CHARLES UNIVERSITY

FACULTY OF SOCIAL SCIENCES

Institute of Economic Studies

Radka Doležalová

Business Model Analysis of the Czech Peer-to-Peer Insurance Carrier

Bachelor thesis

Prague 2017

Author: Radka Doležalová

Supervisor: Mgr. Petr Polák, M.Sc.

Academic Year: 2016/2017

Bibliographic note

DOLEŽALOVÁ, Radka. *Peer-to-Peer Insurance.* Prague 2017. 75 pp. Bachelor thesis (Bc.) Charles University, Faculty of Social Sciences, Institute of Economic Studies. Thesis supervisor Mgr. Petr Polák, M.Sc.

Abstract

This thesis provides comprehensive description of a new phenomenon of peer-to-peer insurance focusing on the classification of its main tendencies. The extended overview is accompanied by the original and unique analysis of the business model of The First Club Insurance Carrier, the only Czech peer-to-peer insurance company. The suitability of the concept developed by The First Club Insurance Carrier is tested using five different scenarios derived from its competitors on the Czech insurance market. The profitability and ability to produce payable bonuses for clients in an appropriate amount as proposed by the founders of the company are considered on the ground of scenarios simulating the future development of The First Club Insurance Carrier. On the basis of the created prediction scenarios, the research concludes that the company could achieve a positive economic result in next few years. The amount of givebacks (payable bonuses) has not accomplished the expected amount of 15% of the gross earned premium but it ranges between 9% and 10% in most scenarios. This thesis offers also some requirements for more favorable outcomes (such as a better distribution of gross earned premium between reinsurance and claims expenses). The subsequent what-if analysis showed the insignificance of the potential deviation arising from the modification of the scenarios and supports the outcomes of the business model analysis.

Abstrakt

Tato práce poskytuje komplexní popis nového fenoménu peer-to-peer pojištění se zaměřením na vymezení jeho hlavních tendencí. Rozšířený přehled je doprovázen originální a jedinečnou analýzou obchodního modelu PRVNÍ KLUBOVÉ pojišťovny, jediné české peer-to-peer pojišťovny. Vhodnost konceptu vyvinutého společností PRVNÍ KLUBOVÁ pojišťovna je testována

pomocí pěti různých scénářů odvozených od konkurenčních společností na českém pojistném trhu. Ziskovost a schopnost vytvářet splatné bonusy pro klienty v požadované výši, jak navrhují zakladatelé společnosti, jsou zvažovány na základě scénářů, které simulují budoucí vývoj PRVNÍ KLUBOVÉ pojišťovny. S použitím vytvořených předpovědních scénářů dospěl výzkum k závěru, že by tato společnost mohla v příštích několika letech dosáhnout pozitivního hospodářského výsledku. Množství bonusů (nazývaných též givebacks) nedosáhlo předpokládané výše 15% hrubého zaslouženého pojistného, ale ve většině scénářů se pohybuje mezi 9% a 10%. Tato práce přiblíží také některé podmínky, které zaručují příznivější výsledky (např. lepší rozdělení hrubého pojistného mezi zajistné a pojistné náklady). Následná citlivostní analýza ukázala nevýznamnost potenciální odchylky vyplývající z úpravy scénářů a podporuje výsledky analýzy obchodního modelu.

Keywords

peer-to-peer, insurance sector, business model analysis, The First Club Insurance Carrier

Klíčová slova

peer-to-peer, pojistný sektor, analýza byznys modelu, PRVNÍ KLUBOVÁ pojišťovna

Declaration of Authorship

I hereby proclaim that I wrote my bachelor thesis on my own under the leadership of my supervisor and that the references include all resources and literature I have used.

I grant a permission to reproduce and to distribute copies of this thesis document in whole or in part.

Prague, 18 May 2017

Signature

Acknowledgment

I would like to express my gratitude to the supervisor of my thesis Mgr. Petr Polák, M.Sc, for a proposal of this interesting topic, guidance during writing and his patience. Furthermore, I would like to thank The First Club Insurance Carrier, namely its Chairman of Board Marek Orawski, for priceless information. In closing, I would like to thank everyone who supported me during my study and writing the thesis.

Bachelor Thesis Proposal

Author	Radka Doležalová
Supervisor	Mgr. Petr Polák, M.Sc.
Proposed topic	Business Model Analysis of the Czech Peer-to-Peer Insurance Carrier

Topic characteristics:

Strong competition in the insurance market has been the catalyst for the recent creation of the innovative model of peer-to-peer insurance companies, which follow the origins of the insurance sector. Deposits from policyholders, which have not been used to pay out insurance claims or to cover operational expenses and profit, are in most cases returned back to policyholders. This thesis aims to describe the current peer-to-peer insurance system in a broad range.

In 2015, the alternative insurer using concept peer-to-peer (The First Club Insurance Carrier) appeared also in the Czech Republic. This thesis will address the question whether the peer-to-peer concept meets the preconditions for gaining a suitable position on the Czech insurance market. Positive and negative aspects of the peer-to-peer insurance will also be mentioned in the thesis, taking into account its overall profitability and its ability to pay back a certain amount of premium to policyholders.

Contribution

Even though products and services of insurance companies are an inherent part of today's world, innovative approaches such as the peer-to-peer model are not scientifically explored in detail. Publlic awareness is also rather small. The contribution of this thesis resides in complementing the existing literature on this topic and in evaluation of this concept on the insurance market. Not only policyholders, but also insurance companies may benefit from this thesis.

Methodology

Data analyzed in this thesis will evaluate the ability of peer-to-peer companies to compete on the Czech insurance market. Evaluation of the concept developed by The First Club Insurance Carrier will be done using the business model analysis. Five different scenarios, based on data from annual reports of five Czech non-life isurers, will simulate future development of the Czech peer-to-peer insurer on condition of using its current business model. It will ascertain whether this concept will enable to produce profit and benefits paid back to policyholders in a appropriate amount in the future.

Outline:

1. Introduction
2. Insurance industry
3. New trends in insurance
4. Peer-to-peer model
5. Insurance Market in the Czech Republic
6. The First Club Insurance Carrier
7. Analysis
8. Conclusion

Contents

Acronyms

CI	Claims incurred
CZK	Czech Crown
DC	Depreciation costs
EIOPA	European Insurance and Occupational Pensions Authority
EP	Earned premium
GEP	Gross earned premium
GDP	Gross domestic product
GWP	Gross written premium
MC	Materials consumed
MCR	Minimal capital requirements
NAIC	National Association of Insurance Commissioners
OECD	Organization for Economic Co-operation and Development
PPGEP	Proportion of profit to gross earned premium

List of Figures

List of Tables

Introduction

A substantive development of the technology and innovations in economics together with the expansion of a social network had an immense impact also on the insurance industry. An effort to combine the return to the roots of insurance and utilization of the most advanced technology initiate the formation of the *peer-to-peer concept*. This unconventional approach puts emphasis on moral principles and interpersonal relationships.

The alternative insurance institutions[1] and platforms strive for a price reduction of insurance products and some of them return part of the premium to their clients. This part of premiums paid to clients, called *givebacks*, is correlative of policyholder's responsible treatment that eliminates a number and a value of insurance claims in a corresponding year. Numerous platforms enable their policyholders to create separated groups that only share risk and gain with the pacirticipants. Although, the various types of peer-to-peer platforms differs significantly, they are all linked to an idea of elimination of claims, abusive practices and frauds and a combination of fair risks securing.

As a reaction to the formation of dozens of alternative insurers, brokers,

[1] For the purposes of the comparison of insurance companies on the market and new peer-to-peer platforms, these terms will be used: traditional (conventional) insurers and alternative (non-traditional) insurers.

and platforms, this trend has also appeared on the Czech insurance market. Primarily, its unconventional business model is worth mentioning. The First Club Insurance Carrier concentrates the *gross earned premium*[2] to one *pool*.[3] The portion of 17% of the *gross earned premium* is used for covering expenses of the insurer. Furthermore, a certain amount is used for settling claims and other costs and profit generation. Three quarters of the remaining part can be paid out to the policyholders as *givebacks*. Although the start-up shows a considerable economic loss, supporters of this project predict an auspicious and lucrative future development.

This thesis was created in response to the acute shortage of literature dealing with this topic. The scientifically interesting phenomenon of the peer-to-peer insurance, based on a deep philosophical idea with sophisticated economic foundations, has never been described comprehensively. Not only the shortage of information but also an insufficient number of analyses and tests on this alternative sector have caused widespread mistrust of the peer-to-peer platforms.

This thesis aims at describing model peer-to-peer in a wide range and context. The descriptive part focuses on the detailed principles of the functioning of alternative insurance platforms and their classification. The principal contribution of this study consists in the innovative demarcation of different types of peer-to-peer insurance structures that will hopefully improve the overview of this complicated issue. Since the peer-to-peer start-ups contain countless trends, this thesis is a result of exploring a huge number of alternative insurers all over the world. For better illustration and insight on this topic, specific examples will be provided through insurance platforms: Friendsurance, Guevara, The First Club Insurance Carrier, Riovic, Inspeer, Besure, PeerCover, Lemonade, Teambrella, TongJuBao, and Versicherix.

An equally important emphasis is devoted to the analytical part of the

[2] The term *gross unearned premium* represents the portion of *gross written premium* that is connected with the following years.

[3] The pool in this context is a collective financial fund that contains contributions from members and is used for settling claims and other costs.

thesis, which will focus on the forecast whether this concept can survive on the Czech insurance market. The competitiveness and profitability of The First Club Insurance Carrier will be tested. Scenarios simulating the development of this peer-to-peer insurance company will be used. Annual data of 5 classical non-life insurers will be modified to illustrate the future expansion of The First Club Insurance Carrier. Their financial management will be synchronized with the business model of the Czech peer-to-peer company using the changes in items of their profit and loss statement.

On the ground of the available data of The First Club Insurance Carrier together with notes acquired at the personal meeting with the Chairman of the Board of The First Club Insurance Carrier, Marek Orawski, and information about other players on this market, this thesis aims to answer the following two questions:

1. Is the business model of The First Club Insurance Carrier able to produce *givebacks* in a proportion of at least 15% of the *gross earned premium*?

2. Is the business model suitable for ensuring the profitability of The First Club Insurance Carrier?

The main motivation for this analysis is the crucial importance of the insurance sector within the financial system and the potential impact of the failure of some insurance companies on the development of the entire financial environment. This research is beneficial for potential clients and also for professionals in the insurance sector.

The thesis contains theoretical part and the analytical section and is structured as follows. Chapter 1 devoted to the theoretical aspects introduces the basic concepts of the insurance sector and focuses on the regulation and accounting of insurance (primarily from the perspective of the Czech insurance market). Chapter 2 introduces the innovations that led to the creation of the peer-to-peer platforms, including phenomena of social cloud and FinTech[4].

[4] The term FinTech is used as an acronym of the words financial technologies.

Chapter 3 provides detailed analysis of the different types of peer-to-peer platforms and the principles of their functioning. Chapter 4 presents the current situation on the Czech insurance market. Chapter 5 introduces The First Club Insurance Carrier in details. Chapter 6 tests the business model of The First Club Insurance Carrier together with sensitivity what-if analysis and Chapter 7 concludes.

1 Foundation of Insurance Theory

1.1 The importance and Roles of the Insurance Company

On the grounds of an indispensability to cover various types of risks and fortuity, the insurance sector became an important part of the financial system. The main benefit resides in the division and transfer of risks between individual entities. It strives not only to reduce the financial burdens on an individual economic subject but it also contributes to the stable development of any society (Cipra, 2002).

It is distinguished between insurers offering non-life insurance products (compulsory motor insurance, household insurance, travel insurance, etc.), life insurance products (risks of death or permanent invalidity), institutions that insure both types of risks, and those who only specialize in covering only certain types of risks (Ducháčková, 2005).

1.2 Entities and Associations on the Insurance Market

The insurance sector is not solely composed of insurance companies; it also contains associations (for instance Global Federation of Insurance Associations or Czech Insurance Association), other institutions offering insurance products (e.g. banks), consultancy firms, brokers, etc.[5] In addition to these companies and associations, also reinsurers are an integral part of the insurance scheme that takes on the role of underwriting risk from insurance companies.[6] Similarly, reinsurance companies transfer a portion of the risk to other reinsurers. This process promotes a stability and solvency of the insurance system (Bokšová, 2010).

1.3 Technical provisions

To ensure the stability of individual insurers and elimination of risks, an implementation of specific internal measures is necessary. As a matter of law, insurance companies are obliged to create technical reserves (or technical provisions) for all risks and liabilities that are probable or certain, but their exact amount and time of occurrence cannot be predetermined (Vávrová, 2005). From the accounting point of view, technical reserves are considered as costs and liability of the company in the same time (Čejková V. and P. Valouch, 2005).

Despite a huge number of technical provision, of capital importance are primarily *claims reserve*, *unearned premium reserve* and *reserve for bonuses and discounts*.

- **The claims reserve** includes the amount of *claims incurred* in the accounting period that is expected to be settled in the following year (Huleš and Hornigová, 2009).
- **The unearned premium reserve** contains the portion of *gross writ-*

[5] Brokers conduct a business as intermediaries between insurers and policyholders.
[6] For definition of reinsurance companies see section 1.4 Reinsurance Protection.

ten premium[7] that is classified as deferred income. This part of the premium is called an *unearned premium*[8] (Huleš and Hornigová, 2009).

- **The provision for bonuses and discounts** quantifies the amount that is payable to insured persons under the insurance contract, for instance, on the ground of the low claims of a policyholder or a share of proceeds arising from investments (Vávrová, 2005).

1.4 Reinsurance Protection

A reinsurance coverage (or a reinsurance protection) is used for a vertical distribution of a risk among more members of the insurance market (Vávrová, 2005). In addition to technical provisions, it is the most important tool for ensuring the solvency of an insurance company. A part of a risk is ceded from the first insurer[9] to the reinsurer, thereby underwriting value of the insurer is increased[10] (Vávrová, 2005).

On the ground of the reinsurance treaty, the price of reinsurance coverage is defined as an *outward reinsurance premium*. It is a part of the premium ceded to the reinsurer in a particular year. In exchange, the insurer receives *commissions from reinsurer* to cover part of the operating expenses associated with the administration of insurance contracts (see Figure 1) (Bokšová, 2010).

The specific amounts of transfers between these entities are demarcated in reinsurance contracts or their addenda. The value of the *outward reinsurance premium* to the reinsurer is determined by the size of the insurer's *own retention*, the amount that determines the proportion of premium that can be retained by an insurer (see Figure 1) (Vávrová, 2005). The critical factors influencing the amount of the *own retention* are the strength and potential of the insurance company, its character, strategy and the quality and type

[7] A term of the gross written premium includes payments of premium due during an accounting period, irrespective of the fact that these amounts may be wholly or partially related to a later accounting period.

[8] The term gross unearned premium represents the portion of gross written premium that is connected with the following years.

[9] First insurer represents an insurance company that concludes insurance contracts with policyholders

[10] The insurer can underwrite more risks and provide higher risk coverage.

of risks, along with external circumstances (for instance, market conditions, regulatory supervision requirements, etc.) (Vávrová, 2005).

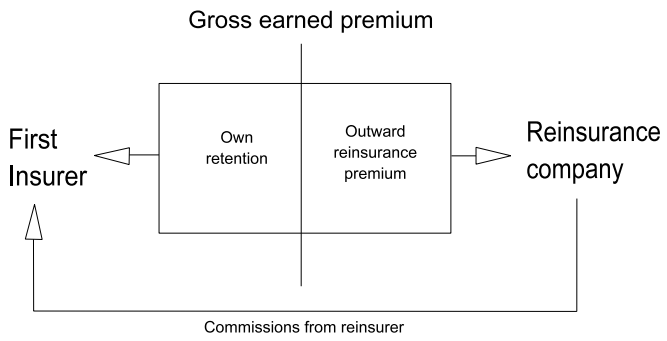

Figure 1: Relationship between a first insurer and reinsurance company

Source: Author

1.5 Core Lines of Businesses of the Insurance Company and Key Accounting Concepts

The main activity of an insurance company consists in an acquisition and administration of insurance contracts. The basic target consists of the rising of an amount of *gross written premium*. A term of the *gross written premium* includes payments of premium due during an accounting period, irrespective of the fact that these amounts may be wholly or partially related to a later accounting period (Huleš and Hornigová, 2009).

Costs and revenues from this line of business are charged by the insurance company on the technical account for life-insurance or the technical account for non-life insurance (Huleš and Hornigová, 2009, Bokšová, 2010). For illustration, see Tables 1, 2 and 3. Although these sums are considered as revenues of a given year, the portion relates to the income of the following periods.

In order to determine the income of a particular year, a *gross earned premium* (GEP) as a part of *gross written premium* (GWP) is given by the Equation 1 (Bokšová, 2010).

$$GEP = GWP \pm change\ in\ amount\ of\ unearned\ premium\ reserve \quad (1)$$

The item of the *change in amount of unearned premium reserve* in the previous Equation 1 might have either a negative or positive sign. The provision is either increased in consequence of postponement of a portion of premiums for the future accounting periods or it is decreased by a transfer of *unearned premiums* from previous years.[11]

On the ground of objective evaluation of the income in the particular year, a term of *earned premium* (EP) *net of reinsurance* stated by the Equation 2 is given (Bokšová, 2010).

$$EP\ net\ of\ reinsurance = GEP - Outward\ reinsurance\ premium \quad (2)$$

It is necessary to focus also on expenses of the insurance company in detail. The biggest burdens for insurance institutions arise on the ground of *claim incurred* and *operating expenses*. For the clarification of the first term, it is important to define the *claim incurred (CI), net of reinsurance* by Equation 3 (Bokšová, 2010).

$$\begin{aligned} CI,\ net\ of\ reinsurance = {} & Paid\ claims \\ & - Paid\ claims,\ share\ of\ reinsurance \\ & + change\ in\ reserve\ for\ claims \\ & - change\ in\ reserve\ for\ claims,\ share\ of\ reins. \end{aligned} \quad (3)$$

The *operating expenses* include primarily *administrative expenses* (rent costs, salaries, energy bills, etc.) and *claim acquisition costs* (commissions paid to insurance intermediaries, product promotion etc.) (Bokšová, 2010).

[11] A negative sign denotes an increase in the reserve and a positive sign is caused by the decresase in the reserve.

For the accounting purposes and assigning of cost in the corresponding period, the term *change in deferred acquisition costs* is defined. For the calculation of this item, the same logic and principles are used as defined for term of *change in amount of unearned premium reserve*.

In addition to the main insurance line of business, insurers also pursue other profitable activities. First of all, they invest free funds together with technical provisions. These operations are recorded in the profit and loss account on the non-technical account. See the following tables.

BALANCE SHEET

Assets	**Liabilites, Equity**
Intangible assets	Equity
Financial investments	Subordinated liabilities
Debtors	Technical provisions
Other assets	Provisions for other risks and losses
Tangible assets	Deposits received from reinsurers
	Creditors
	Temporary liability accounts

Table 1: Simplified balance sheet of an insurance company

Source: Author

NON-TECHNICAL ACCOUNT FOR NON-LIFE INSURANCE
Incomes and Expenses
Financial investments income
Financial investment expenses
Other income
Other expenses
Income tax on ordinary activities
Extraordinary income
Extraordinary expenses

Table 2: Simplified non-technical account of an insurance company

Source: Author

TECHNICAL ACCOUNT FOR NON-LIFE INSURANCE
Incomes and Expenses
Earned premiums, net of reinsurance:
a) gross written premium
b) outward reinsurance premium
c) change in amount of unearned premium reserve
d) change in amount of unearned premium reserve reinsurance share
Other technical income, net of reinsurance
Claims incurred, net of reinsurance:
a) claims paid
aa) gross amount
ab) share of reinsurance
b) change in reserve for claims:
ba) gross amount
bb) share of reinsurance
Changes in other technical provisions, net of reinsurance
Bonuses and discounts, net of reinsurance
Net operating expenses:
a) claim acquisition costs
b) change in deferred claim acquisition costs
c) administrative expenses
d) commisions from reinsurers
Other technical expenses, net of reinsurance

Table 3: Simplified technical account of an insurance company

Source: Author

1.6 Main Risks of Insurance Sector

The insurance system is plagued by many negative consequences arising from various risks. Preventive measures are necessary to monitor and protect insurance companies against these undesirable factors. There are four key risks that present the largest threat to the insurance market: underwriting risk, credit risk, market risk and operational risk.

- **Underwriting risk**, is caused by premium calculation and shortage of claims reserves (Cummins et al., 1999).
- **Credit risk** depends on impossibility of collecting receivables on the full amount, which is connected with poor ability of debtors to meet their liabilities (Eling et al., 2006).
- **Market risk** is negativly affected by fluctuation of market prices that significantly influences insurer's equity portfolio, assets and liabilities. Non-negligible relevance also has a fluctuation of exchange rates that represents a key risk of non-life insurance companies on the market (Cummins et al., 1999).
- **Operational risk** arises because of failures in internal processes, human errors or due to external events (Eling et al., 2006).

Apart from the main risks defined by the European Commission, it can be specified, there are also other hazards that are characterised by significant harmful influences on financial position of insurance companies. They are classified as risks affecting the asset side of the balance sheet and risks hitting the liability side of the balance sheet of a company.

Threats to asset position are called liquidity, group and systemic risks (and also credit, market and operational risks discussed in the previous paragraph) (Hauryliuk, 2015).

- **Liquidity risk** can be defined as a hazard arising from an asset-liability mismatch, especially regarding cases where an insurer is unable to fund its obligations. This situation is generated as a result of insurer's failure to liquidate assets in case of requirements to meet its obligation and it is often precipitated by a poor cash-flow management (Jobst et al., 2014). Fault is produced by a low quality or insufficient liquidity of assets that prompt this mismatches (Gronychová and Komárková, 2012).
- **Group risk** and **systemic risk** demonstrate evidence of interconnections between insurers. The **group risk** arises from troubles of members of a group of insurance companies (for instance, from a support

to other participants or decreasing of available external funding etc.). The **systemic risk** is harmful because it can diminish the reputation of insurers depending on the insolvency position of other significant systemic players (Gronychová and Komárková, 2012).

The liability side of the balance sheet can be affected by catastrophe risk and risks on technical claims provisions (and also by already explained underwriting risk) (Gronychová and Komárková, 2012).

- **Changes in interest rate** are vulnerable factors affecting primary life insurance business. Incidence of long-lasting period of low interest rates leads to the deterioration of capital position of insurance companies (Gronychová and Komárková, 2012).
- **Catastrophic risk** representing a specific threat for insurance sector, can be caused by many factors typical for both life and non-life insurance protection. Risks that belong to these factors include pandemics, terroristic attack, natural disaster or industrial accident. For surveillance purposes, events with low and high levels of diversification are recognised according to their extent of impact on portfolios of insurers (Kraut and Richter, 2015).

On the ground of complexity of insurance system and its interconnections with financial market, a wide range of various risks affecting insurance companies is recorded.

Finally, it should be noted that traditional insurance companies are less susceptible to economic shocks and their risks evince a low degree of correlation between each other in comparison with non-traditional and non-insurance businesses (Gronychová and Komárková, 2012). The traditional insurers are according to M. Gronychová and Z. Komárková (2012) defined as: “business concerned with interests that meet the principles of insurability based on insurance techniques and that are subject to insurance accounting”.

1.7 Regulatory Framework of Insurance System

In view of the fact, that the insurance system is a significant player in the financial system and has a crucial influence on the real economy, diverse demands are placed on a functioning of insurers. Concerns about interconnections that lead to the spreading of a systemic risk, market risk and contagions are the main drivers of introductions of regulatory framework (Kraut and Richter, 2015, Schmeiser and Siegel, 2013).

The main purpose of the supervision and surveillance consists of testing solvency of insurance companies. The term *solvency* is, according to International Association of Insurance Supervisions (2017), defined as the "ability of an insurer to meet its obligations to policyholders when they fall due". Therefore, the status of solvency is than recognised on the basis of a high of regulatory capital and capital allocation (Sherris, 2013).

This thesis focuses mainly on a regulatory approach in the European area (and primary on the implementation of this approach in the Czech Republic).

1.8 Overview of Models Used to Detect Insolvency

A strong regulatory wave linked with the coordination of insurance market was recorded in Europe since 1970s (Eling et al., 2006). Subsequent agitation for insolvency of insurers had an effect on the following attempt to control this part of financial system in the next decade. In these periods the National Association of Insurance Commissioners (NAIC) implemented fundamental models for monitoring system.

The whole systematic sorting of the models are described by M. Eling, H. Schmeiser and J. T. Schmit (2006). See Figure 2. They stated four basic trends in the types of schemes: static factor model, dynamic cash-flow-based model, a combination of static and cash-flow models and an approach

without a model. Contemporary literature focuses mainly on the static factor model. This model is divided into two groups: not risk-based model and risk-based model. The new line of models is constituted by dynamic cash-flow-band models (primarily represented by stress tests) that contains scenario-based schemes and principles-based models (Cummins et al., 1999). The last trend in creating models is based on combination of static and cash-flow schemes (Eling et al., 2006).

Model Typology		Model Name	Introduced	
			by	in
No Model		Fair Insurance Code, Insurance Companies Act	New Zealand	2001, 1994
Static Factor Models	Not Risk-Based	Solvency I	EU	2004
		Insurance Reform Act	Australia	1973
	Risk-Based	General Insurance Reform Act	Australia	2001
		Risk-Based Capital Standards	USA	1994
		Solvency Margin Standard	Japan	1996
		Financial Analysis Solvency Tools	(Proposal of) NAIC	1994
		Capital Adequacy Ratio	(Proposal of) AM Best	1994
		German Insurance Assoc.-Model	(Proposal of) German Insurance Assoc.	2005
Dynamic Cash-Flow-Based Models	Scenario Based	Stress Testing	Germany (BaFin)	2002
		Financial Assessment Framework	Netherlands	2006
	Principles Based	Cash-Flow Model	(Proposal of) Cummins, Grace, and Phillips	1999
		Cash-Flow Model	(Proposal of) Schmeiser	2004
Combination of Static Factor Models and Dynamic Cash-Flow-Based Models		Enhanced Capital Requirement, Individual Capital Assessment	UK	2004
		Swiss Solvency Test	Switzerland (BPV)	2006

Figure 2: Overview of solvency systems

Source: M. Eling, H. Schmeiser and J. T. Schmit (2006)

1.9 Solvency I and Solvency II

In the context of the European Union, approaches Solvency I and Solvency II have crucial importance. In 2004, the European Union put into operation the regulatory concept containing 14 directives called Solvency I. These principles follow the previous tendency of surveillance and control established in 1970s (Eling et al., 2006, Communication department of the European Commission, 2017). The importance of the new approach consisted in ideas of a simple, easily implementable system with low-cost administration (Bokšová, 2006). On the other hand, the criticism of the Solvency I was grounded on

the inconsistency of implementation in different countries and there was a pressure on creation of a unified concept of regulation for the whole EU (Bokšová, 2006).

In 2009, in pursuit of improvement of imperfections of Insolvency I, it was developed a new directive that is famous as Solvency II. The regulation came into effect in the European Union in 2016 (Hauryliuk, 2015, EIOPA, 2016). This approach is grounded on three pillars' structure. The model is supported by similar well-functioning system in bank sector, which is called Basel II (Communication department of the European Commission, 2017).

The first pillar of adopted version sets quantitative conditions and defines capital requirements. It concentrates on character of assets and liabilities and possible riskiness (Bokšová, 2006). The second pillar orders rules for internal audit and reporting. Namely, it aims at increasing of requirements of monitoring, improving processes and changes in capital structure (Bokšová, 2006, Eling et al., 2006). Attention is also paid to supervisory actions by authorities (Communication department of the European Commission, 2017). The target of the third pillar is based on increase of transparency, harmonization and self-regulation of insurance sector through improved competitiveness (Eling et al., 2006, Communication department of the European Commission, 2017). The necessity of publishing information and appropriate classification of risks leads to a more balanced system with higher market discipline (Communication department of the European Commission, 2017).

As the result of a relatively long administrative process, the final version of directives covers many innovations. One of the crucial directives permits two different manners of defining minimal capital requirements (MCR). An insurance company faces a choice between a use of a standard risk approach and its own internal model, which reflects more precisely the specifications of a particular line of insurance business (Eling et al., 2006, Kraut and Richter, 2015).

1.10 Consequences of Regulation

One of the most frequently discussed questions is a problem related to a specification of the level of insolvency, in which regulatory intervention is necessary for sustaining a sound position of the insurance sector. In general, the threshold is important for eliminating the risk of contagion in the system. On the other hand, there are still troubles arising not only from late corrective action but also from problems caused by misspecification of the level of rescue and untimely crackdown.

Nevertheless, a regulation is desirable as the insurance market is not perfect or well balanced (Eling et al., 2006). It helps to save a consumer, balance information asymmetry and inversion nature of insurance production cycle. But it causes also an increase in prices of insurance products and market damages (Kraut and Richter, 2015, Eling et al., 2006).

For this reason, solvency is regularly tested by central banks or other supervisors in most countries. In this context, the aforementioned stress test method is recognized as one of the most crucial technique in the detection of insolvency.

2 New Trends in the Insurance System

There have been many revolutionary socioeconomic innovations of late, and many of the new ideas and technologies that have resultantly spread have heavily influenced the field of insurance. The insurance industry is a very regulated and conservative part of the financial sector, but there is an opportunity for changes as well.

On the ground of the study produced by The Creative Studio at Deloitte (Deloitte, 2015), these innovations are based primarily on two principles. The first factor, known as FinTech, uses new technologies in the financial sector. The second major phenomenon is based on the social standards and the human factor. It combines the use of social networks with the social cloud phenomenon and the idea of a sharing economy and it consists in the premise of advanced technology, especially regarding media and new ways of communication.

2.1 FinTech

An extension of personal computers in the last decades popularized online insurance contracts. This innovation resulted in the new concept of insurance

company called an *internet insurer*. These insurance platforms offer their products exclusively using their websites or mobile applications. The trend of recent years is supported by smartphones and the FinTech phenomenon.

By developing new technology, FinTech insurance companies endeavour to achieve maximum simplicity for a customer, reduce bureaucracy, decrease costs, eliminate risk and damages and increase transparency. On the other hand, FinTech creates new types of risks, the most striking is the threat of cyber-attacks on IT systems (Deloitte, 2015).

In 2016, according to the report by H2 Venture and KPMG, 12 insurance companies were ranked as the most significant technological innovators among 100 financial institutions (H2 Vnentures and KPMG International, 2016). The conclusion of this survey confirms the growing importance of new technologies in the insurance industry.

The study published by Deloitte (Deloitte, 2015) focuses on the most popular applications in digital technology in 2015. According to this research, the leaders of the technology innovations in insurance primarily use: telematics-based services, self-driving car insurance, mobile internet transactions, price comparison websites, peer-to-peer insurance, structure of social brokers, cyber risk insurance, sharing economy and value comparison websites.

The telematics-based services that ensure data transmission and processing, contribute to emergency assistance. Self-driving car technology is a vision of reducing transport-related harm caused by human error. Mobile-internet transactions reduce time of customers and comparison websites help to select the most appropriate and cheapest insurance product (Deloitte, 2015).

2.2 Social Cloud

Nowadays, we can see the increasing importance of a new way of communication and huge impact of new media on the creation and formation of relationships between people.

Social cloud is a platform that combines the social network, used as a mechanism of collaboration, and a cloud computing, ensuring a technical frame. Social cloud can be described as a framework using relationships of members of a social network to produce utility arising from sharing resources and services. As follows from the specification of the term, in the social network the acquaintanceships play a crucial role. These interconnections are modelled as real-life relationships with varied specifications, social context and ties (Kim, 2016). The main enabler of the functioning of these relationships is a trust that is created and deepened on basis of having an acquaintance or a trustworthiness of the members. Social cloud ensures this confidence in group participants according to private and public feedback (i.e. assessment, credibility), recommendation and archiving the information about collaboration (Caton et al., 2012).

The main factor of social cloud that influences the effectiveness of the alternative concept of insurance is a reduction in the anonymity in groups. A statement supporting the positive effect of social ties in the groups claims that the relationships based on friendships tend to have fairer attitudes in comparison with groups made on an anonymous basis. This fact is followed by diminishing of probability of fraud and claims in insurance sector (Peer-to-peer insurance: Friends with benefits, 2012).

3 Peer-to-Peer Insurance Companies and Platforms

3.1 Introduction to the Concept

The name of the new player on the insurance market combining digital technologies and social cloud principles refers to the appellation *peer-to-peer*, using in a computer technological terminology. It stands for an equal relationship between users and administrators of computer network. This idea forms the main vision of the co-founders of the projects and principles of the functioning of these companies. The boundaries and rigorous hierarchy between participants are destroyed and the model of an insurance company strictly regulating rules and claims is entirely condemned in the insurance sector.

3.2 Historical Context

The new approach to insurance sector has its roots in an original vision of a risk sharing in history. Modern insurers creating groups of policyholders, often based on previously formed relationship or family status, resemble to the first insurance communities in history. For instance, Guevara (a company

conducting the business in the Great Britain), refers to an insurance system developed by owners of ships in ancient China or by dwellers of mining villages in Wales (Guevara.com, 2017). These interest groups used to share risks between their members, and they used to help each other in case of damage. Nowadays, a legacy of our ancestors is combined with the most developed methods to achieve the highest profit for both parties (insurer and policyholder).

3.3 Crucial Ideas and Principles of Functioning of the System

Despite a large number of differences between individual types of companies that show fundamental distinctions, the foundation stones of functioning are similar for all of them. In addition to the equal position of an insurer and policyholders discussed in the previous paragraph, many peer-to-peer platforms offer also transparent and fair operation that helps to reduce a price of insurance or to share an unused premium. In the upshot, it saves money of policyholders. Moreover, alternative insurers have modern, digital and easy internet interfaces that replace classical branches. They aim to use advanced technology to eliminate bureaucratic procedures. By reducing mediators or marketing, alternative insurers substantially eliminate costs, and the majority of the peer-to-peer companies enable policyholders to create separated teams for isolated transactions and risk sharing. For the description of specific details, this thesis will focus on each type of insurance company individually.

3.3.1 Classification of Companies

The essence of the peer-to-peer concept is used by various companies or platforms. For the purpose of arranging and sorting the different types of peer-to-peer insurance providers, a schema outlined by R. Huckstep (2016) will be extended. His simplified classification includes three main chronological

waves of development of the alternative insurance companies (*Distribution Model*, *Carrier Model* and *Self-governing Model*). Furthermore, additional alternatives that slightly differ from these models can be described. It is necessary to remark that the classification is not rigorous and some companies can appertain to more categories simultaneously, because these models are defined as a new approach or innovation in the peer-to-peer concept and implementation of most of these models do not exclude the application of other models. Apart from the models mentioned in this thesis, inexhaustible number of other waves can be found, but this thesis will mainly elaborate on the most important tendencies. A concise overview of mentioned company is covered in Table 4.[12]

Company	**Year founded**	**Location**	**Model**
Friendsurance	2010	Germany	Distribution Model
Guevara	2014	UK	Distribution Model
Tongjubao	2014	China	Matching-club Model Self-governing Model
The First Club Insurance Carrier	2015	Czech Republic	Carrier Model
Riovic	2015	South Africa	Matching-club Model Self-governing Model Crowdfunding Model
Inspeer	2015	France	Distribution Model
Besure	2015	USA	Matching-club Model Self-governing Model Virtual Currency Model
PeerCover	2015	New Zealand	Matching-club Model Crowdfunding Model
Teambrella	2015	Russia	Matching-club Model Self-governing Model Virtual Currency Model
Lemonade	2016	USA	Carrier Model

Table 4: Overview of the peer-to-peer insurance platforms

Source: Author

[12] The table was created using the information acquired on the official websites of mentioned companies.

Distribution Model

According to R. Huckstep (2016) the first phase is called *Distribution Model* because it is represented mostly by the peer-to-peer insurance brokers. These companies offer insurance products of third-party insurers to potential policyholders and arrange policies between insurance firms and individuals. This type of alternative insurers is represented by Friendsurance, Inspeer and Guevara. The companies following the *Distribution Model* are the pioneers in the peer-to-peer insurance market that started their businesses approximately in a period between years 2010 and 2014.

Carrier Model

Since 2014, the second wave of development called *Carrier Model* can be monitored. During this transformation process, many peer-to-peer companies started to run a business as insurance carriers that offer their own insurance products and underwrite policies. The best examples of insurers of this wave are Lemonade and the only Czech peer-to-peer insurer - The First Club Insurance Carrier.

Matching-club Model

Special type of utilisation of the peer-to-peer concept is created by platforms that do not conduct a business as an insurance broker or carrier, they merely mediate on the social cloud environment for formation of relationships between policyholders. The functioning structure of these associations is based on a connection of investors and entrepreneurs (in our case: donors and claimants) via social media. The basic feature of this group named *Matching-club Model*, resides in an absence of risk sharing between a company and policyholders. This concept is used by Riovic, PeerCover, TongJuBao, Teambrella, Versicherix or Besure.

According to the author of the thesis, these three models are considered as the basic sorts of existing peer-to-peer platforms. The following models

can be seen as innovations implemented in some previous discussed models.

Self-governing Model

This thesis should introduce also an extraordinary insurance group that is based on the most advanced model that allows group members to participate in decision making, setting rules and management of pools. This wave is labeled as the *Self-governing Model* and it can be perceived as a successor of the *Matching-club Model*, because it uses its main principles and structure but it gives more rights to the members. This innovation, represented by Teambrella, Besure, TongJuBao and Versicherix, entered the insurance market in year 2016 (Huckstep, 2016a).

Crowdfunding Model

For the purposes of this thesis, the appellation *Crowdfunding Model* will be used for companies, of which sum and substance resides in philanthropy and charity. One such example of this group is the New Zealand platform PeerCover. This specific platform assists a member to start a donation campaign for compensation of any damage and harm done in the case of seriously illness, injury, significant loss of property, or death of the participant. Thereafter, according to consideration of donors, he receives contributions and also automatically obtains 1 cent from a member of a project after every single donation, which exceeds the amount of $50 (PeerCover.co.nz, 2017). It is necessary to remark that this concept is deviating substantially from the structure of the common peer-to-peer insurer, and some essays about peer-to-peer insurance do not mention these companies at all. The *Crowdfunding Model* is mentioned in this thesis on the ground of its interesting innovative approach, but it will not be described in detail.

Virtual Currency Model

The most scientifically attractive part is formed by the type that can be labelled as *Virtual Currency Model* used by Teambrella or Besure. In this

case Bitcoin or Credit currencies are implemented as a mean of payment between policyholders. This system is used mostly as a complement in companies belonging to the *Self-governing Model* but it should find use in other types of platforms as well.

3.3.2 Organizational Structure and Pools

Contrary to classical insurers, many peer-to-peer systems do not accumulate all premium payments but produce many separated accounts called pools that belong to the specific parts of policyholders labelled as groups or teams. In a simplified way, a group of people (relative or randomly chosen) creates their own team and a pool. Each individual inputs corresponding amount of premium to this pool and all claims concerning to the participant of team are covered using this account, therefore, the pools of other teams are not influenced by these reimbursements. Economic activities of groups are utterly independent of each other. To encapsulate this structure rule: risks and gains are shared at the level of a relevant group.

These teams are constituted by members interested in the same type of insurance product, insurance object, according to their social or professional relationship or on the basis of their district of living or working (Paperno et al., 2016). Many companies give preference to the teams that have resulted from the previously formed relationships or groups that consisted of members of the family, and that lead to gaining benefits resulting from the social cloud.

The size of teams is customarily restricted. In many cases, groups are established by at least five members, with the exception of Teambrella, which also gives permission to groups from two participants. An upper threshold is not defined in many cases, but it is recommended to follow the Dumbar's number of participants that leads to the balanced and well-functioning groups of people based on relationships (Huckstep, 2016c). According to this theory, the ideal group contains between 100 and 250 individuals. On the other hand, it is argued that a higher number of participants has positive effect on increasing savings of team members, and for

that reason, it is possible to find teams arranged for hundreds of participants (Deloitte, 2015).

The described group structure is mostly used by companies belonging to the *Distribution Model* for instance Friedsurance, Guevara or Inspeer, or *Self-governing Model*, for instance Besure. A similar system is also used by Teambrella. Its structure uses many separated groups but contradictorily there are no pools defined. This absence is caused by direct remittances from teammates that come after registering claims and substitute payments from pools. Therefore, the function of collective account of a group is dispensable (Paperno et al., 2016).

A completely reversed structure is formed by some companies that do not create any separated teams and any financial pools. The most suitable example of companies that use only one undivided team of policyholders are The First Club Insurance Carrier or some companies using the *Crowdfunding model* for instance, PeerCover company.

3.3.3 Setting Rules

The technique of setting rules for financial management, claims recognition, maximum of covers, high of premium or, for example, an acceptance of new members, has two main tendencies. One part of insurers introduces all regulations and conventions by consensus of their company's board of management. Other type of insurers transfers the decision making to policyholders.

The first approach is more common and is conducted for instance by Friendsurance, The First Club Insurance Carrier or Lemonade. More advanced technique of setting passes on the decision power on policyholder. This approach is developed by the type of companies called *Self-governing Model* represented by Teambrella and Besure companies. They use a system of groups of policyholders. Each team creates their own governing principles, defines all rules associated to insurance protection, adopts new members and has legal right to make decisions about claims and financial management

of the pool. Using voting process, jurors are typically selected from the participants of a group. The Teambrella's rules, allowing external people (for instance, professional claims adjusters) to become members of jury, are seen as an exception among the companies. The Russian alternative insurer Teambrella is trying to surmount problems connected with an insufficient interest of team members to carry out these functions. The effort consists in financial compensation for spending time with beneficial administration for team. The system remotely resembles communal elections. Jurors are remunerated according to the number of team members who trust them. As a result, this arrangement supports fair behaviour of the voted representatives (Paperno et al., 2016).

3.3.4 Elimination of Insurance Claims

According to the results of the study presented by the founders of Teambrella (Paperno et al., 2016), one half of society would not take any action against a fraudulent event and roughly 24% of population subscribe the dishonest manners in the insurance sector. Due to these factors, it is proposed to reform the existing insurance sector.

From the social perspective, the most interesting headstone of the idea of peer-to-peer insurance is formed by a feeling of unity between its members, which leads to the fairness, responsibility, and a decrease in a number of frauds. Moreover, some companies belonging to the *Matching-club Model* do not participate in covering claims and a person with potentially dishonest practices would defraud only his own group (his friends).

Other basic ideas of the alternative way of an insurance company consists in an effort of creation more effective and transparent method of a risk sharing. Nowadays, there is much dispute regarding unclear financial management of classical insurance companies (Paperno et al., 2016). The peer-to-peer approach conversely presents its financial planning to policyholders (Peer-to-peer insurance: Friends with benefits, 2012). A flat fee for insurance platform is usually strictly defined and constant. On the top of

that, participants in the *Selg-governing Model* can influence some decisions of company's board of management. According to expectation, transparency should consolidate a trust between individuals, participants and institutions, all while having a positive effect on equity of all parties (Paperno et al., 2016).

All these innovations result in a proven reduction in the number of claims. For instance, in the year 2016, the Czech peer-to-peer insurer, The First Club Insurance Carrier, recorded very favourable rate of frequency of claims, the proportion of number of claims to one hundred concluded policies reached 1.6. This was in comparison to the average value ranges around 8.24 in the Czech Republic (První Klubová pojišťovna, 2017a). Although this specific situation is moderately misrepresented because of a low quantity of insurance contracts created by this company, many peer-to-peer platforms declare that they achieve lower claims costs than the traditional insurers as well.

3.3.5 Givebacks

Apart from altruistic reasons, claims are also eliminated as a consequence of the financial motivation of members. The majority of peer-to-peer insurance companies offer *givebacks*, a refund of remaining amount of money in the pool to policyholders after claims reimbursements. This attitude works on the presumption that financial funds inserted to the system as premium belongs to group members, not to the insurance institution. This idea encourages participants to use common resources effectively and responsibly, because a fewer amount of claims produces higher givebacks to members of teams.

According to the principles and rules of different companies and platforms, only some parts of policyholders are entitled to share the collective gain. In most cases they have to meet special requirements, for instance an absence of making any insurable values during the particular year. On the ground of this principle, participants are encouraged to not make small claims.

The magnitude of the *givebacks* is also dependent on the type of insurance conventions. Frequent proportion of premium paid back ranges about 20%

and 30% of initial contribution to the pool. Information about maximum *givebacks* can be seen in Figure 3. For the purposes of a practical part of this thesis, it should be remarked that the calculation is frequently based on *gross earned premium*. Good examples of companies using this type of reckoning are The First Club Insurance Carrier, Friendsurance, Teambrella, TongJuBao or Besure.

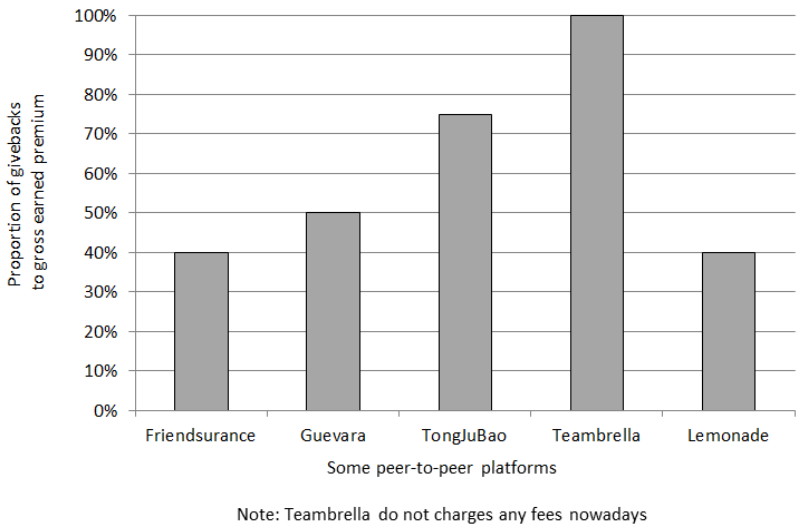

Figure 3: Maximum givebacks of selected peer-to-peer platforms

Source: Author

Some companies offer alternative non-cash *givebacks*. For instance, customers of Guevara do not achieve a remaining amount of premium but their contributions for the next year are cut properly (Guevara.com, 2017). A more progressive idea suggests to spend saved financial funds for charitable purposes.

3.3.6 Reinsurance

As discussed in the previous paragraphs, adequate compensations for removal of entitlements for policyholders are provided by a risk sharing between group members or between participants and insurance company. Financial founds of a pool are used for covering regular claims and in some cases also

an institution settles up a part of claims.

But on account of maintaining the stability and solvency of the insurance system, it is essential to secure the payment credibility appropriately. Just as it is with classical insurers, some peer-to-peer insurance platforms use reinsurance offered by stable international reinsurance groups as well.

In a nutshell, the part of insurable value (*outward reinsurance premium*) is paid out from the collective account to a reinsurer. More serious damages that often outstrip reserves in a pool or the coverage of insurer are settled by a reinsurance company. This arrangement ensures covering of all expenses and claims resulting from the system and spreading a risk (Friendsurance.com, 2017, Guevara.com, 2017, Lemonade.com, 2017).

Nevertheless some exceptions can be found. The *Matching-club Model* and *Crowdfunding Model* and some companies belonging to the *Self-governing Model* usually do not guarantee the covering of all claims. For instance, the role of Besure in the business is reduced to a providing a platform but it does not share a risk or a gain with other participants. In case of depletion of pool coverage limit, all related reimbursements are reduced and therefore, insurable values are not paid in the whole amount. However, each variant of insurance and reinsurance has to be in compliance with the national law regulation (Besure.com, 2017).

3.3.7 A Profit Generation

The method of generating gain symbolises one of the main differences between classical and alternative insurance institutions. In most cases, the basic money inflows are generated by collecting membership fees from teammates. It is typical for the *Carrier Model*, *Distribution Model* and *Self-governing Model*. These alternative platforms in most cases use flat fees calculated as a percentage share of financial founds inserted in the pools (this method is typical for The First Club Insurance Carrier, Besure etc.). This proportion customarily ranges between 10% and 20% of the deposits.

By contrast, some peer-to-peer organisations, for instance American Lem-

onade, charges more various fees to their members. In addition of flat fee of 20%, they also collect 20% of premium for reinsurance and 20% of teammate's payments for their own account that secures coverage of serious damages (Lemonade.com, 2017).

The *Distribution Model* of the peer-to-peer platforms, conducting a business as brokers, usually charges commission to insurance carriers after formation of a contract with policyholders (Friendsurance.de, 2017, Guevara.com, 2017).

Special type of gaining a fee can be illustrated of an example of Inspeer. Gain is produced after originating of claims. Inspeer charges a proportional part of the paid reimbursement from insurers to policyholders on condition that a burden of fee lies on insurance companies (Inspeer.me, 2017).

3.3.8 Types of Policies

The supply offered by the peer-to-peer platforms contains a wide choice of policies. This range is comprised by products of life, non-life and also unorthodox products.

Whilst companies covered in the *Distribution Model* usually curtail their offering on three products (regularly securing cars, houses or home content), the *Self-governing Model*, *Crowdfunding Model* and *Matching-club Model* are typical by unlimited variety of insurances. The *Carrier Model* insurers often start also with restricted selections but they expand the number of products as they gain larger share of the insurance market.

As already mentioned, these concepts can also produce untraditional and highly specialized insurance products that guarantee them an irreplaceable position on the market. The Chinese peer-to-peer platform TongJuBao offers a social protection that contains also a securing against financial problems during a divorce or it helps to finance a quest of a missing child (TongJuBao.com, 2016). Many other *Self-governing* platforms enable their customers to create their own groups sharing arbitrary risks.

3.3.9 Virtual Currency in the P2P Concept

In the peer-to-peer platforms appertaining to the *Virtual Currency Model*, there is a possibility to utilize some crypto currencies for using insurance services. The application of non-traditional currency in insurance processes enables to participants better control over their spending and simplify the cooperation of participations from different countries.

Although a model containing special means of payments belongs to the most developed types of peer-to-peer insurance concepts, this system is not very widespread around the world. The most famous companies that apply this new idea are Teambrella and Besure.

The Russian company Teambrella uses virtual currency Bitcoin as suitable mean of payment for modelling peer-to-peer platforms without pools. The basis of the payment process is ensured by special *Wallet* with 2 types of access keys. The first one called *private* belongs directly to the owner of the *Wallet*, the other one with a label *public* is controlled by consigners, randomly chosen team members. This fairly complicated process is used for paying claims to other participants or receiving remittances. Both types of transactions are made retrospectively, i.e. policyholders do not deposit premium in the system in advance but they pay after approval of claims. Moreover, the system guarantees a control over withdrawals from the *Wallet*, because the authorization by owner and consigners is required for every transaction (Paperno et al., 2016).

A practical application of this system in a modified version can be demonstrated by an example of Besure. This company set up its own currency called Credit. Policyholders pay by dollars to an account of Besure, afterwards the platform transforms this dollar payment to Credit currency using exchange rate 1:1 and the following financial compensations between members are realized in the virtual currency. In the case of withdrawal, it is possible to gain remaining dollars in the same way (Teambrella.com, 2017).

3.3.10 Summarisation of the Peer-to-Peer Concept with the Context of the Insurance Market

To comment on the main difference of headstones of the peer-to-peer concept and the classical insurance company, this section refers to the Chapter 1 of this thesis. Although this project seems to be very revolutionary, it just deepened the technics already used by classical insurers and on the ground of the strictly regulated rules in many countries it should maintain the basic principles of insurance company. For instance, there are also similar types of *givebacks* (bonuses and discounts) in the traditional model of an insurance company, the difference lies only in the use of the possibility to share a risk with wider range of policyholders.

Creation of peer-to-peer brokers or other insurance platforms (for instance *Matching-club Model*) is a reaction on complicated legislation that creates a barrier for new concepts like peer-to-peer. Conducting a business as a peer-to-peer carrier is very complicated nowadays. An immense opportunity of the peer-to-peer project is expected in the future after insurance law modification in the world.

Afterwards, the author of the thesis would like to point to the statement about reduction of cost of alternative insurance platforms and elimination of risk (respectively claims) of policyholders. Albeit, this thesis finds the statement about decreasing operating costs as a real assumption, our uncertainty about significantly lower claims of peer-to-peer members after expanding this insurance sector and boost of number of participants in groups should be expressed. The positive effect of the social cloud can be limited.

4 Current Insurance Market in the Czech Republic

4.1 Economic Growth

To evaluate an insurance market position in the Czech Republic in recent years, the overall economic growth in this country and also in the European Union should be firstly apprised as it is a substantial condition for an assessment of insurance sector performance. Interconnection between macroeconomic environment and stability of insurance companies plays an important role in the economy.

The general position of Czech economic development is evaluated as relatively positive. This appraisal is supported by rising of GDP. Furthermore a boost in household consumption and in a value of imported helped to extend turnover of domestic producers. A reduction in unemployment rate (to a value of 5% in 2015) contributed to a significant increase in average salary (this boost amount to 3.4% in 2015). In summary, the overall Czech growth efficiency and economic situation indicates a better condition than the aggregated position in the European Union (Česká asociace pojišťoven, 2016).

4.2 Insurance Market

The insurance market in the Czech Republic belongs to the highly developed markets in Europe since this system follows international regulations and directives by the European Union, it evidences supervisory activities performed by the Czech National Bank and contains also associations uniting insurance companies with significant position in the system (for instance Czech Insurance Association). According to OECD statistics, the Czech insurance companies achieve 0.1% share of the insurance market consisted of 35 members of OECD (OECD, 2016).

In 2015 there were 55 insurance organisations providing insurance products and services, including one reinsurance corporation and one newly formed peer-to-peer insurance group (The First Club Insurance Carrier) on the Czech insurance market. In the long term perspective, the Czech insurance market is characterised by an unusually large proportion of non-life insurance sector. In comparison with typical western economic systems that reach about 60% participation of life products and 40% of non-life products, insurers in the Czech Republic show a reversed proportion (Česká asociace pojišťoven, 2016). It is necessary to note, that this position is also typical for a few other countries (for instance Germany, Austria and Spain) (OECD, 2016). When we focus on important differences between structures of insurance market in Czech and in EU, a considerable variety in amount of average premium per capita should be mentioned. This value achieves €505 in the monitored country and an average of the European Union reaches €2,163 (Česká asociace pojišťoven, 2016). This huge contradiction can be attributed to an excessively large numbers of premium per capita in Luxemburg (almost $60,000), Ireland (approximately $10,000) and Denmark (nearly $10,000). In 2014, these 3 countries (together with Switzerland) accomplished the highest positions in a premium quotient in OECD (2016) research. Moreover, some distinctions between Czech insurance market and the global trend in insurance sector are based on state health insurance program in this country.

The development of the insurance situation in recent years can be evaluated as favourable. In 2015, the *written premium* rose of 0.9% and GWP in current prices increased of 0.5%, while claim expenses fall down of 5.9%. Additionally, the number of *claims settled* decreased of 8.6%. Constant trends regarding the Czech insurance market shows growth predominantly in motor damage insurance products and policies related to conduct of business (Česká asociace pojišťoven, 2016). According to the statement of Czech Insurance Association President, an enhancement of financial literacy of policyholders has positive impact on the recent development. On the other hand, the Chief Executive Officer of the same organisation argues, that immoderate regulation, fierce competition and aging population produce barriers for future growth (Česká asociace pojišťoven, 2016). Moreover, the Czech insurance market tries to deal with the restriction of tax benefits connected to some life insurance products (Česká asociace pojišťoven, 2016).

Furthermore, some features and tendencies that support a boom of alternative insurance in the Czech market can be found. A wave of new technologies and magnified information independence produced a modern generation of policyholders that are highly demanding and seeking the most advantageous and fair insurance concept (Česká asociace pojišťoven, 2016). This trend points to the importance of new concept of peer-to-peer insurance platforms in the monitored country.

5 The First Club Insurance Carrier

The First Club Insurance Carrier represents the only peer-to-peer insurance platform in the Czech Republic and the first insurance carrier in the world. It consists in the peer-to-peer concept and sharing economy. Its operating started after a receiving a licence by the Czech National Bank in September 2015 (Prvniklubova.cz, 2017).

5.1 Basic Information

5.1.1 Crucial tenets of the company

The principal idea of the new insurance platform contains alternate view on the insurance sector and differs only very slightly from the described general principles of other peer-to-peer companies belonging to the *Carrier Model*. The most noticeable variance consists in management of a financial pool. The First Club Insurance Carrier belongs to the minority of peer-to-peer companies that do not create groups and separated pools.

The founders of The First Club Insurance Carrier require an increasing transparency of insurers, diminishing costs of their products and equitable

risk sharing between insurance companies and policyholders. The main condition that leads to the mentioned crucial principles is based on a restriction of operating costs and primary costs related to branches, cutting provisions to brokers, MLM nets[13] and advertising marketing. As a result, The Frist Club Insurance Carrier struggles to be worthy of appellation *internet insurance company* that eliminates costs of running the business using internet platforms and social clouds (První Klubová pojišťovna, 2016).

The concept of the insurance company refers to the origin of insurance industry and the principles of functioning reside in an assumption of fair behaviour of members. Moreover, claims expenses can be reduced due to better principles of selecting new members, a focus on civil segment type of insurance policy and righteousness of the members that have strong sense of belonging to the group (Prvniklubova.cz, 2017).

The last factor that should be mentioned is that relatively high property damage deductible is expressed as a fixed amount of damage. It contrasts with deductibles expressed as a percentage part of damage that are commonly applied by classical insurance companies. According to the official website of the insurer, this measure results in a decline in an amount of small claims and fraud behaviour (Prvniklubova.cz, 2017).

5.1.2 Financial Management of a Pool and the Business Model

The business model of The First Club Insurance Carrier is based on the Pool that is structured to three main parts: *claims section*, *club profit section* and *operating section*.[14] The crucial financial source of the functioning scheme is based on the *gross earned premium* that represents 100% of contributions of the Pool. The Auxiliary account that acquires a portion of the *gross earned premium* from the Pool also plays a principal role, and is used for administration of majority technical and non-technical income and expense

[13] Multi-level marketing

[14] The pool represents a projection for customers of more complicated model, from the accounting perspective, the pool is purely imaginary.

accounts.[15] For the illustration, see Figure 4.[16] In order to simplify the description of the model, this thesis will discuss parts of the scheme separately.

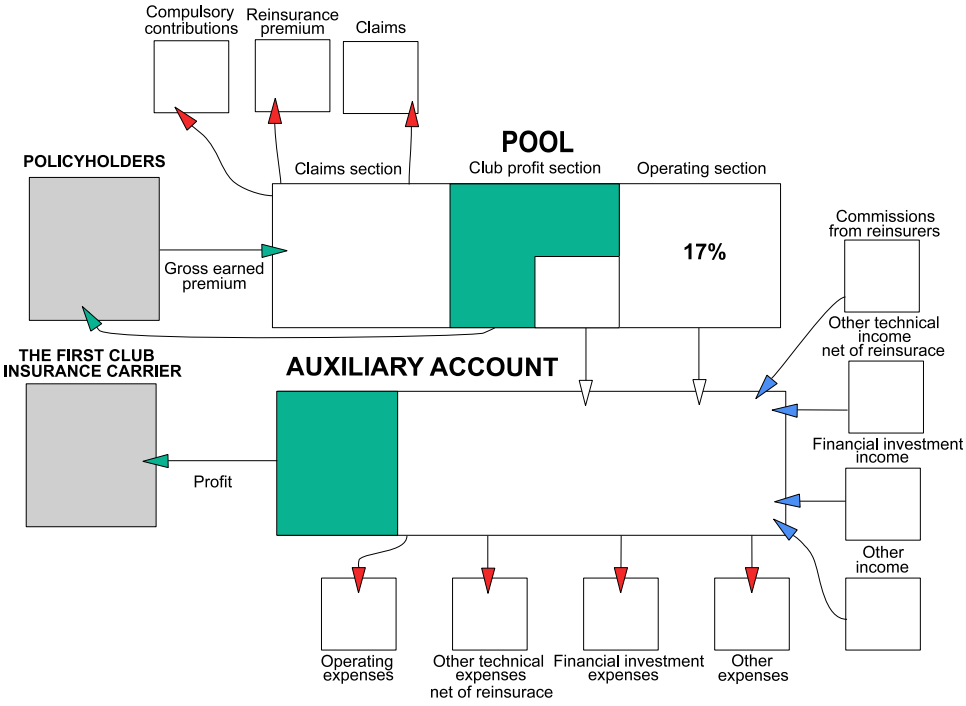

Figure 4: Scheme of the financial management

Source: Author

Claims section of the Pool

The *claims section* covers the amount of *claims incurred net of reinsurance* and *outward reinsurance premium*. Moreover, the amount of the *compulsory contributions*[17] is charged here as well (První Klubová pojišťovna, 2017b).

Operating section of the Pool

Operating section with fixed amount of 17% of the contributions is appro-

[15] Auxiliary account is tool for the better imagination, but it does not exist in the financial statements of The First Club Insurance Carrier.

[16] Scheme is based on information from annual reports of The First Club Insurance Carrier and its websites

[17] Contributions to the Czech Insurers' Bureau, the guarantee funds and the Union of Firefighters.

priated for the covering of part of expenses related to the operation of The First Club Insurance Carrier (Prvniklubova.cz, 2017). Therefore, the whole sum of this account is transferred to the Auxiliary account.

Club profit section of the Pool

The last part of the Poll called the *club profit* (or *club profit section*), is calculated using the following Equation 4 (Prvniklubova.cz, 2017).

$$\begin{aligned} Club\ profit\ section = Gross\ earned\ premium \\ - Claims\ section \\ - Operating\ section \end{aligned} \tag{4}$$

It is necessary to note that the *operating section* in this formula is equal 17% of the *gross earned premium*. For this reason, the amount of *club profit* is independent of the real size of the costs generated by the operation of the insurance company, but it significantly reflects the portion of *claims incurred net of reinsurance* recognized in the given year, the *outward reinsurance premium* and *compulsory contributions*.

Three quarters of the *club profit* are distributed among the non-damaging policyholders such as *givebacks*, of which amount is defined by the Equation 5 (Prvniklubova.cz, 2017).

$$\begin{aligned} Givebacks = (Gross\ earned\ premium \\ - Claims\ section \\ - Operating\ section) \times 0.75 \end{aligned} \tag{5}$$

The remaining quarter creates a part of the insurer's profit, and can support next development of the company or can be used as the reserve fund covering serious damages[18] (Prvniklubova.cz, 2017, První Klubová pojišťovna

[18] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

spouští ostrý provoz, 2017). This portion of 25% of the *club profit* is together with the *operating section* forwarded to the Auxiliary account.

Auxiliary Account

The Auxiliary account was created purely for a better illustration of the financial management of this company. It can be perceived as a place for accumulation of some incomes and settling some expenses. The surplus of the Auxiliary account is recognised as insurer's profit. On the other hand, potential costs exceeding the financial limit of this account are reimbursed by other company's financial funds and produces a loss for the current accounting period. The incomes inflowing to this section are comprised of *commission from reinsurers*, *other technical income net of reinsurance*, *income from financial investment* and *other income from non-technical account*. The value of the account is then decreased by settling *operating expenses*, *other technical expenses net of reinsurance*, *financial investment expenses* and *other expenses* (První Klubová pojišťovna, 2016, První Klubová pojišťovna, 2017b).

The most important item of this section is represented by the account of *operating expenses* that contains: *personnel costs* (including salaries, social and health costs and other personnel costs), *materials consumed* and *depreciation*, *amortisation*, *rent* (together with energy bills and other costs related to the rent), *IT maintenance*, *purchase of low value assets*, *marketing*, *consulting* and *audit expenses*, *other administrative expenses*, *direct* and *indirect acquisition expenses* (První Klubová pojišťovna, 2016, První Klubová pojišťovna, 2017b).

5.1.3 Covering of Expenses

The claims are primarily covered by the financial funds from the Pool and by the reinsurers. According to the Czech law, the rest of damages that exceed the Pool limit has to be settled by The First Club Insurance Carrier to cover all claims (Bokšová, 2010). This situation is not desired but the

company has a reserve pillow in the form of 25% of the club profit from the previous years (in form of equity)[19]. Nevertheless, the burden lies on the shareholders and the claims have to be settled regardless of loss generation[20] (Prvniklubova.cz, 2017).

The following Figure 5 illustrates the situation of large claims exceeding the limit of the Pool. The amount of 83% of the Pool was paid to clients as a compensation of damages, injuries etc. The rest of claim has to be settled either from the Auxiliary account (if it is not empty) or by other financial funds by the insurer. The business model in this situation does not produce any *givebacks* and may cause also the loss of the insurer.

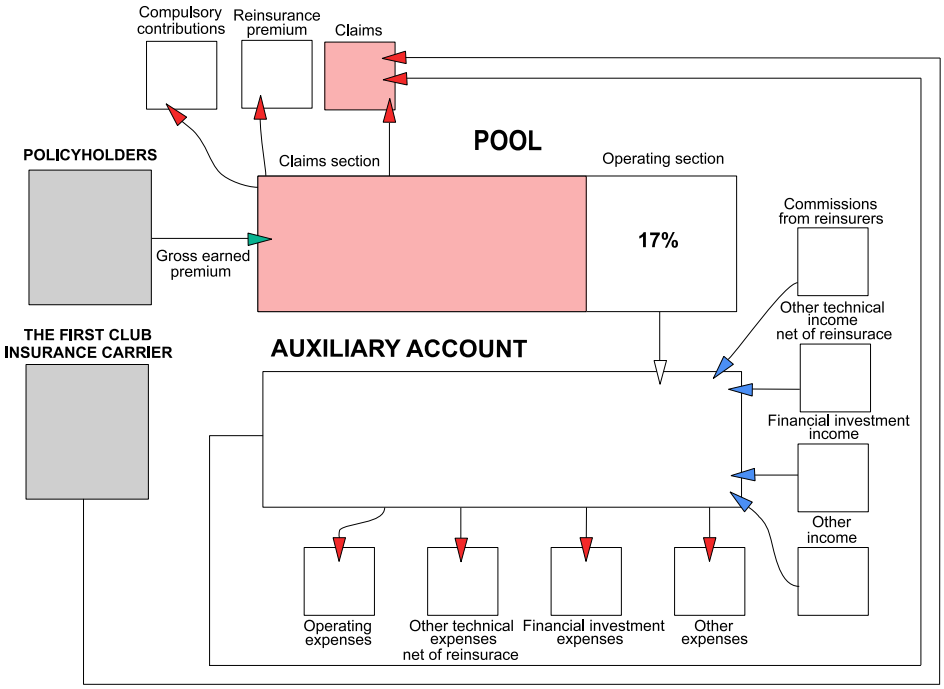

Figure 5: Financial management of claims exceeding the Pool

Source: Author

[19] From the accounting point of view, using financial funds from this source causes economic loss of the insurer.

[20] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

Other interesting situation can occur in case of large proportion of expenses that decrease the Auxiliary account. The First Club Insurance Carrier shows the economic loss in this year but the amount of *givebacks* is not affected. See Figure 6.

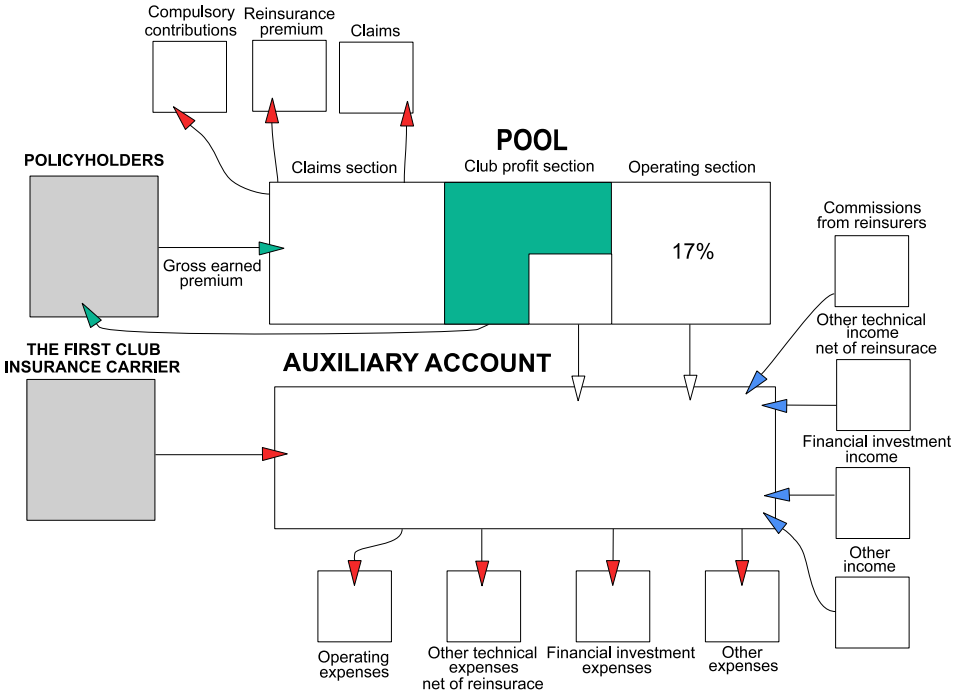

Figure 6: Financial management of expenses exceeding the Auxiliary account

Source: Author

5.1.4 Givebacks

From the perspective of the policyholder, it is interesting to concentrate on the principle of distribution of the *club profit* between participants of the system.

For the simplification of a gain share calculation, The First Club Insurance Carrier developed a point system. A number of points belonging to a selected policyholder is dependent on a price of his policies and policies concluded by his friends.[21] At the beginning, an insured person receives 2 points for each

[21] Each member can invite at most three friends to the club a year.

CZK 100 purchased for insurance products and 1 point for each CZK 100 purchased for insurance products by his friends invited to the club in a given year. Subsequently, the amount of a point will be defined by the company's board of management reflecting the following Equation 6 (Prvniklubova.cz, 2017):

$$Current\ price\ of\ a\ point = \frac{givebacks}{number\ of\ points\ of\ members\ in\ the\ club} \tag{6}$$

Some basic rules of the club profit distribution should be mentioned as well. A policyholder acquires the previously defined amount of points if and only if he did not lodge any claims, and also his friends (invited as new participants of the system during a current year) did not draw any money from the collective Pool during a year. In case of a lodging a claim, an insured person does not receive any points for his particular policy that is related to claim, but acquires the points from his other policies and points from insurance contracts of his friends (Prvniklubova.cz, 2017).

5.1.5 Membership and Types of Policies

For the elimination of risk and sustaining a social cloud environment in the club, The First Club Insurance Carrier offers a membership primarily to an individual who received recommendation and invitation from a current participant of the system (První Klubová pojišťovna, 2016). After an admission, a new member can conduct an unlimited number of policies. The First Club Insurance Carrier supplies non-life insurance products that secure cars, houses, households, third-part responsibility, health and traveling risks. Moreover, a new participant can also use an opportunity to transfer his existing policy from other insurance institution to the First Club Insurance Carrier (Prvniklubova.cz, 2017).

5.2 Accounting Details

5.2.1 Accounting Aspect of the Model

With respect to accounting principles, the most important differences between The First Club Insurance Carrier and traditional conservative insurers reside in items of balance sheet and statement of profit and loss. Attention should also be paid to particular differences in the accounting methods.

Balance Sheet Items

The most significant dissimilarity of items of the balance sheet of the Czech peer-to-peer insurer consists in an asset side. What should be highlighted are the eliminated tangible assets. This fact is caused by the specific requirements of the *internet insurance company*. The usage and ownership of a large number of offices, other premises and movable property (i.e. cars, equipment etc.) are not necessary for business conducting. Moreover, The First Club Insurance Carrier uses the ordinary accounting practice that charges fixed assets with an acquisition costs up to CZK 40,000 directly to expenses. Therefore depreciations are substantially reduced (První Klubová pojišťovna, 2017b).

On the liabilities side, primarily the technical reserves deserve a commentary. Identical with other insurers, The First Club Insurance Carrier also creates an *unearned premium reserve*. For the purposes of our analysis, this chapter focuses also on *reserve for bonuses and discounts*. This item represents approximately 75% share[22] of a *club profit* discussed in the previous chapter (První Klubová pojišťovna, 2017b). The *reserve for bonuses and discounts* represents a noticeable difference between peer-to-peer and classical insurer on the Czech market. Whilst The First Club Insurance Carrier provides bonuses and sales for all their products, traditional insurers usually offer bonuses only to clients who take out some life insurance policies

[22] The reserve for bonuses and discounts is estimated in advance and therefore, it can differ from the real value of givebacks. The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

(Prvniklubova.cz, 2017). The balance sheet includes besides other things a *reserve for claims* and other technical reserves.

Profit and Loss Account

The profit and loss account of The First Club Insurance Carrier includes the technical account for non-life insurance and non-technical account. The technical account for the life insurance is irrelevant in this case as this company does not offer any life insurance products.

The technical account for non-life insurance takes into consideration primary *gross written premium*, *claims incurred*, *changes in technical reserves*, *bonuses and discounts* and *other technical income and expenses*. Last but not least, *administrative expenses*, *claim acquisition costs* and *changes in deferred acquisition costs* and *commissions from reinsurers* should be mentioned (První Klubová pojišťovna, 2017b).

From our point of view, the most interesting amounts are *operating expenses*. At this point of time, it is appropriate to note that the business conduction of this peer-to-peer insurance company is cheaper due to an absence of commissions paid to insurance intermediaries and completely eliminated *marketing and promotion costs* nowadays. In addition, low *depreciation*, reduced *personnel costs* and eliminated *rent costs* has also a significant positive impact on the profit and loss statement (Prvniklubova.cz, 2017).

5.2.2 Analysis of the Company's First Year on the Market

After the trial run of the business model, the operation of the company was launched in September 2015.

Due to a short accounting period in 2015, the negative *earned premiums net of reinsurance* and also the problems with costs allocation, the economic performance of this year is not convenient for the appraisal of The First Club Insurance Carrier (První Klubová pojišťovna, 2016). For this reason, the following paragraphs will focus on the analysis of the year 2016 that

represents the first whole accounting period of the operation of the Czech peer-to-peer insurer.[23]

General information

In 2016, The First Club Insurance Carrie concluded 686 insurance contracts. The amount of *gross written premiums* reached CZK 2,790,000. The highest share of this result had an accident insurance (CZK 1,093,000). The loss for the current accounting period amount to CZK 15,276,000 (První Klubová pojišťovna, 2017b).

Before the assessment of the annual report of the insurance company, it is necessary to remark that a significant amount of *establishment costs* (such as expenses related to the creation of new insurance products) were recorded in the monitored year. For instance, ratio of *claim acquisition costs* to the number of contracts is enormous and it cannot be regarded as default parameter for the so-called typical business year of the insurance company in the future. The rate of these two quantities is expected to decrease (První Klubová pojišťovna, 2017b). Last but not least, other certain distortions are recorded as a consequence of a small number of insurance contracts. Another interesting feature of this start-up company resides in a huge difference between the amount of *gross written premiums* and *gross earned premiums*. It is typical for the larger insurers to converge these two values.[24]

In this situation, the position of balance sheet reflects the general information described in the previous chapter and the specific amounts are not directly necessary for our analysis. In order to simplify this text for readers, only important items of the profit and loss statement will be discussed.

For the purposes of the pool management, items will be compared with the *gross earned premium* that represents the initial amount in the pool.[25]

[23] All following data are regarded to the end of the accounting period 2016.

[24] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

[25] Data obtained using author's calculation.

Premium and outward reinsurance premium

On the basis of the technical account, *gross written premium* reached a sum of CZK 2,790,000, after deducting the *outward reinsurance premium* (CZK 1,380,000) and the *change the gross amount of unearned premium reserve* (CZK 1,359, 000), the amount of the *gross earned premium, net of reinsurance* is received. It reaches CZK 648,000 (První Klubová pojišťovna, 2017b). See Equations 1 and 2.

Considering the business model of The First Club Insurance Carrier, it is important to introduce a proportion of *outward reinsurance premium* to *gross earned premium* because this figure represents the percentage of the Pool spend on reinsurance protection. In 2016, this ratio achieved 96% of the contributions of the Pool, which represents a very high amount compared to other insurance companies[26] (První Klubová pojišťovna, 2017b). According to the Chairman of the Board of The First Club Insurance Carrier, Marek Orawski, this figure is disproportionally augmented on the ground of the small number of insurance policies in the given year. The proportion of *outward reinsurance premium* to *gross earn premium* is going to decrease during following accounting periods.[27]

Administrative expenses

Administrative expenses amounted to CZK 12,457,000 and this value was divided between individual items as described in Table 5. In 2016, the company was employing 10 people on average and evinced a total *personnel costs* of CZK 7,846,000, of which a part of CZK 6,000,000 was included in *administrative expenses* and the rest declared as part of the *claim acquisition costs* (První Klubová pojišťovna, 2017b).

[26] On the ground of comparison of annual reports of The First Club Insurance Carrier and Pojišťovna VZP, Česká pojišťovna ZDRAVÍ, Direct Pojišťovna, Slavia pojišťovna and AXA pojišťovna.

[27] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

Administrative expenses	CZK
Personnel costs	6,000,000
Depreciation and material consumed and amortisation	2 594 000
Rent costs, energy and other costs	550 000
IT maintenance	1 813 000
Consulting	801 000
Legal consulting and statutory audit costs	699 000
Marketing	0

Table 5: Administrative expenses

Source: Author

Claim acquisition costs

Another important indicator of the company's management is the number of *claim acquisition costs*, which amounted to CZK 5,425,000. This value was then reduced due to the *change in deferred acquisition costs* (CZK 1,059,000) (První Klubová pojišťovna, 2017b). In 2016, one new policy cost CZK 6,364 in average.

Claims incurred

The item of *claims incurred* amounted to a total of CZK 1,236,000, which was more than 86% of the *gross earned premium* (První Klubová pojišťovna, 2017b), and along with other circumstances, it contributed to a negative economic result for the current accounting period.[28] According to the Chairman of the Board of The First Club Insurance Carrier, Marek Orawski, this high number was caused by the significant overestimation of the change in *reserve for claims* that is part of *claims incurred*. The deviation was caused by the shortage of historical data required for calculation.[29] Recall the remark mentioned in the section "3.3.4 Elimination of Risk" that the real rate of frequency of claims in The First Club Insurance Carrier achieves less than 20% of average frequency of claims on the Czech insurance market and therefore, it is expected that the real amount of *claims incurred* was also

[28] Because part of the claims had to be settled by the financial funds of insurer.

[29] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

below the average level.

Income and expenses from financial investment

On the basis of the non-technical account, *income from financial investment* achieved CZK 301,000, but the company reported also *financial investment expenses* of CZK 102,000 at the same time (První Klubová pojišťovna, 2017b).

Management of the Pool

The First Club Insurance Carrier distributed the *gross earned premium* in the year 2016 on the ground of the Figure 7.[30] [31]

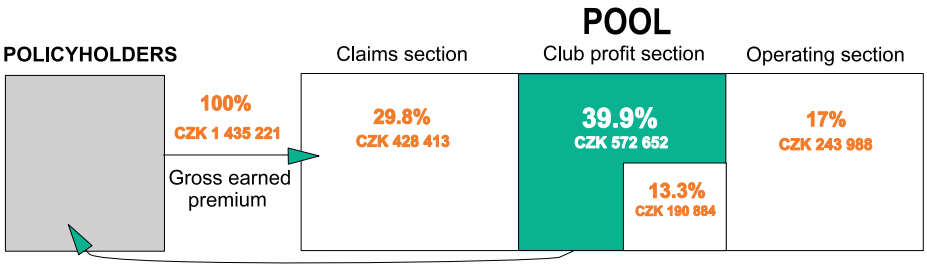

Figure 7: Financial management of the Pool 2016

Source: Author

The graphic corresponds to the previously discussed business model of the company. Nevertheless, due to the enormous *claims incurred net of reinsurance* and *outward reinsurance premium* in the monitored year that exceeded the *gross earned premium*, it was decided by the company's board of management to include only a portion of the costs in the scheme.[32] The *Claims section* was reported to be only CZK 428,413 (První Klubová pojišťovna,

[30] The amount of the *gross earned premium* is based on the estimation (CZK 1,435,221). The First Club Insurance Carrier conducts an estimation of the pool sections before the calculation of the official financial statement

[31] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

[32] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

2017a). The rest of the costs accounted the loss of the company. This decision was influenced by marketing reasons. After deducting the entire amount from the Pool according to the business model, it would not be possible to generate any *club profit*.

To summarize the first year of The First Club Insurance Carrier, the main weaknesses of the business consist in high *outward reinsurance premium*, overestimated change in *reserve for claims* and a relatively large amount of *operating expenses*. On the other hand, the start-up nature of the company and the small number of policies should be taken into consideration. The *gross earned premium* was not sufficient to cover even crucial segments and the overall idea of the business model failed. The question is whether or not the business model will be suitable under better conditions in the next year.

5.2.3 Visions of founders

Although the current situation of The First Club Insurance Carrier is not favourable and the company reached a loss for the current year, the creators of the business model believe that the Czech peer-to-peer insurance company will become profitable within a period of next 4 years. This estimation is based on a goal of gaining 40,000 members that would help to create a stable and profitable system (První Klubová pojišťovna, 2017a). The positive economic performance is dependent on the *gross earned premium* that ranges at least between CZK 120 million and 150 million.[33]

Another important vision of the founders predicts *givebacks* in the portion of 15 - 20% of the *gross earned premium* (První Klubová pojišťovna, 2017a). This statement is supported by the estimation of the board of management, which predict that the *outward reinsurance premium* will converge to 5% of the *gross earned premium*.[34] The portion of claims incurred should be relat-

[33] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

[34] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

ively smaller when compared to traditional Czech insurers. And the amount of compulsory contributions included in the *claim section* should remain at the value of 5% of the *gross earned premium*.[35] According to the Chairman of the Board, Marek Orawski, The First Club Insurance Carrier plans to develop new software innovations that will substitute some employees. The number of staff should not exceed 48 workers in the next 4 years.[36]

The analysis of the thesis tests some of those visions.

[35] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

[36] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

6 Analysis

6.1 Motivation for the Analysis

On the ground of interconnections of insurance companies that are negatively affected by the systemic risk, it is necessary to prevent the bankruptcy of the individual members of the insurance market. A failure of one or more players can affect the whole system. One of the assumptions for a balanced position of the insurer on the market also resides in a suitably adjusted business model. The momentousness of these facts is the main motivation for the analysis of the peer-to-peer insurance concept on the Czech market.

On one hand, authors of The First Club Insurance Carrier refer to the approval of the Czech National Bank and to favourable results of the stress tests, but on the other hand, it should be noted that the main driving force of this insurance company in recent years was based only on the equity. Although the system of annually increase in equity can ensure the solvency of the insurer, it cannot secure the profitability and sustainability of the concept.

6.2 Research questions

This thesis aims to test two following null hypotheses:

1. The business model of The First Club Insurance Carrier is able to produce *givebacks* in a proportion of at least 15% of the *gross earned premium*.

2. The business model is suitable for ensuring the profitability of The First Club Insurance Carrier.

On these conditions, the business model of the First Club Insurance Carrier is considered to be suitable. The term profitability is perceived as an ability to produce a positive economic result for the accounting period.

The intent of our analysis consists not only in the evaluation of the profitability of The First Club Insurance Carrier, but it endeavours to test the peer-to-peer concept in the Czech Republic in general. This thesis regards the business model of this company as a "template" or a "default model" for all other potential peer-to-peer platforms on the Czech insurance market.

The expected conclusion should asses the competitiveness and profitability of the Czech peer-to-peer system in the future.[37]

6.3 The Sources of Data

For the formation of scenarios illustrating the development of The First Club Insurance Carrier and for comparative conclusions, five insurers were selected from the members of the Czech insurance association. A suitable insurer for our analysis had to meet the following conditions: an exclusively non-life offer of products, similarity of some products and accounting procedures with The First Club Insurance Carrier and availability of the required data. It should be noted that all companies that satisfy these facts are covered in this research.

[37] A competitiveness arises indirectly from the Question 1 because the amount of givebacks has influence on the number of clients. A profitability results from the Question 2.

For the purposes of this research, the following sources of data were used: financial statements and annual report of The First Club Insurance Carrier of the year 2016[38], information obtained at a personal meeting with the Chairman of the Board of Directors, Marek Orawski, as well as the annual reports 2015 of the insurance companies: Pojišťovna VZP, Česká pojišťovna ZDRAVÍ, Direct Pojišťovna, Slavia pojišťovna and AXA pojišťovna.[39]

6.4 Methodology

The study focuses on the new phenomenon and for this reason, it is not possible to find any standard methodology dealing with this specific topic. To answer the given research questions, an analysis of the business model of The First Club Insurance Carrier is accomplished through a set of 5 scenarios. Each scenario derives the information about one monitored insurance company. These data are modified according to the method of scenarios formation (discussed in the following paragraph), in order to transform the business model of the traditional insurance company into the business model of The First Club Insurance Carrier. Using this technique, the amount of the *club profit* and the profit of the company are acquired and therefore, this analysis succeeds in answering the research questions. Furthermore, the most suitable scenario is tested using the what-if analysis. Selected items are changed and the effect on the outcome is appraised.

The author of this thesis would like to cast a light on the reasons for selection of this method. As already mentioned, the Czech National Bank has performed many solvency and liquidity tests of this insurer recently (besides others, also a popular stress test). For this reason, repeating these techniques was assessed by the author of the thesis as not being scientifically beneficial. And also in response to the start-up character of The First Club Insurance Carrier, this company evinces a high value of cash assets (that are very liquid). Therefore, the solvency and liquidity tests cannot produce any

[38] The reason for using data from this year is already described in the section 5.2.2 Analysis of the Company's First Year on the market.

[39] The annual reports 2015 were used as a result of absence of some annual reports 2016.

interesting results. Although the solvency can be investigated in many ways, this research would like to verify primarily the suitability of the principles of the peer-to-peer platforms. On the ground of the innovative business model developed by The First Club Insurance Carrier, it was concluded to use non-traditional methods for analysis as well. For the optimal utilization from our study, the business model analysis that examines the insurance company according to new criteria, was selected.

6.5 Method of the Scenarios Formation

As discussed in the previous paragraphs, our aim resides in a convergence of the model of selected traditional insurer with the business model of The First Club Insurance Carrier in each scenario.

The essential importance is grounded in the description of the model of the Czech peer-to-peer insurer and the data discovered in the analysis of the first year of its business. In a simplified way, the Pool and the Auxiliary account of The First Club Insurance Carrier is implemented to the selected insurance companies. A situation wherein these companies use the same principles as the peer-to-peer platform is simulated. For the adjustment of the insurer's model, it is necessary to change some items on its financial statements. Moreover, some accounts are simplified.

Our attitude to each individual item of the business model is described in the following overview, see the Figure 8. For more details on scenarios formation, see also the appendix section of this thesis. First of all, the method of allocation of each item to the model is introduced separately.

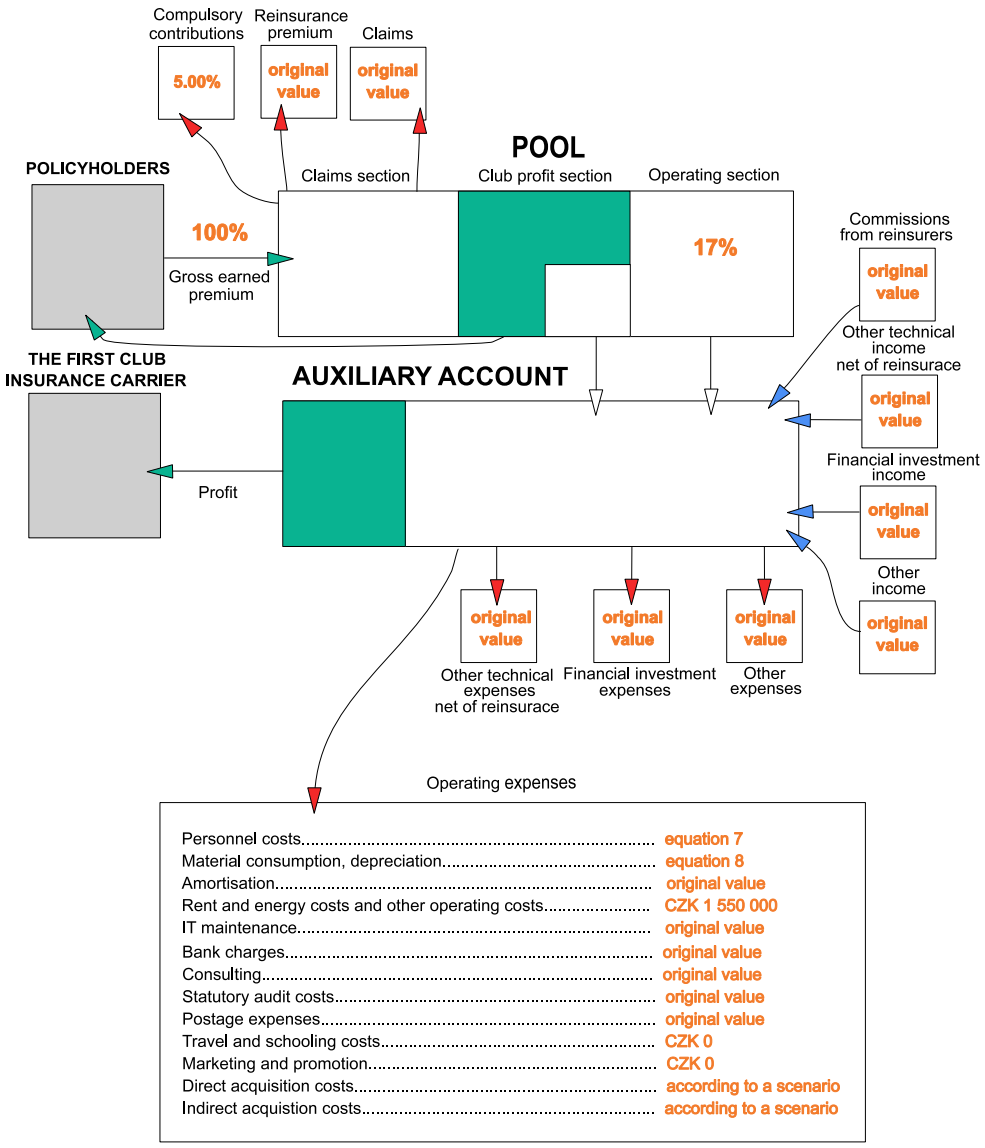

Figure 8: Business model for the scenarios

Source: Author

Gross earned premium, outward reinsurance premium, claims incurred net of reinsurance

Outward reinsurance premium and *claims incurred* are maintained in the original value (in the sum recorded in the annual reports 2015 of the traditional insurers). This decision is based on the impossibility of an accurate estimation and a dependence of *claims incurred net of reinsurance* on *outward*

reinsurance premium. In this case it was decided to take into consideration a pessimistic prediction: the amount of *claims incurred* of The First Club Insurance Carrier and the conservative insurers are similar.[40] The value of the *gross earned premium* is the basic variable required to be maintained in the original value because it shows the aspect of development

Compulsory contributions

A number of *compulsory contributions* of The First Club Insurance Carrier move around 5% of the *gross earned premium* and the prediction does not assume any distinct changes in the future.[41] For this reason, the item is implemented to the scenarios with the rate of 5% of the *gross earned premium*.

Personnel costs

According to the information of the Chairman of the Board of Directors of The First Club Insurance Carrier, the first three rows of the Table 6 show the dependency of the number of employees and the amount of *gross earned premium*.[42]. In addition, this table represents an approximate estimate of the development of the company in next four or five years. In the future, the company is going to primarily employ some new assistants of a customer service division. The number of managers and experts should remain constant.[43] On the ground of these information, the Equation 7 is defined for calculation of *personnel costs* (PC).

[40] The optimistic prediction is represented by the visions of founder in the section "5.2.3 Visions of founders".

[41] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

[42] With exception of the last column that is estimated as 125% of the number of employees in the previous colums. This estimate is based on the infromation of the annual report of AXA pojišťovna (AXA pojišťovna, 2016)

[43] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

$$\begin{aligned} PC\ of\ the\ scenario = {} & CZK\ 7,846,000 \\ & + (Number\ of\ employees\ of\ the\ scenario - 10) \\ & \times 12 \times CZK\ 56,528 \end{aligned} \tag{7}$$

The amount of CZK 7,846,000 represents overall *personnel costs* in the year 2016 of The First Club Insurance Carrier that contains a fixed number of managers, experts and operating staff, in total 10 individuals. This analysis assumes that the company is not able to conduct a business without these core workers and therefore, this constant amount has to be included in each scenario. In addition, the *personnel costs* reflect also the wages and other expenses related to the rest of employees in each scenario (except of already counted costs incurred on ten previously mentioned workers). Average personnel costs per operating worker per month (CZK 56,528) are calculated on the ground of the expenses of The First Club Insurance Carrier in the year 2016 (První Klubová pojišťovna, 2017b).

GEP [thous. CZK]	100 - 200	201 - 300	301 - 1000	$\geq$ 1000
Number of employees [persons]	20	32	48	64
Annual increase in employees [persons]	10	12	16	16
Personnel costs [CZK]	14,629,360	22,769,392	33,622,768	44,476,144
MC and DC [CZK]	351,000	401,000	501,000	501,000

Table 6: Personnel costs, material consumption and depreciation

Source: Author

Material consumption, depreciation

The most complicated items in our analysis are *material consumption* and *depreciation expenses*. With the reference to the analysis of the first year of the Czech peer-to-peer insurer, the author of this thesis would like to point

out that the *depreciations* of the mentioned company are considerably lower by comparison with other institutions. For this reason, it is not appropriate (in most cases) to use the original value of *depreciation costs* (DC) and *consumption costs* (*material consumed* - MC) of the monitored insurance companies in the scenarios.

On the ground of the careful examination, the Equation 8 is propounded.

$$\begin{aligned} MC\ and\ DC\ of\ the\ scenario\ T = CZK\ 101,000 \\ + (Annual\ increase\ in\ employees \\ of\ the\ scenario\ T)\ \times CZK\ 25,000 \end{aligned} \tag{8}$$

The Equation 8 contains the fixed amount of *depreciation costs* (DC) of The First Club Insurance Carrier recorded in 2016 (CZK 101,000). According to our opinion, this amount comprises some basic *depreciation* and *consumption costs* independent on the size of the company and part of *establishment costs*. Therefore, it is considered as fixed overhead expenses.

The average *material costs* related to one new worker are calculated on the basis of the regular market prices of the basic equipment assigned to the new customer service assistant (concretely a table, swivel chair, computer with accessories and some minor tangible fixed assets). The value of the tangible assets related to one new worker is estimated to CZK 25,000. The accounting practice that charges fixed assets with an acquisition costs up to CZK 40,000 directly to expenses, is used. The results of this equation are shown in the Table 6.

Amortisation

As a result of the intended innovations and technological development in the future, an increase in *amortization costs* of The First Club Insurance Carrier is expected.[44] Because it is impossible to construct an appropriate

[44] The information were acquired during the personal meeting with the Chairman of Board of The

estimation, the original value of the traditional insurance company is taken into account as the most suitable value.

Rent and energy costs

The First Club Insurance Carrier shows a relatively low *rent*, *energy* and other minor *operating costs* (together CZK 550,000). The negligible value of *rent costs* is caused by the lease agreement between this company and its investor RSJ Investment SICAV a.s. that is the provider of this particular office space. In the future, The First Club Insurance would like to find a seat in the more representative building.[45] Because of this, the *rent*, *energy* and other minor *operating costs* are included in estimated value CZK 1,550,000. The current rent costs are increased by one representative office space of size $200m^2$ in Praque. The common market price for a modern office in a business centrum (approximately CZK $417/m^2$/month) is taken into account (Prague offices.com, 2017, RealHit.cz, 2017).

IT maintenance

IT maintenance costs are set to the original value posted in the annual report of the traditional insurance company because it is expected that the expenses of the classical and peer-to-peer insurer do not vary significantly.

Bank charges, consulting, audit costs, postage expenses

All of these costs are independent of the business model of the insurance company, therefore, the original value of the classical insurer are included in the scenarios.

Travel and schooling costs, marketing and promotion

On the ground of the main principles of the company and the contemporary strategy, *travel* and *schooling costs* as well as expenses related to *marketing*

First Club Insurance Carrier.

[45] The information were acquired during the personal meeting with the Chairman of Board of The First Club Insurance Carrier.

and *promotion* are omitted in our scenarios. The relevant accounts are not included in the business model.

Direct acquisition costs

The majority of insurance companies comprise the *direct acquisition costs* primarily of *commissions paid to insurance intermediaries*. Therefore, on the ground of the business model of the Czech peer-to-peer insurer, the *direct acquisition costs* are excluded from the scenarios. An exception can be made after the appraisal of a specific scenario.

Indirect acquisition costs

According to the allocation principles of some companies, part of the previously mentioned *operating administrative expenses* (primarily *personnel costs*) can be charged as *indirect acquisition costs*. Therefore, *indirect acquisition costs* are in most cases excluded from the scenarios in order to avoid duplicity of included items, but an exception can be made according to the appraisal of a specific scenario.

For our analysis, it is important to include all previously mentioned items in the appropriate amount and omit other unspecified "uniformed accounts" (for instance *other operating expenses*) because in many cases they primarily contain the undesirable items (*marketing*, *promotion* etc.).[46] But many traditional insurers show different accounting techniques that combine various items in the "uniformed accounts" and it is not possible to separate its components. In each scenario, the expected content of these sections are considered and they are subsequently omitted, included, or partially included in the models.

For illustration, in the Scenario 3, the items *amortisations* and *marketing* are not separately included in the financial statement of the Direct pojišťovna. Moreover, two "uniformed accounts": *the other operating costs*

[46] On the ground of analysis of anual reports of Pojišťovna VZP, Česká pojišťovna ZDRAVÍ, Direct Pojišťovna, Slavia pojišťovna and AXA pojišťovna.

(CZK 11,222,000) and *other claim acquisition costs* (CZK 23,724,000) are posted. The *marketing costs* are expected to prevail in these accounts so it was decided to cover "uniformed accounts" only partially in amount of CZK 5,425,000.[47] For complete details about exceptions in scenarios see appendix section.

Other technical and non-technical accounts

Commissions from reinsurers, *incomes and expenses from financial investment*, *other technical income and expenses net of reinsurance*, *other income and expenses* are included in the original value in the scenarios, because these amounts should be similar to traditional and alternative insurers. Moreover, *commissions from reinsurers* are dependent on the *outward reinsurance premium*.

Basic requirements

Five additional conditions are also specified for our analysis. The regular accounting period that is not affected by extreme catastrophes is considered. Tax payments are omitted as they affect only the *net profit for the current accounting period* and have no influence on the management of the Pool. *Extraordinary income and expenses* are disregarded since they reflect the previous accounting period. Moreover, inflation is also not taken into the consideration. And finally, the fact is omitted, that a part of the policies was conducted in another European country because the amount of the *gross earned premium* gained abroad is negligible.

Profit

The profit of each scenario depends on 17% of the Pool (claims section), 25% of the *club profit*, investment activities, *operating expenses*, *commissions from reinsurers*, *other technical income and expenses net of reinsurance* and

[47] According to the value of *amortisation* in Scenario 2. The sum of *gross earned premium* of these two companies are similar and therefore, it is supposed that also the value of *amortisation costs* would be similar.

other minor incomes and expenses arising from the non-technical accout. The calculation of the gain is described by the Equation 9.

$$\begin{aligned} Profit = {} & 17\%\ of\ the\ GEP \\ & + 25\%\ of\ the\ club\ profit\ section \\ & + commissions\ from\ reinsurers \\ & + other\ technical\ income\ net\ of\ reinsurance \\ & + income\ from\ financial\ investments \\ & + other\ income \\ & - operating\ expenses \\ & - other\ technical\ expenses\ net\ of\ reinsurance \\ & - financial\ investment\ expenses \\ & - other\ expenses \\ & - claim\ incurred\ net\ of\ reinsurance,\ exceeding\ the\ GEP \end{aligned} \tag{9}$$

The last item in Equation 9, *claim incurred net of reinsurance, exceeding gross earned premium*, is recorded only in case of insufficient financial funds in the Pool and coverage of a part of claims by the insurer.

6.6 Results of the analysis of scenarios

On the ground of the methods for the scenarios formation (besides others also on the ground of Table 6), the business model of each traditional insurance company is changed in order to correspond with the business model of The First Club Insurance Carrier. From the data of 5 non-life conventional insurers, 5 scenarios are produced. Furthermore, Equations 5 and 9 are used for calculation profit and and *givebacks* of each scenarios. The results can be seen in following scenarios.[48] The Hypothesis can be either rejected or adopted according to these results.

[48] For more details about calculations, see appendix section.

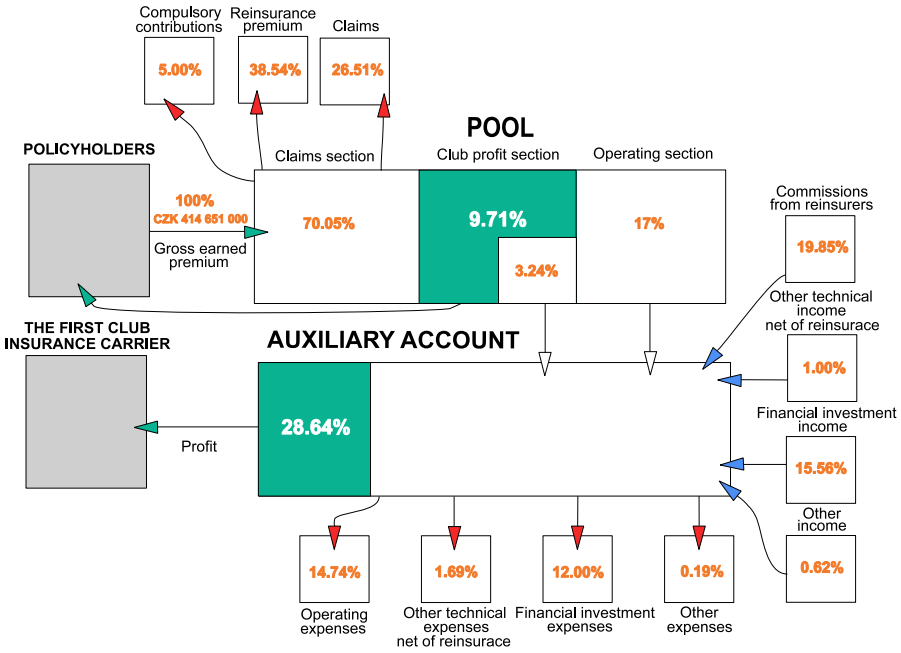

Figure 9: **Scenario 1**, Original model: Pojišťovna VZP

Source: Author

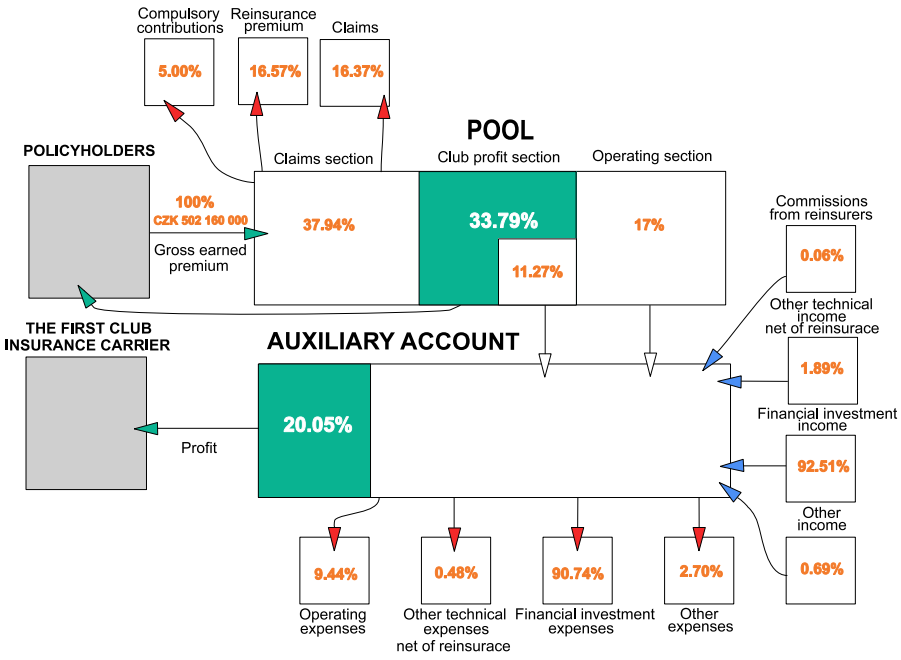

Figure 10: **Scenario 2**, Original model: Česká pojišťovna ZDRAVÍ

Source: Author

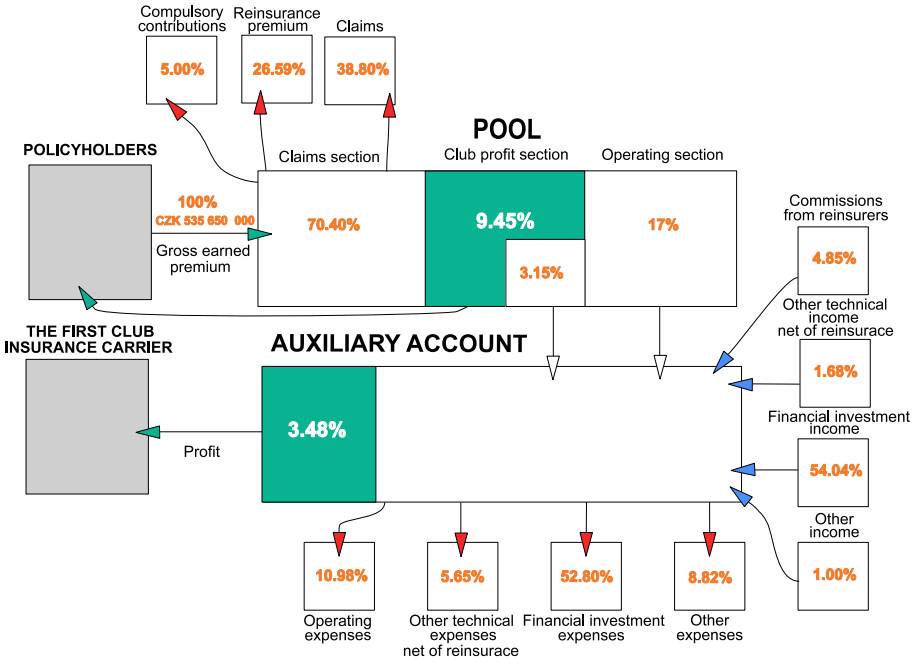

Figure 11: **Scenario 3**, Original model: Direct Pojišťovna

Source: Author

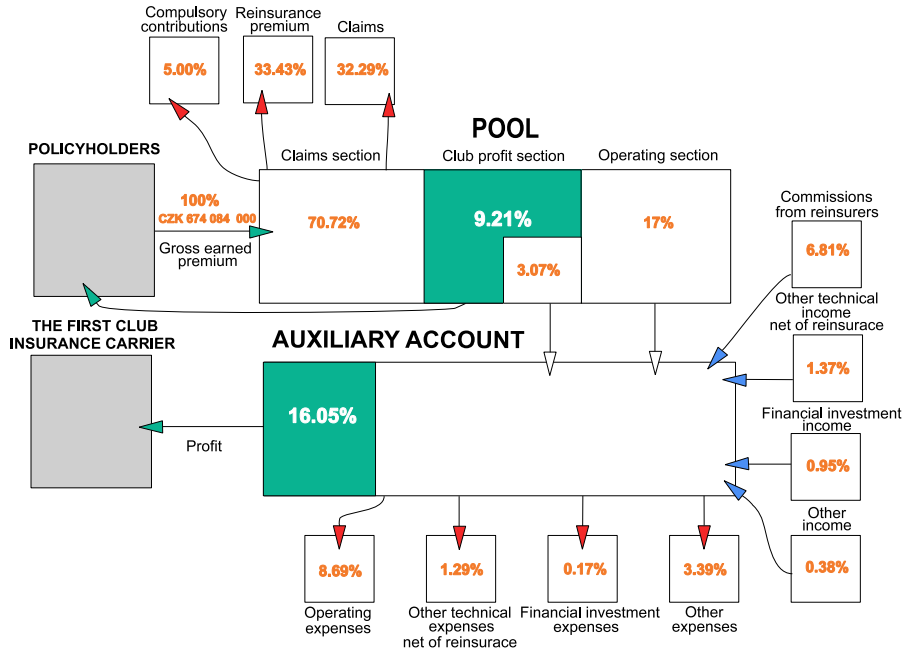

Figure 12: **Scenario 4**, Original model: Slavia pojišťovna

Source: Author

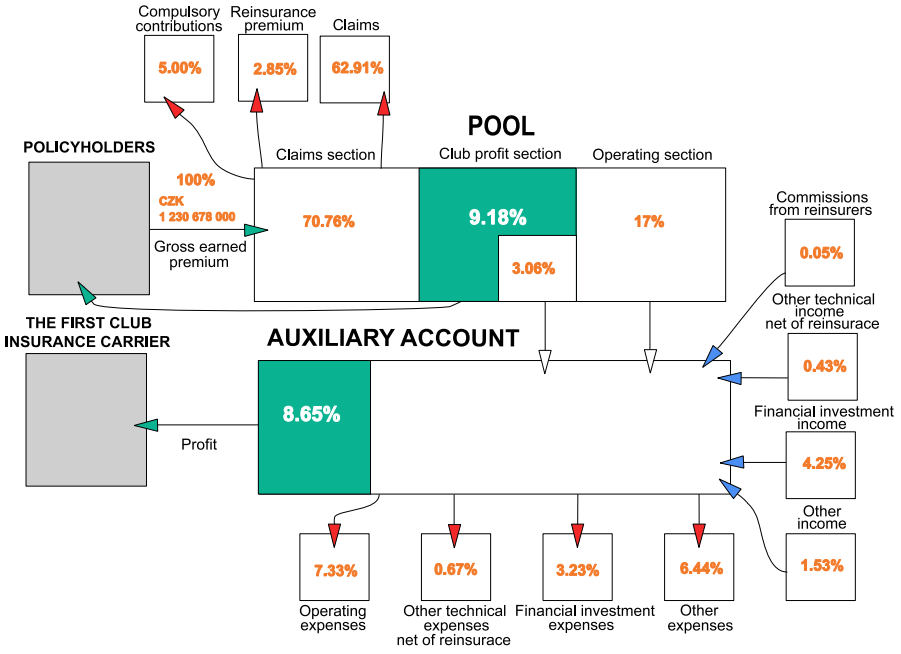

Figure 13: **Scenario 5**, Original model: AXA pojišťovna

Source: Author

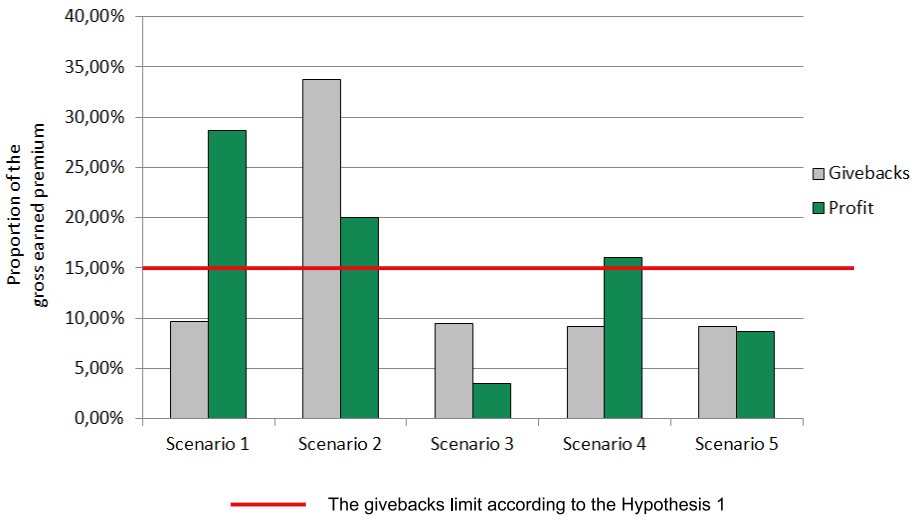

Figure 14: Results of the analysis

Source: Author

This thesis came to the conclusion that the proportions of *givebacks* to the *gross earned premium* are very similar for four of five scenarios (between 9% and 10%). From the overall point of view, the Hypothesis 1 for these scenarios can be rejected and therefore, the business model of The First Club Insurance Carrier is not able to produce *givebacks* of at least 15% of the pool contributions for these scenarios. Only in Scenario 2, *givebacks* amounts 33.79% of the *gross earned premium*. For this reason, the first Hypothesis cannot be rejected in this case.

On the other hand, it should be taken into consideration that The First Club Insurance Carrier can cover part of the claims from its own financial funds (similarly as in the year 2016). For instance, under the condition of using 5.83% of the *gross earned premium* from the Auxiliary account for covering some claims, the amount of *givebacks* could reach at least 15% of the Pool contributions. Under these circumstances, Hypothesis 1 could not be rejected. Nevertheless, this theoretical eventuality has two difficulties: firstly, the business model does not produce sufficient amount of profit (the value remaining in the Auxiliary account) in Scenario 3 and secondly, the decision about sharing *claims incurred expenses* between the Pool and financial funds belonging to the institution is solely based on the company's board of management. In consideration of these factors, this variant seems improbable.

It is necessary to remark that according to the visions of founders, the amount of *claims incurred* of The First Club Insurance Carrier should be smaller than the average of *claims incurred* of classical insurer. This condition was not included in this analysis as the influence of the business model on the amount of claims has not been sufficiently proven so far. If the portion of *claims incurred net of reinsurance* to the *gross earned premium* would be lower by 5.83%, the Null-Hypothesis 1 would be satisfied. Also, this consideration is found realistic by the author of the thesis but it cannot be tested in the start-up phase of the company.

To discuss the specific details arising from the analysis, it should be em-

phasized that the favourable result of Scenario 3 is influenced by a suitable distribution of *claims* paid from the Pool and *claims* settled by the reinsurance companies. Moreover, the *outward reinsurance premium* is in an adequate amount. The imbalance of these items can be evaluated as the main drivers of the adverse results in other scenarios.

To conclude the main consequence of the lower proportion of *givebacks* to the *gross earned premium*, it should be noted that this amount influences the satisfaction of policyholders and as well as their subsequent willingness to stay in the club. On the basis of proportion of *givebacks* exceeding 9% in each scenario, no serious negative consequences are expected. This share should be enough for sustaining the current number of clients and for motivation of new members. It can influence probably only the rate of company's development.

All scenarios show the positive economic performance and therefore, Hypothesis 2 can be accepted. It can be concluded that the business model of The First Club Insurance Carrier is suitable for ensuring the profitability of the company. The proportion of profit to the *gross earned premium* of each scenario differs significantly. The lowest amount was achieved by the business model in Scenario 3 (3.48%) and the highest share was recorded in Scenario 1 (28.64%).

An interesting element of the information arising from the analysis resides in the comparison of original proportion of profit (generated by traditional insurance companies) to *gross earned premium* with the proportion of profit from the scenarios to *gross earned premium*. Whilst the Scenario 1 evinces proportion of profit to *gross earned premium* in the amount of 28.64%, the original value of profit arising from the annual reports of the insurer reaches only 2.97% (Pojišťovna VZP, 2016). Moreover, the same situation can be seen in Scenario 5, where the profit amounts to 16.05% of the Pool contributions but the original value of profit is lower than 0.04% of the *gross earned premium*. These two results are significantly influenced by the high

amount of *commissions paid to insurance intermediaries* in the original financial statements. In other cases, the proportions of economic results to *gross earned premiums* are similar for scenarios and for annual reports.

To sum up, the analysis of the profitability of the company is secured by the suitable business model. This supports the sound position of the insurer and eliminates the risk of bankruptcy.

6.7 What-if Analysis

The what-if analysis (or sensitivity analysis) is used for testing of complicated systems or can be applicated as a complementary analysis for monitoring impact of some changes in the scheme. According to the simulation of changes in specific aspects, the influence on behaviour of the system is monitored and assessed (Mankovskii and et al, 2009).

This method is used for controlling the deviation in results of Hypothesis 2 incurred by the simplifications and estimations used for creating scenarios. It is not necessary to test items influencing the results of Hypothesis 1, because important accounts affected *givebacks* were transformed to the scenarios in the original value from the annual report and no significant deviations (underestimations)are expected. The author of this thesis decided to test the most probable scenario (Scenario 2) that reflects the expectations about future development of The First Club Insurance Carrier most properly. The selection is based on a relatively low proportion of *outward reinsurance premium* and *claims incurred* in this specific case. Under the visions of founders, this distribution of Pool contributions is the most suitable prediction. Moreover, Scenario 2 is also convenient for the what-if analysis, since many simplifications were adopted during the calculations and "uniformed accounts" were inserted to the model in order to compensate some unrecognized items.

In practice, the sensitivity of the proportion of profit to the *gross earned premium* (PPGEP) on the change in *personnel costs*, *change in remuneration to members of statutory bodies*, *rent costs* and *material costs and depreciation*

are examined. The initial size of *personnel costs* has increased by expenses related to new 10 employees, *rent costs* have grown to the twice the amount and the other items reflect the original amount from annual report of Česká pojišťovna ZDRAVÍ.

Item	**Initial value [CZK]**	**Changed value [CZK]**	**The difference between initial PPGEP and changed PPGEP**
Personnel costs	33,622,768	40,406,128	1.35%
Remuneration to members of statutory bodies	0	4,103,000	0.82%
Rent costs	1,550,000	3,100,000	0.31%
Material consumption and depreciation	501,000	1 461,000	0.19%

Table 7: Overview of the what-if analysis

Source: Author

To evaluate the results of the what-if analysis, in most cases, the changes do not have a huge impact on the *proportion of profit to gross earned premium* (PPGEP). The most distinct influence was detected after the change in *personnel costs* by CZK 6,783,360. The increase in any item by CZK 5,024,711 causes the difference between initial PPGEP and changed PPGEP to be equal 1%. It can be concluded that the change by the smaller amount than approximately CZK 5 million has no substantial effect on the results of our analysis. And potential underestimations (overestimations) lower than this value are negligible in the analysis.

To sum up, it is not expected that the deviation will be significantly higher than 5 million in more items at the same time. For this reason, it is possible to omit potential underestimations (overestimations), as they are not relevantly important in our analysis and cannot influence the result significantly.

Conclusion

The thesis aims to provide a complex description of the peer-to-peer insurance companies and platforms and highlight their key features. In addition to that, Peer-to-peer insurance principles are tested in practice using the analysis of the real peer-to-peer insurer in the Czech Republic.

The new phenomenon named as peer-to-peer insurance is characterised by principles of relationships between policyholders that leads to elimination of fraud behaviour of policyholders in general. Moreover, this concept offers bonuses for participants (called *givebacks*) in case of their responsible behaviour. In most cases, policyholders acquire the rest of premium left in the insurance platform after settling of claims and other expenses, which make the insurance cheaper in the end. This thesis mainly focuses on the classification of different peer-to-peer waves that was partially grounded on the surveys by R. Huckstep (Huckstep, 2016a) and partially based on its own research comparing various peer-to-peer platforms. Since there is a shortage of current literature dealing with this topic, provided general classification of different types of concepts and empirical analysis is a original and pioneering work that provides solid ground for further research in this area.

The crucial motivation for testing the only peer-to-peer insurer in the Czech republic (The First Club Insurance Carrier) resides in an effort to avoid threats arising from interconnections between insurance companies on

the market. The insolvency or instability of one player influences the other companies. As a consequence of analysing new phenomenon, the standard technique for evaluation of the suitability of this concept is not available. On the ground of the start-up phase of The First Club Insurance Carrier that is typical of its large proportion of cash in assets, it is not beneficial to use common solvency and liquidity tests (for instance the stress test). The business model analysis, used in this thesis, strived for maximal utilization of its results in practice. The method was used as a consequence of its original view on a stability of insurance company that assesses insurer's position on the ground of less common criteria than other solvency tests.

On the ground of data from 5 non-life insurers similar to the examined company, this thesis creates 5 scenarios simulating the future development of the Czech peer-to-peer insurer. Each scenario converts the business model of one insurer to the business model developed by The First Club Insurance Carrier. In practise, the items of their profit and loss are synchronised with the Czech peer-to-peer insurance company. The target of the analysis is based on an examination of visions of founders of Czech peer-to-peer company, who claim that. The proportion of profit and *givebacks* will be 15% of the *gross earned premium*[49] and that they will achieve positive economic result. In most cases, the business model does not meet the *givebacks* requirements based on the vision of founders. The portion of *gross earned premium* paid back to the policyholders ranges between 9% and 10% in four of five scenarios. The better result is expected in the case of more convenient distribution of the *claims section* (as indicated by Scenario 2 producing proportion of givebacks to *gross earned premium* of 33.79%). Each model produced a positive economic result (in a range of 3.48%-28.64%). Moreover, the what-if analysis concludes that the potential small change of the scenario has negligible effect on the results.

This thesis concludes that the sound position of The First Club Insurance Carrier is secured by the stable profit generation. The result that is less

[49] The term of gross earned premium represents the part of premium related to the current accounting period

favourable is the ability to produce *givebacks* that was nearly 5% lower than expected. In our point of view, this fact cannot radically influence the number of club members in a negative way. Moreover, it will likely attract new policyholders despite the lower *givebacks* proportion than expected by the founders of The First Club Insurance Carrier. In our opinion, slower economic development can be the only consequence arising from the lower amount of *givebacks*.

From the perspective of the insurance regulators and supervisors the Czech peer-to-peer insurance company is not inclined to the insolvency position caused by a negative economic result but it should be mentioned that this model is less financially advantageous for clients in comparison with the expectation of the founders of The First Club Insurance Carrier.

Overall, this phenomenon can be still considered as a perspective model as it proposes fairness principles and offers *givebacks* to every responsible participant of the system. The described topic contains inexhaustible phenomena and it is worthy of further in-depth analysis (for instance more detailed business model research) in next years with higher number of available data.

References

[AXA pojišťovna, 2016] AXA pojišťovna (2016). Annual Report 2015. [Online; Accessed April 4, 2017]. Available from: https://www.axa.cz/o-nas/financni-vysledky/vyrocni-zpravy/obsah/pojistovna/vyrocni-zprava-2015.aspx/.

[Besure.com, 2017] Besure.com (2017). [Online; Accessed May 2, 2017]. Available from: https://www.besure.com/.

[Bokšová, 2006] Bokšová, J. (2006). Solventnost I a II v pojišťovnictví. *Český finanční a účetní časopis, University of Economics*, pages 127–132.

[Bokšová, 2010] Bokšová, J. (2010). *Účetnictví komerčních pojišťoven-specifika v ČR*. Wolters Kluwer ČR, first edition. ISBN 978-80-7357-521-2.

[Caton et al., 2012] Caton, S., Dukat, C., Grenz, T., Haas, C., Pfadenhauer, M., and Weinhardt, C. (2012). Foundations of trust: Contextualising trust in social clouds. pages 7. DOI: 10.1109/CGC.2012.89.

[Čejková V. and P. Valouch, 2005] Čejková V. and P. Valouch (2005). *Účetnictví pojišťoven po vstupu do EU*. Grada, first edition. ISBN 80-247-0953-8.

[Čepeláková L., 2015] Čepeláková L. (2015). The impact of the macroeconomic environment on insurance companies. Master's thesis. Charles University in Prague. Fakulty of Social Sciences. Institute of Economic Studies. Supervisor PhDr. Ing. Petr Jakubík, Ph.D.

[Česká asociace pojišťoven, 2016] Česká asociace pojišťoven (2016). Annual report 2015. [Online; Accessed April 4, 2017]. Available from: http://www.cap.cz/images/o-nas/vyrocni-zpravy/2015.pdf.

[Česká asociace pojišťoven, 2017a] Česká asociace pojišťoven (2017a). Statistické údaje dle metodiky Čap 1-12/2016. [Online; Accessed April 4, 2017]. Available from: http://www.cap.cz/images/statisticke-udaje/vyvoj-pojisteno-trhu/STAT-2016Q4-CAP-CZ-2017-01-25-WEB.pdf.

[Česká asociace pojišťoven, 2017b] Česká asociace pojišťoven (2017b). Statistické údaje dle metodiky Čap 1-12/2016 - grafy. [Online; Accessed April 4, 2017]. Available from: http://www.cap.cz/images/statisticke-udaje/vyvoj-pojisteno-trhu/STAT-2016Q4-CAP-CZ-2017-01-25-WEB.pdf.

[Česká pojišťovna ZDRAVÍ, 2016] Česká pojišťovna ZDRAVÍ (2016). Výroční zpráva České pojišťovny ZDRAVÍ a.s. za rok 2015. [Online; Accessed April 4, 2017]. Available from: https://www.zdravi.cz/User_data/Media/Original/zdravi/201608/1_cp-zdravi_annual-report-2015_cz_final.pdf.

[Cipra, 2002] Cipra, T. (2002). *Kapitálová přiměřenost ve financích a solventnost v pojišťovnictví*. Ekopress, first edition. ISBN 80-86119-54-8.

[Communication department of the European Commission, 2017] Communication department of the European Commission (2017). European commission - fact sheet: Solvency II overview - frequently asked questions. [Online; Accessed April 4, 2017]. Available from: http://europa.eu/rapid/press-release_MEMO-15-3120_en.htm.

[Cummins et al., 1999] Cummins, D. J., Grace, M. F., and Phillips, R. D. (1999). Regulatory solvency prediction in property-liability insurance: Risk-based capital, audit ratios, and cash flow simulation. *The Journal of Risk and Insurance, American Risk and Insurance Association*, 66(3):417–458.

[Deloitte, 2015] Deloitte (2015). Insurance discrupted: General insurance in a connected world. [Online; Accessed April 4, 2017]. Available from: https://www2.deloitte.com/uk/en/pages/financial-services/articles/insurance-disrupted.html.

[Direct pojišťovna, 2016] Direct pojišťovna (2016). Výroční zpráva 2015. [Online; Accessed April 4, 2017]. Available from: https://www.direct.cz/download/financial-report/2015/DIRECT_VZ_2015.pdf.

[Ducháčková, 2005] Ducháčková, E. (2005). *Principy pojištění a pojišťovnictví*. Ekopress, second edition. ISBN 80-86119-92-0.

[EIOPA, 2016] EIOPA (2016). Solvency II - Going Live! [Online; Accessed April 4, 2017]. Available from: `https://eiopa.europa.eu/Pages/Supervision/Insurance/Solvency-II-Going-Live.aspx`.

[Eling et al., 2006] Eling, M., Schmeiser, H., and Schmit, J. T. (2006). The solvency II process: Overview and critical analysis. Technical report, Working Papers on Risk Management and Insurance No. 20, University of St. Gallen, Institute of Insurance Economics.

[Friendsurance.com, 2017] Friendsurance.com (2017). [Online; Accessed April 4, 2017]. Available from: `http://www.friendsurance.com/`.

[Friendsurance.de, 2017] Friendsurance.de (2017). [Online; Accessed April 4, 2017]. Available from: `http://www.friendsurance.de/`.

[Grace et al., 1998] Grace, M. F., Harrington, S. E., and Klein, R. W. (1998). Risk-based capital and solvency screening in property-liability insurance: Hypotheses and empirical tests. *The Journal of Risk and Insurance, American Risk and Insurance Association*, 91(2):213–243.

[Grasl, 2008] Grasl, O. (2008). Business model analysis: A multi-method approach.

[Gronychová and Komárková, 2012] Gronychová, M. and Komárková, Z. (2012). Models for stress testing in the insurance sector. Research and Policy Notes, Czech National Bank, Economic Research Department, pages 26, ISSN 1803-7097.

[Guevara.com, 2017] Guevara.com (2017). [Online; Accessed April 4, 2017]. Available from: `https://heyguevara.com/`.

[H2 Vnentures and KPMG International, 2016] H2 Vnentures and KPMG International (2016). 2016 Fintech 100: Leading Global Fintech Innovators. [Online; Accessed April 4, 2017]. Available from: `https://h2.vc/reports/fintechinnovators/2016`.

[Hauryliuk, 2015] Hauryliuk, N. (2015). Financial stability issues and stress testing of the insurance sector. Master's thesis, Charles University. Faculty of Social Sciences. Institute of Economic Studies. Supervisor PhDr. Ing. Petr Jakubík, Ph.D.

[Huckstep, 2016a] Huckstep, R. (2016a). Introducing the third wave of peer-to-peer insurance. *The Digital Insurer*, 43. [Online; Accessed April 4, 2017]. Available from: https://www.the-digital-insurer.com/blog/insurtech-teambrella-and-the-third-wave-of-peer-to-peer-insurance/.

[Huckstep, 2016b] Huckstep, R. (2016b). Introducing Versicherix: Switzerland's 1st P2P Insurer. *The Digital Insurer*, 51. [Online; Accessed April 4, 2017]. Available from: https://www.the-digital-insurer.com/blog/insurtech-introducing-versicherix-switzerlands-1st-p2p-insurer/.

[Huckstep, 2016c] Huckstep, R. (2016c). P2P or not P2P: that is the question! Or is it? *The Digital Insurer*, 57. [Online; Accessed April 4, 2017]. Available from: `https://www.the-digital-insurer.com/blog/insurtech-insight-p2p-or-not-p2p-is-the-question-lemonade/`.

[Huleš and Hornigová, 2009] Huleš, J. and Hornigová, J. (2009). *Účetnictví pojišťoven*. Linde, Praktické ekonomické příručky, second edition. ISBN 978-80-7201-753-9.

[Inspeer.me, 2017] Inspeer.me (2017). [Online; Accessed April 4, 2017]. Available from: `http://inspeer.me/`.

[International Association of Insurance Supervisors, 2017] International Association of Insurance Supervisors (2017). Glossary. [Online; Accessed April 4, 2017]. Available from: `https://www.iaisweb.org/page/supervisory-material/glossary`.

[Jobst et al., 2014] Jobst, A. A., Sugimoto, N., and Broszeit, T. (2014). Macroprudential solvency stress testing of the insurance sector. *IMF working paper WP/14/133*. ISBN 9781498394253.

[Kim, 2016] Kim, S. (2016). Dynamic social cloud management scheme based on transformable stackelberg game. *EURASIP Journal on Wireless Communications and Networking*, 13(1):1–9. DOI: 10.1186/s13638-016-0543-2. ISSN 1687-1472.

[Kraut and Richter, 2015] Kraut, G. and Richter, A. (2015). Insurance Regulation and Life Catastrophe Risk: Treatment of Life Catastrophe Risk under the SCR Standard Formula of Solvency II and the Necessity of Partial Internal Models. *The Geneva Papers on Risk and Insurance - Issues and Practice*, 40(2):256–278. DOI: 10.1057.

[Lemonade - Online Peer-to-Peer Insurer, 2017] Lemonade - Online Peer-to-Peer Insurer (2017). *The Digital Insurer*. [Online; Accessed May 4, 2017]. Available from: `https://www.the-digital-insurer.com/dia/lemonade-online-peer-peer-insurer/`.

[Lemonade.com, 2017] Lemonade.com (2017). [Online; Accessed April 4, 2017]. Available from: `https://www.lemonade.com`.

[Mankovskii and et al, 2009] Mankovskii, S. and et al (2009). *Encyclopedia of Database Systems*. Springer US. ISBN 978-0-387-35544-3.

[Murray, 2016] Murray (2016). Is P2P insurance a sustainable business model? *The Digital Insurer*. [Online; Accessed April 4, 2017]. Available from: `https://www.the-digital-insurer.com/is-p2p-insurance-a-sustainable-business-model/`.

[Nakatsuji, 2016] Nakatsuji, K. (2016). Insurance 2.0: New products and combined approaches. *Medium*. [Online; Accessed April 4, 2017]. Available from: https://medium.com/@kylenakatsuji/insurance-2-0-new-products-and-combined-approaches-4e75d333892d.

[Nasdaq, 2017] Nasdaq (2017). 7 things to know about p2p insurance. [Online; Accessed April 4, 2017]. Available from: http://www.nasdaq.com/article/7-things-to-know-about-p2p-insurance-cm745430.

[OECD, 2016] OECD (2016). Insurance statistics 2015. [Online; Accessed April 4, 2017]. Available from: http://www.oecd-ilibrary.org/finance-and-investment/oecd-insurance-statistics-2015/insurance-market-trends_ins_stats-2015-5-en.

[Paperno et al., 2016] Paperno, A., Porubaev, E., and Kravchuk, V. (2016). Teambrella: A Peer-to-Peer Insurance System. [Online; Accessed April 4, 2017]. Available from: https://teambrella.com/WhitePaper.pdf.

[Peer-to-peer insurance: Friends with benefits, 2012] Peer-to-peer insurance: Friends with benefits (2012). *The Economist Newspaper Limited*. [Online; Accessed April 4, 2017]. Available from: http://www.economist.com/blogs/schumpeter/2012/06/peer-peer-insurance.

[PeerCover.co.nz, 2017] PeerCover.co.nz (2017). [Online; Accessed April 4, 2017]. Available from: http://www.peercover.co.nz/.

[Pojišťovna VZP, 2016] Pojišťovna VZP (2016). Annual report 2015. [Online; Accessed April 4, 2017]. Available from: https://www.pvzp.cz/wp-content/uploads/2013/06/PVZP057-vyrocni-zprava-2015_EN.pdf.

[Prague offices.com, 2017] Prague offices.com (2017). [Online; Accessed May 2, 2017]. Available from: http://www.pragueoffices.com/.

[První Klubová pojišťovna, 2016] První Klubová pojišťovna (2016). Výroční zpráva 2015. [Online; Accessed April 4, 2017]. Available from: http://www.prvniklubova.cz/cs/o-nas/dokumenty/dokumenty-4m0deP.aspx.

[První Klubová pojišťovna, 2017a] První Klubová pojišťovna (2017a). Rok na trhu: zodpovědné chování členů první klubové pojišťovny přineslo nejlevnější pojistky na trhu. [Online; Accessed April 4, 2017]. Available

from: http://www.prvniklubova.cz/cs/o-nas/tiskova-zprava/rok-na-trhu-zodpovedne-chovani-clenu-prineslo-nejlevnejsi-5aKqAA.aspx.

[První Klubová pojišťovna, 2017b] První Klubová pojišťovna (2017b). Výroční zpráva k 31/12/2016. [Online; Accessed April 4, 2017]. Available from: http://www.prvniklubova.cz/cs/o-nas/dokumenty/dokumenty-4m0deP.aspx.

[První Klubová pojišťovna spouští ostrý provoz, 2017] První Klubová pojišťovna spouští ostrý provoz (2017). *OPOJIŠTĚNÍ.CZ*. [Online; Accessed April 4, 2017]. Available from: http://www.opojisteni.cz/pojistovny-a-zajistovny/prvni-klubova-pojistovna-spousti-ostry-provoz-na-cesky-trh-s-ni-prichazi-peer-to-peer-pojisteni/.

[Prvniklubova.cz, 2017] Prvniklubova.cz (2017). [Online; Accessed May 2, 2017]. Available from: http://www.prvniklubova.cz/cs/default.aspx.

[RealHit.cz, 2017] RealHit.cz (2017). [Online; Accessed April 4, 2017]. Available from: http://www.realhit.cz.

[Riovic.com, 2017] Riovic.com (2017). [Online; Accessed April 4, 2017]. Available from: http://riovic.com/.

[Schmeiser and Siegel, 2013] Schmeiser, H. and Siegel, C. (2013). Regulating insurance groups: a comparison of risk-based solvency models. *The Journal of Financial Perspectives*, 1(2):119–131. ISSN 2049-8640.

[Sherris, 2013] Sherris, M. (2013). Solvency, Capital Allocation, and Fair Rate of Return in Insurance. *The Journal of Risk and Insurance*, 73(1):71–96.

[Slavia pojišťovna, 2016] Slavia pojišťovna (2016). Výroční zpráva 2015. [Online; Accessed April 4, 2017]. Available from: http://www.slavia-pojistovna.cz/files/vyrocni-zpravy/vyrocni-zprava-2015.pdf.

[Teambrella.com, 2017] Teambrella.com (2017). [Online; Accessed April 4, 2017]. Available from: https://teambrella.com/.

[Terry, 2017a] Terry, H. (2017a). InsPeer: France's first P2P Insurance Service. *The Digital Insurer*. [Online; Accessed April 4, 2017]. Available from: https://www.the-digital-insurer.com/dia/inspeer-1st-peer-to-peer-insurance-service-in-france/.

[Terry, 2017b] Terry, H. (2017b). PeerCover: Simple Cover with Crowdfunding Crisis Club. *The Digital Insurer*. [Online; Accessed April 4, 2017]. Available from: https://www.the-digital-insurer.com/dia/peercover-simple-cover-with-crowdfunding-crisis-club/.

[TongJuBao - The Community Risk Sharing Platform, 2017] TongJuBao - The Community Risk Sharing Platform (2017). *The Digital Insurer*. [Online; Accessed April 4, 2017]. Available from: https://www.the-digital-insurer.com/dia/tongjubao-the-community-risk-sharing-platform/.

[TongJuBao.com, 2016] TongJuBao.com (2016). [Online; Accessed April 4, 2017]. Available from: http://www.tongjubao.com/en.

[Vávrová, 2005] Vávrová, E. (2005). *Finanční řízení komerčních pojišťoven*. Grada, first edition. ISBN 978-80-247-4662-3.

[Versicherix.ch, 2017] Versicherix.ch (2017). [Online; Accessed April 4, 2017]. Available from: http://versicherix.ch/.

[Winiger, 2016] Winiger, S. (2016). Lemonade Launch Metrics Exposed!: Stats from the first 48 hours after launching in NY. [Online; Accessed April 4, 2017]. Available from: https://medium.com/@shai_wininger/lemonade-launch-metrics-exposed-5e1a616b2cc7.

Appendix

Scenario 1, Pojišťovna VZP

Item	**Original value [CZK]**	**Value in the scenario [CZK]**	**Note**
Gross earned premium	414 651 000	414 651 000	
Outward reinsurance premium	159 793 000	159 793 000	
Claims incurred, net of reinsurance	109 928 000	109 928 000	
Commissions from reinsurers	82 298 000	82 298 000	
Other technical income	4 165 000	4 165 000	
Income from financial investments	64 530 000	64 530 000	
Other income	2 559 000	2 559 000	
Other technical expenses	803 000	803 000	
Financial investment expenses	49 762 000	49 762 000	
Other expenses	7 028 000	7 028 000	
Operating costs			
Personnel costs	73 000 000	33 622 768	
Materials consumed	1 386 000	501 000	
Low-value property	1 488 000	0	1)
Consulting	5 330 000	5 330 000	
Depreciation, amortisation	10 135 000	10 135 000	2)
Rent costs	14 077 000	1 550 000	
IT maintenance	11 351 000	11 351 000	
Other operating costs	16 375 000	0	3)
Sum related to the non-technical account	-1 355 000	-1 355 000	

1) Low-value preperty already included in the item: depreciation.

2) Depreciation cannot be separated from this item; the amount of depreciation and amortisation inserted in the original value. It can cause an overestimation.

3) Other operating costs not included because Scenario 2 contains all crucial items (with the exception of postage costs and bank charges that are expected to be relativly low)

Scenario 2, Česká pojišťovna ZDRAVÍ

Item	**Original value [CZK]**	**Value in the scenario [CZK]**	**Note**
Gross earned premium	502 160 000	502 160 000	
Outward reinsurance premium	83 217 000	83 217 000	
Claims incurred, net of reinsurance	82 211 000	82 211 000	
Commissions from reinsurers	295 000	295 000	
Other technical income	9 470 000	9 470 000	
Income from financial investments	464 540 000	464 540 000	
Oher income	3 461 000	3 461 000	
Other technical expenses	13 572 000	13 572 000	
Financial investment expenses	455 667 000	455 667 000	
Other expenses	2 406 000	2 406 000	
Operating costs			
Personnel costs	36 465 000	33 622 768	
Remuneration to members of statutory bodies	4 103 000	0	4)
Rent costs	5 863 000	1 550 000	
Commissions paid to nsurance intermediaries	52 538 000	0	
Investment property	532 000	0	5)
IT maintenance	3 760 000	3 760 000	
Postage expenses	1 172 000	1 172 000	
Depreciation	929 000	501 000	
Amortisation	5 425 000	5 425 000	
Other operating costs	-2 546 000	-2 546 000	6)
Internal acquisition costs	3 900 000	3 900 000	7)

4) Remuneration to members of statutory bodies cannot be predicted properly. They are expected to be relativly negligible for The First Club Insurance Carrier or already inserted as a part of personnel costs in the scenario.

5) Included already in the item: depreciation.

6) Other operating costs are included in the non-technical account. Prevention of duplicity.

7) Internal acquisition costs inserted as a compensation of important item

consulting that is not included in the original model (note: also bank charges are not included but their amount is expected to be rather low).

Scenario 3, Direct Pojišťovna

Item	**Original value [CZK]**	**Value in the scenario [CZK]**	**Note**
Gross earned premium	535 650 000	535 650 000	
Outward reinsurance premium	142 456 000	142 456 000	
Claims incurred, net of reinsurance	207 834 000	207 834 000	
Commissions from reinsurers	25 975 000	25 975 000	
Other technical income	9 015 000	9 015 000	
Income from financial investments	289 475 000	289 475 000	
Oher income	5 333 000	5 333 000	
Other technical expenses	47 218 000	47 218 000	
Financial investment expenses	282 843 000	282 843 000	
Other expenses	30 253 000	30 253 000	
Operating costs			
Personnel costs	49 474 000	33 622 768	
Commissions paid to insurance intermediaries	55 193 000	0	
Postage expenses	4 382 000	4 382 000	
Other operating expenses	11 222 000	5 425 000	8)
Material consumed and depreciation	8 403 000	501 000	
IT maintenances	8 586 000	8 586 000	
Travel and schooling costs	2 073 000	0	
Material consumed	2 188 000	0	9)
Consulting	3 924 000	3 924 000	
Marketing and promotion	453 000	0	
Rent costs	6 850 000	1 550 000	
Bank charges	813 000	813 000	
Energy	141 000	0	10)
Reparation	447 000	0	11)

8) Important item of amortisation is not included, therefore, an account of other operating expenses was inserted in the same value as amortisation expenses recorded in Scenario 2 (original insurers from these scenarios are similar).

9) Already included in the account: material consumed and depreciation

10) Included in rent costs.

11) Included in item: material consumed and depreciation

Scenario 4, Slavia pojišťovna

Item	Original value [CZK]	Value in the scenario [CZK]	Note
Gross earned premium	674 084 000	674 084 000	
Outward reinsurance premium	225 345 000	225 345 000	
Claims incurred, net of reinsurance	217 643 000	217 643 000	
Commissions from reinsurers	45 910 000	45 910 000	
Other technical income	9 256 000	9 256 000	
Income from financial investments	6 426 000	6 426 000	
Other income	2 553 000	2 553 000	
Other technical expenses	22 882 000	22 882 000	
Financial investment expenses	1 149 000	1 149 000	
Other expenses	8 666 000	8 666 000	
Operating costs			
Material consumed, energy	2 433 000	0	12)
Travel and schooling costs	736 000	0	
Rent costs	10 540 000	1 550 000	
Leasing	492 000	0	13)
IT maintenance	3 348 000	3 348 000	
Postage charges	3 616 000	3 616 000	
Consulting	9 002 000	9 002 000	
Personnel costs	62 185 000	33 622 768	
Commissions paid to insurance intermediaries	78 289 000	0	
Remuneration to members of statutory bodies	440 000	0	14)
Sickness benefits	972 000	0	15)
Sanctions	246 000	0	16)
Depreciation, amortisation	7 440 000	7 440 000	17)

12) Already included in depreciation and amortisation costs (because this account is expected to be overestimated).

13) Leasing ommited. (The number of cars of The First Club Insurance Carrier will be negligible in the future)

14) Remuneration to members of statutory bodies cannot be predicted prop-

erly. They are expected to be relativly negligible for The First Club Insurance Carrier or already inserted as a part of personnel costs in the scenario.

15) Already included in personnel costs.

16) Not relevant.

17) Depreciation cannot be separated from this item; the amount of depreciation and amortisation inserted in the original value. It can cause an overestimation.

Scenario 5, AXA pojišťovna

Item	Original value [CZK]	Value in the scenario [CZK]	Note
Gross earned premium	1 230 678 000	1 230 678 000	
Outward reinsurance premium	35 053 000	35 053 000	
Claims incurred, net of reinsurance	774 197 000	774 197 000	
Commissions from reinsurers	657 000	657 000	
Other technical income	5 275 000	5 275 000	
Income from financial investments	52 263 000	52 263 000	
Oher income	18 808 000	18 808 000	
Other technical expenses	79 310 000	79 310 000	
Financial investment expenses	39 745 000	39 745 000	
Other expenses	8 226 000	8 226 000	
Operating costs			
Personnel costs	38 960 000	44 476 144	
Depreciation	94 000	501 000	
Amortisation	11 910 000	11 910 000	
Consulting	616 000	616 000	
Rent costs	0	1 550 000	
Material consumed	263 000	0	18)
Travel costs	295 000	0	
Marketing and promotion	8 282 000	0	
Reinvoiced costs from servicing entity	64 404 000	0	19)
Other operating costs	31 151 000	31 151 000	20)

18) Already included in the item of depreciation.

19) Not relevant.

20) Omitted important items IT maintenances and statutory audit costs (apart from that also bank charges are not included in the original model); other operating costs are inserted in original value as a compensation of the previously mentioned items.