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Credit Risk Management, case study of Bank of Beirut - Lebanon

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Abstract:
The credit is a set of resources lent by a bank or financial institution to an economic agent who undertakes to pay interest and repay the loan capital[1]. The concept of interest loans existed before the creation of the currency, that is, before the 6th century BC [2]. The credit assessment is presented in four different civilizations: Mesopotamia, Ancient Greece, Romans &Arab civilization.
Bank credit consists of three key elements: trust, risk and time. The appropriations are divided into several types according to two criteria: the duration of the credit and the purpose of the credit[3].
A bank risk is a risk to which a bank is exposed in a banking business. Credit risk is one of the largest and most dangerous risks to which a bank is exposed. Credit risk is defined as the probability that a debtor is unable to repay a debt issued by a financial institution[4].
Bank of Beirut is the case of ourstudy, it is a Lebanese financial institution founded in 1963 and has 77 branches in Lebanon and six abroad.
The risk taken begins when the bank enters into a relationship with a customer who requests to borrow a sum of money. Acceptance or rejection of the customer's request shall mean, if the bank is able to risk a certain amount of money for a particular case [5]. Bank of Beirut requests several documents and reviews the profitability of each project before approving grant facilities.
In order to prevent or reduce the credit risk, two methods were selected:
- Internal rating based (IRB), which consists of giving each client a proper assessment according to the probability of default and setting a loss limit.
- Risk Adjusted Return On Capital (RAROC), which consists of calculating performance by integrating risk into a specific formula [6].
Key Word*:Credit risk; risk management; bank of Beirut; internal rating based; risk adjusted return on capital.*

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I. Introduction

For many years, credit risk has been one of the major causes of volatility for companies and financial institutions[7]. Like any business, a credit institution is exposed to a multitude type of risks that can lead to its failure and bankruptcy. Granting loans is the main function of commercial banks. It is a transaction whereby a credit institution makes available to a customer a sum of money in return for interest and charges, for a fixed or indefinite period of time[8].

Lending activity has been present since antiquity in the exchange relations between third parties, which makes the principle of the credit operation known to all[9]. Bank credit is made up of three essential elements: trust, risk and time. Credits are divided into several types according to two criteria: the credit's duration and its purpose[3].

Risk is present in all economy activities. Depending on the activity, it may be sometimes important and sometimes less important. Like many businesses, banks are subject to risk; however they are subject to several forms of risk more than other institutions. The list of risks that can affect a bank is long: market, option, liquidity, credit and prepayment risk[10].

Credit risk is one of the most important and dangerous risks to which a bank is exposed, it represents 75 to 85% of the risk in banking institutions. By definition a credit risk is the probability that a debtor will be unable to repay a debt granted by a financial institution, there is a risk on the bank as soon as it enters in a relationship with customer and expect receiving back the money as agreed on due dates.[11].

This risk depends on the probability of default by a counterparty, whether it is a country, an individual, a company or a credit institution with which the bank is engaged. Credit risk has three main components: Default risk, spread deterioration risk and recovery risk[12].

The risk of business failure is linked to several factors. These factors may be internal factors related to the company's activity or external factors related to the company's environment[13].

Credit operations are linked to several forms of risk: risks linked to the relationship with its customers, whether they are companies or private individuals, and risks due to the banks' commercial policy.

The relationship between the bank and its customers may reflect negative consequences in the case of a debtor who is unable to settle his obligations in a timely manner or if he refuses to pay [14]. The realization of these risks is due to several types of risk: general risk, professional risk (the client's activity) and particular risk (the client's situation and personality). Risks related to banks' commercial policy are ones arising from the competitive activity between banks and the extent to which a bank distributes credit [15].

In fact, when a loan is granted, the lending institution is not always sure to recover its funds. As a result, it is frequently exposed to credit risk. The banker tries to find effective ways to get protected or to control the risk of non-reimbursement[16].

Like all companies, the bank is a commercial enterprise, which seeks to maximize its profitability. It must therefore be profitable overall in its activity.

Lending is a way of a anticipation of banks' future revenues, a good management is crucial for the bank's performance and sustainability. A bank's performance is linked to good credit risk management through effective implementedtechniques[17].

In order to determine the borrower's ability to repay, the banker proceeds with checking the legal capacity, the banking capacity (acceptable credit information report) and the financial documents submitted by the borrower, which focuses on liquidity criteria, and then risk assessment methods based on statistical methods[18].

II. Literature Review

A credit is a transaction in which the bank makes its funds available to a third party, who undertakes to repay it[19]; definition varies from one theorist to another:

According to Petit-Dutaillis C.: "Giving credit means trusting, but it also means freely giving the emotional and immediate disposal of a real property or purchasing power, against the promise that the same or equivalent property will be returned back within a certain period of time, most often with remuneration for the service rendered and the risk involved, the risk of partial or total loss that the nature of this service entails" [20].

For Pruchaud J.: "Bank credit is generally the operation by which the bank makes a given sum available to a third party called the borrower. In return, the latter's undertaking, has to pay the banker the agreed interest, and to repay back a sum equivalent to that provided to him at the time set for repayment" [21].

Another definition by Bernard V. and colli J.C.: "Credit is an act of trust involving the exchange of two services dissociated in time, goods or means of payment against a promise or prospect of payment or reimbursement" [22].

Credit risk can be called by several names: we talk about counterparty risk related to interbank transactions, or bankruptcy risk related to transactions on the credit market. According to Godlewski, C. "Credit risk can be defined as the non-performance of the counterparty resulting in a probable loss for the bank" [23].

III. Research Methodology

Any scientific approach uses a group of methods in a variable way. The method is defined as a path to follow to reach a goal.

In this work and to test the hypotheses, we are going to use the:

The qualitative method, which covers a range of data collection and analysis techniques.It is more descriptive and focuses on interpretations, experiences and their meaning. It does not reject the figures and statistics but simply does not give them first place.

Researchers in such type of method, are interested in knowing the factors conditioning a certain aspect of the behavior of the social actor brought into contact with a reality. They then use an interpretative model where the focus is on the processes that develop within actors[24].

Therefore, seeking to understand, seeking to describe, exploring a new field, evaluating a person's performance, discovering others, evaluating an action or a project are all approaches whose success remains partly linked to the quality of the qualitative research on which they are based. Qualitative research is then conducted:

- To detect needs.
- To make a choice, a decision.
- To improve operation and performance.
- To tackle a phenomenon.
- To test scientific hypotheses as well.

This qualitative research is being conducted using the following methods:
Various qualitative research methods (such as in-depth interviews or observation) have the following characteristics:

- The researcher generally does not have a clear idea of the concepts and results that will be relevant.
- The research design is often more flexible than with quantitative studies.
- Research is carried out in "real" environments.
- The construction of theory is more important than theoretical tests.
- The hypotheses (almost) never occur.

Semi-directive interviews are also called "qualitative or in-depth interviews". The guide for a semi-structured interview is rather general with questions that are fairly generally formulated. This type of interviews has several characteristics:

- More or less questions.
- Questions not prepared in advance.
- Topics specified in advance.
- Flexible interview guide.
- Researcher freedom.
- Possibility to discuss unplanned topics.
- Directive in form, but not in substance.
- The order of topics is not defined.

Bank of Beirut was established in 1963 under the name Realty Business Bank. The bank was acquired by the Gefinor Group in 1970 and was renamed Bank of Beirut SAL.

In 1993 a group of bankers and investment bankers led by Salim Sfeir, Chairman of the Board of Directors, acquired the bank. Nowadays, Bank of Beirut operates through a local network of more than 77 local branches.

Through the Smart Branch network, the bank provides 24/7 services and is the first bank in Lebanon to open until 10pm 7/7. The traditional branch was converted to a hybrid branch, maintaining a small-scale bank while increasing digital services to meet the innovation needs of the Bank of Beirut’s leading bank.

In addition, Bank of Beirut has even blurred the boundaries of the physical world and integrated its services into the virtual world through online services and the next generation of ATMs, with ATMs offering customers more flexible universal banking access.

Bank of Beirut is the provider of a number of efficient banking services and competitive products aimed primarily at high net worth individuals and SMEs. In 2016, Bank of Beirut established an exclusive two-year key partnership with the Lebanese Red Cross, Banking for Good, and its mission to save lives, a worthy cause for the benefit of our society.

Bank of Beirut is a universal financial institution committed to serving the widest range of customers with a full range of first-class, personalized banking services and products, in addition to a comprehensive digital banking experience.

Its commitment, to achieving its goal, is rooted in service excellence and customer satisfaction. At the national level, the bank is working to increase its market share by expanding its network of distribution channels and providing its customers with a variety of innovative, first-class digital and non-digital services and products. Bank of Beirut’s vision is:

- Creating a better future for every individual in Lebanon and beyond its borders
- Shareholder achievement: The Bank constantly strives to provide its shareholders with a respectable return on their investments while minimizing risk.
- Customer Satisfaction: The Bank constantly strives to anticipate and satisfy the needs of its customers, developing long-lasting relationships with them.
- Employee Satisfaction: Providing employees with a pleasant work environment and opportunities for professional development.

Integrity and trust: Conducting its shareholders' transactions in the strictest confidence using the highest ethical standards.

IV. Results and Discussion

Risk taking begins when the bank enters into a relationship with a customer who requests a sum of money from the bank, and the acceptance or rejection of the customer's request indicates whether the bank is able to risk a certain amount of money for a specific business[25].

The study of the clients’ situation begins by asking for clients’ banking credit history, checking the information report from the central bank and all commercial banks in Lebanon,after that, studying their files, taking information on their economic and financial situations, a necessary factor in the acceptance or rejection of their applications.

Afterwards, it is necessary to follow-up the customers to know if they are using the funds in the object for which they have applied for credit, then to make sure they are able to respect their commitments within the agreed term and to follow the variation of the amount in their account in order to determine beforehand if there is a default risk [26].

It is also necessary to collect information about the internal and external environment, this information can inform the bank about a probable default risk, and then the bank gathers all these information in a file and feeds it with new information as it collects it.

An **investment loan**'s file is made up of several documents of different types:
- Legal documents.
- Financial documents.
- Economic and technical documents.
- The documents that the banker must draw up.

A study of an investment credit file at the Bank of Beirut:
Once the employee has gathered all documents related to the client and the project for funding, they move on to the economic, financial and profitability study to later reach a general assessment and get to the final decision concerning the project.
1. Economic study analysis:
- Project's general presentation.
- Project's economic study
- Project's technical study.
2. Project's financial study:
- Analysis of needs and resources.
- Analysis of financial documents (Balance sheet, income statement)

3. Project's profitability study:
- Preparation of the Employment/Resources tables
- Calculation of project profitability (DRC, NPV, IR, TRI)

For any **mortgage loan**, the following documents are needed:
- The borrower's marital status.
- The borrower's domiciliation.
- The borrower's professional situation.
- The borrower's financial situation.
- The borrower's project.
- Insurance coverage.

Study of a mortgage loan file at the Bank of Beirut:
When deciding whether to lend money or not, banks look at different criteria in order to minimize their risks. The study of the mortgage loan file is complete and through.
1- The borrower's professional situation:
The bank will study the income source, nature and continuity.
- Income sustainability: The bank must ensure that the borrower receives income on a regular basis and that this income will be received until the end of the loan.
- Income nature: Studying the income nature is also important. Government aids and donations incomes may be granted for a defined period of time and may unbalance the borrower's revenuewhen they are stopped.
2- The amount of personal contribution
- The personal contribution for a mortgage loan is the amount of money available that the borrower will invest in his/her project without credit, to be considered as down payment.
3- Project's quality
- The property's geographical location or its atypical character may have consequences for the lender.

The risk of financial loss, despite the realization of the main real guarantees, resulting from the inability of a debtor to pay the obligations to creditors is the credit risk that is important to manage to maintain the lending bank's strength [12].

Indeed, bank failures around the world in recent years have cost a lot of money. For this reason, it is essential to consider what measures can be taken to reduce the risk of bank failure due to credit risk[27].
In general, two **measurement criteria** are used to enhance the stability of the banking system with respect to credit risk[28]. These are:
- The regulation of the banking system, capital to be more specific.
- The implementation of means of analyzing and measuring credit risk, accompanied by risk monitoring and control processes.

The banking strategies adopted by Bank of Beirut to reduce credit risk can be divided into two steps:

1- Lowering the cost/income ratio:

Productivity gains are mainly achieved through:
- Technological modernization of the bank to free up positions and tasks which in some cases are carried out automatically.
- A better training of staff allowing for a more competent network and greater responsiveness and time savings in processing and follow up.
- A better organization by eliminating redundant positions or departments within a group. The cost savings are mainly achieved through a reduction in the workforce made possible by productivity gains (especially in the back office) and a better distribution of the workforce.

This strategy of lowering the cost/income ratio is a strong lever for profitability. In addition, Bank of Beirut uses guarantees for every loan granted to protect itself against all credit risks. The different types of guarantees are as follow:
- Mortgage: This is the act by which the debtor grants the creditor a right over an immovable property without relinquishment. It can be legal, conventional (as a result of a contract) or judicial (as a result of a judgment). In case of non-payment and prosecution, the creditor shall proceed to free the property by forced sale of the seized property at public auction.

Likewise, the debtor cannot sell the property without reimbursing the creditor because the guarantee is attached to the building/land. The mortgage duration differs according to the type of credit to be secured. A mortgage has a rank, a fundamental criterion that determines priorities in the sale of the property in the presence of several creditors. A mortgage therefore offers a good security when the rank is good.
- Pledging: This is the act by which the debtor gives the creditor an asset as security for their claim. If the collateral is movable, it is called a pledge. There are several types of collaterals: business pledge, equipment and vehicle pledge, vehicle pledge and share pledge.
- Endorsement: It is the commitment made by a third party called principal or endorser on a bill of exchange to guarantee the payment. The endorser is therefore jointly and severally liable with the principal debtor. This operation is therefore similar to a surety bond.
- Fire insurance: The fire insurer is liable for any damage caused by conflagration, flashover or simple combustion. However, they shall not, unless otherwise agreed, be liable for those caused by the sole action of heat or by direct and immediate contact with fire or an incandescent substance if there has been no fire or the start of a fire liable to degenerate into a real fire.

Coverage of this risk is effective if the origin of the fire is, for example, a chimney fire. Fire usually defines as combustion with flames outside of a normal fireplace.
- Life insurance: This type of coverage is requested for each bank facility. In case of death, the insurance company will settle the remaining loan amount to the bank. Some loans are rejected due to non-acceptance from the insurer to cover the client for several reasons (client age, medical issues,..).

2- Decreasing the line of credit

In an increasingly competitive and uncertain environment, it is of extreme importance to lower lines of credit in order to remain competitive. This lowering consists of offering more competitive lines of credit in order to attract better quality of customers bearing less risk[29].

The cost of risk will be lowered and will then make it possible to offer even more competitive lines. But to lower lines, banks must first be able to do so while remaining profitable.

The internal rating based (IRB) approach at Bank of Beirut.

The Basel Committee has noted that a capital adequacy framework based on an internal ratings-based system may be more sensitive to the level of risk in a banking portfolio and may provide an incentive for all institutions to make progress in risk management practices[30].

The objective is to allow the creation of a regime that can be adapted to the specific needs of each financial institution, from the simplest to the most complex one.

It is an alternative method based on banks' internal rating systems that incorporates both quantitative and qualitative elements in the measurement of credit risk. An internal rating refers to a summary indicator of the risk inherent in an individual credit. Ratings generally incorporate an estimate of the risk of loss due to the inability of a given borrower to pay the amount they have committed to pay[31].

Such an estimate is based on consideration of the relevant counterparty and the characteristics of the loans. A rating system comprises a methodology, concepts, management procedures and systems that play a role in assigning a rating).

It is estimated that the founders of this method would focus on the following elements[32]:

- An assessment by the bank of the borrower default risk, incorporated into its internal ratings and the measurable risk characteristics associated with those ratings.
- A system for assigning these credits according to their rating to a regulatory risk class based for most portfolios on the bank's quantifiable concept of borrower default, as well as on the consequent loss due to a possible default or on other asset characteristics (which can be estimated by banks or parameterized by supervisors.
- The development of a capital charge in relation to each regulatory risk class based on estimates of the risk with which it is associated.
- A supervisory procedure for the validation of this approach, encompassing the different ways of ensuring that the rating reflects all necessary risk information, and that the underlying loss measures are consistent and comparable across credit institutions, countries and over time.

The Basel Committee is considering proposing a treatment of credit risk based on different approaches[33]:

1- **The internal rating based approach (IRBA)**: each borrower is assigned a rating and the probability of default associated with each rating is estimated.

2- **The precommitment approach (PCA)**: The commitment of each bank to a maximum loss level, with a penalty if it exceeds this level.

Both approaches are applied by Bank of Beirut.

Methodologically, each approach has strengths and weaknesses. The risk with the PCA approach is that the regulator might be tempted not to apply a penalty if there is a risk of failure for the bank in question.

The IRBA approach is divided into 3 types:

- The standard approach is largely based on the external rating of companies, i.e. by private rating agencies.
- In the simple IRB approach, banks must, using their own calculation models, assess a probability of default associated with a borrower while referring to the supervisory authorities for the estimation of the other risk components. Some banks have already developed or reflected on these calculation models. RAROC is one of such method.
- The advanced approach includes the simple approach but also allows for the pre-calculation of losses in the event of default as well as the level of risk exposure.

The Risk Adjusted Return On Capital (RAROC) method

Credit risk is defined as the risk of counterparty insolvency and non-collection that the bank faces by allocating a part of its own funds, known as economic capital. This approach can lead to a RAROC method.

Although there are a large number of possible methods of allocating equity capital, these are often still at the stage of theoretical research or have not been applied for a long enough time.

RAROC allows for an optimal allocation of bank capital. Moreover, this method is perfectly in line with the direction taken by the new banking regulations.

RAROC stands for Risk Adjusted Return On Capital, a method used worldwide to combat credit risk. It is an indicator that highlights the actual profitability of a transaction with its associated risk: it is the ratio between the expected net line after deducting the average expected loss, and a measure of Unexpected Loss. It can also be defined as a ratio that expresses the rate of return on economic equity: it is therefore the ratio between the result of provisions corresponding to the expected loss and the equity intended to cover unexpected losses[34].

Bank of Beirut prepared an internal rating for each company file and values the collateral received.

RAROC is a method of measuring performance by incorporating a risk adjustment. Returns should always be compared against the risk taken. Otherwise, it is impossible to make performance comparisons.

The RAROC is defined as the ratio of risk adjusted return to economic capital. It's the funds needed to absorb exceptional or unexpected losses resulting from all risks incurred. Economic capital is often calculated using the Value at Risk (VaR). VaR measures the maximum amount of losses that can be recognized over a period of time and according to a predefined confidence level. The economic capital must cover the VaR[35], i.e. be equal to the VaR.

The measurement of risk-adjusted performance may have different approaches that meet different objectives depending on the bank's choices[36].

- **The top down approach** (also called strategic approach):

Its aim is to break down the loan portfolio into sub-portfolios (business sectors, countries, etc.) and, based on this breakdown, to seek an optimal allocation of economic capital into sub-portfolios.

- **Bottom-up approach** (also called systematic approach):

Its aim is to determine the consumption of economic capital for each facility in the Bank's overall portfolio and to choose between these different risk-based facilities, seeking to reduce the ultimate loss in portfolio distribution by reducing any overweighting of certain counterparties.

V. Recommendations

Based on our research and for a better credit risk management, we recommend:

- Financial information must be complete and standardized, provided on a regular and forward-looking basis, in accordance with the guidelines on bank-corporate relations defined within the National Credit Committee.
- Preventive management of credit risk must be the subject of greater cooperation between credit institutions in order to better monitor the situation of borrowers.
- Improving internal risk management in credit institutions themselves, particularly by extending the practice of internal rating of borrowers and by a comprehensive risk management included in each institution's credit portfolio.
- Improved performance of banks resulting from their credit risk management does not only concern financial institutions, it also goes to the public authorities, which are the guarantors of the environment in which banks carry out their business.
- Creating and promoting a regional mortgage market to enable credit institutions, given the importance of mortgage loans in their portfolios, to refinance these assets and to have additional financing lines.
- Ensuring the training of magistrates specialized in the field of banking law to enable them to judge with objectivity and fairness disputes between banks and their clients.

VI. Conclusion

The risk exists and will always exist. However, it must not freeze the banks in a wait-and-see attitude. There is no development without business and there is no business without credit. Banks are willing to take risks based on the national authorities' regulations.

The whole game is about taking good risks, acceptable risks. A risk can be considered acceptable when it is assessed on the basis of standards generally accepted in the business.

Awareness of risk must emerge from the bank's entire activity and, above all, must be fully integrated into the daily professional approach of its employees. Of course, once again, organizational issues and patience in decision-making structures are fundamental, while the training of effective teams and the specialization of certain agents in risk control activities appear to be essential, such as control and regulation systems[37].

But the risk culture needs to become more general in scope, affecting all staff. There must be, at all levels and at all times, a very strong capacity to react to uncertainty and its adverse consequences[38].

There is no single model. Each bank must seek out a wide range of possibilities, the best suited solutions to its business, its structures, its resources and its culture. Both effective procedures to control risks upstream and downstream must be adapted.It is also necessary to know how to share the risks with other institutions and to establish partners, notably to offer some to its customers but without insuring all the related risks[39].

At the end, it can be estimated that institutions seeking excellence in this area, which will therefore accept the constraints of discipline and rigor resulting from the rise in risks, will be able to face with less anxiety a world that has become much more dangerous for banking activity.

References

[1]. Erkan, B. &Uuml, N. &Pouponneau, D. (2019). Bank Loans Valuation: a Straightforward Approach. SSRN Electronic Journal. 10.2139/ssrn.3385482.

[2]. Heilbron, J. (2015). Interest: History of the Concept. 10.1016/B978-0-08-097086-8.03095-6.

[3]. Marshall, C. (2019). Transactions: Loans. Catalog: Oregon State Arthropod Collection. 3. 10.5399/osu/cat_osac.3.2.4597.

[4]. Bilan, A. &Degryse, H. &O'Flynn, K. &Ongena, S. (2019). Credit Risk. 10.1007/978-3-030-26844-2_4.

[5]. Chu, Y. &Qiu, M. (2019). Debt Incentives and Bank Risk-Taking. Real Estate Economics. 10.1111/1540-6229.12279.

[6]. Konovalova, N. &Kristovska, I. &Kudinska, M. (2016). Credit risk management in commercial banks. Polish Journal of Management Studies. 13. 90-100. 10.17512/pjms.2016.13.2.09.

[7]. Rossi, M. (2020). Realized Volatility, Liquidity, and Credit Risk.

[8]. Arzt, N. (2018). Banking Functions. 10.4324/9780429447907-4.

[9]. Ruchkina, G.F. &Vasilyeva, O.N. &Vengerovskiy, E.L. &Ismailov, I.S. &Annenkov, K.P. &Golubeva, E.D. &Shamsuvarov, A.T.. (2020). Bank lending. 10.31085/9785392310302-2020-144.

[10]. Ramlall, I. (2018). Banks, Risks and Risk Management. 10.1108/978-1-78769-681-520181001.

[11]. Andersen, J. & Andersen, K. &Eskesen, L. &Hyldahl, S. (2020). Models for Management of Banks' Credit Risk.

[12]. Deutsch, H. &Beinker, M. (2019). Credit Risk. 10.1007/978-3-030-22899-6_20.

[13]. Scherger, V. &Terceño, A. &Vigier, H. (2019). A systematic overview of the prediction of business failure. International Journal of Technology, Policy and Management. 19. 196. 10.1504/IJTPM.2019.10022277.

[14]. Seal, W. (1998). Relationship banking and the management of organisational trust. International Journal of Bank Marketing. 16. 102-107. 10.1108/02652329810213457.

[15]. Lian, Y. (2017). Bank competition and the cost of bank loans. Review of Quantitative Finance and Accounting. 51. 10.1007/s11156-017-0670-9.

[16]. Bashynska, I. &Filyppova, S. &Kholod, B. &Prodanova, L. &Ivanchenkova, L. &Ivanchenkov, V. (2019). Risk Management Through Systematization: Risk Management Culture. Volume-8. 6047-6052. 10.35940/ijrte.C5601.098319.

[17]. Bouheni, F. & Ammi, C. & Levy, A. (2016). Banking Performance. 10.1002/9781119361480.part2.

[18]. Calcagnini, G. & Cole, R. &Giombini, G. &Grandicelli, G. (2018). Hierarchy of bank loan approval and loan performance. EconomiaPolitica. 35. 10.1007/s40888-018-0109-3.

[19]. Pedraz, C. (2019). Leveraged Loans: Definition and Market Development. SSRN Electronic Journal. 10.2139/ssrn.3473779.

[20]. Petit-Dutaillis C., (1967). Le risque du créditbancaire conditions et modalitésd 'octroi du crédit à court et moyentermes Tome - Paris ÉditionsRiber

[21]. Pruchaud J. (1960). Evolution des techniques bancaires, Editions scientifiquesRiber, Paris, p.50.

[22]. Bernard, V. &Colli J.C. , Les créditsbancaires aux entreprises, Revue bancaire, P.43.

[23]. Godlewski, C. (2005). Bank capital and credit risk taking in emerging market economies - Journal of banking Regulation vol 6 n 2 pp 128-145

[24]. Vijayamohanan, P. (2020). Research Methodology: A Historical Research. 10.13140/RG.2.2.30721.20326.

[25]. Khan, M. &Scheule, H. & Wu, E. (2016). Funding Liquidity and Bank Risk Taking. Journal of Banking & Finance. 82. 10.1016/j.jbankfin.2016.09.005.

[26]. Majeske, K. & Lauer, T. (2013). The bank loan approval decision from multiple perspectives. Expert Systems with Applications. 40. 1591–1598. 10.1016/j.eswa.2012.09.001.

[27]. Honohan, P. (2019). The European Decade of Bank Failure. 10.1017/9781108680325.012.

[28]. Shubbar, H. &Guirinsky, A. (2019). Contents and principles of stability of the banking system. RUDN Journal of Economics. 27. 63-71. 10.22363/2313-2329-2019-27-1-63-71.

[29]. Lockhart, G. (2014). Credit Lines and Leverage Adjustments. Journal of Corporate Finance. 25. 274-288. 10.1016/j.jcorpfin.2013.12.011.

[30]. Azadinamin, A. (2012). Basel III. SSRN Electronic Journal. 10.2139/ssrn.2007817.

[31]. Doumpos, M. &Zopounidis, C. (2009). A Multicriteria Bank Rating System. 3.

[32]. Doumpos, M. &Zopounidis, C. (2015). A Multicriteria Approach to Bank Rating. 10.1007/978-3-662-46816-6_19.

[33]. Mariathasan, M. &Merrouche, O. (2013). The Manipulation of Basel Risk-Weights. Journal of Financial Intermediation. 23. 10.1016/j.jfi.2014.04.004.

[34]. Turnbull, S. (2010). Risk-Adjusted Return on Capital (RAROC). 10.1002/9780470061602.eqf15015.

[35]. Collett, C. (2017). Social, cultural and economic capital. 10.4324/9781315511696-4.

[36]. Grau, P. (2015). Risk-Adjusted Performance Measurement. 10.1093/acprof:oso/9780199331963.003.0019.

[37]. Cimon, D. &Garriott, C. (2019). Banking Regulation and Market Making. Journal of Banking & Finance. 109. 105653. 10.1016/j.jbankfin.2019.105653.

[38]. Alexander, K. (2019). Regulating Risk Culture in Banks. SSRN Electronic Journal. 10.2139/ssrn.3321163.

[39]. Ramlall, I. (2018). Banks, Risks and Risk Management. 10.1108/978-1-78769-681-520181001.

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