THE DEVELOPMENT OF PERFORMANCE OF THE NON-LIFE CZECH INSURANCE MARKET

[Vývoj výkonnosti českého pojistného trhu s neživotním pojištěním]

Lenka Přečková[1], Iveta Palečková[2]

[1] Slezská univerzita, Obchodně podnikatelská fakulta, Univerzitní nám. 1934/3,733 40 Karviná
Email:preckova@opf.slu.cz

[2] Slezská univerzita, Obchodně podnikatelská fakulta, Univerzitní nám. 1934/3,733 40 Karviná
Email:paleckova@opf.slu.cz

Abstract: This paper aims to evaluate the profitability and expense ratio of the insurance business conducted by commercial insurance companies operating in the Czech insurance market from 2004 to 2019. The evaluation shall apply computations such as the return on assets (ROA), the ratio of underwriting profit to assets (UPA), and the expense ratio indicator (ER). Calculations shall be performed for non-life insurance. The value of the UPA indicator was stable during the whole period. By contrast, the ROA indicator fluctuated from 2004 to 2011. The ROA indicator stabilized between 2012 and 2017 and then between 2017 and 2019 ROA grew significantly. The value of both indicators (ROA, UPA) decreased from 2015 to 2017 and increased from 2017-2018. The operating expense ratio of insurance operations (ER) showed a growth tendency. When the average values of the selected indicators were compared to the Czech market, it was determined that the insurance companies Allianz, Česká pojišťovna ZDRAVÍ and PNP Paribas Cardif had achieved the best result and were the most efficient.

Introduction

Performance, profitability, and the expense ratio are very useful indicators worth observing in many areas of business operation, especially when it comes to financial institutions. The terms financial health and financial stability are often used regarding the financial market. The reason for this is clear. There is a connection with the supervision of the financial market as well as financial stability monitoring. The area of the insurance industry is very specific – and this is because of the specifics of the insurance business itself. This may be the reason why research has been limited and an explanation for why there have been few publications dealing with the insurance industry. There is no comprehensive financial analysis methodology for insurance companies; instead, authors have to use the financial analysis methodology created for regular companies usually modifying their indicators for the sake of their research. The insurance industry deserves more attention; it has many specifics, and it is integrated into the financial market. Gláserová's (2010) research points out that there are specifics in insurance companies' accounting. This fact relates to the modification of indicators when the performance of insurance companies needs to be evaluated. There are no publications comprehensively dealing with ratio indicators that could be applied in financial analyses of insurance companies. Recommended values and industry values of these indicators are nowhere to be found. At the same time, as was said above, the area of financial stability of insurance companies is a very important and useful one. Researchers studying the area of financial stability usually focus on determining macroeconomic factors affecting the performance of the insurance markets or even particular insurance companies.

According to the Czech National Bank (hereinafter referred to as the CNB), financial stability and analysing it has recently become one of the key tasks not only for the CNB itself but also for many national and international institutions. Identifying weaknesses within the financial sector and understanding how these weaknesses can affect development in the financial markets as well as economic development in general, could help reduce risks and make the whole financial system more shock-resistant (CNB 2019). According to Act No. 6/1993 Coll. on the Czech National Bank, the CNB shall work to ensure financial stability - this is its key task. Act No. 277/2009 Coll. on Insurance Business specifies the range of supervision over the insurance industry, and it emphasizes the need for protection of persons insured and beneficiaries concerning the financial stability of insurance companies and preservation of this stability.

The financial stability of an insurance company can be evaluated based on its performance. Performance is evaluated by profitability, the expense ratio in the operating area as well as in the area of insurance payments. It is also evaluated by the growth of income within the insurance business, i.e. gross premiums written. These are the indicators used by financial analyses which evaluate financial health in companies.

This paper intends to evaluate the insurance business in the Czech insurance market and compare the results with commercial insurance companies from the perspective of performance. The paper aims to evaluate profitability and the expense ratio of the insurance business conducted by commercial insurance companies operating in the Czech insurance market from 2004 to 2019. To achieve the aim, two research questions were formulated. How did the selected indicators of performance develop in the Czech insurance market from 2004 to 2019? Which insurance companies can be evaluated as the most efficient and which are the least efficient?

This paper examines a subject that is part of research aiming at a comprehensive evaluation of the financial health of insurance companies in the Czech insurance market. It also seeks to determine the financial stability index of the insurance company.

Financial analysis is where financial decision-making starts. It has a role not only in manufacturing businesses but in all institutions, which form relationships in the financial market (Majtánová et al. 2006). Vávrová (2014) very precisely expresses and specifies the purpose of financial analyses: "The aim of financial analyses in commercial insurance companies is to locate any weaknesses in financial health which could lead to future financial trouble; it should also identify strengths which could be utilized in the future life of a commercial insurance company." Authors such as Mandić et al. (2017), Malik (2011) emphasize the significance of evaluation of financial performance in insurance companies and they state that it is essential to measure performance. According to Malik (2011) profitability is one of the most important indicators of financial management in insurance companies.

1 Literature review

Pulchart (2002) speaks about the monitoring of the profitability indicator in insurance companies and calls attention to how the behaviour of insurance companies develops concerning profitability. He explains that until 1998 the reduction in underwriting profit was offset by a relatively high income from investments. The year 1999 brought a drop in interest rates and securities markets, which affected insurance companies and their administration. The tragic events of September 2001 (terrorist attacks against the United States) significantly affected people's views on non-life insurance; it also led to changes in development

indicators. This development was caused not only by the aforementioned events but also by the stricter attitude of insurers as well reinsurers regarding risk acceptance. For this reason, it is important to evaluate not only the indicators of profitability (ROA, ROE), when assessing it, but also the main factor affecting economic activities within insurance companies – the underwriting profit. Kozák (2011) used the underwriting profit in his study when evaluating the performance of the Polish insurance market.

Some interesting conclusions were provided by Shim's (2015) research. This study focused on how concentration affected the financial stability of insurers in the United States between 1992 and 2010. The results indicated that a higher level of concentration in the market is connected with the lower financial stability of insurance companies.

Burca and Batrinca's (2017) study describes financial analysis as an important tool that insurance companies apply in subscriptions and investments. Their research speaks of financial performance in the macroeconomic context because insurance business and market are part of the financial system; they support economic growth and stability. The authors' study analyses what determined financial performance in the Romanian insurance market between 2008 and 2012. These determinants were found to affect financial performance: the size of the company, the growth of gross premiums written, the size of underwriting risk, retention ratio, and solvency ratio.

In his study, Çekrezi (2015) tried to explore factors affecting the financial performance of Albanian insurance companies. To do this, he studied five privately-owned insurance companies between 2008 and 2013. The author assessed financial performance using the indicators of profitability (ROA and ROE). Çekrezi (2015) points out that there are few scientific publications on performance in insurance companies and most studies focus on banks and listed companies only. Most available studies on performance in insurance companies were published before 2000. Likewise, Malik (2011) studied determinants of profitability in insurance companies - Pakistani ones between 2005 and 2009. The author considered the return on assets as the key indicator of profitability in insurance companies.

Grmanová and Strunz (2017) used the indicators ROA and ROE to assess profitability in their research. They seek to draw attention to the fact that the world of globalization and competition forces insurance companies to monitor their profitability. The authors point out that few studies are researching the efficiency of insurance companies and explaining what factors affect efficiency in the countries of Eastern Europe.

Dubravská (2015) analysed and evaluated individual insurance companies operating on the Polish insurance market between 2009 and 2012. She performed her evaluation applying: the growth rate of gross premiums written, leverage, reserve ratio, and investment to the technical provisions.

The Russian insurance industry was analysed by Knyazeva et al. (2016). The authors claim that there is a slowing trend of the written premium in the market. The factors that affect the financial stability of insurance companies and that decrease their profitability are: a loss of insurance operations, a reduction of profitability of assets, and growth of operating costs. The authors recommend insurance companies pay attention to cash flow if they want to keep their position in the market.

Acta academica karviniensia

The analysis of studies shows that insurance companies need to monitor: profitability ROA, ROE but also underwriting profit. The authors claim that there are other indicators for monitoring performance: the growth rate of gross premiums written, the expense ratio of insurance business, reserve ratio, and retention ratio. To evaluate the Czech insurance market in this study, these indicators shall be chosen: the growth rate (GR) of gross premiums written, return on assets (ROA), underwriting profit (non-life insurance) to assets (UPA), indicators of total cost ratio, i.e., the expense ratio (ER) of non-life insurance, the claims ratio of non-life insurance (CR) and a combined ratio of non-life insurance (COR). The expense ratio evaluates operating costs, the claims ratio is a loss ratio, and the combined ratio is their sum.

2 Methodology

This paper aims to evaluate the profitability and expense ratio of insurance businesses conducted by commercial insurance companies operating in the Czech insurance market from 2004 to 2019. Two research questions shall be formulated. How did the selected indicators of performance develop in the Czech insurance market from 2004 to 2019? Which insurance companies can be evaluated as the most efficient and which are the least efficient? To evaluate the performance of commercial insurance companies, two ratio indicators shall be calculated.

Gross premiums written is one of the essential default indicators which evaluate not only the performance of insurance companies but also the whole insurance market. The recommended value for this indicator should be between -10% and +30% (Korobczuk 2008). Vávrová (2014) drew attention to the fact that new insurance companies tend to achieve a higher pace of growth in their early years. The growth rate (GR) is calculated as a ratio of gross premiums written (non-life insurance) in two successive years (e. g. t = 2017, t-1 = 2016); it is expressed as a percentage:

$$GR = \frac{\text{gross premiums written}_t}{\text{gross premiums written}_{t-1}} \tag{1}$$

The profitability of total invested capital reflects how well total assets were used to generate profits regardless of the structure of their funding sources (Vávrová 2014). This indicator is expected to grow with time. Return on assets (ROA) is calculated as the ratio that shows the percentage of profit (profit or loss during the accounting period) a company earns in relation to its assets:

$$ROA = \frac{profit}{assets} \tag{2}$$

The essential factor affecting the economic activity of an insurance company is the underwriting profit (UP) as it is called, i.e. the result (balance) of a technical account for non-life insurance. Pulchart (2002) and Kozak (2011) emphasize the importance of monitoring this factor. For this reason, another indicator applying the underwriting profit was calculated:

$$UPA = \frac{underwriting\ profit}{assets} \tag{3}$$

The UPA indicator is expressed as a percentage, and it is calculated for non-life insurance only. The calculation applies the underwriting profit of non-life insurance without transferring profit from the non-technical account. The result of UPA is focused only on insurance business involving non-life insurance (investing activities are excluded).

The next calculated ratio is the expense ratio (ER). This indicator is a ratio that shows the percentage of operating costs and written premiums (Pulchart 2002, Gestel et al. 2007,

Vávrová 2014). The value of this indicator should not exceed 30%. The calculation applied gross operating costs of non-life insurance and gross premiums written of non-life insurance:

$$ER = \frac{gross\ operating\ costs}{gross\ premiums\ written} \tag{4}$$

The next calculated indicator is the claims ratio (CR). This is a ratio that shows the percentage of claims costs and the written premium (Vávrová 2014, Korobczuk 2008). It has never been determined what the recommended value should be. Every insurance company should aim at achieving the lowest possible value. The calculations applied gross claims costs of non-life insurance and gross premiums written of non-life insurance:

$$CR = \frac{gross\ claims\ costs}{gross\ premiums\ written} \tag{5}$$

The last indicator is the combined ratio (COR). This indicator is the sum of the expense ratio indicator and the claims ratio indicator (Pulchart 2002, Gestel et al. 2007, Korobczuk 2008). This calculation is performed for non-life insurance. It is expressed as a percentage.

The research shall involve all commercial insurance companies conducting insurance business in the Czech Republic (Table 1) over the selected period which are members of the Czech Insurance Association (CAP). Calculations of indicators shall use data from the statistics of the Czech Insurance Association. In each of the monitored years, members of the Czech Insurance Association shared more than 95% of the premium written in the Czech Republic. The following Table 1 shows the name of each insurance company, an abbreviation used for it, its market share of non-life insurance, and its share in non-life insurance.

Table 1: Insurance companies that offer non-life insurance in the Czech insurance market

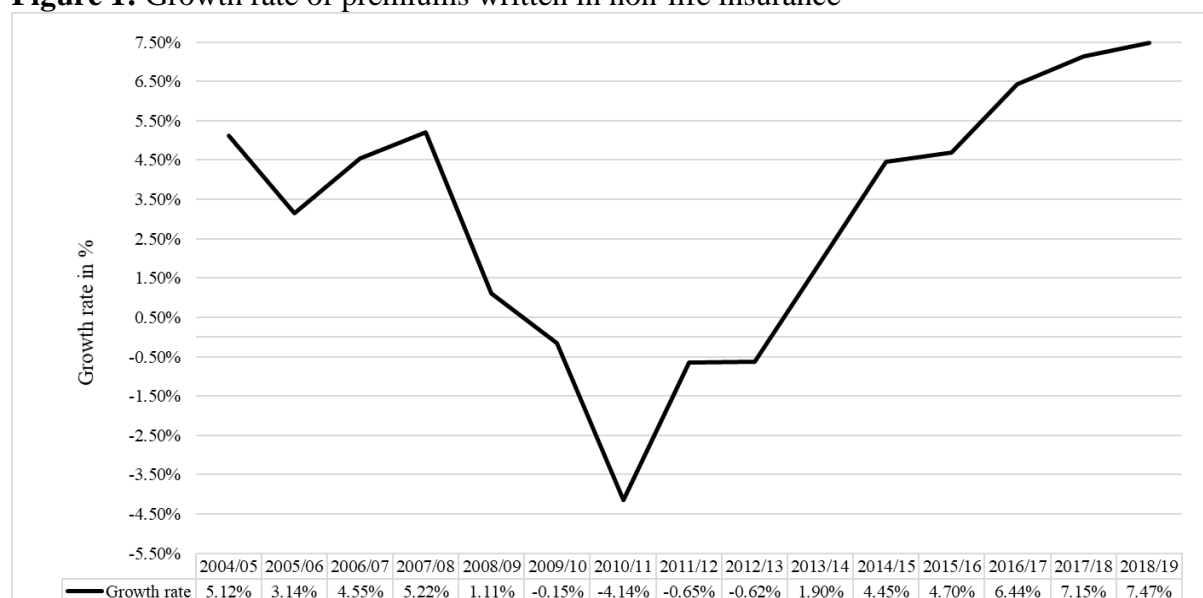| Name of an insurance company	Abbreviation of an insurance company	Non-life market share (%)	Non-life insurance share (%)
MARKET			58.02
Allianz pojišťovna, a.s.	ALLIANZ	10.07	72.48
AXA pojišťovna a.s.	AXA	1.35	100.00
AXA životní pojišťovna a.s.	AXA ZP	0.19	8.54
BNP Paribas Cardif Pojišťovna, a.s.	CARDIF	2.00	86.13
Generali Česká pojišťovna a.s. (from year 2019)	GCP	28.71	66.23
Česká pojišťovna ZDRAVÍ a.s.	CP ZDRAVI	0.47	100.00
Česká podnikatelská pojišťovna, a.s.	CPP	6.05	73.91
ČSOB Pojišťovna, a.s.	CSOBP	5.48	43.29
D.A.S. Rechtsschutz AG, pob. pro ČR	DAS	0.34	100.00
ERGO pojišťovna, a.s.	ERGO	0.20	39.72
ERV Evropská pojišťovna, a.s.	ERV	0.41	100.00
Generali Pojišťovna a.s.	GENERALI	6.73	67.36
HDI Versicherung AG, organ. složka	HDI	0.40	100.00
Hasičská vzájemná pojišťovna, a.s.	HVP	0.58	97.93
Kooperativa pojišťovna, a.s.	KOOP	27.89	73.26
Komerční pojišťovna, a.s.	KP	0.39	6.99
MAXIMA pojišťovna, a.s.	MAXIMA	0.35	92.44
MetLife Europe d.a.c., pob. pro ČR	METLIFE	0.25	8.92
Pojišťovna České spořitelny, a.s.	PCS	0.60	5.93
Pojišťovna VZP, a.s.	PVZP	0.55	100.00
Slavia pojišťovna a.s.	SLAVIA	0.62	100.00
UNIQA pojišťovna, a.s.	UNIQA	4.83	77.34

Source: Author's own work based on CAP's statistics

To reach the aim of this research, the following methodology was selected: In the first step, there shall be calculated values of selected indicators for the period of 2004-2019 for the whole Czech insurance market (non-life insurance). It shall be determined how the indicators developed during the period. In the next step, there shall be calculated average values of ratio indicators for the insurance market and the individual insurance companies. The individual companies shall be then compared to the insurance market. An evaluation shall be performed and it shall be determined which insurance companies are the most and least efficient.

3 Results and Discussion

The following Figure 1 shows the growth rate of premiums written in non-life insurance from 2004 to 2019.

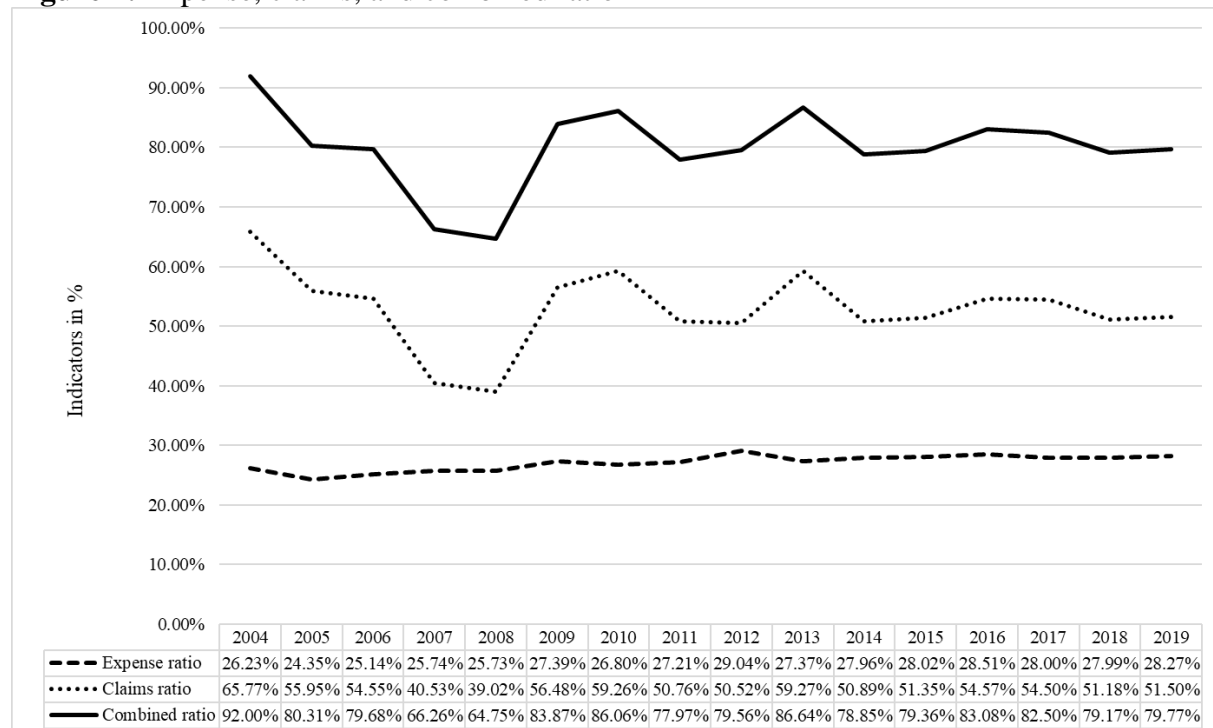**Figure 1:** Growth rate of premiums written in non-life insurance

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Growth rate	5.12%	3.14%	4.55%	5.22%	1.11%	-0.15%	-4.14%	-0.65%	-0.62%	1.90%	4.45%	4.70%	6.44%	7.15%	7.47%

Source: Author's own work based on CAP's statistics

The average value of GR reached 3.04% during the whole monitored period. Between 2008 and 2011, GR dropped significantly. The 2010/2011 year-on-year difference reached -4.14%, which was the lowest point during the monitored period. The drop in GR was caused mainly by the economic and financial crisis. From 2012 to 2017, GR of non-life insurance started growing again but it was not until 2013/2014 that the value turned positive again. The value in 2018/2019 (7.47%) exceeded the value recorded in 2004/2005 (5.12%).

The following graph (Figure 2) shows how cost ratios developed in non-life insurance. The values of the ER indicator were lower than the recommended 30% during the whole monitored period. The average value of ER was 27.11% during the monitored period. From 2005 (24.35%) to 2019 (28.27%), the value grew moderately. There were no significant fluctuations during the monitored period. The CR indicator reached the average value of 52.88%. This indicator was growing between 2008 and 2010 and then between 2012 and 2013 (see Figure 2). The sharpest rise in the assurance benefit was recorded between 2008 and 2009 (by 46%) and it was caused mainly by claims connected with natural disasters (CAP 2010). The values of this indicator dropped significantly between 2004 and 2008; then they stabilised from 2014 to 2019. The value in 2019 (51.50%) was significantly lower than in 2004 (65.77%). Another sharp rise in assurance benefits was recorded between 2015 and 2016, which was caused by assurance benefits related to agricultural insurance (CAP 2016). The COR indicator is the sum of the ER and CR indicators. Its final value is affected

primarily by the CR indicator. Its average value is 79.99%. The development of the COR indicator is shown in Figure 2. The value in 2019 (79.77%) is significantly lower than in 2004 (92.00%).
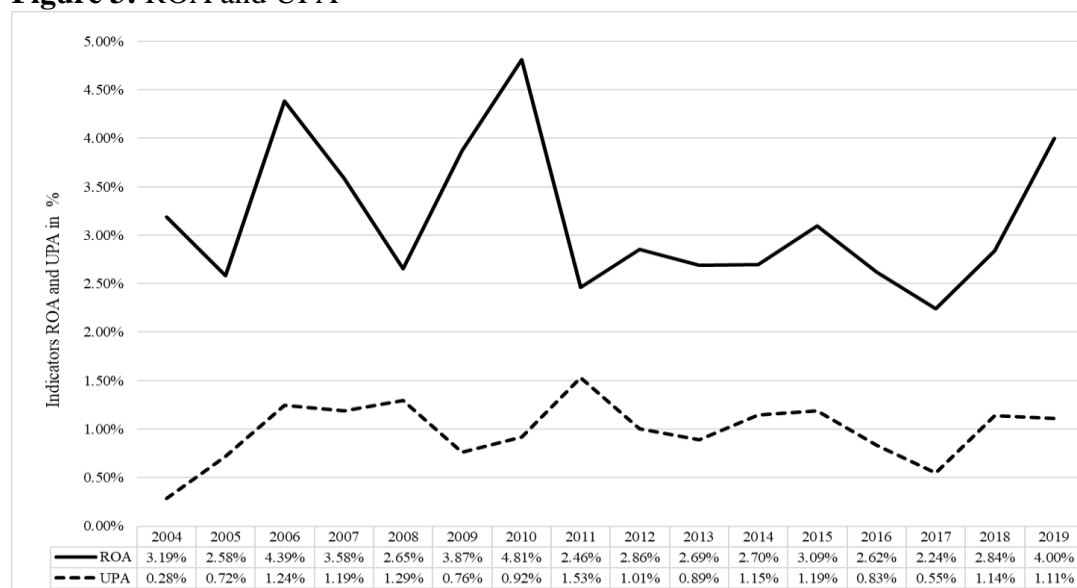
Figure 2: Expense, claims, and combined ratio

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Expense ratio	26.23%	24.35%	25.14%	25.74%	25.73%	27.39%	26.80%	27.21%	29.04%	27.37%	27.96%	28.02%	28.51%	28.00%	27.99%	28.27%
Claims ratio	65.77%	55.95%	54.55%	40.53%	39.02%	56.48%	59.26%	50.76%	50.52%	59.27%	50.89%	51.35%	54.57%	54.50%	51.18%	51.50%
Combined ratio	92.00%	80.31%	79.68%	66.26%	64.75%	83.87%	86.06%	77.97%	79.56%	86.64%	78.85%	79.36%	83.08%	82.50%	79.17%	79.77%

Source: Author's own work based on CAP's statistics

The following graph (Figure 3) compares the development of return on assets and the UPA indicator.

Figure 3: ROA and UPA

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
ROA	3.19%	2.58%	4.39%	3.58%	2.65%	3.87%	4.81%	2.46%	2.86%	2.69%	2.70%	3.09%	2.62%	2.24%	2.84%	4.00%
UPA	0.28%	0.72%	1.24%	1.19%	1.29%	0.76%	0.92%	1.53%	1.01%	0.89%	1.15%	1.19%	0.83%	0.55%	1.14%	1.11%

Source: Author's own work based on CAP's statistics

The value of UPA is stable during the whole period and its average value reached 0.99%. UPA dropped significantly in 2009, during which its value fell to 0.76%. The value of UPA in

2019 (1.11%) was higher than in 2004 (0.28%). The average value of ROA is 3.19% in the monitored period. The ROA indicator fluctuated heavily from 2.24% to 4.81%, especially between 2004 and 2011. The development of profitability stabilized between 2012 and 2017. From 2017 (2.24%) to 2019 (4.00%), the value of ROA grew significantly. Profitability dropped significantly in 2005, 2008, 2011, and 2017. The value of ROA in 2019 (4.00%) was higher than in 2004 (3.19%).

The following Table 2 shows average values of ratio indicators for the non-life insurance market as well as for the individual insurance companies. It shows a comparison of values reached by individual insurance companies with values achieved by the overall insurance market. The bold font indicates that the insurance company reached better results than the overall insurance market. For the final evaluation, these indicators are taken into consideration: GR, COR, ROA, and UPA (highlighted columns). Having compared the values in Table 2, ALLIANZ, CARDIF, and CP ZDRAVI appear to have reached the best results. If we take into account that the recommended growth rate is between -10% and 30%, the insurance companies GCP and KOOP could also be added to this group. By contrast, the insurance companies AXA, CSOBP, GENERALI, and SLAVIA reached the worst results as compared to the overall market.

Table 2: Average values of selected indicators from 2004 to 2019

Insurance company	GR (%)	ER (%)	CR (%)	COR (%)	ROA (%)	UPA (%)
MARKET	3.04	27.11	52.88	79.99	3.19	0.99
ALLIANZ	**3.34**	23.46	55.30	**78.76**	**3.92**	**2.88**
AXA	**19.86**	33.88	64.28	98.16	-7.36	-9.55
AXA ŽP	**15.02**	60.76	17.25	**78.02**	0.75	0.32
CARDIF	**11.17**	63.22	16.01	**79.24**	**10.09**	**11.04**
GCP	-0,48	26.56	51.97	**78.53**	**4.82**	**1.29**
CP ZDRAVI	**4.90**	38.36	33.38	**71.73**	**14.18**	**12.64**
CPP	**7.14**	31.89	59.33	91.22	2.65	**1.01**
CSOBP	**7.32**	32.13	57.38	89.51	2.07	0.39
DAS	**5.12**	52.38	34.86	87.24	**4.41**	**4.18**
ERGO	**18.50**	45.75	25.34	**71.09**	1.35	0.85
ERV	**11.78**	47.58	33.90	81.48	**8.60**	**6.04**
GENERALI	**3.87**	28.59	52.33	80.91	2.53	0.98
HDI	**5.79**	16.98	32.82	**49.80**	2.86	**3.69**
HVP	**5.49**	37.45	52.48	89.93	0.95	**1.92**
KOOP	2.55	21.45	56.86	**78.31**	**3.46**	1.77
KP	**8.32**	40.86	15.18	**56.04**	0.83	0.49
MAXIMA	**19.02**	53.55	31.31	84.86	0.80	**1.45**
METLIFE	0.95	45.35	20.94	**66.29**	2.15	0.35
PCS	**54.36**	27.43	44.11	**71.54**	**3.50**	0.12
PVZP	**7.75**	53.94	31.47	85.41	**4.55**	**4.43**
SLAVIA	**25.26**	45.63	36.11	81.74	-2.31	0.25
UNIQA	**7.31**	30.41	53.91	84.31	**3.20**	**2.02**

Source: Author's own work based on CAP's statistics

4 Discussion

This paper aims to evaluate the profitability and the expense ratio of the insurance business conducted by commercial insurance companies operating in the Czech insurance market from 2004 to 2019.

How did the selected indicators of performance develop in the Czech insurance market from 2004 to 2019?

The average value of GR reached 3.04% during the monitored period. The graph in Figure 1 shows a decrease in GR from 2004 to 2006, which might have been caused by the fact that the Czech Republic had just become a member of the European Union. CAP (2006) emphasizes that the premium written was affected by very strong competition in non-life insurance during this period. The business activity of insurance companies from other EU countries, operating in the Czech Republic, is also a very important factor in non-life insurance according to CAP (2006). GR dropped significantly between 2008 and 2011; then it grew from 2012 to 2017. The development of GR of gross premiums written is connected with how the financial market was developing generally. According to the CNB (2009), there was less demand for insurance in 2009 because of the financial crisis, which led to the lower GR of the written premium and probably also lower profitability. It should be noted that the value of GR in 2018/2019 (7.47%) exceeded the value recorded in 2004/2005 (5.12%).

The average value of ER (Figure 2) was 27.11% during the monitored period; it did not exceed the recommended value of 30%. The insurance market did not exceed the recommended value in any of the monitored years. However, this indicator was growing during the monitored period; having started at 24.32% in 2005; then it grew to 28.27% in 2019. Following the financial crisis, the written premium was increased between 2013 and 2019 and operating costs grew more rapidly than the written premium. The average growth rate of operating costs was higher than the average growth rate of the written premium. If this development should continue, the values of ER could exceed the recommended 30%. The CR indicator reached the average value of 52.88%. Its values fluctuated during the monitored period. This indicator grew from 2008 to 2010 and from 2012 to 2013. It was decreasing from 2004 to 2008 and from 2013 and 2014. Finally, it started to stabilize from 2014 to 2019. The average growth rate of claims costs was lower than the average growth rate of the written premium. The sharpest rise of insurance benefits was recorded between 2008 and 2009 (by 46 %); this was mainly caused by claims related to natural disasters (CAP 2010). Significant growth of the assurance benefit was recorded also between 2015 and 2016, which was caused mainly by claims related to agricultural insurance (CAP 2016).

The value of the UPA indicator (Figure 3) was stable during the whole monitored period. Its average value is 0.99%. The year 2009 brought about a significant drop; the value fell to 0.76%, which can be, according to the CNB (2009), probably linked to the decrease of GR of non-life insurance. This drop was caused by the decrease of the balance of the technical account by 37% and an increase of assets by 7.5%. The average value of ROA is 3.19% during the monitored period. The ROA indicator (Figure 3) fluctuated heavily between 2004 and 2011. Profitability stabilized from 2012 and 2017, then the value grew significantly. Profitability dropped significantly in 2005, 2008, 2011, and 2017. The volume of profits decreased in all monitored years; the most significant drop was recorded in 2010/2011 (by 51%). According to the data published in CAP's (2011) annual report, the year 2011 meant a significant drop in the written premium in car insurance. The value of assets dropped by 5% this year as well. In 2004/2005 and 2007/2008, profits decreased by approximately 22%, and assets increased by nearly 7%. In 2016/2017, profits decreased by 11%, and assets increased by 5%. In 2018/2019, profits increased by 33% and assets decreased by 5.5%. The ROA indicator works with a total economic result and the UPA indicator works only with the balance of the technical account of non-life insurance excluding investment activities. This is the reason why it can be assumed that the fluctuation between 2004-2011 might have been

caused by the investment activities of insurance companies and the economic result of life insurance. The investment activities of insurance companies were affected by the financial crisis. The ROA indicator reached 4.00% in 2019, which is higher than 3.19% achieved in 2004. The value of UPA in 2019 (1.11%) is also higher than in 2004 (0.28%). The values of both indicators decreased from 2015 to 2017. This might have been caused by the growth of expenses during this period.

Which insurance companies can be evaluated as the most efficient and which are the least efficient?

The average values of indicators for both the insurance companies and the insurance market are shown in Table 2. A comparison of these values means that the insurance companies ALLIANZ, CARDIF, and CP ZDRAVI can be evaluated most positively. The insurance company ALLIANZ is the third-largest insurance company in the Czech market by its market share (over 10%; see Table 1). The share of non-life insurance exceeds 70% in the case of ALLIANZ. On the contrary, CP ZDRAVI and CARDIF are smaller insurance companies specializing mainly in non-life insurance (Table 1). The insurance companies CP ZDRAVI and CARDIF reached the highest values of profitability in indicators ROA and UPA. Similarly, the values of the total expense ratio (COR) are lower than the values reached by the market. However, both insurance companies show higher values of ER; with CARDIF reaching the highest average operating expenses (ER) among all the insurance companies which were included in the research. The insurance company ALLIANZ can be positively evaluated in the area of profitability of the insurance business (UPA). Only in the case of CR, the value is higher than the market (by 4.6%). Because it is recommended to keep the growth rate (GR) between -10% to 30%, the insurance companies GCP and KOOP can also be added to the list of the most positively rated insurance companies. These two companies hold the largest market share in the Czech Republic (Table 1). The insurance company GCP reached better results than the insurance market in all indicators except for GR. The insurance company KOOP reached lower values in the growth rate (GR) and the claim ratio indicator (CR) than the market.

The insurance companies AXA, SLAVIA, CSOBP, and GENERALI reached the worst results compared to the market. The insurance companies AXA and SLAVIA offer solely non-life insurance. They are among the smaller insurance companies in the Czech Republic (Table 1). The insurance companies AXA and SLAVIA reached negative profitability and a high expense ratio. The market share of the insurance companies CSOBP and GENERALI exceeds 5% (Table 1). GENERALI offers more non-life insurance (67.36%); CSOBP offers more life insurance (56.79%). The insurance companies CSOBP and GENERALI reached slightly worse results in profitability. CSOBP and GENERALI reached a high level of the combined ratio.

Conclusion
The paper aims to evaluate the profitability and the expense ratio of the insurance business conducted by commercial insurance companies operating in the Czech insurance market from 2004 to 2019.

How did the selected indicators of performance develop in the Czech insurance market from 2004 to 2019?

The period from 2008 to 2011 can be characterized by a significant drop in the growth rate of the gross premium written of non-life insurance (GR); by contrast, the period 2012-2019 brought about an increase. The development of the insurance market was probably affected by the development of the financial market. The economic and financial crisis affected the Czech insurance market which did not start recovering until 2012. The development of operating expenses of the insurance business (ER) had a growing tendency. However, it did not exceed the recommended value of 30% in any of the monitored years. The average growth rate of operating expenses was higher than the average growth rate of written premium.

Insurance companies should pay attention to the management of operating expenses to prevent this indicator from growing in the future, which could affect profitability and stability. The CR indicator is fluctuating. Compared to the development of operating expenses and the written premium, the average growth rate of claims costs is lower than the average growth rate of the written premium. The value of the UPA indicator is stable during the whole period. The ROA indicator is fluctuating in the period 2004-2011. From 2012 to 2017, the development of the ROA indicator stabilized. Then from 2017 to 2019, the development of the ROA indicator increased. The fluctuation from 2004 to 2011 might have been caused by the investment activities of insurance companies and the economic results in life insurance. The investment activities of insurance companies were heavily affected by the financial crisis. ROA and UPA of the indicators decreased from 2015 to 2017, which might have been caused by the growth of the expense ratio in that period.

Which insurance companies can be evaluated as the most efficient and which as the least efficient?

The insurance companies ALLIANZ, CP ZDRAVI, and CARDIF can be evaluated as the most efficient because they reached the best average values of selected indicators. If the growth rate of the written premium had not been included in the evaluation, the insurance companies GCP and KOOP would also have been added to the list of the most efficient insurance companies. By contrast, the insurance companies AXA, CSOBP, GENERALI, and SLAVIA reached the worst results compared to the market, and so they can be evaluated as the least efficient.

Results achieved by this research are to be followed by other indicators; the research shall be extended to cover life insurance and subsequently, a financial stability index for insurance companies operating in the Czech Republic shall be sought. Conclusions of this research shall lead to further questions regarding what determines the development of the Czech insurance market – and especially of individual insurance companies

References

[1] BURCA, A. M. and G. BATRINCA, 2014. The Determinants of Financial Performance in the Romanian Insurance Market. International Journal of Academic Research in Accounting. *Finance and Management Sciences*, **4**(1), 299–308. ISSN 2225-8329.

[2] ÇEKREZI, A., 2015. Determinants of Financial Performance of the Insurance Companies: a Case of Albania. *International Journal of Economics, Commerce, and Management*, **3**(4). ISSN 2348-0386.

[3] CAP, 2019. Individuální výsledky členů ČAP. [online]. Available at: https://www.cap.cz/statistiky-prognozy-analyzy/individualni-vysledky-clenu

[4] CNB, 2019. Financial Stability. [online]. Available at: https://www.cnb.cz/cs/financni-stabilita/

[5] CNB, 2009. Financial Stability Report 2008-2009. [online]. Available at: https://www.cnb.cz/export/sites/cnb/cs/financni-stabilita/.galleries/zpravy_fs/fs_2008-2009/FS_2008-2009.pdf

[6] DUBRAVSKÁ, M., 2015. Selected Approaches to Evaluation of the Best Non-life Insurance Company in the Polish Insurance Market. *Polish Journal of Management Studies,* **11**(1), 47-55. ISSN 2081-7452.

[7] GESTEL, T. V., D. MARTENS, B. BAESENS, D. FEREMANS and J. VANTHIENEN, 2007. Forecasting and Analyzing Insurance Companies' Ratings. *International Journal of Forecasting*, **23**(3), 513-529. ISSN 0169-2070.

[8] GLÁSEROVÁ, J., 2010. Komparace metodických přístupů v účetnictví podnikatelských subjektů, bank a pojišťoven v České republice. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunesis*, **43**(6), 133-141. ISSN 1211-8516.

[9] GRMANOVÁ, E. and H. STRUNZ, 2017. Efficiency of insurance companies: Application of DEA and Tobit analyses. *Journal of International Studies*, **10**(3), 250-263. ISSN 2306-3483.

[10] KNYAZEVA, E., L. YUZVOVICH, E. SMORODINA, V. FOMENKO and V. KATOCHIKOV, 2016. Cash Flow Management at the Insurance Company Aimed at Provision of Financial Stability. *American Journal of Applied Sciences*, **13**(6), 794-803. ISSN 1546-9239.

[11] KOROBCZUK, L., 2008. *Informační výstupy pojišťoven. Analýza výroční zprávy.* [online]. Available at: https://bivs.as4u.cz/filemanager/files/file.php?file=7369.

[12] KOZAK, S., 2011. Determinants of Profitability of Non-life Insurance Companies in Poland During Integration with the European Financial System. *Electronic Journal of Polish Agricultural Universities*, **14**(1). ISSN 1505-0297.

[13] MAJTÁNOVÁ, A., J. DAŇHEL, E. DUCHÁČKOVÁ a E. KAFKOVÁ, 2006. *Pojišťovnictví – Teorie a praxe*. Praha: Ekopress. ISBN 80-86928-19-1.

[14] MALIK, H., 2011. Determinants of Insurance Companies Profitability: An Analysis of Insurance Sector of Pakistan. *Academic Research International*, **3**(1), 315-321. ISSN 2223-9553.

[15] MANDIĆ, K. B., S. DELIBAŠIĆ, S. KNEŽEVIĆ and S. BENKOVIĆ, 2017. Analysis of the Efficiency of Insurance Companies in Serbia Using the Fuzzy AHP and TOPSIS Methods. *Economic Research-Ekonomska Istraživanja*, **30**(1), 550-565. ISSN 1331677X.

[16] PULCHART, V., 2002. K ziskovosti neživotního pojištění – pohled na dlouhodobé trendy ve světě. *Pojistný obzor*, **79**(10), 4-5. ISSN 2464-7381.

[17] SHIM, J., 2015. An Investigation of Market Concentration and Financial Stability in Property-liability Insurance Industry. *The Journal of Risk and Insurance*, **84**(2), 567-597. ISSN 1539-6975.

[18] VÁVROVÁ, E., 2014. *Finanční řízení komerčních pojišťoven*. Praha: Grada. ISBN 978-80-247-4662-3.