







“Operational control over the financial stability of banking”

AUTHORS	Angela Kuznetsova Borys Samorodov  https://orcid.org/0000-0002-5267-1178 Galyna Azarenkova  https://orcid.org/0000-0003-0101-2989  http://www.researcherid.com/rid/M-5272-2015 Kateryna Oryekhova  https://orcid.org/0000-0003-0214-2750 Maksym Babenko  https://orcid.org/0000-0001-6792-3465
ARTICLE INFO	Angela Kuznetsova, Borys Samorodov, Galyna Azarenkova, Kateryna Oryekhova and Maksym Babenko (2020). Operational control over the financial stability of banking. <i>Banks and Bank Systems</i> , 15(1), 51-58. doi: 10.21511/bbs.15(1).2020.06
DOI	http://dx.doi.org/10.21511/bbs.15(1).2020.06
RELEASED ON	Tuesday, 03 March 2020
RECEIVED ON	Tuesday, 24 December 2019
ACCEPTED ON	Monday, 03 February 2020
LICENSE	 This work is licensed under a Creative Commons Attribution 4.0 International License
JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

28



NUMBER OF FIGURES

11



NUMBER OF TABLES

2

© The author(s) 2025. This publication is an open access article.



BUSINESS PERSPECTIVES



LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Received on: 24th of December, 2019

Accepted on: 3rd of February, 2020

Published on: 3rd of March, 2020

© Angela Kuznetsova, Borys Samorodov, Galyna Azarenkova, Kateryna Oryekhova, Maksym Babenko, 2020

Angela Kuznetsova, Doctor of Economics, Professor, The Banking University, Ukraine.

Borys Samorodov, Doctor of Economics, Professor, Kharkiv Educational and Scientific Institute of the Banking University, Ukraine.

Galyna Azarenkova, Doctor of Economics, Professor, Kharkiv Educational and Scientific Institute of the Banking University, Ukraine.

Kateryna Oryekhova, Ph.D. in Economics, Associate Professor, Kharkiv Educational and Scientific Institute of the Banking University, Ukraine.

Maksym Babenko, Lecturer, the Finance, Banking and Insurance Department, Kharkiv Educational and Scientific Institute of the Banking University, Ukraine.



This is an Open Access article, distributed under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

Conflict of interest statement:

Author(s) reported no conflict of interest

Angela Kuznetsova (Ukraine), Borys Samorodov (Ukraine), Galyna Azarenkova (Ukraine), Kateryna Oryekhova (Ukraine), Maksym Babenko (Ukraine)

OPERATIONAL CONTROL OVER THE FINANCIAL STABILITY OF BANKING

Abstract

Maintaining proper financial stability of each banking institution is one of the main tasks facing the banking system of Ukraine. This enables operational control over the financial strength of banking activities.

The purpose of the article is to develop recommendations on the operational control of financial stability of banking and to test them using banking institutions in Ukraine as an example.

To execute operational control over the financial stability of banking, economic standards of banking regulation are grouped under the "at least" or "not exceeding" principle. To determine their change over time, Shewhart control charts are proposed.

The recommendations were tested through the example of the Ukrainian banking institutions (with state, foreign and private capital). It was found out that in 2017–2019, the following three economic standards of banking regulations were not met: regulatory capital adequacy, high credit risk, and average investments; besides, there were two standards at the limit of control value: the ratio of regulatory capital to total assets and the maximum amount of credit risk per counterparty.

To improve the financial status of banking institutions, it is recommended to take organizational and financial measures to change the average value of the relevant economic standards for banking regulation to a level that ensures financial stability.

Keywords

stability, banking supervision, operational control, Shewhart control charts, economic standards

JEL Classification

G21, G24

INTRODUCTION

The banking system of Ukraine has a deficit of working capital, and especially investment assets, due to the loss of banking institutions' ability to mobilize long-term resources. Today, banking institutions meet primarily the current payment needs of business entities. They haven't got a stable resource base to meet the investment needs of the real economy of Ukraine. This leads to their limited impact on shaping the logistics base of the economy. Strong banking institutions ensure the excess liquidity accumulation, reduce the level of the economy shadowing, and contribute to the long-term lending development, which serves as a catalyst for economic growth and increase in the population well-being. Banking control over financial stability allows assessing the success of meeting the goals set by the banking system, i.e. comparing actual achievement with indicators set by regulatory and governing bodies.

1. THEORETICAL BACKGROUND

Banking control over financial stability implies holistic and continuous supervision over banks' activities (Khoruzhyi, 2015; Shpakovskyi, 2016). This is the activities of banks aimed at prevent-

ing, fixing and eliminating deficiencies and violations, as well as providing legal assistance to enterprises, institutions, organizations and citizens during banking operations and when using banking services (Dotsenko, 2019; Kuznetsova, K. Kuznetsov, & A. Kuznetsov, 2019).

Not only banking institutions exercise banking supervision over financial stability, it is also the responsibility of public financial control and governance bodies. In Ukraine, they include the Accounting Chamber of Ukraine, the State Fiscal Service of Ukraine (planned to be renamed as the State Audit Service), and the National Bank of Ukraine.

Banking financial stability is also an issue for law-enforcement agencies. This is necessary to prevent and stop banking offenses. In Ukraine, the Antimonopoly Committee (the Anti-Corruption Bureau in the long run) plays a special role in regulating banking.

Each of the above bodies of financial control and governance sets certain goals during the audit that may differ significantly and even conflict with each other (Nabok, 2011; Prymak, 2017; Seliverstov, 2015). During inspections, only the National Bank of Ukraine and audit firms aim to ensure the financial stability of the banking system, that is, contribute to achieving one of the main goals of banking.

Banking activity, unlike operations of other entities, has a powerful (by volume) public information base, which displays financial and statistical reporting, information on monetary aggregates, absolute indicators of the volume of certain banking products, discount rates of the National Bank of Ukraine, the value of bank loans and deposits (interest rates), the buying and selling rates of currencies and banking metals, inflation rate (Ursulenko, 2014; Senyshch, 2019; Shumska & Piatnytskyi, 2015). The lack of the operational control procedure does not allow public financial control and governance bodies and banking institutions to predict potential risks, determine their scope and level. This prevents the proper quality of banking control over financial stability, reduces the quality of corporate governance and the implementation of business strategies (Azarenkova, Holovko, & Smyrnov, 2011; Bodretskyi, 2018;

Morozova, Pasechnik, Malafeyev, Galushko, & Goikhman, 2019). Therefore, special attention is paid to exercising operational banking control over financial stability.

Operational control over financial stability of banking activities involves preventing and timely detecting deviations of the controlled object's real situation from the normative, planned and other characteristics that make its functioning possible (Viadrova & Nahai, 2015; Kleftouri, 2017).

Harbar (2018) argues that the operational control over financial stability of banking activities prevents possible misuse in obtaining and spending funds, promotes observing financial discipline, timely financial and monetary settlements, and must be in the owner's interests.

Tarnavskyi (2012) believes that the operational control over financial stability of banking should be carried out by timely assessing the correctness, legality and feasibility of the expenses incurred, the income received, and the entities' settlements.

Thus, operational control over the financial stability of banking is the activities or coordinated actions of individual stakeholders aimed at forming sufficient information for making current management decisions; this, all totaled, shapes a system of continuous observation, review and verification of the form, status and level of banking operations, procedures and metrics as planned or required.

Operational control is executed in the small time intervals, the length of which depends on the duration of the individual controlled processes. However, such processes may have other phenomena, events, and operations that also need to be verified during their implementation. This provides effective and appropriate operational control. Therefore, operational control of the financial stability of banking activities is a fast management tool that is present at all stages of achieving economic goals. The methods of its implementation depend on the specific needs of management, which determines the scope of its application.

Based on the purpose of operational control, the study defines the main tasks of operational control of banking activities' financial stability (Brauers, Ginevičius, & Podviezko, 2014):

- ongoing monitoring of business operations and factors affecting them during their implementation;
- timely warning of all kinds of deviations that will reduce the probability of obtaining the results;
- prompt detection of actual deviations.

Operational control over the financial stability of banking is ensured by united efforts of all people interested in the quality of its conduct. These persons are only bound by the achievement of specific business results, enabling them to carry out an on-the-spot audit of the fulfillment of their functional tasks and responsibilities. They work independently, which contributes to impartiality and quality of information about the true situation with business transactions and events.

It is recommended to use Shewhart charts to effectively control the financial stability of banking activities. These charts allow the upper and lower control limits to be determined, and the mean of the process and its variability are not defined.

The use of Shewhart control charts is regulated by the ISO 8258-2001 (2003) standard. They were first used to analyze the stability of business processes (Shewhart, 1931).

Björn (2003) defines a control chart as a graphical tool that allows timely influencing on the process under study to maintain it within certain limits. According to the control charts, the change in the indicator values over time is statistically controlled if its variability is within certain limits. Therefore, the statistical process management is to ensure and maintain processes at an acceptable stable level, which guarantees its compliance with established requirements.

For the Shewhart chart, sample data are used that are obtained in approximately equal intervals. The intervals are set according to the characteristics of the process being studied. Usually, the chart has a center line that corresponds to the reference value of the characteristic. When assessing whether the process is statistically controlled, the arithmetic mean of data considered is usually chosen as a

standard. The Shewhart chart has two control limits (defined statistically) relative to the center line, namely the upper control limit and the lower control limit. Determining their quantitative value is the subject of special statistical research.

The Shewhart chart draws control limits in such a way that almost 99.7% of possible values are between the upper control limit and the lower control limit. That is, the ISO 8258–2001 standard requires the three-sigma rule. Quite often, on the control chart, the limits are defined even at the distance of two sigmas. These limits are called precautionary. So any value that goes beyond these limits can serve as a warning that the process ceases to be statistically controlled. If the process values go beyond the upper or lower control limits, then the process begins to destabilize. In general, the document (Shewhart, 1931; Björn, 2003) identifies two types of variability.

The first type is random variability due to accidental causes (also known as ordinary causes). It is caused by many reasons that are constantly present and difficult to detect. Each of these reasons accounts for a very small proportion of the overall variability and none of them is significant in itself. However, the sum of all these reasons is measurable and is considered to be the intrinsic essence of the process. Disabling or reducing the impact of ordinary causes requires management decisions to allocate resources for process and system improvements.

The second type of variability is a real change in the process. They may be due to some underlying causes that are not inherent in the process internally and can be eliminated, at least theoretically. These reasons are considered as non-random or special causes of change. These may include insufficient material uniformity, tool breakage, personnel qualification, failure to comply with procedures, poor production or control equipment efficiency (Basel Committee on Banking Supervision, 2019).

Hubar (2012) considers the construction of the Shewhart chart appropriate to analyze economic processes, in particular, the indicator “Time to respond to a client’s request”. The method of its construction meets the requirements of the ISO 8258-2001 standard. The author concludes that analyzing the reasons for exceeding this indicator only when

it goes beyond the upper control limit significantly shortens the process of analysis of the company's activity and increases its effectiveness because the company management focuses only on the most important cases of deviation from its average value (Hubar, 2012).

Tkachenko and Kharchenko (2015) consider Shewhart charts expedient for the individual values of non-performing loans in banks' lending operations. The methodology for constructing the Shewhart chart is standard, but its use for a specific research purpose requires some attention. Thus, Tkachenko and Kharchenko (2015) examined the value of this indicator at one date in many banks and identified those banks for which this indicator exceeded the upper control limit. It is not clear from the study text whether there is a regulatory critical value for this indicator. In its absence and the absence of any influence on the bank activity at the legislative level, the construction of the Shewhart chart loses much of its effectiveness.

According to Shvets (2017), the National Bank of Ukraine can use the results of this study to deter-

mine its regulatory policy. Therefore, it is appropriate to implement Shewhart charts to promptly control the financial stability of banking activities.

The purpose of the paper is to develop recommendations on the operational control over financial stability of banking activities and to test them using banking institutions of Ukraine as an example.

2. RESULTS

Tables 1 and 2 provide economic standards of operational control over the financial stability of banking activities that are unilaterally limited under the "at least" or "not exceeding" terms.

Figures 1-11 present Shewhart charts for the process of changing the actual values of economic standards for financial stability of banking over time.

Using the criteria for maintaining statistical variability, one can conclude that the evolution of economic standards for banking activity is steady for all indicators except H4 (the instant liquidity ra-

Table 1. Economic standards for operational control over the banking activities' financial stability that are unilaterally restricted under the "at least" term or (\geq)

Source: Grouped according to Methods of Calculating Economic Standards to Regulate Banking Activity in Ukraine approved by the National Bank of Ukraine (2019).

The ratio number	The ratio name	Restriction statement	Type of restriction
Ratio 2	Regulatory capital adequacy	At least 10%	\geq
Ratio 3	Regulatory capital to total assets	At least 9%	\geq
Ratio 4	Instant liquidity	At least 20%	\geq
Ratio 5	Current liquidity	At least 40%	\geq
Ratio 6	Short-term liquidity	At least 20%	\geq

Table 2. Economic standards for operational control over financial stability of banking activities that are unilaterally limited under the "not exceeding" term or (\leq)

Source: Grouped according to Methods of Calculating Economic Standards to Regulate Banking Activity in Ukraine approved by the National Bank of Ukraine (2019).

The ratio number	The ratio name	Restriction statement	Type of restriction
Ratio 7	Maximum credit risk per counterparty	Not exceeding 25 %	\leq
Ratio 8	High credit risk	Not exceeding the eightfold amount of regulatory capital	\leq
Ratio 9	High loans, guarantees and sureties given to one insider	Not exceeding 5%	\leq
Ratio 10	High aggregate loans, guarantees and sureties given to insiders	Not exceeding 30%	\leq
Ratio 11	Investment in securities separately for each institution	Not exceeding 15%	\leq
Ratio 12	Total investment	Not exceeding 60%	\leq

tio). It should be noted, however, that the stability of the process doesn't always equal the reliable operation of a bank.

Figures 1-11 show that during 2017–2019, H2, H6, H8, and H12 ratios were not observed and H3 and H7 were at the control value limit.

Source: Developed according to the public quarterly financial statements of Ukrainian banking institutions (with state, foreign and private capital) for 2017–2019.

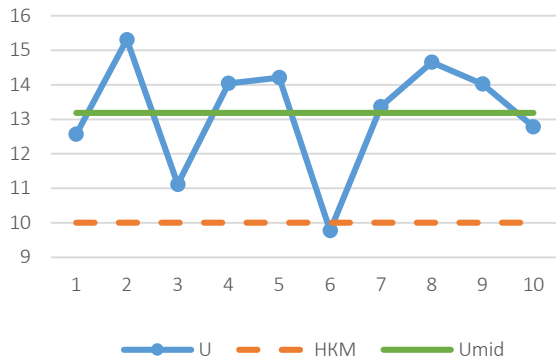


Figure 1. The Shewhart chart for the H2 (regulatory capital adequacy) evolution

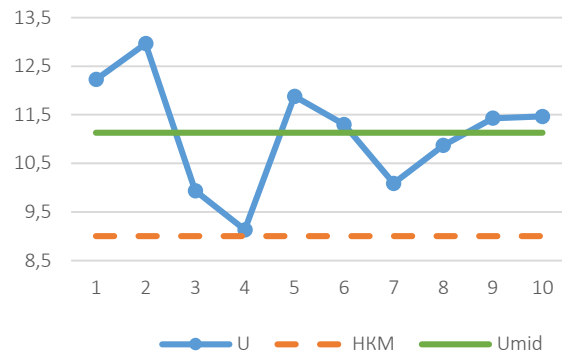


Figure 2. The Shewhart chart for the H3 (regulatory capital to total assets) evolution

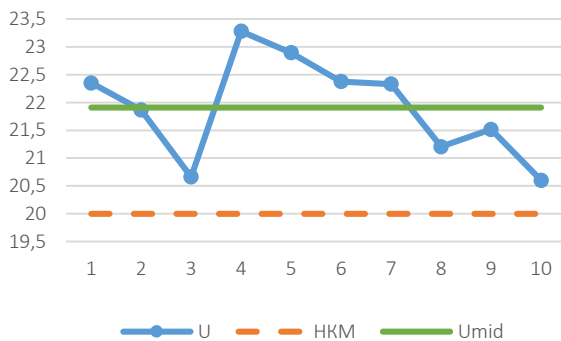


Figure 3. The Shewhart chart for the H4 (instant liquidity) evolution

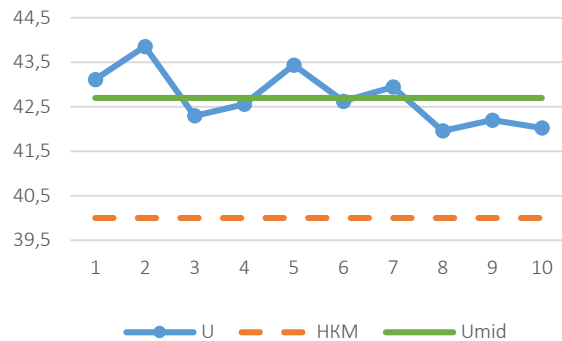


Figure 4. The Shewhart chart for the H5 (current liquidity) evolution

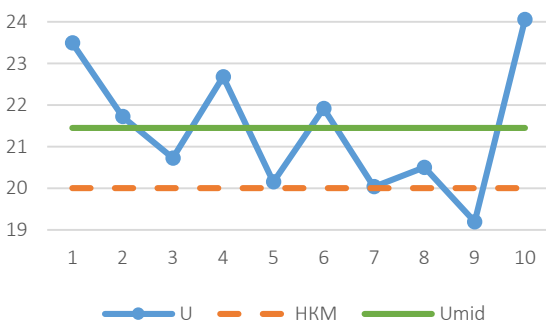


Figure 5. The Shewhart chart for the H6 (short-term liquidity) evolution

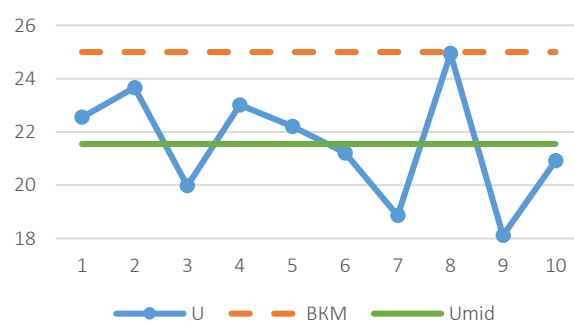


Figure 6. The Shewhart chart for the H7 (maximum credit risk per counterparty) evolution

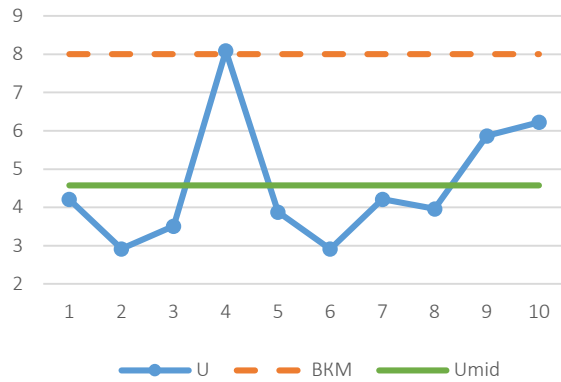


Figure 7. The Shewhart chart for the H8 (high credit risk) evolution

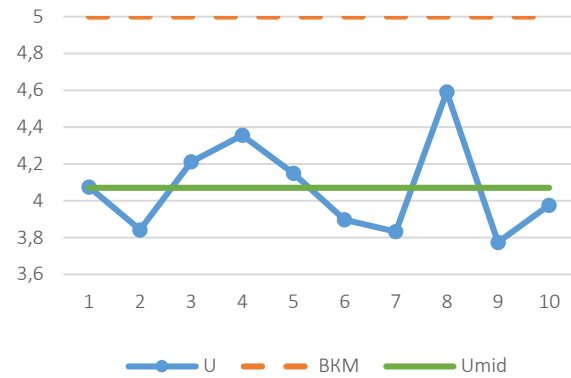


Figure 8. The Shewhart chart for the H9 (high loans, guarantees and sureties given to one insider) evolution

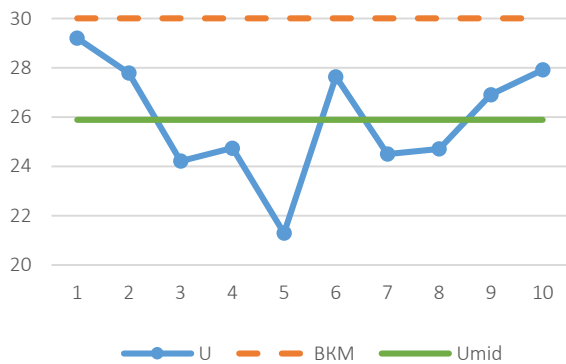


Figure 9. The Shewhart chart for the H10 (high aggregate loans, guarantees and sureties given to insiders) evolution

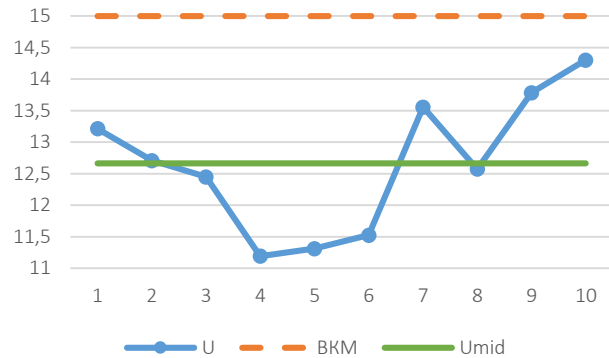


Figure 10. The Shewhart chart for the H11 (investment in securities separately for each institution) evolution

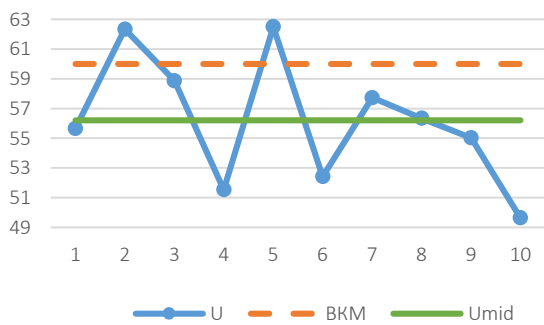


Figure 11. The Shewhart chart for the H12 (total investment ratio) evolution

CONCLUSION

During 2017–2019, three standards were not complied with: regulatory capital adequacy, high credit risk, and total investment ratios. There were two ratios at the limit of the control value: the regulatory capital to total assets ratio and the maximum credit risk per counterparty ratio. To ensure compliance with the standards, the financial management of a banking institution must take organizational and financial measures to change the average value of the relevant standards to a level that ensures its financial stability.

Since the Shewhart chart-based recommendations on the operational control over the banking activities' financial stability rely on the public financial statements of Ukrainian banks that meet the International Standards, it can be used not only by Ukrainian banks, but also by other countries. This will identify problematic aspects of banking, ensure the timeliness and effectiveness of its planning activities, and focus on its optimizing considering risks and profitability.

However, operational control reflects only part of the overall banking management system. Forecasting and planning of banking activities are an important basis for the bank development. First of all, it involves drawing up plans and forecasts of banking activities. Risk assessment and inseparable combination of individual and mass service for different customer groups are important as well. This requires the development of a banking forecasting and planning methodology that will enable decisions to be taken to ensure the efficiency of banking operations in the future.

REFERENCES

1. Azarenkova, H. M., Holovko, O. H., & Smyrnov, V. V. (2011). *Finansova stabilnist rozvytku bankiv [Financial stability of bank development]* (191 p.). Kyiv: NBU, The Banking University. (In Ukrainian).
2. Basel Committee on Banking Supervision (BCBS). (2019). *Basel Committee publishes more details on global systemically important banks* (Press Release). Retrieved from <https://www.bis.org/press/p191122.htm>
3. Björn, A. (2003). *Biznes protsessy. Instrumenty sovershenstvovaniya [Business processes. Improvement tools]* (272 p.). Moscow: Standarty i kachestvo. (In Russian).
4. Bodretskiy, M. V. (2018). Vplyv rozvytku merezh prodazhiv na stiiikist bankivskoi ustanovy [The impact of the development of sales network on the stability of a banking institution]. *Modern Economics*, 8, 15-28. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/modecon_2018_8_4
5. Brauers, W. K. M., Ginevičius, R., & Podviezko, A. (2014). Development of a methodology of evolution of financial stability of commercial banks. *Panoeconomicus*, 61(3), 349-367. <http://dx.doi.org/10.2298/PAN1403349B>
6. Dotsenko, I. (2019). The Conceptual Steps for Determination the Essence of Concept of Bank Financial Stability. *Modern Economics*, 13, 79-84. (In Ukrainian). Retrieved from <http://elar.khnu.km.ua/jspui/bitstream/123456789/8274/1/%d0%a1%d1%82%d0%b0%d1%82%d1%82%d1%8f%20dotsenko.pdf>
7. Harbar, Ye. S. (2018). Otsinka efektyvnosti pidkhodiv minimizatsii naslidkiv volatylnosti na finansovu stiiikist banku [Assessing the effectiveness of approaches to minimize the effects of volatility on a bank's financial soundness]. *Molodyi Vchenyi – Young Scientist*, 2(1), 376-382. (In Ukrainian). Retrieved from [http://nbuv.gov.ua/UJRN/molv_2018_2\(1\)_90](http://nbuv.gov.ua/UJRN/molv_2018_2(1)_90)
8. Hubar, O. Ye. (2012). Anderaitynh v protsesno-orientovani systemi upravlinnia strakhovoiu kompaniieiu [Underwriting in a process-oriented management system of an insurance company]. *Zbirnyk naukovykh prats Cherkaskoho derzhavnogo tekhnolohichnogo universytetu. Seriya Ekonomichni nauky – Collection of scientific works of Cherkasy State Technological University. Series Economic Sciences*, 30(1), 72-79. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Znpchdtu_2012_30%281%29__17
9. Khoruzhyi, D. (2015). Stiiikist bankivskoi systemy Ukrainy v konteksti vnutrishnikh ta zovnishnikh vyklykiv [Sustainability of the Ukrainian banking system in the context of internal and external challenges]. *Finansovo-kredytna diialnist: problem teorii ta praktyky: zbirnyk naukovykh prats – Financial and credit activity: problems of theory and practice: a collection of scientific works*, 1, 44-51. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Fkd_2015_1_8
10. Klefour, N. (2017). European Union Bank Resolution Framework: can the objective of financial stability ensure consistency in resolution authorities' decisions? *ERA Forum*, 18(2), 263-279. <https://doi.org/10.1007/s12027-017-0469-0>
11. Kuznetsova, S. A., Kuznetsov, K., & Kuznetsov, A. (2019). How to increase public confidence in understanding and use of the banking system: marketing model "Nets for trust". *Finansovo-kredytna diialnist: problem teorii ta praktyky: zbirnyk naukovykh prats – Financial and credit activity: problems of theory and practice: a collection of scientific works*, 2(29), 13-20. Retrieved from <https://doi.org/10.18371/fcaptop.v2i29.172305>
12. Morozova, N. L., Pasechnik, I. V., Malafeyev, T. R., Galushko, Y. P., & Goikhman, M. I. (2019). Assessment of capital concentration impact on the banking system efficiency under modern transformation. *Finansovo-kredytna diialnist: problem teorii ta praktyky: zbirnyk naukovykh prats – Financial and credit activity: problems of theory and practice: a collection of scientific works*, 2(29), 55-65. Retrieved from <https://doi.org/10.18371/fcaptop.v2i29.172367>

13. Nabok, O. M. (2011). Informat-siino-komunikatsiine zabezpechennia vprovadzhenia operativnoho kontrolinhy v bankakh [Information and communication support for the implementation of operational control in banks]. *Visnyk ekonomiky transport i promyslovosti – Bulletin of Transport and Industry Economics*, 33, 115-120. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Vetp_2011_33_26
14. Prymak, Yu. R. (2017). Analiz dilovoi aktyvnosti, imidzhu ta reputatsii: yikh vplyv na finansovy stiikist banku [Analysis of business activity, image and reputation: their impact on a bank's financial soundness]. *Ekonomichniyi Forum – Economic Forum*, 2, 330-337. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/ecfor_2017_2_54
15. Seliverstov, V. V. (2015). Osoblyvosti vplyvu instrumentiv monetarnoi polityky tsentralnykh bankiv na tsinovu stabilnist [Feature of influence of monetary policy instruments of central banks on price stability]. *Finansy Ukrainy – Finance of Ukraine*, 3, 45-58. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Fu_2015_3_6
16. Senyshch, P. M., & Tkachuk, N. M. (2019). Teoretychni aspekty stiikosti bankivskoi systemy z pozytsii systemnoho i synerhetichnoho pidkhodiv [Theoretical aspects of the banking system sustainability from the perspective of systemic and synergetic approaches]. *Finansovo-kredytna diialnist: zbirnyk naukovykh prats – Financial and credit activity: a collection of scientific works*, 3(30), 36-44. (In Ukrainian). <https://doi.org/10.18371/fcaptop.v3i30.179460>
17. Shewhart control charts. (2003). *Official edition* (32 p.). Kyiv: State Committee of Ukraine for Technical Regulation and Consumer Policy. (In Ukrainian).
18. Shewhart, W. A. (1931). *Economic Control of Quality of Manufactured Product* (521 p.). New York: D. Van Nostrand, Co.
19. Shpakovskyi, A. O. (2016). Finansova stiikist yak kintseva meta restrukturyzatsiinykh protsesiv u bankakh Ukrainy [Financial sustainability as the ultimate goal of restructuring processes in Ukrainian banks]. *Visnyk Khmelnytskoho natsionalnoho universytetu. Ekonomichni nauky – Bulletin of Khmelnytskyi National University. Economic Sciences*, 1, 182-185. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Vchnu_ekon_2016_1_32
20. Shumska, S. S., & Piatnytskyi, D. V. (2015). Tendentsii rozvytku ta stiikist bankivskoi systemy Ukrainy [Development trends and stability of the Ukrainian banking system]. *Upravlinnia rozvytkom – Development Management*, 3, 7-19. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Uproz_2015_3_3
21. Shvets, O. V. (2017). *Kontrol ta zasoby minimizatsii kredytnoho ryzyku banku [Control and means of minimizing bank credit risk]* (Ph.D. Dissertation). Kyiv. (In Ukrainian).
22. Tarnavskiy, M. O. (2012). Vplyv valiutnykh ryzykiv na finansovu stabilnist bankivskoi systemy Ukrainy [The impact of currency risks on the financial stability of the banking system of Ukraine]. *Investytsii: praktyka ta dosvid – Investment: practice and experience*, 1, 58-61. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/ipd_2012_1_16
23. The Verkhovna Rada of Ukraine. (2019). *Pro Natsionalui bank Ukrainy, 679-XIV, potochna redaktsiia vid 19.10.2019, pidstava 122-IX [On the National Bank of Ukraine, 679-XIV, current as of October 19, 2019, reference 122-IX]*. (In Ukrainian). Retrieved from <https://zakon.rada.gov.ua/laws/show/679-14>
24. The Verkhovna Rada of Ukraine. (2019a). *Pro skhvalennia Metodyky rozrakhunku ekonomichnykh normatyviv rehuliuвання diialnosti bankiv v Ukraini: rishennia Natsionalnoho banku Ukrainy, vr803500-17, potochna redaktsiia vid 02.08.2019 [On Approval of Methods of Calculating Economic Standards for banking Regulation in Ukraine: Decision of the National Bank of Ukraine, vr803500-17, current as of August 2, 2019]*. (In Ukrainian). Retrieved from <https://zakon.rada.gov.ua/laws/show/vr803500-17>
25. Tkachenko, N. V., & Kharchenko, A. M. (2015). Monitorynh problemnoi zaborhovanosti u roz-dribnomu bankivskomu kredy-tuvanni [Monitoring of bad debt in retail bank lending]. *Innovatsiina ekonomika – Innovative creation*, 1, 170-175. (In Ukrainian).
26. Tkachenko, O. O. (2015). Hroshovo-kredytna polityka ta finansova stiikist bankivskoi systemy Ukrainy [Monetary policy and financial stability of the Ukrainian banking system]. *Upravlinnia rozvytkom – Development Management*, 4, 29-34. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/Uproz_2015_4_6
27. Ursulenko, H. V. (2014). Finansova stabilnist rynku bankivskykh posluh [Financial stability of the banking market]. *Investytsii: praktyka ta dosvid – Investment: practice and experience*, 2, 66-67. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/ipd_2014_2_16
28. Viadrova, N. H., & Nahai, I. V. (2015). Finansova stiikist bankivskoho sektora pid vplyvom struktury vlasnykh finansiv ta makroekonomichnykh chynnykiv [Financial sustainability of the banking sector under the influence of its finance and macroeconomic factors]. *Biznes Inform – Business Inform*, 3, 217-225. (In Ukrainian). Retrieved from http://nbuv.gov.ua/UJRN/binf_2015_3_34