Research on Risk-Based Common European Union Deposit Insurance System in Lithuanian Banks

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Abstract Global 2008 financial crisis has shown that the deposit insurance system did not help to maintain depositor confidence and the whole banking sector financial stability in the beginning of banks' failure. Scientific discussions emphasized that the main problem associated with the current deposit insurance system is the fact that many EU countries, current deposit systems do not evaluate the banks' risks calculating deposit insurance premiums, and thus do not provide sufficient stability of the banking system. The aim of the research is to evaluate the risk-based common European deposit insurance system impact on deposit insurance premiums to Lithuanian banks. The research period for the analysis of deposit insurance premiums to Lithuanian banks is 2010–2014. In the risk-based model, the main risk indicators are evaluated by European Banking Authority. Performed deposit insurance system problem analysis showed that deposit insurance system has positive characteristics, it is a key tool in the fight against depositors panic and helps to maintain confidence in the financial institutions, but it also has a negative impact. Theoretical deposit insurance models evaluation showed that in many EU countries, the existing deposit insurance systems do not provide sufficient protection on depositors because contributions are not based on banks' risk assessment, which means that deposit insurance does not perform one of its basic functions. The introduction of risk-based deposit insurance system would redistribute contributions among the Lithuanian banks and thus contribute to the negative effects of deposit insurance systems mitigation and growth of all financial system stability.

Keywords Deposit insurance • Risk-based • European deposit system

1 Introduction

The core functions of deposit insurance system are to ensure the protection of depositors and to enhance the financial stability. The main problems associated with the banking business are too big volume of risk assumed by banks and too small

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insurance for its clients. One of the major banks form in raising funds is the acceptance of deposits, so the importance of this activity of banks is undeniable. One of the major common deposit insurance system development goals is to minimize the burden on taxpayers when the bank experiences financial difficulties. In European Union countries, deposit insurance systems are very different, both in their contributions to the deposit insurance system for the collection and calculation of fees and by the supervising authorities and other aspects. European Union several times tried to create a common deposit insurance system in the whole European Union based on banks' risk assessment. In order to unify the deposit insurance systems since 2008, the European Commission has started to present a common deposit insurance scheme, which could be applicable in all European Union countries. Since 2008, the European Commission has presented three different deposit insurance systems, and the latest one was introduced only in the middle of 2015. Scientific researches emphasized that the main problem associated with the current deposit insurance system is that in many EU countries current deposit systems do not evaluate the banks' risks calculating deposit insurance premiums, and thus do not provide sufficient stability of the banking system. There are no researches evaluating the effect of new deposit insurance system to Lithuanian banks deposit insurance premiums. So the object of the research is common EU deposit insurance system. The aim of the research is to evaluate the risk-based common European deposit insurance system's impact on deposit insurance premiums to Lithuanian banks. To reach this aim, the following tasks were made: examine the theoretical deposit insurance system evaluation models; provide risk assessment based on common European Union deposit insurance system impact on Lithuanian banks' premiums research methodology; perform risk-based deposit insurance premiums to Lithuanian banks' analysis.

2   Research Methodologies

This article analyses and summarizes the various authors' studies in the field of deposit insurance systems. Firstly, article provides different authors' studies with the risk-based deposit insurance systems. Later the EU's deposit insurance system risk assessment methodologies are analyzed and peculiarities of the insurance premiums calculations are presented. After the analysis of 2015 year presented common EU deposit insurance system, the analysis of Lithuanian banks' deposit insurance premiums is conducted. The analyzed period covers 2010–2014 years and analyses of all six Lithuanian banks are performed. The current Lithuanian banks' deposit insurance premiums are compared to risk-based deposit insurance premiums by common EU deposit insurance system.

The European Banking Authority indicated the guidelines for the annual contributions to the Deposit Guarantee Scheme (DGS) which may be calculated according to the following formula (EBA 2015):

$$Ci = CR \times ARWi \times CDi \times \mu \qquad (1)$$

where:

Ci—Annual contribution from member institution;
CR—Contribution rate (identical for all member institutions in a given year);
ARWi—Aggregate risk weight for member institution;
CDi—Covered deposits for member institution;
μ—Adjustment coefficient (identical for all institutions in a given year).

Each year, the calculation of the annual target level of deposit insurance premium rate (CR) should be based on several assumptions:

- DGS began to collect contributions before the occurrence of the insured event (ex-ante deposit insurance type) of its member's institutions and over 10 years, the target amount of the deposit guarantee system amount should be reached;
- Contributions to the DGS must be spread over 10 years and as evenly as possible;
- Each year contributions collected by the DGS must be equal to the annual target rate of premium which is set for the relevant year.

The adjustment factor should be used to ensure that the total annual contributions (total amount of all individual premiums) are equal to 1/10 of the target level.

In accordance with the instructions of the EBA weights applied to individual risk categories and key risk indicators were determined and are presented in Table 1. 75% of weights are divided by EBA guidelines instructions and 25% of weights could be distributed to different risk indicators. Common EU deposit insurance system could cover other risk indicators, which would help to get better assessment of banks' risk. This model analyzes only EBA specified risk indicators and the 25% of weights are distributed by EBA (2015) guidelines instructions.

Table 1 Applied weights to risk categories and key risk indicators in the model

Risk categories and core risk indicators	Weights
Capital	24 proc.
Leverage ratio	12 proc.
Common equity tier 1 ratio	12 proc.
Liquidity and funding	24 proc.
Liquidity ratio	24 proc.
Asset quality	18 proc.
Non-performing loans ratio	18 proc.
Business model and management	17 proc.
Risk-weighted assets/total assets ratio	8.5 proc.
Return on assets (ROA)	8.5 proc.
Potential losses for the DGS	17 proc.
Unencumbered assets/covered deposits	17 proc.
Sum	100 proc.

Source: EBA (2015)

By current deposit insurance system in Lithuania, all commercial banks must pay 0.45% from their covered deposit amount. This percentage is the same for all banks, regardless their assumed risk level. In order to compare current deposit insurance premiums with risk-based, relative change in the risk-based deposit insurance contributions and current deposit insurance contribution in Lithuania is calculated:

$$\text{Deposit insurance contributions change}\% = (I_1 - I_0/I_0) \times 100 \qquad (2)$$

where:

I_1—risk-based contribution;
I_0—contribution by existing current deposit insurance system in Lithuania.

After the analysis of risk-based common EU deposit insurance system premiums in Lithuanian banks the suggestions and final remarks are presented.

3   Importance of Risk-Based Deposit Insurance System

The main objective of the deposit insurance system is to protect depositors and contribute to financial stability, but it is very important that the society should be informed about the benefits of deposit insurance system and its limitations (International Association of Deposit Insurers 2014). Altunbas and Thornton's study (2013) confirms that clearly defined deposit insurance system is more favorable to depositors. Deposit insurance system not only contributes to the protection of depositors, but also affects bank's decisions and the entire banking system. Prean and Stix's study (2011) showed that the new limits of deposit insurance amount had a positive impact on the confidence of depositors and the stability of the local currency.

While deposit insurance provides benefits to depositors, it sometimes can lead to negative consequences for the banks. Deposit insurance can affect banks' risk-taking (the banks' loan credit quality). Ioannidou and Penas (2010) found that the introduction of deposit insurance leads to the subprime loans probability increase in the bank. Furthermore, the bank does not increase the collateral requirements or does not reduce the debt in order to compensate for the additional risk. Deposit insurance impact on banks' risk-taking and the quality of regulation in ten Islamic banks and commercial banks in South Korea analyzed by Kim et al. (2014). The study showed that after the introduction of deposit insurance, banks began actively to take additional risks, which led to the increase of moral hazard. It was noticed that banks assume greater risk in countries where deposit insurance scheme is intended to protect foreign currencies or interbank deposits.

Khan and Dewan (2011) examined the impact of deposit insurance system on banking crisis occurrence. The results showed that the countries which were using clearly defined deposit insurance system increase the probabilities of the banking

crisis, when the country's overall economic development is associated with a clearly defined deposit insurance system. This crisis probability increases even more when clearly defined deposit insurance system is inefficiently designed, especially if it is financed before the occurrence of the incident and include inter-bank deposits as well as many other types of deposits. The study showed that in the less developed countries, deposit insurance system interacts more with the country's economic development and there is a higher probability of banking crises. It was found that the higher funding of deposit insurance leads to reduction of high-return opportunities in bank, but improves the efficiency of low-risk instruments (Chen and Chang 2015).

Angkinand and Wihlborg (2010) state that majority of state-owned banks are associated with higher risk assumption estimating the volume of non-performing loans to capital. Authors argue that banks' exposure to risk is reduced if the coverage of deposit insurance is medium level. According to Bijlsma and van der Wiel (2015) clients' perceptions differ about how much of the amount of deposits they would actually recover if the bank becomes insolvent, and how long the recovery process would take. Study has shown that many users have a lack of knowledge associated with deposit insurance system and they have too pessimistic expectations regarding deposit insurance operations and return of their covered deposit.

The global financial crisis which was in 2008 revealed the instability of the banking system and the negative impact on the entire financial system, after banking collapse. The main problems are associated with banking activities, too high bank's risks and too low insurance to their clients. Although the basic deposit insurance system function is to protect the interests of consumers and to ensure the financial stability of the whole system, but in order to achieve this, it is necessary to begin to assess banks' risk-taking, calculating deposit insurance premiums. The risk-based deposit insurance system would enhance the whole financial system stability.

Authors Gómez-Fernández-Aguado and Partal-Ureña (2013) revealed that in the end of 2012 only 9 of 27 EU countries' deposit insurance premiums were based on a risk assessment. The authors also argue that the assessment of the risk-based deposit insurance system is fairer and more economically proved, in comparison with those deposit insurance systems in which all members pay flat-rate contributions. Authors Chen et al. (2010) also argue that more borrowed funds using banks would have to pay higher premiums to compensate the increased risk associated with the leverage effect. Chu (2011) claims that risk-based deposit insurance premiums can help to limit the volumes risk in banks. According to Bernet and Walter (2009) risk-based deposit insurance system will contribute to financial stability growth. Enkhbold and Otgonshar (2013) also agree that introduction of risk-based deposit insurance premiums can help to avoid moral hazard or at least help to reduce the scale of it.

The current deposit insurance system in Lithuania and many EU countries is based on the same percentage of the insured deposits amount, without evaluating the assumed risks by banks. Equal percentage based deposit insurance scheme does not attempt to limit bank risk taking and this has a negative impact on the whole country's financial stability. Lakštutienė et al. (2011) present ways of avoiding negative deposit insurance system consequences. Negative consequences could be

avoided by allowing the operation of market discipline, increasing the bank's responsibility for managing and promoting the interests of transparency, also by the deposit insurance system management at government level and making changes in the deposit insurance funding model.

The first common EU deposit insurance system model was introduced in 2008 when deposit guarantee scheme has been defined as Single Indicator Model. The European Commission's researches showed that the combination of the different categories of indicators can capture the additional information and achieve a better and more accurate bank's risk assessment. In order to prevent one indicator model weaknesses and perform better risk assessment of banks in 2009 the European Commission has launched a new deposit insurance premium calculation model—Multiple Indicators Model. Multiple Indicators Model is certainly more compli-cated, because this model was used to address the main shortcomings of one indicator model. Summarized Single and Multiple indicators models similarities and differences are presented in Fig. 1.

Research has shown that although Multiple Indicators Model is more accurate and better assess banks' level of risk, but a risk assessment should cover more indicators in order to more accurate assessment of the bank's risk, so in 2014 the European Parliament adopted a new Directive on deposit guarantee schemes. According to the newly adopted Directive of the European Parliament on the new deposit guarantee system, the European Banking Authority in 2015 provided guidance on the new deposit guarantee scheme premiums calculation
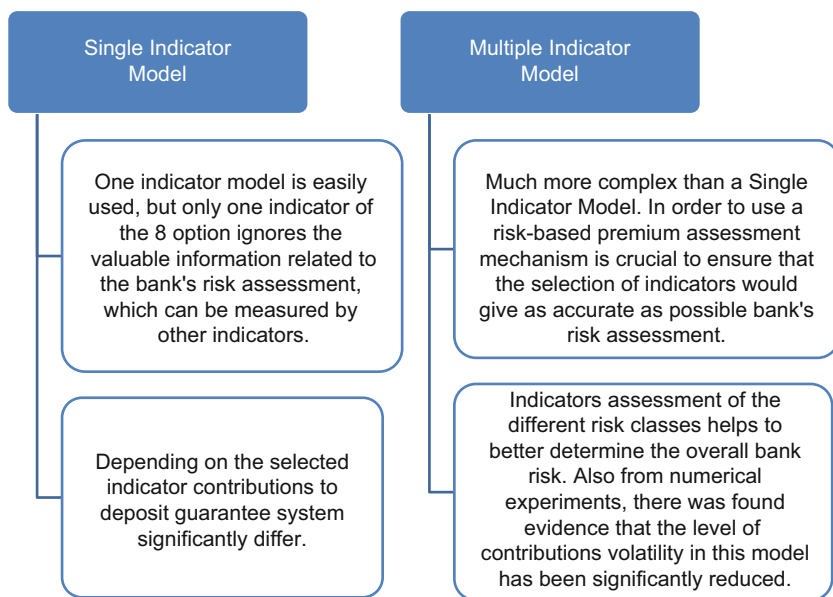
Fig. 1 Single and multiple indicators models similarities and differences (own elaboration based on European Commission 2009)

methodologies—Aggregate risk weight model (European Parliament and Council Directive 2014). The latest EU deposit insurance premium calculation model more accurately assess the banks' risks, this model includes one additional risk group and evaluates more risk indicators. The main difference of aggregate risk weight model is that in this model, each risk indicator has its risk weight, while in previous models all risk indicators had the same effect on the risk assessment.

4 Risk-Based Common European Union Deposit Insurance System Impact to Deposit Insurance Premiums in Lithuanian Banks

Risk indicator assessment is carried out for each of the five main groups of risk indicators. Risk indicators are analyzed in all six banks operating in Lithuania. Data to calculate all risks indicators are collected from banks' balance sheets, profit (loss) statements and explanatory notes. Each risk indicator is calculated based on the EBA (2015) Guidelines risk indicators formulas. In order to determine the risk group of each risk indicator, they are categorized by quartiles into three risk groups (minimum risk, medium risk and high risk), because division into smaller groups would not be appropriate. Table 2 provides indicators limits, which according to each indicator value show individual risk score. High ROA indicator value is also associated with high risk, so ROA indicator distinction between risk groups is carried out under a separate principle. The first risk group is determined from 0 to 30 quartile the second from 30 to 60 and the third from 60 to 90, and in excess of 90 quartile value is assigned to the highest risk group, because it is associated with the additional risk assumed by the bank. Only significantly exceeding the ROA indicator value can be attributed to high-risk group, so that is why 90 quartile was selected.

Liquidity indicators value, non-performing loans ratio value, unencumbered asset and covered deposit indicators in all Lithuanian banks for 2010–2014 years are presented in Table 3.

Table 2 All risk indicators individual risk scores

Group	1 group	2 group	3 group
Leverage ratio (LEV)	>0.11	≤0.11 < 0.09	≤0.09
Common equity tier 1 ratio (CET)	>0.17	≤0.17 < 0.12	≤0.12
Liquidity ratio	>0.45	≤0.45 < 0.39	≤0.39
Non-performing loans ratio	≤0.01	≤0.04 < 0.01	>0.04
Risk-weighted assets/total assets ratio (RWA)	≤0.60	≤0.75 < 0.60	>0.75
Return on assets (ROA)	≤0.75	≤0.28 < 0.75	<0.28 or ≥1.85
Unencumbered assets/covered deposits	>1.45	≤1.45 < 1.3	≤1.3
Individual risk score (IRS)	0	50	100

Source: Prepared by authors

Based on the actual indicators value each indicator is assigned an individual risk score. By liquidity ratio least risky bank can be considered as Medicinos Bank, which liquidity indicator for the entire analyzed period 2010–2014 period, with the exception of 2013, fell into the low-risk group. The most risky bank by liquidity indicator was defined as AB SEB bank. By non-performing loan ratio at least risky bank can be regarded as "Citadele" bank. "Citadele" bank tries not to grant loans to high-risk customers, which leads to a low non-performing loan ratio for all 2010–2014 period. It was found that the most high-risk and high-risk customers by lending bank can be regarded as AB "Swedbank", it shows that this bank assumes a higher risk of his activities compared to other operating banks in Lithuania. UAB Medicinos bank according to potential losses on the deposit guarantee system is the most risky, its unencumbered asset and covered deposit in 2010–2014 period was the lowest comparing with the other operating banks in Lithuania. Least risky banks could be considered as AB SEB bank and DNB bank, its unencumbered asset and covered deposit indicators were assigned to lowest and medium risk groups.

All operating banks in Lithuania leverage ratios and common equity tier 1 indicator for the period 2010–2014 are presented in Table 4.

By capital ratios AB "Swedbank" and AB Citadel Bank can be considered the least risky banks. Only in AB "Swedbank" in 2012–2014 years both capital ratios have been assigned to the low-risk groups. As the most risky bank by capital ratios

Table 3 Indicators in all Lithuanian banks for 2010–2014 years

Year	"Swedbank", AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	"Citadele" bank, AB	Medicinos bank, UAB
Liquidity ratio						
2010	43.62	35.88	36.60	46.00	32.82	54.25
2011	42.77	46.12	44.78	38.36	36.97	51.95
2012	39.28	35.69	44.03	42.78	44.76	48.75
2013	37.84	38.81	39.04	53.94	42.53	42.53
2014	42.39	32.89	38.08	55.51	61.15	49.08
Non-performing loans ratio						
2010	0.11	0.05	0.03	0.01	0.00	0.07
2011	0.13	0.05	0.02	0.02	0.00	0.02
2012	0.09	0.04	0.02	0.01	0.01	0.02
2013	0.05	0.04	0.02	0.08	0.01	0.01
2014	0.03	0.02	0.00	0.04	0.01	0.01
Unencumbered asset and covered deposit indicators						
2010	1.33	2.07	1.44	1.33	1.51	1.29
2011	1.32	2.00	1.97	1.37	1.34	1.32
2012	1.24	1.74	1.92	1.31	1.37	1.22
2013	1.27	1.72	1.87	1.14	1.37	1.23
2014	1.22	1.47	1.75	1.12	1.31	1.13

Source: Prepared by authors

Table 4 Capital indicators in all Lithuanian banks for 2010–2014 years

Year	Indicators	"Swedbank", AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	"Citadele" bank, AB	Medicinos bank, UAB
2010	LEV	0.10	0.08	0.08	0.11	0.15	0.11
	CET	0.20	0.11	0.09	0.14	0.18	0.12
2011	LEV	0.10	0.06	0.10	0.10	0.15	0.08
	CET	0.21	0.10	0.14	0.13	0.17	0.08
2012	LEV	0.12	0.09	0.11	0.10	0.14	0.08
	CET	0.26	0.13	0.14	0.13	0.21	0.09
2013	LEV	0.14	0.10	0.11	0.06	0.15	0.08
	CET	0.32	0.15	0.15	0.09	0.18	0.10
2014	LEV	0.15	0.10	0.11	0.06	0.11	0.08
	CET	0.42	0.20	0.16	0.10	0.16	0.12

Source: Prepared by authors

Table 5 ROA and RWA indicators in all Lithuanian banks for 2010–2014 years

Year	Indicators	"Swedbank", AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	"Citadele" bank, AB	Medicinos bank, UAB
2010	RWA	0.50	0.72	0.80	0.78	0.83	0.94
	ROA	–0.02	–0.06	–1.09	–1.03	–4.45	–4.08
2011	RWA	0.46	0.61	0.75	0.80	0.89	0.99
	ROA	3.20	1.49	0.72	0.47	0.61	–3.05
2012	RWA	0.48	0.74	0.74	0.81	0.69	0.86
	ROA	1.77	0.56	0.76	0.51	1.14	0.47
2013	RWA	0.43	0.65	0.71	0.63	0.82	0.81
	ROA	2.90	0.90	0.47	0.20	0.62	0.27
2014	RWA	0.36	0.51	0.69	0.59	0.67	0.67
	ROA	1.85	0.97	0.17	0.66	0.06	–3.78

Source: Prepared by authors

may be regarded as UAB Medicinos bank, 2011–2014 years both indicators fell into the highest risk groups. In AB Siauliu bank 2013–2014 years, it can be seen the increase of capital risk, both indicators have also been included in the highest risk groups.

ROA and RWA indicators value for 2010–2014 years in all Lithuanian banks are presented in Table 5. In 2010, all in Lithuania operating banks have experienced losses, which resulted to negative ROA indicators value and these indicators assignment to the maximum risk group. As the most risky bank according to management efficiency can be considered Medicinos bank, because this bank ROA and RWA indicators were most risky comparing with the other banks. In 2011 and 2013–2014 years AB "Swedbank" ROA indicator fell into the maximum

risk group because of higher than 1.85% value which is associated with the higher banks assumed risk.

After setting each risk indicator value in Lithuania operating banks and assign them appropriate risk score, aggregate risk weight is determined. ARW coefficient groups' distribution is carried out based on the EBA (2015) guidelines and evaluation of Lithuanian banks' overall risk score value. ARW coefficients groups are presented in Table 6 and it is shown different banks' risks, one group shows the average risk of the bank (group 2), one shows a low risk profile of the bank (group 1) and two risk groups (which ARW is more than 100%) shows high risk banks.

The aggregate risk score (ARS) is calculated based on each bank's risk indicators weight and assign risk scores (IRS) to each risk indicator. Calculated each bank ARS value is submitted in Table 7.

Calculated ARS value indicates different levels of risk assumed by banks. From ARS value, it can be seen that throughout the analyzed period all banks' risk has changed significantly. After calculated ARS value, each bank was assigned respective ARW coefficient value (see Table 8).

Throughout the analyzed period, the most risky bank can be considered as Medicinos bank, which aggregate risk weight was relatively highest comparing with the other banks. In a similar risk level was AB Siauliu bank, which only in 2010 had a lower risk. In 2013–2014 years, AB Siauliu bank risk profile has increased in comparison with 2012 level, which was mainly caused by increase of capital ratios risk (leverage and tier one capital ratio) and unencumbered assets and guaranteed deposit indicator reduction. Medium risk had AB "Swedbank" and AB DNB bank, but their aggregate risk weight during analyzed period greatly changed.

After calculation of ARW coefficients (based on 1 formula) each bank annual deposit insurance premium is determined. Contribution rate does not affect the

Table 6 Aggregate risk weight groups and their value

Risk group	ARS value	ARW (%)
1 group	<40	75
2 group	≤40 < 50	100
3 group	≤50 < 60	125
4 group	≥60	150

Source: Own elaboration based on EBA (2015)

Table 7 Aggregate risk score values for 2010–2014 years

Year	"Swedbank", AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	"Citadele" bank, AB	Medicinos bank, UAB
2010	53.00	78.75	82.50	37.50	41.00	70.00
2011	53.00	46.25	41.50	66.25	51.25	58.50
2012	47.00	59.50	37.25	45.25	24.75	62.75
2013	67.50	49.25	41.50	71.75	33.25	70.00
2014	46.50	39.00	36.75	54.25	33.25	53.75

Source: Prepared by authors

Table 8 Aggregate risk weight value for 2010–2014 years

Year	"Swedbank", AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	"Citadele" bank, AB	Medicinos bank, UAB
2010	1.25	1.5	1.5	0.75	1	1.5
2011	1.25	1	1	1.5	1.25	1.25
2012	1	1.25	0.75	1	0.75	1.5
2013	1.5	1	1	1.5	0.75	1.5
2014	1	0.75	0.75	1.25	0.75	1.25

Source: Prepared by authors

Table 9 Annual contributions in Lithuanian banks for 2010–2014 years, in thousand LTL

Year	"Swedbank", AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	"Citadele" bank, AB	Medicinos bank, UAB	Total
2010	70,899	65,102	52,603	5944	2752	4396	201,695
2011	73,734	54,715	25,615	13,440	3936	3403	174,843
2012	66,670	69,713	20,357	9939	2466	4813	173,958
2013	100,830	59,606	28,864	31,128	2316	4777	227,519
2014	77,627	52,150	24,979	27,834	3422	4199	190,210

Source: Prepared by authors

banks' risk identification; it is used to ensure a certain amount of the deposit insurance fund size. In order to make more accurate comparison with current deposit insurance premiums the contribution rate is 0.45% (current contribution rate for Lithuanian banks). Calculating banks' annual contributions, the adjustment coefficient is not used, because the adjustment of deposit insurance fund in the first year is not appropriate. Calculated annual contribution amount to the common EU deposit insurance fund for 2010–2014 period is provided in Table 9.

Analyzing annual contributions, the largest contributions throughout the period, with the exception of 2012, would have to pay AB "Swedbank", which had a large volume of guaranteed deposits and assumed a higher than average risk. In 2012, largest contribution to common EU deposit insurance system would have to pay AB SEB bank, this results were caused by increased level of risk and high aggregate risk value. Minimum contributions in 2010–2014 years comparing with the other banks would have paid AB "Citadele" bank and UAB Medicinos bank. Examining total annual contributions by all Lithuanian banks, the largest volumes of premium would be paid in 2013, whereas the maximum covered deposit volumes were in 2014 years. However, in 2014, banks have assumed a lower risk level, which resulted in a smaller ARW value and lower contributions to the common EU deposit insurance fund. Table 10 provides in Lithuania operating banks current and risk-based deposit insurance premiums and deposit insurance contribution changes in 2010–2014 years.

UAB Medicinos bank and AB "Swedbank" most of the analyzed period would have to pay larger contribution by risk-based deposit insurance system comparing

Table 10 Deposit insurance premiums comparison in Lithuanian banks for 2010–2014 years

Year	Model	"Swedbank", AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	"Citadele" bank, AB	Medicinos bank, UAB	Total
2010	Current contribution, thousand LTL	56,719	43,401	35,069	7925	2752	2931	148,796
	Risk-based contribution, thousand LTL	70,899	65,102	52,603	5944	2752	4396	201,695
	Contributions change, proc.	25.00%	50.00%	50.00%	−25.00%	0.00%	50.00%	35.55%
2011	Current contributions, thousand LTL	58,987	54,715	25,615	8960	3149	2722	154,149
	Risk-based contribution, thousand LTL	73,734	54,715	25,615	13,440	3936	3403	174,843
	Contributions change, proc.	25.00%	0.00%	0.00%	50.00%	25.00%	25.00%	13.43%
2012	Current contributions, thousand LTL	66,670	55,770	27,143	9939	3289	3208	166,019
	Risk-based contribution, thousand LTL	66,670	69,713	20,357	9939	2466	4813	173,958
	Contributions change, proc.	0.00%	25.00%	−25.00%	0.00%	−25.00%	50.00%	4.78%
2013	Current contributions, thousand LTL	67,220	59,606	28,864	20,752	3088	3184	182,713
	Risk-based contribution, thousand LTL	100,830	59,606	28,864	31,128	2316	4777	227,519
	Contributions change, proc.	50.00%	0.00%	0.00%	50.00%	−25.00%	50.00%	24.52%
2014	Current contributions, thousand LTL	77,627	69,533	33,305	22,267	4562	3359	210,653
	Risk-based contribution, thousand LTL	77,627	52,150	24,979	27,834	3422	4199	190,210
	Contributions change, proc.	0.00%	−25.00%	−25.00%	25.00%	−25.00%	25.00%	−9.70%

Source: Prepared by authors

with their current amount. These differences are because of larger assumed risk comparing with the other banks. AB SEB bank and AB Siauliu most of the analyzed period also would have to pay larger contribution by risk-based deposit insurance system, but in 2014, AB SEB bank would have to pay smaller contribution comparing with current and in 2010, AB Siauliu bank also would have to pay smaller contribution comparing with current deposit insurance system in Lithuania. AB DNB bank and AB "Citadele" bank would have to pay smaller deposit insurance contributions in most of analyzed period, because these banks assumed smaller amount of risk than other banks in Lithuania.

5 Conclusions and Recommendations

Theoretical deposit insurance systems analysis showed that in the most EU countries, existing deposit insurance systems do not provide sufficient protection for depositors because contributions are not based on banks' risk assessment. In order to unify the deposit insurance system differences and improve the effectiveness of the deposit insurance system, since 2008, the European Commission has been trying to create a common EU deposit insurance system. Since 2008 three deposit insurance systems models were presented, ranging from extremely flexible and easily adaptable single indicator method moving to the minimum weights of the risk categories, and key risk indicators and assigning aggregate risk weight. Following the European Commission's deposit insurance system researches and European Banking Authority guidelines risk-based deposit insurance premium research methodology is formed. The aggregate risk weight is calculated in all Lithuania operating banks and contributions to common EU deposit insurance system is determined.

Assessing risk-based deposit insurance premiums for 2010–2013 period, total amount from all Lithuanian banks would be higher comparing with current deposit insurance system contributions. Introduction of risk-based deposit insurance system would redistribute contributions among Lithuanian banks and contribute to the negative effects of deposit insurance system mitigation and all financial system stability growth. Further studies should examine other risk indicators enrollment in common EU deposit insurance system and its impact on deposit insurance premiums.

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