

Bank Valuation Research: Experience of the Baltic States

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The valuation of bank activity is important to shareholders, potential investors, supervisors, government institutions and society. They are interested in safety and profitability of funds invested as well as stable and safe growth of the economy. A lot of theoretical methods of valuation exist. The internal valuation of bank usually is concentrated on shareholders' purpose – increasing of profitability and cash flow. The external valuation is many – sided and especially concentrates on risk. In order to clarify methods, the most useful for valuation and decision making, the investigation was performed.

The research showed that methods of internal valuation can be divided into two groups: methods based on cash flow and methods based on profitability measurement. Methods of external valuation can be specified for assets quality, capital adequacy, liquidity, profitability, management and other qualitative factors. As external valuation is much wider, the internal valuation should be improved by adding necessary fields of appraisal for creation of effective valuation system.

As different indicators may value the same aspects of performance, the practical determination of the most important indicators is needed. Therefore the research of the most frequent methods used by internal and external appraisers was performed for Lithuania and tested on the rest of the Baltic States. The main internal and external indicators were determined. Indicators are as follows: Total debt / Total common equity; ROA; ROE; Provisions / Total loan portfolio; Non – performing loans / Share capital and reserves; Provisions / Non – performing loans; Non – performing loans / Pre – provision income; Additional expenses in income; Deposits.

The selection of the significant variables was performed by using the model, based on multidimensional regression. The set of basic indicators was tested on Lithuanian and both commercial banks of the Baltic States. Three key indicators were selected for Lithuanian banks: Non – performing loans / (Share capital + reserves); Non – performing assets / Pre – provision income; Deposits. The correlation and regression analysis of stated indicators was performed. It allowed determining strong linear dependence among individual credit rating of bank and 10 main indicators. Correlation analysis of Latvian banks was not successful due to insufficient adoption of basic indicators to Latvian banks. The significance of the equation was negative and it was not possible to determine significant indicators. The correlation analysis for Estonian banks failed, but it was successful for aggregate data and showed strong linear dependence among individual credit rating of bank and

main indicators. The model led to find out these significant indicators for the commercial banks of the Baltic States: ROE; Provisions / Total loan portfolio; Non-performing loans / (Share capital + reserves); Provisions / Non – performing loans; Non-performing loans/ Pre – provision income; Deposits.

The present model, based on Lithuanian commercial banks, is not universal for all the Baltic States. Modeling of bank's financial condition, using multidimensional regression is also possible. This would lead to projection of bank's rating by changing values of the key variables.

Keywords: *activity analysis, methodologies of banks valuation, valuation effectiveness, multidimensional regression, selection of indicators.*

Introduction

It is very important to choose valuation methods in bank activity. The valuation is important to shareholders in order to monitor and manage activity of organization. Potential investors are interested in shares of not enough evaluated financial institutions. Supervisors have to ensure safe and efficient function of banking system. The valuation of banks is also important to government institutions and society, interested in high efficiency and development of this economy sector. Every group (internal or external) of valuers has their methods, which are not adjusted. Internal valuation performed in banks usually covers a narrow field of valuation.

When there is no coordination of internal and external valuation, the gap between management, focused on shareholders goals and reach of desirable credit rating, occurs.

As methods of valuation are widely discussed nowadays, we face the issue of practical application necessity and determination of the most important valuation fields. The question arises: what methods of valuation have to be used in order to make right decisions and manage? The banking industry is especially suitable for investigation due to its rapid development and appetite for innovations (e – banking, wide networks and etc.).

The object of research – to review the world most widely used theoretical methods of bank valuation, to research methods applied in bank practice and to create the model for selection of the most significant indicators. The model should be applied to commercial banks of the Baltic States.

The methodology of research – scientific methods of systematic, comparative and logical analysis of litera-

ture, economic practice and statistical data as well as econometrical analysis was used.

Level of problem's exploration – the increase of bank valuation efficiency by combining it with external valuation is not studied by Lithuanian authors. Internal valuation of banks is analyzed in „Commercial bank management: producing and selling financial services“ of Peter, 1993, methods of internal valuation are described in articles by Gentry, Newbold, Whitford, 1990, Pohlman, Santiago, Markel, 1988, Ruback, 2002 and etc. External analysis of financial institutions is widely described in publications of the world's biggest credit rating agencies, prepared by analysts of „Moody's, 1999, „Fitch IBCA“, 2003, 2004 and etc. Credit risk and rating valuation issues are widely discussed in articles of Saita, 1999, Hsiu-Kwang Wu, Helms, 1984, Leach 1964, Watson 1976, Lie, 2002.

The analysis of theoretical methods

This chapter discusses world practice methodologies used by commercial banks and credit rating agencies. As the purposes of valuation differ, methodologies have been divided into groups of internal and external valuation accordingly. These techniques will be adapted to Lithuanian, Latvian and Estonian commercial banks further in the article.

Internal valuation. Internal valuation can be determined as valuation performed inside bank for internal purposes. It mainly reflects subjective view of shareholders and management of financial institution. The owner of the bank, present and potential creditors, employees and government institutions can be interested in financial institution's value. Therefore methods of internal valuation differ by the field of application, goal and methodology.

Cash flow for liquidity and return valuation (Baum, 1969, Gentry, Newbold, 1985, Kancerevyčius, 2004). It includes free and discounted cash flow methods. These methods allow analyzing bank according to cash flow to equity or bank and also according to dividend flow to shareholders. There are two main variants of cash flow model: dividend discount model (DDM) and free cash flow model (FCF).

Profitability for effectiveness of performance valuation (Carey, 1974, Coyne, 1973, Peter, 1993). Another important part of bank valuation methodologies is indicators of profitability. Nevertheless market price of shares is the best indicator, in the case of banks this indicator alone is not enough precise. It is due to few transactions with bank shares in national and international markets. This forces analysts to use indicators replacing market value indexes. These are various indicators of profitability (ROE, ROA, net percentage margin, performing assets basis, profit spread, net non – percentage margin, net earnings per share, net operating margin, net earnings before special operations), which should be analyzed statically and dynamically.

External valuation. External valuation can be determined as valuation performed by independent valuers as central banks, credit rating agencies and etc. It mainly shows objective view of independent appraisers and su-

pervisors. First of all it should be stated that analysis of external appraisers (the best example – credit rating agencies) is many – sided (CARE ratings, 2004; DBRS financial services, 2004, Fitch IBCA Banks, 2003, Moody's Investors Service, 2000, Standard & Poor's, 2001).

Assets quality for loan portfolio risks valuation (Siegel, 1982). As the goal of every shareholder is to maximize profitability and dividend flow, increase of bad debts is not valued efficiently. According to credit rating agencies, the assets quality is one of the main indicators showing the risk of the bank. For example, “Standard & Poor's” pays attention to provisions for losses from loans, non – performing loans in loan portfolio or equity and dynamics of mentioned indicators.

Capital adequacy for absorption possibilities valuation (Brooks, Persand, 2002, Cebenoyan, Cooperman, Register, 1995, Dowd, 1999, Jessup, Bochnak, 1976, Kealhofer, 2003). The goal of every bank is to achieve the highest profit at the lowest capital price. It determines the need of shareholders to operate using debt as much as possible. Long-term profitable activity of bank using high level of debt shows competence of management team. Nevertheless it increases sensitivity of the bank to external and internal changes. Therefore the lack of capital adequacy valuation is one of the main deficiencies of internal analysis.

Liquidity for timely payment valuation (Fielitz, Loefler, 1979, Silvers, 1976). “Moody's” analyses potential sources of cash flow in liquidity analysis. “Moody's” analysts states, that it is especially important to analyze procedures and politics of treasury.

Profitability to value effectiveness of performance. This is the field associating internal and external valuation of banks. In both cases profitability is the most important indicator due to tight correlation to cash flow, liquidity and capital adequacy.

Management and other qualitative factors for competence and experience valuation. Credit rating agencies states that valuation of qualitative factors has heavy impact on credit analysis. Comparing to internal valuation, analysis of management is much more efficient in external appraisal. It evaluates not only profitability management but also risk management.

Management quality valuation of “Moody's” includes two important factors: historical data, disclosing financial situation of bank and future strategy, created by management.

Historical data shows competence of management in such fields as criteria for provisions formation, reporting systems, assets / equity management.

The research of practical methods

Because this article deals with commercial banks of the Baltic States, the world best practice should be tested on these financial institutions and the optimal combination of subjective and objective views should be found. As the Baltic States are the members of European Union, practical methods used should be in line with world's standards. Therefore the research for practical selection of the main indicators was performed. The 31st of De-

ember 2004 data of Lithuanian commercial banks, the most influential credit rating agencies and independent expert opinion was reflected. The set of determined indicators will be adapted to Latvian and Estonian banks. The steps of the research are provided in figure 1:

1. Gathering of data from Baltic commercial banks due to testing of their necessity, using the knowledge expert.
2. Research and analysis of Lithuanian commercial-banks methods for determining of significant variables, satisfying goals of shareholders and credit rating agencies.
3. Research and analysis of Latvian and Estonian commercial banks methods for determining of significant variables, satisfying goals of shareholders and credit rating agencies. Also testing the model for adaptation in other financial markets.
4. Research and analysis of Baltic commercial banks data in order to get aggregate results.

The process of the research is provided further. Three global credit rating agencies were chosen as external valuers. The credit division head of foreign bank branch in Lithuania was chosen as independent expert. The interview was performed on the 14th of March 2005. Open questions were submitted for the respondent.

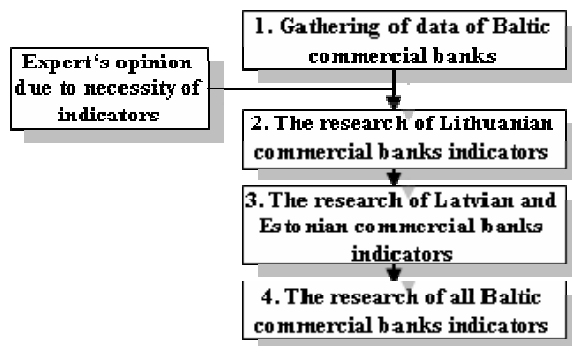


Figure 1. Schema of the practical methods research

The data was collected from financial reporting of banks and other publicly available information. The most often used external valuation indicators were gathered from publications of global credit agencies.

Lithuanian commercial banks submit *ROA*, *ROE* and *net profit* as the main indicators of internal valuation. It should be noted that commercial banks usually submit absolute, but not comparative indicators in form of financial reports. Comparative indicators are more important in valuation of banks. It allows comparing banks notwithstanding their size.

The key indexes are as follows: *Total debt / Tangible common equity*, *Provisions / Total loan portfolio*, *Non-performing loans / (Share capital + reserves)*, *Provisions / Non-performing loans*, *Non-performing loans / Pre-provision income*, *Additional expenses in income*, *Deposits*. Credit rating agencies also treat *ROA* and *ROE* as important indicators of efficiency.

Summarizing it could be stated that Lithuanian commercial banks, credit rating agencies and expert treat *ROA* and *ROE* as important. Therefore they always should be included in appraisal of banks. Opinions of

credit rating agencies and expert coincident in terms of indicators as *Total debt / Total equity*, *Provisions / Total loan portfolio* and *Additional expenses in income*. These indicators should be also included in the creation of valuation system. The application of other indicators depends on the purpose of research and specifics of bank.

The analyzed indicators should be consolidated into one system. This would allow finding out fields of optimization and maximizing credit rating of bank. Therefore the determination of mentioned indicators' correlation has been described further. This should lead to the creation of efficient valuation system. The model will also be tested on Latvian and Estonian commercial banks.

Model for selection of valuation indicators

Discrepancies between internal and external valuation lead to diminishing of credit rating. This fact leads to lower reliability of the bank and related issues as higher borrowing costs, higher collateralization requirements and etc. The reconciliation procedure is time and money consuming. Therefore optimal model (in this case for Baltic commercial banks) for effective profitability and risk valuation should be created.

According to theoretical and practical analysis of valuation methodologies, banking practice and mathematical analysis, the main steps for indicators' selection were determined (figure 2).

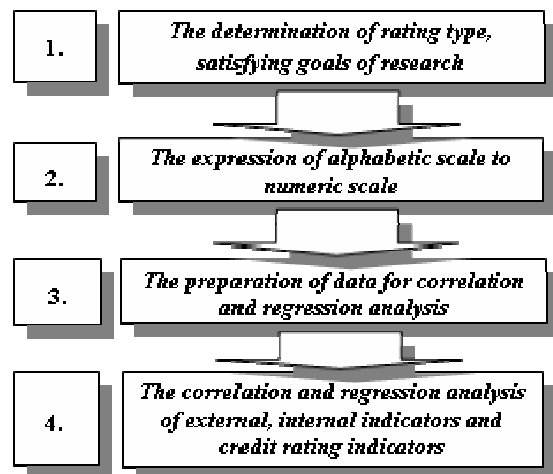


Figure 2. The graphical schema of valuation indicators selection

Figure 2 shows the steps of valuation indicators selection. The steps are as follows:

1) **The determination of rating type, satisfying goals of research.** According to the purpose of research, different types of credit rating can be selected (Fitch IBCA Banks, 2004).

2) **The expression of alphabetic scale to numeric scale.** The alphabetic credit rating scale should be expressed in digits due to application of multidimensional regression.

3) **The preparation of data for correlation and regression analysis.** Data for correlation and regression analysis should be divided to independent and dependent variables. The determination of their interdependence during the selected period should be performed.

Significance valuation results

Indicators	Significant for Lithuania	Significant for Latvia	Significant for Estonia	Aggregate significance
Total debt / Tangible common equity	-	-	N/A*	-
ROA	-	-	N/A	-
ROE	-	-	N/A	+
Provisions / Total loan portfolio	-	-	N/A	+
Non-performing loans / (Share capital + reserves)	+	-	N/A	+
Provisions / Non-performing loans	-	-	N/A	+
Non-performing loans/ Pre-provision income	+	-	N/A	+
Additional expenses in income	-	-	N/A	-
Net profit	-	-	N/A	-
Deposits	+	-	N/A	+

* N/A – results are not available.

This model of selection is based on practically determined independent variables and dependent variable – credit rating. The key indicators are pointed as independent variables.

The dynamics of independent and dependent variables should be determined. Correlation and regression analysis should be performed. This allows finding out the most significant indicators.

4) The correlation and regression analysis of external, internal indicators and credit rating. The multidimensional regression is used for determining indicators out of independent variables mostly influencing value of credit rating. The software packages for multidimensional regression should be used due to large amount of data.

Indicators' selection research in the Baltic States

The practical selection of the key variables was performed by following steps already stated above:

1) The determination of rating type, satisfying goals of research. Individual credit rating type is the most suitable to valuate efficiency and risk. It also enables performing international and national comparison. Therefore individual credit rating was chosen as dependent variable.

2) The expression of alphabetic scale to numeric scale. The alphabetic credit rating scale of "Fitch IBCA" and its equivalent of "Moody's" for commercial banks was expressed in digits.

3) The preparation of data for correlation and regression analysis. Correlation and regression analysis should cover as much as possible of Lithuanian and Latvian commercial banks. Therefore individual ratings and financial indicators of 31st of 2002, 2003 and 2004 were used. The list of banks rated from 2002 to 2004, includes: JSC bank "SEB Vilniaus bankas", JSC bank "Hansabankas", JSC bank "NORD L/B Lietuva", JSC bank "Šiaulių bankas", JSC bank "Snoras", JSC "Mortgage and Land Bank of Latvia", JSC "Nord L/B Latvia", JSC "SEB Unibanka", JSC "Hansabanka", JSC "Sampo Bank", JSC "Esti Uhisbank", JSC "Hansapank".

4) The correlation and regression analysis of external, internal indicators and credit rating. The correlation, regression analysis and selection of significant variables were performed using "Statistica" software package. Results of regression and correlation analysis using "Statistica" software package are presented in the table and figure 2.

As it can be seen from the Table, it was possible to determine significant indicators only for Lithuania (Non-performing loans / (Share capital + reserves); Non-performing loans/ Pre-provision income; Deposits). In the case of Latvia, significant indicators were not pointed out and it was not possible to perform correlation analysis for Estonian banks due to the lack of data (there were not enough commercial banks, rated starting from 2002).

Correlation analysis of aggregate data pointed six significant indicators: ROE; Provisions / Total loan portfolio; Non-performing loans / (Share capital + reserves); Provisions / Non-performing loans; Non-performing loans/ Pre-provision income; Deposits.

The separate and aggregate results of multidimensional correlation analysis are presented in the figure 3. As it can be seen from the figure 3, in cases of Lithuania, Latvia and aggregate calculation, the correlation and determination coefficients are close to 1. Such values of multidimensional coefficient show strong correlation among independent variables and dependent variable. It confirms that strong interdependence of internal, external variables and credit rating exists. The coefficient of determination shows that over 90 % of bank credit rating variation is explainable by internal and external indicators.

As the results are presented, it possible to comment them, according to every country:

- Results of Lithuania are the most reliable, due to meeting of Fisher's criteria. The theoretical value of Fisher's distribution is 5.96, when the degree of freedom (df) is 10,4 and the level of significance is 0.05. $F = 17.32939$ – the calculated value is higher than theoretical value of Fisher's distribution ($k1, k2$) value. Therefore it can be stated, that the multidimensional regression equation meets the criteria of Fisher and is significant. This result can be explained by the steady development of Lithuanian banking sector and increasing international credit ratings. The indicators of Lithuanian banks from 2002 to 2004 were improving.
- Results of Latvia are doubtful, due to not meeting Fisher's criteria. The theoretical value of Fisher's distribution is 241.9, when the degree of freedom

(*df*) is 10.1 and the level of significance is 0.05. $F = 24.64231$ – the calculated value is lower than theoretical value of Fisher’s distribution (*k1*, *k2*) value. This result can be explained specifics of Latvian commercial banks. The multidimensional correlation analysis was based on indicators of Lithuanian commercial banks, global credit rating agencies and expert from Lithuania. The conclusion is that the set of indicators should be modified according to the specifics of Latvian commercial banks.

- Results of correlation analysis of Estonian commercial banks were not available due to insuffi-

cient amount of data. Not enough Estonian banks were rated starting from 2002.

- The aggregate results of correlation analysis of Baltic commercial banks can be treated as reliable. The theoretical value of Fisher’s distribution is 2.49, when the degree of freedom (*df*) is 10.16 and the level of significance is 0.05. $F = 23.77569$ – the calculated value is lower than theoretical value of Fisher’s distribution (*k1*, *k2*) value. Reliability of aggregate results can be explained by the strong impact of data of Lithuanian and probably Estonian commercial banks.

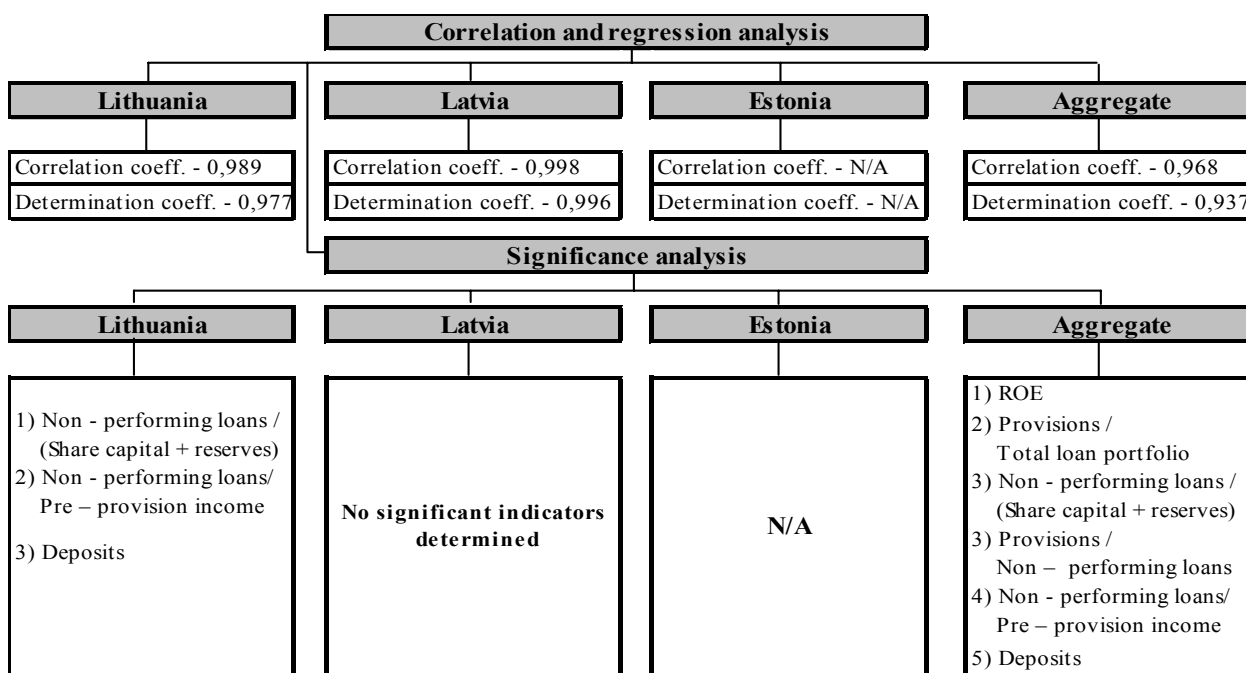


Figure 3. Schema of correlation and regression analysis results

Conclusions

By summarizing Bank’s valuation – world’s practice and experience of the Baltic States, following conclusions were formulated:

1. Internal valuation of banks is oriented to maximization of shareholders’ interests. It covers only narrow field of external appraisers’ analysis. Therefore internal valuation is not thorough enough. That doesn’t allow analyzing bank in rapidly changing business conditions.
2. According to the comprehensiveness of external analysis, internal valuation methodology should be improved by including additional fields of external appraisal. These are fields of assets quality, capital adequacy, liquidity and qualitative factors’ valuation. The managers of financial institutions should also be oriented to combined and adjusted methodology, consisting of internal and external methods.
3. Practically, according to the data of Lithuanian commercial banks, global credit rating agencies and opinion of expert, the main internal and external indicators were determined. These indicators are necessary for the creation of bank’s valuation system. Indicators are as follows: *Total debt / To-*

tal common equity; ROA; ROE; Provisions / Total loan portfolio; Non-performing loans / Share capital and reserves; Provisions / Non-performing loans; Non-performing loans / Pre-provision income; Additional expenses in income; Deposits.

4. Using the model, based on multidimensional regression, the set of basic indicators were tested on Latvian, Estonian and both all commercial banks of the Baltic States. Three key indicators were selected for Lithuanian banks: *Non-performing loans / (Share capital + reserves); Non-performing assets / Pre-provision income; Deposits*. The correlation and regression analysis of stated indicators was performed. It allowed determining strong linear dependence among individual credit rating of bank and 10 main indicators. Correlation analysis of Latvian banks was not successful due to insufficient adoption of basic indicators to Latvian banks. The significance of the equation was negative and it was not possible to determine significant indicators. The correlation analysis for Estonian banks failed, but it was successful for aggregate data and showed strong linear dependence among individual credit rating of bank and main indicators. The model led to find out these significant indicators:

ROE; Provisions / Total loan portfolio; Non-performing loans / (Share capital + reserves); Provisions / Non-performing loans; Non-performing loans/ Pre-provision income; Deposits.

5. Further directions of valuation efficiency increase should be based on adoption of model for Latvian and Estonian commercial banks. The present model, based on Lithuanian commercial banks, is not universal for all the Baltic States. The bias was possible due to external factors as difference in macroeconomics, legal and political environment.

Modeling of bank's financial condition, using multi-dimensional regression is also possible. This would lead to projection of bank's rating by changing values of the key variables.

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Bankų vertinimo tyrimas: Baltijos šalių patirtis

Santrauka

Straipsnyje pateikiamas bankų vertinimo tyrimas, įvertinama pasaulinių kredito reitingo agentūrų, vidinių vertintojų ir Baltijos šalių komercinių bankų patirtis. Vidinis bankų vertinimas dažniausiai orientuotas į akcininkų tikslus – pelningumo ir pinigų srautų maksimizavimą. Dėl šios priežasties rizika nėra vertinama pakankamai efektyviai. Todėl ypač svarbu pasirinkti efektyvius banko veiklos vertinimo rodiklius.

Vidinis bankų vertinimas atliekamas banko viduje ir apima siaurą vertinimo sritį. Išoriniai vertintojai, tokie, kaip kredito reitingo agentūros, pabrėžia analizės kompleksiskumą. Tai apima rizikos vertinimą, kokybinius rodiklius, taip pat pelningumo ir pinigų srautų analizę. Šiuo atveju banko veikla gali būti vertinama korektiškai, o valdymo sprendimai – efektyvesni.

Kadangi dabartiniu metu ekonomika nėra stabili, nedera nepakankamai įvertinti paskolų portfelio rizikos (blogų paskolų), kapitalo pakankamumo (galimybės absorbuoti nuostolius iš blogų paskolų), valdymo kokybės (pasyvų ir aktyvų valdymo) ir kitų kokybinių faktorių (lyderiavimas, vadovybės istoriniai duomenys ir kt.).

Kadangi bankų vertinimo problemos šiuo metu plačiai diskutuojamos mokslo ir verslo pasaulyje, iškyla svarbiausių banko vertinimo elementų nustatymo klausimas. Kokius bankų vertinimo metodus reikia pasirinkti, kad būtų priimami teisingi valdymo sprendimai? Dėl šios priežasties tyrimo tikslas – apžvelgti svarbiausius bankų vertinimo metodus, nustatyti jų skirtumus ir iširti, kurie metodai turėtų būti taikomi praktiškai, siekiant mažiausių laiko sąnaudų ir pastangų.

Bankų teorinių vertinimo metodikų analizė parodė, kad yra palyginti daug vertinimo metodų ir rodiklių, ypač išorinio vertinimo atveju. Bankų vidinio vertinimo metodai gali būti grupuojami į metodus, kurių pagrindas yra pinigų srautas, ir metodus, paremtus pelningumo matavimu. Pinigų srauto vertinimas apima laisvojo ir diskontuoto pinigų srauto metodus. Šiais metodais galima analizuoti bankų pinigų srautų nuosavybei arba bankui atžvilgiu, taip pat dividendų srauto akcininkams atžvilgiu. Taigi, yra du pinigų srautų modeliavimo variantai: dividendų diskontavimo modelis ir laisvojo pinigų srauto modelis.

Kita ne mažiau svarbi bankų vertinimo sritis yra pelningumo rodikliai. Nepaisant to, kad akcijų rinkos kaina yra geriausias veiklos sėkmingumo rodiklis, bankų atveju šis rodiklis nėra pakankamai tikslus. Tai galima paaiškinti tuo, kad nacionalinėse ir tarptautinėse kapitalo rinkose sudaroma palyginti nedaug sandorių bankų akcijoms. Tai skatina analitikus naudoti rodiklius, pakeičiančius

akcijų rinkos kainą. Tai įvairūs pelningumo indikatoriai (ROE, ROA, grynoji procentinė marža, pajaminė aktyvų bazė, pelno sprendas, grynoji neprocentinė marža, grynas pelnas akcijai, grynoji veiklos marža, grynas pelnas prieš ypatingas operacijas), kurie gali būti analizuojami statistiškai ir dinamiškai.

Bankų išorinio vertinimo rodikliai apima turto kokybę, kapitalo pakankamumą, likvidumą, pelningumą, valdymą ir kitus kokybinius veiksnius. Kadangi išorinis bankų vertinimas yra kur kas platesnis, vidinis bankų vertinimas turėtų būti koreguojamas papildomomis vertinimo sritimis, kad būtų sukurta efektyvi vertinimo sistema. Išorinis bankų vertinimas gali būti apibrėžtas kaip vertinimas, atliekamas nepriklausomų vertintojų, kaip centriniai bankai, kredito reitingo agentūros ir kt. Toks vertinimas objektyvus ir atspindi nepriklausomų vertintojų nuomonę. Kadangi kiekvieno akcininko tikslas yra maksimizuoti pelningumą ir dividendų srautą, deramai nėra įvertinamas su tuo susijęs blogų paskolų augimas. Kredito reitingo agentūros turto kokybę laiko vienu pagrindinių rodiklių, rodančių banko riziką. Kiekvieno banko tikslas yra uždirbti kuo didesnę pelną su kuo mažesne kapitalo kaina. Tai lemia akcininkų siekį naudoti kuo daugiau skolinto kapitalo. Ilgalaikė pelninga banko veikla esant aukštam skolos lygiui rodo aukštą vadovybės kompetenciją. Tačiau tai didina banko jautrumą išoriniams ir vidiniams pokyčiams. Būtent dėl to per menkas kapitalo pakankamumo vertinimas vidinėje analizėje yra didelis trūkumas.

„Moody’s“ analizuoja potencialius pinigų srautus, vertindama banko likvidumą. „Moody’s“ analitikai teigia, kad ypač svarbu tinkamai vertinti išdo politikas ir procedūras. Pelningumas yra sritis, jungianti vidinį ir išorinį banko vertinimą. Abiem atvejais pelningumas yra svarbiausias rodiklis dėl stipraus ryšio su pinigų srautais, likvidumu ir kapitalo pakankamumu. Kredito reitingo agentūros teigia, kad kokybinių veiksnių vertinimas yra labai svarbus kreditinumo analizei. Palyginti su vidiniu bankų vertinimu, išoriniai vertintojai valdymą analizuoja efektyviau. Šiuo atveju valdymas vertinamas ne tik uždirbto pelno, bet ir rizikos atžvilgiu.

Kadangi skirtingi rodikliai vertina tas pačias veiklos sritis, turi būti nustatyti svarbiausi. Tam buvo atliktas metodų, dažniausiai naudojamų vidinių ir išorinių vertintojų, tyrimas, pasitelkus Lietuvos komercinių bankų duomenis. Po to, atrinkti rodikliai patikrinti, pakžlyginus su kitais Baltijos šalių komerciniais bankais. Pagrindiniai tyrimo etapai yra šie:

1. Baltijos šalių komercinių bankų duomenų rinkimas ir jų reikalingumo patikrinimas, pasitelkus ekspertą.
2. Lietuvos komercinių bankų metodų tyrimas, siekiant nustatyti reikšminius kintamuosius, tenkinančius akcininkų ir kredito reitingo agentūrų reikalavimus.
3. Latvijos ir Estijos komercinių bankų metodų tyrimas, siekiant nustatyti reikšminius kintamuosius, tenkinančius akcininkų ir kredito reitingo agentūrų reikalavimus. Modelio tikrinimas, siekiant nustatyti jo pritaikomumą Latvijos ir Estijos bankiniams sektoriams.
4. Baltijos šalių komercinių bankų analizė, siekiant gauti apibendrinančius rezultatus.

Naudojant Lietuvos komercinių bankų, pasaulinių kredito reitingo agentūrų duomenis ir eksperto nuomonę nustatyti pagrindiniai

išoriniai ir vidiniai bankų vertinimo rodikliai. Jie būtini efektyviai bankų vertinimo sistemai kurti. Tai: *Įsiskolinimas / Paprastųjų materialųjų akcijų kapitalas; ROA; ROE; Blogų paskolų atidėjimai / Paskolų portfelis; Blogos paskolos / Akcinis kapitalas ir rezervai; Blogų paskolų atidėjimai / Blogos paskolos; Blogos paskolos / Pelnas prieš atidėjimus; Veiklos išlaidų dalis pajamose; Indėliai.*

Reikšminių rodiklių atranka vykdyta šiais žingsniais:

1. Kredito reitingo tipo, atitinkančio tyrimo tikslus, nustatymas;
2. Raidinės skalės pavertimas į skaitmeninę;
3. Duomenų koreliacinei ir regresinei analizei parengimas.

Koreliacinė ir regresinė analizė apima Baltijos šalių komercinius bankus, reitinguojamus nuo 2002 m. iki 2004 m. Komercinių bankų, retinguojamų nuo 2002 m. iki 2004 m., sąrašas apima: AB banką „SEB Vilniaus bankas“, AB banką „Hansabankas“, AB banką „NORD L/B Lietuva“, AB banką „Šiaulių bankas“, AB banką „Snoras“, AS „Mortgage and Land Bank of Latvia“, AS „Nord L/B Latvia“, AS „SEB Unibanka“, AS „Hansabanka“, AS „Sampo Pank“, AS „Esti Uhisbank“, AS „Hansapank“.

4. *Koreliacinė ir regresinė išorinių, vidinių rodiklių ir kredito reitingų analizė.* Koreliacinė, regresinė analizė ir reikšminių rodiklių atranka buvo atliekama naudojant programų paketą „Statistica“.

Daugiamatės regresijos modeliu nustatyti pagrindiniai rodikliai buvo patikrinti, pasitelkus Lietuvos ir kitų Baltijos šalių komercinių bankų duomenis. Nustatyti trys reikšminiai Lietuvos komercinių bankų rodikliai: *Blogos paskolos / Akcinis kapitalas ir rezervai; Blogos paskolos / Pelnas prieš atidėjimus; Indėliai.* Taip pat atlikta šių rodiklių koreliacinė ir regresinė analizė. Analizė leido nustatyti stiprią tiesinę priklausomybę tarp individualaus kredito reitingo ir dešimties pagrindinių rodiklių. Latvijos bankų koreliacinė analizė nebuvo sėkminga dėl nepakankamo modelio pritaikymo prie Latvijos komercinių bankų specifikos. Koreliacinės lygties reikšmingumas buvo neigiamas, ir reikšminių rodiklių nustatyti nebuvo galima. Koreliacinė Estijos komercinių bankų analizė taip pat nebuvo sėkminga. Tačiau visų Baltijos šalių komercinių bankų analizė parodė stiprų tiesinį ryšį tarp individualaus kredito reitingo pagrindinių rodiklių. Pasitelkus modelį, nustatyti šie Pabaltijo bankų reikšminiai rodikliai: *ROE; Blogų paskolų atidėjimai / Paskolų portfelis; Blogos paskolos / Nuosavas kapitalas ir rezervai; Blogų paskolų atidėjimai / Blogos paskolos; Blogos paskolos / Pelnas prieš atidėjimus; Indėliai,* į kuriuos būtina sutelkti dėmesį vertinant komercinius bankus ir prognozuojant jų veiklą.

Tolimesnė komercinių bankų vertinimo efektyvumo didinimo kryptis turėtų būti paremta vertinimo modelio pritaikymu Latvijos ir Estijos bankams. Dabartinis modelis paremtas Lietuvos komercinių bankų duomenimis ir nėra universalus. Be to, naudojant daugiamatės regresijos modelį, galima prognozuoti banko veiklos efektyvumą ir kredito reitingą, keičiant reikšminių rodiklių reikšmes. Todėl, unifikavus modelį Baltijos šalių mastu, galima būtų prognozuoti atskirą Lietuvos, Latvijos, Estijos ir viso Baltijos šalių bankų sektoriaus veiklą.

Raktažodžiai: *veiklos analizė, bankų vertinimo metodai, vertinimo efektyvumas, daugiamatė regresija, rodiklių atranka.*

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