 1
Intermediate coverage factor	0.74	> 0.8
Financial independence	0.77	> 0.5
Coverage of non-negotiable assets with equity	0.87	-
Return on equity	0.11	≥ 0.2
Return on performing assets	0.4	≥ 0.3
Return on sales	0.48	≥ 0.15
Return on assets on net income	0.11	≥ 0.14
Turnover of current assets	2.12	growth trend
Debt capital turnover	0.61	growth trend

Source: compiled by the authors based on their own research

Having analyzed the data in the table above with regulatory values, we can say that the financial condition of PJSC "Ukrhydroenergo" is satisfactory, which is a good factor for the company in obtaining a loan and serves as a source of information for the lender on assets, solvency, profitability, liquidity and financial stability of the enterprise. The next step in assessing the creditworthiness of the borrower is to calculate the integrated indicator. Table 3 shows the calculation of the integrated indicator.

Table 3

Calculation of the integrated indicator

Type of economic activity (field specialization of NC 009:2010)	Model
Electricity, gas, steam and air conditioning supply, section D (section 35.11 electricity generation)	$Z=0,025 \times 1,2 + 1,9 \times 0,77 + 0,45 + 1,5 \times 0,11 + 0,03 \times 2,12 - 0,5 = 1,67$

Source: compiled by the authors based on their own research

The following stage determines the class of financial condition of the enterprise with mandatory checking the special affiliation of the debtor - a legal entity - namely: checking whether the bank has provided credit bureaus information about the debtor, whether bankruptcy proceedings have been instituted against it and whether it has foreign exchange earnings that are not documented, *etc.* Since the integrated indicator calculated in Table 3 equals 1.67, the enterprise PJSC "Ukrhydroenergo" belongs to Class 1 with a range of more than +1.35. This means that the company can repay the debt on time, its economic indicators are within the limits set by the bank, the borrower's management has a good business reputation, its credit history impeccable. Having considered the information above, we can argue that the solvency of PJSC "Ukrhydroenergo" is satisfactory.

Conclusions. Therefore, bank mortgage lending has great capacity to ensure significant qualitative changes in Ukraine's economy, as it is considered an effective form of attracting long-term cheap financial resources to invest in the development of the real sector of the economy. However, the liberalization of credit policy in the face of intensifying competition threatens to increase the level of

credit risk borne by banking institutions. That is why, nowadays it is necessary to pay special attention to the formation of an effective mechanism of bank mortgage lending, taking into account the peculiarities of the institutional environment of Ukraine. International experience and its adaptation to the domestic legal framework, taking into account the conditions inherent in the modern economy of Ukraine, including lack of long-term resources and increased risks are significant factors in the formation and development of the mortgage lending mechanism. Based on this, it is justified that the development of the mortgage lending system should start with investment in housing since housing construction implies much shorter period from the beginning of investment (mortgage) to the completion of construction compared to industrial lending.

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