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Factors Affecting the Performance of Insurance Companies in Russian Federation

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ABSTRACT

Purpose. Insurance market in Russian Federation has rapidly grown in recent years. At the same time, despite numerous studies investigating the determinants influencing financial performance of insurance companies in various countries, there was a lack of studies investigating determinants impacting the insurers' performance in Russian Federation. *Methodology.* Financial secondary data of 45 insurance companies and groups uninterruptedly operating in Russian Federation within the period from 2012 to 2018 were researched by way of descriptive analysis, correlation analysis, multiple linear regression and factor analysis. *Approach.* It was revealed during the study that return on assets (ROA) has positive relationship with size of the company, return on equity (ROE), liquidity ratio and claim ratio. Inflation and premium growth rate have negative relationship with ROA. The research found that investigated variables (size of company, ROE, liquidity ratio, premiums growth rate, claims ratio and inflation) comprise 45.1% of the total variability in the performance of insurance companies. 54.9 % is affected by other variables not included in this study. This provides a room for further studies of other factors influencing the financial performance of insurance companies in Russian Federation. *Findings.* The results of this study can be applied both by scientists and insurance professionals for further researches both in Russian federation and internationally, including industry-based investigations with the purpose of defining determinants and developing recommendations and policies for insurance industry. Insurance top managers and professionals can define and adjust strategies and tactics of insurance companies on the basis of findings of this study.

INTRODUCTION

Life of a human being and an organization is accompanied with risks. Individuals and entities are exposed both to job-related and catastrophic risks which may disrupt their life and/or operation (Koc,

2016). The main idea of insurance is to protect the insured from risks and hazards, provide assurance and prevent damage (Aytekin and Karamaşa, 2017). Insurance as a notion can be defined as a financial service providing a benefit in favor of an individual, association or business in exchange for collected premiums or contributions in case a risk occurs (Berteji and Hammami, 2016). Insurance companies transfer and share risks, and create in such way the confidence over the occurrences of uncertain events though it affected by different factors, both internal (which are generally under control of a person or the management of an entity) and external being beyond the control (Koller, 2011; Savitz and Gavriletea, 2019).

Insurance companies indemnify losses to businesses and individuals and return them in the same condition as they were before the occurrence of the loss. Therefore, the importance of insurance industry as an integral part of economy of any country is difficult to overestimate (Mazviona et al., 2017). The insurance industry generally plays an important role in global and national economies. Insurance accounts for a very large portion in the financial sector, and has a considerable impact on the stability of the financial market. Insurance companies' market activities ensure risk transfer and financial intermediation (Kim and Park, 2019; Dankiewicz and Simionescu, 2020).

Dealing with risks, the insurance company should identify, understand, and manage the risks, both common (market, operational, legal, and organizational risks) and specific (underwriting risks and risks related to the evaluation of technical provisions), that it faces via its insured through effective and intelligent risk management systems in order to designate potential risks as early as possible (Najjar, 2012). As soon as insurance companies play vital socio-economic role, their financial performance and stability is of great significance. Performance of an entity constitute the outcome of activities of individuals and divisions of such entity. Companies influence or control factors affecting performance through formal and informal means. Performance of an insurance company depends on the effectiveness of designed policies of such company (Kasturi, 2006).

Company performance is determined by such potential internal determinants as company's size, loss ratio, investment ratio, capital structure, and the growth of written insurance premiums past performance etc. Among external determinants are institutional and political environments playing vital role in insurance company performance (Malik, 2011). There were numerous studies conducted in various countries with respect to determinants and factors influencing and / or affecting the performance of insurance companies. The research of Al-Shami (2008) found no relationship between profitability and age of company, while significantly positive association between size of the company, volume of capital and profitability was detected. The opposite and significant relationship between leverage ratio and loss ratio as independent variables and profitability was revealed by the study.

Ejigu (2010) detected leverage ratio, liquidity ratio, company size, management competence index and company growth rate to be the most influential factors of financial performance. At the same time, age of company and loss ratio occurred to be ineffective for the financial performance of insurance companies in Ethiopia. The study investigating Polish insurance companies found that financial performance of an insurance company is improved by the increase of its gross premiums and decrease of total operating expenses. The GDP growth and the market share of foreign owned companies positively impact profitability of non-life insurance companies (Kozak, 2011).

The research of Najjar (2012) concluded the absence of statistically significant impact of corporate governance expressed by CEO status, ownership concentration, the number of employees, industry performance and return on equity (ROE). Board size, company size, number of block-holders occurred to have statistically significant impact on insurer's financial performance. Financial performance of Indian life insurers tended to be positively influenced by liquidity and size, and negatively related with capital. No relationship of profitability with solvency and insurance leverage was detected in course of the study (Bawa and Chattha, 2013). Burca and Batrinca (2014) investigated determinants of financial performance at Romanian insurance market. According to their findings, financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio and solvency margin were main determinants for local insurance companies. Pervan et al. (2014) conducted the analysis of determinants affecting the profitability of Macedonian insurance companies. The findings confirmed expense ratio, claims ratio, economic growth and inflation as important factors determining local insurance

companies' profitability. Lee (2014) revealed in the study that underwriting risk, reinsurance usage, input cost, return on investment (ROI) and financial holding group have significant impact on financial performance of Taiwan insurance companies.

Ghimire (2014) revealed that age of a company did not influence the profitability and earnings. Net profit margin and return on assets have negative impact on insurer's performance in Nepal, while return on equity occurred to have positive influence thereon. According to the empirical results of the research conducted by Öner Kaya (2015), the company-specific factors affecting the profitability of insurers in Turkey were the size of the company, age of the insurer, loss ratio, current ratio, and premium growth rate. Kwaning et al. (2015) identified weak correlation between return on assets (ROA) and gross written premium (GWP), size, claims, liquidity and leverage. ROA tended to have negative correlation with claims and a positive correlation with GWP, size, liquidity and leverage of insurance companies in Ghana.

The research conducted in Kenia (Wasike and Ngoya, 2016) established that claims costs, reinsurance cost, and market penetration were negatively related to profitability, and such factor as commission expenses positively influenced financial performance of insurance companies. The research conducted at Albanian insurance market (Kripa and Ajasllari, 2016) defined growth rate, liabilities, liquidity and fixed assets as main factors affecting the profitability of local companies. The growth rate was positively associated with profitability, while liabilities, liquidity and fixed assets were negatively correlated with financial performance of an insurer. Although company size and volume of capital were found to be positively correlated with the profitability of insurance companies, the impact of those factors occurred to be statistically insignificant. Koc (2016) found positive relationship between the performance of publicly traded insurance companies at Istanbul Stock Exchange and their numbers of agents, technical profit/earned premiums ratio and financial assets investment profit. Negative correlation was detected between performance of insurance companies and loss ratio.

Analysis performed in the study by Berteji and Hammami (2016) indicated that the variables size, age and premium growth measured by ROA ratio were the most important determinants of the insurance companies' performance in Tunisia. The performance of insurance companies was not statistically significant with such variables as leverage, tangibility, liquidity and risk. The empirical underpinning performed in the study made by Datu (2016) revealed that underwriting risk, reinsurance utilization, firm size, financial leverage and input cost significantly affect the insurer's financial performance both in terms of ROA and operating ratio. At the same time no evidence was found that the Gross Domestic Product (GDP) and inflation rate on profitability in both ROA and operating ratio of Philippine insurance companies. Research conducted at Indonesian insurance market (Hidayat and Firmansyah, 2017) showed that the board of an insurance company does not affect the financial performance, while such variables as commissioners, managerial ownership, institutional ownership and leverage have positive effect on the financial performance. The size of the insurance company weakens the relationship between the number of directors and leverage to financial performance, and did not moderate the relationship between the number of commissioners, managerial ownership and institutional ownership of the financial performance.

Six financial ratios (currency, cash, debt, net profit margin, return on equity and return on investment) of six BIST-listed insurance companies were analyzed in the survey, and net profit margin was found there as the most important criterion and currency ratio occurred to be the least important for insurance company performance (Aytekin and Karamaşa, 2017). In course of analysis of factors affecting profitability of Nile Insurance Dire Dawa branch, Birhan (2017) found size, leverage, tangibility of asset, loss ratio/risk, firm growth and managerial efficiency to be the most significant determinants of profitability for an Ethiopian insurance company, while liquidity and age of the company comprise medium significant determinants of profitability. Irm et al. (2017) in their investigation in Indonesia found negative and significant influence of premium growth and risk based capital on financial performance of insurance companies. Profitability occurred to be significantly and positively influenced by equity capital, liquidity ratio, leverage ratio and size of a company. The results of the research revealed that inflation rate had low influence on the profitability of insurers. The insurance companies with good level of total assets, equity capital, leverage ratio and liquidity ratios tended to have good ROA ratio.

Mazviona et al. (2017) revealed in the study that expense ratio, claims ratio and size of the company significantly adversely affect insurance companies' performance. Whilst leverage and liquidity affect positively the financial performance of Zimbabwean insurance companies. Rashid and Kemal (2018) revealed in the study that gross written premium, expenses on management, size, and interest rate tend to have a significant impact on the profitability of Pakistani insurance companies. According to the study by Pjanić et al. (2018), the greatest impact on the financial performance of insurance companies is exerted by the increase in premiums, debt ratio, operating costs and the share of profit in total revenues. The regression results performed in the study by Guendouz and Ouassaf (2018) indicated that age, size, written premium growth rate and loss ratio tended to have significant impact on the financial performance of insurance companies.

The research of Korean insurance companies' financial performance (Kim and Park, 2019) investigated eight independent variables in order to identify the factors that affect the dependent variable (ROA). The researches revealed factors affecting the total asset margins: investment operating profit, insurance operating profit, business expense, among which the investment profits occurred to be the most influential determinant. Factors affecting the total asset profitability were indicated as total capital, premium, leverage, and loss ratio. The total amount of capital has the largest negative impact on total assets. Batool and Sahi (2019) concluded in the study that size of company, liquidity, leverage, asset turnover, GDP and West Texas intermediate (WTI) have positive impact, while cost per impression (CPI) and interest rate have negative significant impact on US insurer's financial performance. In UK size of company, liquidity, GDP, CPI and WTI have positive effect, but leverage, asset turnover and interest rate has negative significant impact on financial performance of insurance companies.

One of recent researches (Markonah et al., 2019) revealed positive impact of corporate governance, premium growth, asset growth and corporate growth on financial performance of insurance companies in Indonesia. Srijanani and Rao (2019) found in the study that internal factors like claims ratio and liquidity ratio had a significant effect on the ROE, while other determinants like GDP, inflation, solvency, capital etc., had no noticeable impact on the financial performance of insurance companies in India. The study by Abdeljawad et al. (2020) indicated that age and size of the company significantly and positively impact the insurance companies' profitability, while claims ratio significantly and adversely affects insurers' performance. At the same time, liquidity, leverage, expense ratio and growth of premiums do not have an effect on profitability of insurance companies.

Insurance market in Russian Federation has rapidly grown in recent years (over 20 percent annually in average) comprising over USD 21,5 billion of insurance premiums under 205,6 million agreements and USD 3 billion of net income of insurers as of the end of 2018 (Official site of the Federal State Statistic Service of Russian Federation, <https://www.gks.ru>). At the same time there is a lack of studies investigating the determinants and factors affecting the financial performance of companies operating at insurance market of Russian Federation.

Taking into account the above, the research objectives of this study are:

- to identify the internal factors in insurance companies in Russian Federation that affects the financial performance of insurers.
- to determine the relationship between return on assets (ROA) and internal factors of insurance companies.

The results of this study will allow to remove blind spots in Russian and international science and give more understanding to insurance companies top manager of determinants of the insurance business in Russia.

1. DATA AND METHODS

45 insurance companies and groups uninterruptedly operating in Russian Federation within the period from 2012 to 2018 were selected from 231 insurers (including micro-companies) registered in 2018. 315 observations in total on the above companies were collected based on secondary data obtained from several sources: the Federal State Statistic Service of Russian Federation (<https://www.gks.ru>).

gks.ru), the Bank of Russia (<http://www.cbr.ru>), the International group of rating agencies “RAEX-Analitika” (<https://raex-a.ru>).

Descriptive analysis, correlation analysis, multiple linear regression and factor analysis were used to analyze the data collected. The multiple linear regression model utilizing a dependent variable and several independent variables was used with the purpose of the research:

$$y = \beta_0 \sum_{i=1}^5 \beta_i x_i + \epsilon$$

Where:

- y is return on assets (ROA). As soon as previous researches stated that ROA (Berteji and Hammami, 2016; Datu, 2016; Ghimire, 2014; Irm et al., 2017; Kim and Park, 2019; Kwaning et al., 2015; Malik, 2011) is a key indicator used to measure the company’s financial performance, ROA was selected as the dependent variable in the model;
- β_0 is a constant;
- β_i are slope coefficients;
- x_1 is size of company (expressed in total assets in USD) (Abdeljawad et al., 2020; Al-Shami, 2008; Batool and Sahi, 2019; Bawa and Chattha, 2013; Ejigu, 2010; Guendouz and Ouassaf, 2018; Malik, 2011; Mazviona et al., 2017; Najjar, 2012);
- x_2 is return on equity ratio (ROE) indicated by Aytekin and Karamaşa (2017), Ghimire (2014), Najjar (2012), Srijanani and Rao (2019).
- x_3 is liquidity ratio, which was considered to be important by other studies (Abdeljawad et al., 2020; Batool and Sahi, 2019; Bawa and Chattha, 2013; Berteji and Hammami, 2016; Birhan, 2017; Ejigu, 2010; Irm et al., 2017; Kripa and Ajasllari, 2016; Kwaning et al., 2015; Mazviona et al., 2017; Srijanani and Rao, 2019);
- x_4 is premiums growth rate (Burca and Batrinca, 2014; Koc, 2016; Kozak, 2011; Malik, 2011; Pjanić et al., 2018);
- x_5 is claims ratio (Abdeljawad et al., 2020; Mazviona et al., 2017; Pervan et al., 2014; Srijanani and Rao, 2019);
- x_5 is annual inflation (Datu, 2016; Irm et al., 2017; Mazviona et al., 2017; Pervan et al., 2014; Srijanani and Rao, 2019).

2. DATA ANALYSIS AND RESULTS

Descriptive statistics of each variable computed on the basis of 315 observations recorded for the period from 2012 to 2018 (inclusive) for 45 insurance companies continuously operating in Russian Federation is given in Table 1.

Table 1. Variables used for analysis. Descriptive statistics

Variable	Observ.	Min	Max	Mean	Std. Dev.
ROA	315	-0.5207	0.6052	0.0418616	0.0835991
Size of Company	315	3238	6518868	535621.5	1071315
ROE	315	-2.6743	9.2617	0.6401698	1.458892
Liquidity Ratio	315	-0.0112	11.4644	1.032461	1.687946
Premium Growth Rate	315	0.1503	7.5289	1.189359	0.7495133
Claims Ratio	315	0.0025	6.1804	0.4259597	0.4082236
Inflation	315	0.0252	0.1291	0.0706714	0.034806

According to Table 1, ROA of insurance companies of Russian Federation ranges from the minimum of -0.5207 to the maximum of 0.6052 with a mean of 0,0418.

Size of Company (expressed in total assets in USD) comprises from USD 3 238 to USD 6 518 868, mean is USD 53 562.5. Other variables have the following meanings:

- ROE: -2.6743 (min.), - 9.2617 (max), 0.6402 (mean);
- Liquidity Ratio: -0.0112 (min.), 11.4644 (max), 1.0325 (mean);
- Premium Growth Rate : 0.1503 (min.), 7.5289 (max), 1.1894 (mean);
- Claims Ratio: 0.0025 (min.), 6.1804 (max), 0.4260 (mean);
- Inflation: 0.0252 (min.), 0.1291 (max), 0.0706 (mean);

Correlation coefficients representing linear relationship between two variables are given in Table 2. Variables used for analysis. Correlation coefficients.

Table 2. Variables used for analysis. Correlation coefficients

Variable	ROA	Size of Company	Inflation	ROE	Liquidity Ratio	Premium Growth Rate	Claims Ratio
ROA	1.0000						
Size of Company	0.0588	1.0000					
Inflation	-0.0426	-0.0810	1.0000				
ROE	0.6664	0.0845	-0.0679	1.0000			
Liquidity Ratio	0.0286	-0.0150	-0.2150	0.1170	1.0000		
Premium Growth Rate	-0.1026	-0.0136	-0.1052	-0.1157	0.0007	1.0000	
Claims Ratio	0.0314	0.0098	-0.0139	-0.0509	-0.0479	-0.1388	1.0000

According to Table 2, ROA has positive relationship with size of company, ROE, liquidity ratio and claim ratio. Inflation and premium growth rate have negative relationship with ROA.

It is assumed that the errors are uncorrelated with one another. The Durbin-Watson test performed has a value of 1.9515 indicating no autocorrelation. Breusch-Godfrey LM test for autocorrelation (P=0.6642) detected no serial correlation. Breusch-Pagan / Cook-Weisberg test for heteroscedasticity, where p-value is greater than 0.05 (p=0.1259), revealed that heteroscedasticity is not present.

Variance inflation factors were used to test multicollinearity between explanatory variables. VIF values were within the range from 1.02 to 1.07 meaning that multicollinearity does not influence the regression results. Multiple linear regression of variables is given in Table 3. Multiple linear regression

Table 3. Multiple linear regression

Source	SS	df	MS	Number of obs	=	315
				F(6, 308)	=	42.14
Model	0.989376327	6	0.164896055	Prob > F	=	0.0000
Residual	1.20510854	308	0.00391269	R-squared	=	0.4508
				Adj R-squared	=	0.4401
Total	2.19448487	314	0.006988805	Root MSE	=	0.06255
ROA	Coef.	Std. Err.	t	P>t	[95% Conf.	Interval]

Size of Company	-2.23e-11	3.32e-09	-0.01	0.995	-6.55e-09	6.51e-09
Inflation	-0.0203139	0.1050923	-0.19	0.847	-.2271036	0.1864759
ROE	0.0385455	0.0024707	15.60	0.000	0.0336839	.0434071
Liquidity Ratio	-0.0024272	0.0021578	-1.12	0.262	-0.0066732	0.0018188
Premium Growth Rate	-0.0019125	0.0048275	-0.40	0.692	-0.0114116	0.0075866
Claims Ratio	0.0124589	0.0087681	1.42	0.156	-0.0047941	0.029712
_cons	0.0181071	0.012579	1.44	0.151	-0.0066447	0.0428588

According to the results of multiple regression model, R-squared for the regression model is 0.4508 meaning that model explains only 45.1 per cent of the total variability in the performance of insurance companies, while 54,9 per cent is influenced by other variables not included in this study. Bartlett test of sphericity and Kaiser-Meyer-Olkin Measure of Sampling Adequacy were used to measure the data adequacy. As soon as KMO value is 0.503 (with minimum value of 0.5 required), the data is deemed to be appropriate. The value according to the Bartlett's test of sphericity is 0.000 (with the maximum of 0.01) meaning that the data is appropriate at 1% level of significance. The results of the KMO and the Bartlett test of sphericity revealed that the data set is suitable for factor analysis.

To determine the number of factors to be extracted Kaiser criterion and scree plot were used. 4 factors with eigenvalues >1 were selected as most interpretable ones (Figure 1) and the method of maximum likelihood was used to extract mentioned factors.

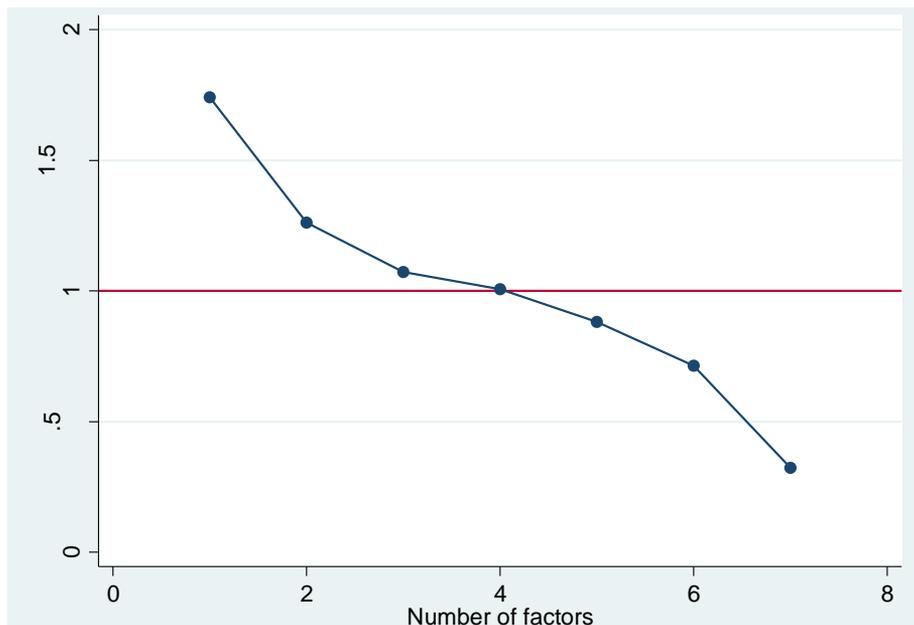


Figure 1. Scree plot of eigenvalues after PCA

Factor matrix after rotation containing the loadings of each variable onto each factor is given in Table 4.

Table 4. Factor rotation matrix

<i>Variable</i>	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>	<i>Factor 4</i>
Size of Company				0.9291
Inflation	-0.7016			
ROE		0.6752		
Liquidity Ratio	0.6705			
Premium Growth Rate		-0.6861	-0.3301	
Claims Ratio			0.8834	

Factor loading is the correlation between a variable and a factor that has been extracted from the data. Coefficients with values of less than 0.3 were removed from the matrix. Factor 1 has such variables as inflation and liquidity ratio, Factor 2 has ROE and premium growth rate, Factor 3 has growth in premium (negative value) and claims ratio and Factor 4 has size of company.

3. DISCUSSION

According to the correlation and multiple linear regression analyses performed in course of this study ROA has positive relationship with size of company, ROE, liquidity ratio and claim ratio. These findings are consistent with findings in previous studies (Abdeljawad et al., 2020; Al-Shami, 2008; Bawa and Chattha, 2013; Burca and Batrinca, 2014; Datu, 2016; Ejigu, 2010; Guendouz and Ouassaf, 2018; Irm et al., 2017; Kripa and Ajasllari, 2016; Kwaning et al., 2015; Markonah et al., 2019; Mazviona et al., 2017; Najjar, 2012; Öner Kaya, 2015; Rashid and Kemal, 2018).

Inflation tends to have negative relationship with ROA, which is confirmed with results obtained by Pervan et al. (2014). At the same time, other researches investigating inflation as a factor affecting the financial performance in insurance industry, detected no noticeable impact of inflation on financial performance (Datu, 2016; Irm et al., 2017; Srijanani and Rao, 2019). According to present research, premiums growth rate has negative relationship with ROA and has no significant impact on the financial performance of insurance companies. These findings are supported by data obtained by a number of other researches (Abdeljawad et al., 2020; Kwaning et al., 2015). On the contrary, Burca and Batrinca (2014), Guendouz and Ouassaf (2018), Irm et al. (2017), Markonah et al. (2019), Öner Kaya (2015), Rashid and Kemal (2018), in course of researches revealed significant influence of premium growth rate on financial performance of the insurance companies.

CONCLUSION

Insurance market in Russian Federation has rapidly grown in recent years. At the same time, despite numerous studies investigating the determinants and factors affecting the financial performance of companies operating at insurance markets worldwide, there was a lack of studies investigating determinants impacting the insurers' performance in Russian Federation. Financial secondary data of 45 insurance companies and groups uninterruptedly operating in Russian Federation within the period from 2012 to 2018 were selected from 231 insurers (including micro-companies) registered in 2018. Financial parameters selected on basis of previous researches (size of company, ROE, liquidity ratio, premiums growth rate, claims ratio and inflation) totaling to 315 observations for the period from 2012 to 2018 on the above companies were researched by way of descriptive analysis, correlation analysis, multiple linear regression and factor analysis. Return of assets was selected as the dependent variable indicating company's financial performance.

It was revealed during the study that return on assets (ROA) has positive relationship with size of company, return on equity (ROE), liquidity ratio and claim ratio. Inflation and premium growth rate have negative relationship with ROA. This research found that investigated variables (size of company, ROE, liquidity ratio, premiums growth rate, claims ratio and inflation) comprise 45.1 per cent of the total varia-

bility in the performance of insurance companies. 54,9 per cent is influenced by other variables not included in this study. This provides a room for further studies of other factors influencing the financial performance of insurance companies in Russian Federation.

The results of this study can be applied both by scientists and insurance professionals for further researches both in Russian federation and internationally, including industry-based investigations with the purpose of defining determinants and developing recommendations and policies in insurance industry of a certain country or company. Findings of the study together with further researches can be used by governmental authorities when defining insurance policies and regulations.

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