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The Research of Conditions of Insurance Portfolio Formation in the Russian Practice

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Abstract: The formation of effective insurance portfolio affects the company's financial sustainability. The study gives variants of portfolio formation algorithm which possess factors characterizing tendencies of developing various types of insurance. Extensive studies are performed by economists in the field of the formation of the most effective insurance portfolio. During the studies foreign specialists rely on long-term statistical surveys in connection with a long historical period of insurance market and foreign countries development. While Russian economists take into account the domestic market specific peculiarities which are characterized by poor insurance culture and household's disinterest about insurance coverage, due to the fact of small capacity of effective demand, thus, low quality of insurance service provision and also a short historical period of statistical surveys in consequence of non-durable historical period of Russian insurance market development.

Key words: Insurance portfolio, terms of insurance portfolio formation, underwriting, fee policy, reinsurance policy and recruitment policy, types of insurance, insurance premiums, loss ratio

INTRODUCTION

The insurance portfolio is generally based on the availability of effective demand for various type of insurance. The more clients insurance company has the more extensive the insurance portfolio is. At the same time, increasing number of the insured is not always an evidence of portfolio's sustainability i.e., each new client brings with him a risk which can be realized and increase disadvantageousness of the formed portfolio. Taking into account the above written, it should be understood that the insurance portfolio has to be profitable but less risky.

Many investigations are carried out by economists in the field of formation of the most effective insurance portfolio. It ought to be noted that the investigations are viewed from different positions. Firstly, portfolio profitability and reliability are estimated in the context of stimulating factors of an insurance agent whose interest is to land the maximum number of clients each one of which brings a risk to an insurance company. The investigation studies continuous consumption of insurance services (Bahaji, 2014). Though in the Russian practice the insurance product is a less of interest for policy holders, clients purchase the insurance service only after they meet all the other needs. Secondly, a number of studies are aimed at effective ratio of insurance portfolio ratio and insurer's investment operations profitability. The investigation based on a Hamilton-Jacobi-Bellman (HJB) equation, we simultaneously solve for the optimal price of an insurance contract and the optimal investment portfolio of an insurer (Mao, 2013). According to other investigators, high diversification of an insurance portfolio will allow to achieve the optimum contracts ratio. Therewith, there are investigations that analyze the insurance portfolio management on the ground of the insurer's interest risk management (Jevtic and Regis, 2015) and also by means of profitability and risk delineation (Ameur and Prigent, 2014). Life insurance investigations are viewed from specifics positions of savings insurance as long-lasting insurance relations (Kwak and Lim, 2014; Pezier and Scheller, 2013). However, Russian life insurance market is not developed sufficiently for carrying out investigations in furtherance of inflation risk.

Generally, mentioned investigations include specifics that does not allow to fully apply its results in the Russian insurance practice. The study by Mao (2013), reviews interrelation between the price of insurance contract and the insurer's investment portfolio which are interrelated in the developed US insurance market, in Russian insurance market conditions insurer's investment portfolio depends on limitations set by legislation, high

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Russian financial market volatility and also low interest of an insured in insurance protection. Ensuing reginal heterogeneity as the Russian insurance market specifics Russian insurance portfolio investigations take into account regional context of portfolio formation politics. According to Tarutin, for implementation of an insurer's portfolio effective formation the following measures are necessary: the unified database for reginal risks creation based on typical regions MSDS; "non-bankruptcy of insurers on the basis of probabilistic insurance portfolio analysis" periodic evaluation; portfolio diversifications according to the Pareto principle (either on the basis of profitability criterion or on the basis of reliability criterion). The algorithm proposed by the researchers includes statistical information about the insurance field in the region analysis; models of probability distributions of insurance claims and payments definition; insurer's depending on insurance loss ratio regional analysis portfolio analysis based on amount of agreements made for the insurance coverage, contributions and payments average performances; portfolio uniformity approximation; its optimal structure organization.

Among factors influencing formation insurance portfolio Russian researchers distinguish underwriting, fee policy, reinsurance policy, recruitment policy (Ryazantsev, 2009). However, the chief part of the indicators mentioned relates to the group of internal factors of insurer while insurance business often depends on general economic trends. If in terms of underwriting including comprehensive studying and selection of risks assumed by insurance protection general economic situation analysis is carried out through the analysis of individual risks and he request for insurance service, fee, reinsurance and recruitment policy to a greater extent is internal to an organization. Meanwhile, the insurance rate value directly affects the level of an insurance portfolio risk. When lowering insurance rates, the insurer aims to increase the insurance portfolio completeness by bringing in new clients but low rates do not guarantee an increase of insurance contracts signed and ergo, premium amount. Often, the amount of contracts signed depends on availability of effective demand, amount of insurance coverage in a region, amount of risks that are exposed to insurance. Reinsurance policy in its turn affects portfolio insurance amounts alignment and uniformity of its structure achievement. Under the conditions of effective demand limitation for the service recruitment policy comes down to selection of agents having the maximum insurance base. Herewith, charges for conducting an affair in rates are increased. Economists also distinguish different classifications of portfolios according to their reliability, among them are: aggressive type (with a high risk level), medium type (with a slight risk level), conservative type (with a low risk level) (Yashina, 2013). From the researchers point of view, classic insurance portfolio contains a set of traditional insurance services, specific insurance portfolio contains new insurance products characterized by aggressive risk and high profit; combined insurance portfolio has to unite traditional and specialized insurance services, medium risk level and moderate profit.

Herewith, underwriter has to form classic portfolio with a low financial sustainability but with a high profitability, including specific risks, conservative portfolio with a high reliability but with a low profitability, embracing traditional set of risks. In the meantime, in the Russian market characterized by a low effective demand level and insurance market's dependence on related financial market's development (car loans, mortgage loans), insurance agent is often aimed at database formation but not the selection of the most profitable risks from the insurer's point of view. Thus, during formation of a portfolio it's essential to take Russian insurance market functioning conditions into account and to conduct a Russian insurance market developing conditions research which will help to analyze the macro economy's influence on insurance market in particular.

MATERIALS AND METHODS

Specifics of the Russian financial market has a significant impact on conditions of a portfolio formation. Insurance in the Russian practice relates to branches having a high sensibility to cyclical changes. Not the last role here belongs to specificity of insurance service. The use value of a service is providing insurance protection which with coming of the insured event is shaped into an insurance cover. Upon that consumers form demand for insurance service only after they meet all the other needs. In the context of the "Maslow's hierarchy of needs" insurance service takes a second place after the basic needs. Consequently an insurance service will be purchased with the felt-need and also with the adequate resources. Thereby with cyclical changes the insurance market will lower in terms of economic's stagnation and will develop effectively with the growth and "overheating" of the economics.

Let's excrete macroeconomic indicators that, from our point of view will have the greatest impact on insurance market development. For more structural properties it seems appropriate to classify the detected factors:

- Macroeconomic indicators (personal incomes, unemployment level, national currency level, GDP dynamics)

- Development of related branches of economics that require insurance (banking branch, automobile production, industry, tourism etc.)
- Government support (mandatory classes of insurance percentage, social insurance percentage)

Personal incomes are the amount of income obtained as a result of primary distribution (remuneration of labor, mixed income, property income) and from income redistribution in cash (current transfers). The Gross Domestic Product (GDP) is characterizing the final result of economic resident unit's productive activity which is measured by the value of goods and services produced by these units for the final use. The level of unemployment is calculated as a correlation of the number of unemployed aged from 15-72 between the number of economically active population (employed and unemployed) of this age group, in percentages. The official exchange rates against the ruble are established by the Central Bank of the Russian Federation with no obligation to buy or sell currencies at the specified rate. The official foreign exchange rates are daily established (on weekdays) by order of the Bank of Russia, come into force on the next calendar day after the establishing and function until the next order of foreign exchange rates of the Bank of Russia comes into force. The official exchange rates in relation to ruble are established by the Central Bank on the assumption of market quotations formed on the basis of demand for foreign currency and its offer in the exchange market. In particular, the US dollar official rate against the ruble is calculated on the currency pair quotes basis in the interbank domestic exchange market.

Let's consider what factor's impact on the insurance market development can be like. Between personal incomes and insurance market development there is a direct relationship: the more personal incomes are the more effective demand is which remains after meeting primary needs. The abundant idle cash remaining after coverage the principal payments of the household may be used as a payment for insurance premiums. The Russian insurance market specifics is that Russian citizens are aimed at just a mandatory forms of insurance protection payment, i.e., Russian social insurance long-term period of existence had worked out a welfare mentality of the population which is not interested in the insurance coverage as the need for population individual risk management. The reducing of unemployment should theoretically affect the increase of insurance premiums in connection with the fact that employed population by acquiring incomes forms effective demand. Devaluation of the ruble lessens the population's consumer basket, thus, the demand is decreasing, as for insurance services. Related branches development supports the insurance market growth. Thus, during auto sales on credit the so called temporary mandatory insurance is use by banks. In terms of credit relations temporary mandatory life insurance is also used.

The support from government through implementation of mandatory types of commercial insurance and social insurance affects the market artificial growth. Getting used to social insurance, the insured's attitude to life and personal property safety becomes irresponsible. For example, in countries with absence or partial implementation of social insurance citizens see the importance or insurance coverage as their own social and economic safety.

RESULTS AND DISCUSSION

Table 1 shows the coefficients of the relationship between the proceeds to the insurance market and macroeconomic indicators are given during 2004-2014 period identified on the ground of listed items dynamics analysis. Summarizing the results of analysis, the following conclusions are to made up. Firstly, all the identified macroeconomic indicators have a high interrelation with income delivery in the insurance market (the highest is between personal incomes, GDP and the insurance payment dynamics).

Secondly, insurance market development in direct ratio depends on cyclical changes. We took GDP dynamics as a cyclical changes match indicator in the analysis. As it might be seen from our analysis, interrelation between GDP changing tendencies and insurance payments is directly proportional and high as it is confirmed by 0.97 correlation coefficient. Thus, according to the first sensibility factor of economic branches insurance business is sensible to cyclical changes in economics.

Thirdly, the analysis allows us to make a prognosis about insurance market development tendencies. Thus, against the background of ruble devaluation observed in 2014-2015, negative Russian Finance Ministry prognosis about GDP development dynamics, sales decline in the related markets (sales decline in automotive sector which led to a halt of certain automobile plants in Russia)

Table 1: Coefficients of the relationship between the proceeds to the insurance market and macroeconomic indicators

Macroeconomic indicators	Payments (premiums), (thous.rub.)
Per capita population cash incomes in the Russian Federation, (rub.)	0.94
National currency rate (rub/dollar), (rub.)	0.70
Population unemployment level in the Russian Federation, on average per year, (%)	-0.70
GDP, at current prices, (bln.rub.)	0.97

continuation of reduction trends of incoming deliveries in the insurance market can be expected. Let's then perform a statistical analysis of certain types of insurance development tendencies to identify the conditions of forming an insurance portfolio. As indicators characterizing portfolio profitability and reliability volume of premiums (market share), premium increment, loss ratio level and loss ratio increment can be distinguished.

Insurance premium is calculated on the ground of insurance rate and is basically an insurance payment which the insured is obliged to enter according to insurance contract or the law for obligations incurred to carry out insurance payment to the insurer, beneficiary or the insured upon occurrence of the insured event. The complex of insurance premiums shows the market share occupied by one or another type of insurance. Statistical observations show that recent years are characterized by reduction of insurance premiums in the Russian insurance market. If in 2012 premium increment in the insurance market made 21.78% (809059774 thous.rub. in 2012) as compared with 2011 (664370163 thous.rub.), then in subsequent years a gradual decline of premium increment has been observed. In 2013 premium increment made 11.79% as compared with 2012 (904429 830 thous.rub. in 2013), in 2014 the increment made 9.21% in comparison with 2013. Incoming delivery decline tendency in the insurance market is observed. Anyway, incoming decline observed in recent years is gradual unlike a sharp one of insurance premiums in 2008 (513176283 thous.rub.), when the market sank for 7.02% in comparison with 2009 (551901600 thous.rub.). Loss ratio of the insured sum or the payoff ratio is a correlation of the amount of insurance compensation paid for a certain period and insurance premiums for all insured objects. Insurance payment is made within the period of insurance terms prescribed (After reception of documents and preparation of the insurance act). Through the last few years an uneven dynamics of insurance payments is observed. If in 2012 insurance payments growth was observed by 21.72% in comparison with 2011 (303 524 533 thous.rub. in 2011), then in 2013 and 2014 increment tendency decline is observed. Insurance payments increment in 2013 and 2014 was 13.89% and 12.24% resp. Increasing of payoff ratio during the 2011 0-2014 period from 45.69-47.81% resp. including 45.1% on voluntary insurance and 61.7% on mandatory insurance appears negative.

It seems appropriate to place types of insurance on the matrix considering indicators characterizing profitability and reliability of the portfolio. Table 2 shows the background information for the matrix formation is given. It should be mentioned that the statistical data at

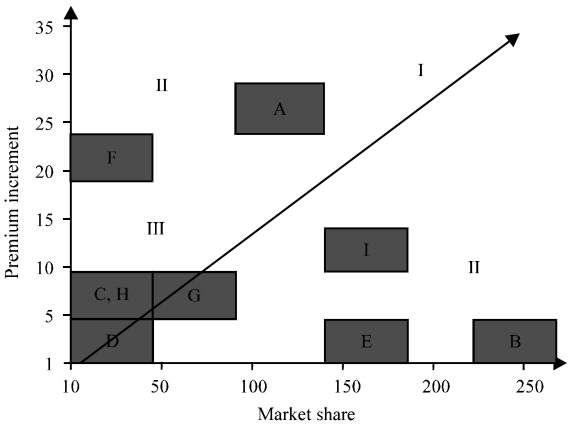

Fig.1: Types of insurance distribution in the context of premium increment and market share

economic growth and decline periods differ. This specifics should be taken into consideration while forming matrix variants for periods of economic contraction and recovery.

Figure 1 shows the "I" quadrant contains no types of insurance. The matrix has two more quadrants, i.e., in our opinion, maximum increment with minimal market share equals to stable increment with maximum market share. Theoretically high temps of increment at any development time in the future should lead to maximum market share with stable growth. This has been foreseen by the evolution, i.e., life cycle changing when the "growth" stage theoretically (with some exceptions) should grow into the "maturity" stage. Three types of insurance are placed into one of the quadrants the highest market share and relatively low premium increment level.

According to the matrix a special attention to the types of insurance "B", "E", "I" can be recommended. Though, insurance types with high loss ratio are under these symbols. That's why forming a matrix with a "loss ratio" and a "market share" coefficients seems appropriate. Figure 2 shows that, two types of insurance are in the "I" quadrant. Moreover, both of them relate to vehicle insurance. It is also remarkable that none of types of insurance appears to be in the second quadrant with a high market share and low loss ratio. It should be noted that this matrix is not a pure reproduction of a portfolio by "risk" and "profitability" categories, i.e., market share does not show profitability increment.

A portfolio in the "loss ratio/premium increment" context more fully characterizes risk and profitability level (Fig. 3). Figure 3 shows that, the "I" quadrant had not come into any type of insurance, i.e., during the analyzed period it is impossible to pick out

Table 2: Bench marks for the 2010-2014 period

Types of insurance	Symbols	Premiums in 2014, (thous.rub.)	Premium average increment	Average loss ratio	Average loss ratio increment
Health and accident insurance	A	95503460	28.50	15.320	0.30
Inland transport insurance, except for rail transport means	B	218554418	12.16	70.200	1.50
Aircraft insurance	C	7059806	8.90	48.000	11.20
Marine transport insurance	D	4315353	3.70	56.400	1.10
Other property insurance of legal persons	E	112173522	3.30	28.200	-4.10
Other property insurance of citizens	F	38613135	22.70	18.140	-6.40
Financial lines insurance	G	15370634	6.10	8.000	1.47
Business risk insurance	H	7 187169	8.58	20.000	102.60
Compulsory insurance of civil liability of vehicle owners (CTP)	I	150917830	12.95	55.000	11.70

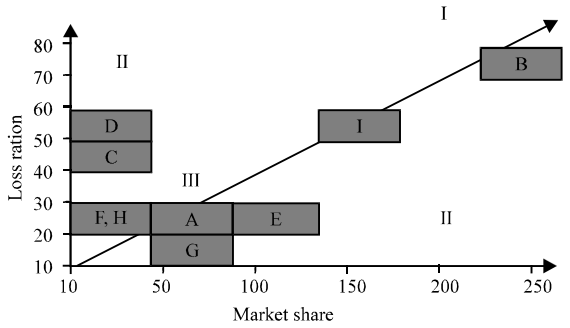

Fig. 2: Distribution of types of insurance on the basis of loss ratio and market share

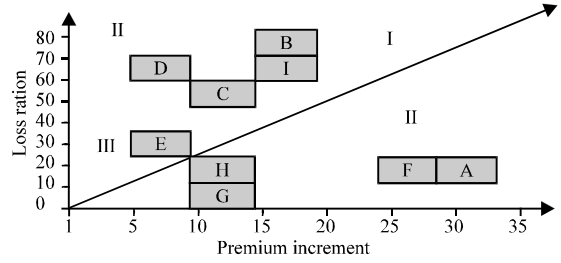

Fig. 3: Distribution of insurance types in the context of loss ratio and premium increment

insurance types with high premium increment and high loss ratio level. Negative from the insurance coverage's perspective insurance types are also noteworthy because they have high loss rate and low premium increment. Among these types of insurance are "Inland transport insurance, except for rail transport means" (B), "Aircraft insurance" (C), "Marine transport insurance" (D), "Compulsory insurance of Civil liability of vehicle owners (CTP)" (I). At that, vehicle insurance has the maximum loss rate with low premium increment level. "Inland transport insurance, except for rail transport means" (B) and "Compulsory insurance of civil liability of vehicle owners (CTP)" (I) have loss rate of 70.2 and 55% resp. which are the maximum indexes in the market. Premium increment for these types of insurance is 12.16 and 12.95% resp. which is relatively high index in the market. CTP premium increment had happened despite liability car insurance tariffs growth initiated by insurance companies. The most effective types of insurance are those from the "II" quadrant "Health and accident insurance" (A) and "Other property insurance of citizens" (F) with low loss ratio 15.32 and 18.14% resp. and the most high premium increment level is 28.5 and 22.7% resp. The lower loss rate belongs to "Financial lines insurance" (G) 8% but this one type of insurance has also a low premium increment 6.1%.

In this way, according to the matrix "loss ratio level-premium increment" the least risky and most profitable are such types of insurance as "Health and accident insurance" (A) and "Other property insurance of citizens" (F). The most risky but with low premium increment types of insurance are "Inland transport insurance, except for rail transport means" (B) and "Compulsory insurance of civil liability of vehicle owners (CTP)" (I). At the same time, it should be noted that types of vehicle insurance have the most high market share, 218554418 and 150917830 thous.rub., resp., while low risk types "Health and accident insurance" (A) and "Other property insurance of citizens" (F) have relatively low market share is 95503460 and 38 613135 thous.rub. resp.

CONCLUSION

Upon the whole, three-dimensional matrix formation in the context of loss ratio indexes, market share and premium increment appears interesting. It is possible according to listed indexes to create rating of insurance types which can be considered while forming an insurance portfolio. The proposed algorithm appears possible to use and develop in the following directions. Firstly, taking into account economic clout, grades assigned to development indexes of certain types of insurance, to reconsider shares of one or another type of insurance in the portfolio. Secondly, matrix can be formed for separate regions.

Thirdly, it is possible to set up limitations for risky but profitable types of insurance. Such limits will allow to

introduce such management principles as) beyond the "cutoff" limit bounds to suspend premium suspending if their growth can negatively affect a portfolio) for each extra volume of premiums of the most risky types of insurance beyond the "cutoff" limit to use additional steps whether it be reinsurance, supplementary reserve forming etc.

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