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Life insurance model: concept, structure and assessment of financial stability

Модель страхования жизни: понятие, структура и оценка финансовой стабильности

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Abstract

The Institute of Life Insurance is actively growing all over the world and especially in developing countries in order to provide an increase in the duration and quality of life of the population. The increasing role of life insurance in the economic and social sphere of the country requires a theoretical understanding of its place in the system of market relations and effective implementation. The purpose of the study is to develop the theoretical and methodological basis of life insurance, substantiate methodological approaches to its study in the context of a systematic approach through the prism of various models functioning. As a result of the study theoretical determinants of life insurance model are revealed, and a methodology for determining the financial stability of the applied life insurance model has been developed.

Keywords: life insurance, life insurance model, financial stability.

Аннотация

С целью обеспечения увеличения продолжительности и повышения качества жизни населения в странах мира активно развивается институт страхования жизни, особенно активно это происходит в развивающихся странах. Возрастание роли страхования жизни в экономической и социальной сфере страны требует теоретического осмысления его места в системе рыночных отношений и эффективного практического применения. Целью исследования является развитие теоретико-методологических основ страхования жизни, обоснование методических подходов к его исследованию в контексте системного подхода через призму организации различных моделей функционирования. По результатам исследования раскрыты теоретические детерминанты исследования модели страхования жизни, а также разработана методика определения финансовой стабильности применяемой модели страхования жизни.

Ключевые слова: страхование жизни, модель страхования жизни, финансовая стабильность.

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Introduction

Life insurance, in the narrow sense, is a type of personal insurance, where the insurer is obligated to reimburse a designated beneficiary a sum of money specified in the contract upon the death of an insured person or his / her survival to the term or age specified in the contract. In addition to the narrow, there is also an expansive interpretation of this concept – often, life insurance is called a whole range of personal types of insurance, which includes life insurance itself, insurance of children by the age of majority or by the time of enrolling to university, pension insurance, unemployment insurance and many others. The increasing role of life insurance in the economic and social sphere of the country requires a theoretical understanding of its place in the system of market relations and effective implementation. In this regard, the knowledge aimed at defining conceptual apparatus and purpose of the instruments of this economic category is of particular relevance. Life insurance, carried out both at the state level and at the level of the private sector (enterprises and the population), has practically the same target – to ensure an increase in the duration and quality of life of the population. Despite the fact that the existing approaches to the interpretation of life insurance essence have been considered by various researchers fully and at a high level of scientific validity, the system-convergent approach to the study of national development models seems to be insufficiently implemented and does not take into account the current state of the state's financial resources and transformational processes in the financial market.

In this article, the authors propose a comprehensive approach to life insurance issues in the process of reproduction of human capital, which involves the coordination of processes related to financial flows at different levels and having same target – to ensure an increase in the duration and quality of life of the population in the country. The choice of a life insurance model based on various combinations of its components dominance (public or private insurance) and which the state will adhere to has a special role in this.

The purpose of the study is to develop the theoretical and methodological basis of life insurance, substantiate methodological approaches to its study in the context of a systematic approach through the prism of various models functioning.

Tasks:

- 1) to reveal the theoretical determinants of the life insurance model study, including:
 - to develop the terminological apparatus, precisely “life insurance model”, “structure of the life insurance model”;
 - to reveal and characterize methods for shaping elements of the life insurance model structure;
 - to carry out a typology of life insurance models and present their comparative characteristics;
- 2) to develop a methodology for determining the financial stability of the applied life insurance model.

Literature Review

Extensive list of scientific papers has been accumulated at the present time regarding the life insurance. The research of some authors is aimed at the economic essence and specifics of life insurance (Musgrove, 1995; Odinokova, 2021; Marmor, 2018), while others are devoted to the peculiarities of public life insurance, including social insurance (Weinstock, 1975; Zweifel, 2000), reveal the place and role of life insurance in the country's economy (Yoon, 2013; van Dullemen et al, 2016), and analyze the impact of the life insurance model on socio-economic processes in the country (Heinrich et al, 2021; Besanko et al, 2020). In addition, in 2020 many studies have been devoted to the impact of COVID-19 on the life insurance institute due to the outbreak of the pandemic (Harris et al, 2021; Nusratullin et al, 2021a; Nusratullin et al, 2021b).

However, the result of scientific literature analysis shown, that there are almost no works attempting to identify the ratio of insurance and social factors of redistribution in the mechanism of public (compulsory) life insurance. The study of life insurance development theoretical aspects inevitably leads to the problem of the ratio of mandatory (public) and voluntary (private) forms.

Wide variety of life insurance essence definitions, systematization and classification of its types, as well as the possibility of using modern methodological tools determine the need to set the task of disclosure and study of life insurance on a new research platform. In our opinion, the consideration of private life

insurance in relation to public one, not from the position of factor influence, but from the position of interdependence from each other and system integrity, gives a possibility to determine the place and analyze the role of this tool in the social risk management system. In addition, this approach will reveal the problems of integration of public and private life insurance and create a guaranteed comprehensive insurance protection of the property interests of the population of the country.

We propose to use the concept of “life insurance model” to identify and understand the relationship between public and private life insurance. Today there are dozens of definitions of the model and modeling, but each time their semantic meaning changes depending on the context. Let’s consider the definitions that, from our point of view, can reveal the essence of the life insurance model from the standpoint of economics:

- 1) model is “a system, the study of which serves as a means to obtain information about another system” or “a representation of some real process, device or concept” (Uyomov, 1971);
- 2) model is “a mentally or practically created structure reproducing one or another part of reality in a simplified (schematized or idealized) and visual form” (Stoff, 1963);
- 3) model is “an object that correlates with other similar objects, representing itself and those objects” (Isenko, 2015).

Based on the presented definitions and taking into account the specifics of the study, we propose the following definition of the life insurance model. The life insurance model is an abstract representation of the formal system of human capital insurance protection in a certain country. The study of this model is based on an assessment of the state and effectiveness of management by integrated application of elements shaping methods and allows comparison with similar systems of other countries.

This study also proposes the author’s concept of the life insurance model structure as a set of segments (components, levels) of the country’s human capital insurance protection system, the configuration (mutual arrangement, combination and connection) of which ensures its integrity and identity under changing operating conditions. Authors propose the following life insurance model structure:

Level I – public life insurance;
Level II – private life insurance, including corporate and individual insurance.

Various factors are influencing formation and development of the life insurance model, include (Luecke et al, 1989):

- type of economic system;
- state of the resources (factors of production) in the economy (whether there are resources or not);
- openness of the national economy to transnational capital;
- type of government policy (liberal or conservative);
- mentality of the population;
- type of social model.

There are following life insurance models depending on the complexity of the organization:

- a) simple, i.e. they include the organization of only one level of life insurance functioning (public or private) and interaction with regulatory authorities;
- b) combinatorial (variant), which are a complex structured system that includes two or more parts (subsystems).

There are following life insurance models depending on the state and development of the market economy:

- a) balanced model where public and private life insurance have more or less equal position (approximately 50/50);
- b) simple private model focused on private investment of savings in life insurance policies at the expense of the corporate sector of the economy (enterprises) and households, at the same time, there is no public life insurance which represented by social security only (+/0);
- c) simple public model where is no private life insurance due to lack of development or absence and the entire burden of fulfilling social obligations lies with the state (0/+);
- d) combined public model where the basis of life insurance protection is taken by the state, and the private sector acts as its complement (51+/49);
- e) combined private model where the state bears minimal obligations, and the basis of life insurance protection lies with the private sector (49-/51+).

All these classifications, of course, are very conditional, because real models may take

intermediate position. Besides, general models may include private ones.

Thus, each country corresponds to countless equally adequate, but essentially different models related to different tasks. The model is always only relative and does not fully disclose the specifics of the functioning of the entire life insurance system in terms of information. Several models of different types can correspond

to the same systems. Model structure will be determined depending on the influencing factor.

The most frequently contrasted models in the analysis are: Northern (Swedish), Anglo-Saxon (English), Continental (German) and American models of the welfare state (Table 1). Their data analysis allows to identify the type of life insurance model (Shindo & Thorburn, 2020).

Table 1.

Comparative characteristics of welfare state models and their impact on the development of pension and life insurance (according to data for 2019).

Figure	Welfare state models			
	Anglo-Saxon (English)	American	Continental (German)	Northern (Swedish)
Support Tools	Minimum state guarantees, private insurance	State guarantees are above the minimum, but below the average level	State guarantees at the average level, private insurance	High state guarantees, private insurance
Countries adhering to this type	Great Britain, Ireland	USA, Canada, Australia	Germany, Austria, Belgium, France	Denmark, Sweden, Finland, Netherlands, Norway
Share of expenditures on Public Pension Insurance in the country's GDP, %	6.0-7.0	4.5-7.5	10.5-19.0	15.0-30.5
Share of expenditures on Private Pension Insurance in the country's GDP, on average for the group %	3.1-5.2	1.2-5.2	0.2-1.2	0.6-5.9
Share of assets in pension savings plans in the country's GDP (2019) on average for the group, %	80.7	149.2	14.8	143.4
Share of expenses on Private Life Insurance, as % of GDP (2009-2019) 2019 (on average for the group)	6.5-16.2	1.3-5.1	2.3-4.2	3.5-8.3
Life insurance model structure Public Life Insurance / (Private Life Insurance + Private Pension Insurance) in 2019, %	37 / 63	45 / 55	80 / 20	60 / 40
Type of life insurance model used	combined private model	Balanced model	combined public model	combined public model

Source: OECD, 2020a; OECD, 2020b; Swiss Re Institute, 2020; Allianz, 2020.

Considering the modern practice of organizing world financial systems, the “Global Monetary Economy” forms two contours in countries in accordance with the concept of contours of the American economist Minsky (1993):

- 1) financial and money markets led by a Large bank (a system of banks and other credit institutions);
- 2) currency and money markets led by a Large government (the formation of the state budget and extra-budgetary financial funds is expected).

The contours serve as a constructive basis for the formation of two interrelated development flows in the global economy, which in the work of (Minsky, 1993) are called two global types of economic growth: inflationary and deflationary. The inflationary one is based on the budget potential with the Central Bank as the main regulatory market institution (for example, in Russia), and the deflationary one is based on the credit potential with the stock market as the main regulator (for example, in the USA) (Yerznkyan, 2010; Evstigneeva & Evstigneev, 2010).

The specifics of the regulation subsystem organization and administration have an impact on the development of the life insurance model constituent elements. Precisely, Public Life Insurance will dominate in the country in the case of inflationary flows, and Private Life Insurance will dominate in the case of deflationary flows.

Although the need for life insurance, including pension provision, is universal, the initial conditions vary significantly between countries in terms of their financial freedom and the dynamics of demographic changes. One of the significant issues raised in each country is the issue of public consent: what share of GDP is society willing to spend on its elderly to honor their contribution to economic development and progress during their working life. However, financial freedom for future spending is determined by the current levels of the gross debt of the state and the costs of old-age benefits. The higher these two factors are compared to today's GDP, the less financial freedom of action for future generations and the more unbalanced the distribution of the financial burden of aging between generations will be (Kryvyts'ka, 2019).

This problem is especially relevant, since in the future there will be an increase in the burden on the able-bodied generation to ensure their own old age, since their pension savings were used for the pension provision of current pensioners. The

sustainability of life insurance, including the pension system, and the adequacy of the measures taken largely determine the welfare of the nation and the protection of the population from the risks associated with aging and longevity of the population and, as a result, the diversification of sources of financing that citizens can use when implementing risks. The diversification of funding sources is due to the increase in assets managed by life insurers and pension funds, and the expansion of the range of their application to financial market instruments.

Methodology

The purpose of the study is to develop the theoretical and methodological basis of life insurance, substantiate methodological approaches to its study in the context of a systematic approach through the prism of various models functioning. To achieve the goal, it is necessary to solve the following tasks:

- 1) to reveal theoretical determinants of the life insurance model study;
- 2) to develop a methodology for determining the financial stability of the applied life insurance model.

The scientific literature on life insurance was analyzed to reveal the theoretical determinants of the life insurance model study; then the concepts of “life insurance model” and “life insurance model structure” were formulated using scientific methods of analysis and synthesis. In addition, various forms (types, types) of life insurance models were determined on the basis of these methods.

The data of the following companies was used for comparison of the classical insurance models (Northern (Swedish), Anglo-Saxon (English), continental (German) and American models) and the insurance models proposed in the study: Organisation for Economic Co-operation and Development (OECD, 2020a; 2020b), Swiss Re Institute (2020) – one of the largest reinsurance companies and Allianz (2020) – the largest German insurance company.

The scheme of step-by-step determination of the life insurance model financial condition, as well as the methodology algorithm for determining the financial stability of the life insurance model are developed based on the analysis of scientific literature regarding the life insurance and formalized using such methods of scientific cognition as generalization and induction. This scheme and the algorithm of the methodology are

put forward as a hypothesis, the confirmation of which requires further research.

Results and Discussion

It is proposed to study the life insurance model from the perspective of systematic methodological tools within the framework of the study. However, the use of systematic methodological tools has its own peculiarities according to the conditions of application, subjects and target orientation of the methodology, as well as information sources and methods that are available to specialists.

The subjects of management are the bodies of current and strategic supervision, as well as international organizations that monitor the development of the economy. The use of systematic methodological tools will improve the

understanding of the life insurance role in the country's economy and will enable a more competent policy of its regulation.

The scheme of step-by-step determination of the life insurance model financial stability developed by the author includes four stages (Figure 1) and will allow:

- 1) determine the type of model and methods for shaping its elements;
- 2) identify and characterize the stages of model development;
- 3) to assess of the model state factor dependence, the interdependence of processes in the model and the economy;
- 4) to assess the "strength" of relations between the elements (levels) of the model, mutual influence and interdependence, as well as the depth of their convergence.

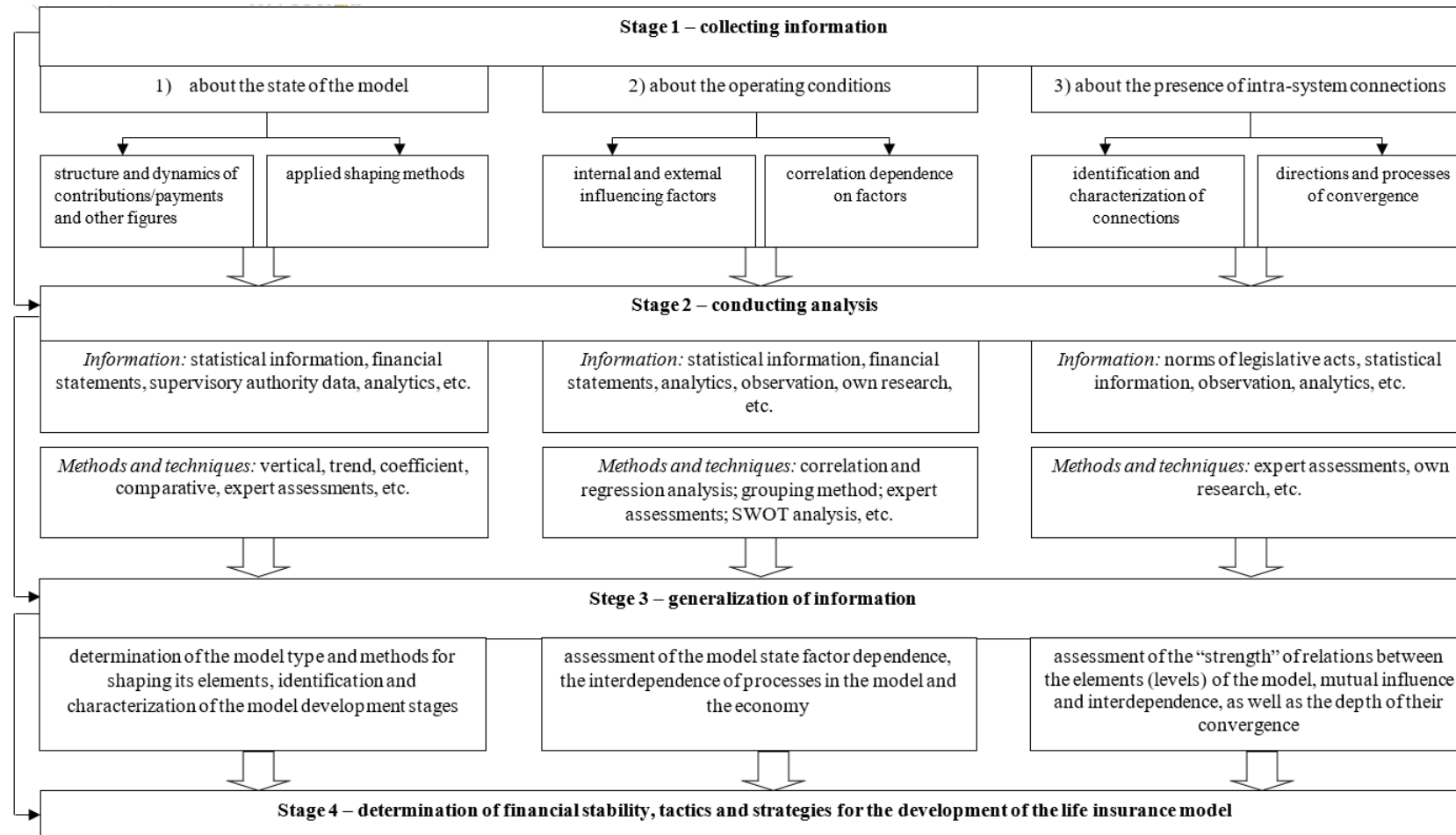


Figure 1. Scheme of step-by-step determination of the life insurance model financial stability

Table 2 describes the information in the framework of the assessment of state.

Table 2.

Characterization of information in the framework of the 1st stage of the condition assessment.

Analysis object	Characterization of information
System	<p>Figures of the dynamics and structure of insurance premiums (contributions) collection and payments both in the whole model and in the context of its levels, as well as in the territorial context to determine the asymmetry of financial flows; figures of insured persons number dynamics, insurance payments recipients dynamics and structure in the context of the type of payments, etc.</p> <p>Density (i.e. the size of the insurance premium per capita) and the depth of insurance (i.e. the share of the total insurance premium in the country's GDP), including territorial terms.</p> <p>The financial situation of insurers and their burdens: business expenses; combined loss ratio; number and types of taxes paid; profitability; reliability of insurers; coefficient of autonomy; coefficient of financial stability, degree of solvency.</p> <p>Combinatorics: insertion of elements of one level into another; transfer of reserves to an insurer of another level; establishment or cancellation of direct regulation of insurance rates, insurance limits, etc.; application of subsidizing insurance premiums or payments; etc.</p> <p>Transformation: flexibility and mobility of savings in life insurance policies, including pension insurance; the presence or absence of an investment component in the policies, the management of which allows the policyholder to adjust the policy of the investment strategy; etc.</p>
Elements shaping methods	<p>Kineticism: increase/decrease in the rate of insurance premiums; indexation of insurance premiums, amounts and payments; indexation of the limit value of the base for calculating insurance premiums (in relation to compulsory pension insurance; conversion of savings into points, and vice versa; etc.</p> <p>Modular design: introduction of standardized modules of pension plans from different management companies (life insurers, Non-State Pension Fund or Pension Fund of the Russian Federation); introduction or cancellation of a unified procedure for transferring savings or settling losses (payment of the insured amount); introduction of a single standard reporting for insurers, as well as a mechanism for managing the savings and savings of policyholders (insured persons).</p> <p>Deconstruction: freedom in the possibility of transferring pension savings from one Non-State pension Fund to another, from a Non-State Pension Fund to the Pension Fund of the Russian Federation; freedom in the possibility of managing the process of investing savings under an insurance contract as in collective investment funds, etc.</p>
Influencing factors and their effect	<p>External: political, economic, demographic, etc.</p> <p>Internal: transaction costs, policy of actuarial calculations and insurance payments, organizational structure of management, etc.</p>
Intra-system connections	<p>Horizontal from the position of partnerships: management, financing, co-investment, etc.</p> <p>Vertical, hierarchy-related model structures: technological, functional, etc.</p>

Within the framework of the 4th stage of the proposed scheme, it is necessary to focus on determining the financial stability of the current model. However, as the analysis has shown, the concept of "financial stability" has no unambiguous interpretation in either domestic or foreign literature, which complicates the quantitative assessment of this characteristic of the life insurance model.

In modern literature, financial stability is considered from the perspective of two approaches:

- 1) in the first approach, financial stability is considered "through its absence, i.e. through financial instability" (Chant et al, 2003; Crockett, 1996; Ferguson, 2003) and is associated with the risks of deterioration in the performance of the real sector of the economy;

- 2) In the second approach, financial stability is interpreted as a stable state of the financial system, which allows effectively perform its key functions, withstand shocks and eliminate imbalances. It is actually associated with systemic risk. (Cavapozzi et al, 2012; Heide, 2020).

Representatives of the first approach consider financial stability through the prism of its antipode “financial instability”, define it as a situation “where the figures of economic activity may deteriorate due to fluctuations in the prices of financial assets or the inability of financial institutions to fulfill their obligations” (Crockett, 1996) and also associate “with a certain concept of a market mechanism failure or external effects that could potentially affect real economic activity” (Ferguson, 2003). Here we should pay attention to two main aspects. Firstly, according to the definition given earlier, financial instability should be identified by the presence of potential threats to the real sector of the economy and not by the amount of damage actually incurred. Secondly, financial instability arises due to excessive volatility in financial markets, the weakness of financial institutions and the inability of banks and other financial sector companies to fulfill their obligations (Kormilitsyna, 2011).

The second approach, proposed primarily by central banks, attempts to define this concept based on various properties of a stable financial system. However, the formulation of the operational definition remains conditioned by the installation of an analytical framework, which should delimit the field of intervention of responsible authorities, determine the tools and

channels for transmitting decisions made and indicate a measurement figure that allows evaluating this function. (Mohamed et al, 2012). Schinasi (2005) adheres to the second approach, believes that in the absence of a framework, a set of models, or even a concept of equilibrium it is difficult to imagine a definition of financial stability. In this regard, they are invited to consider this definition from the financial system point of view: “The financial system is in the range of stability when it is able to facilitate (rather than hinder) the functioning of the economy and eliminate financial imbalances that arise endogenously or as a result of significant adverse and unforeseen events” (Schinasi, 2005).

The determination of financial stability is also possible through the assessment of systemic risk, which characterization and analysis are carried out by using a set of quantitative indicators called the financial stability risk indicator (financial indicators) (Heide, 2020).

Responsibility for achieving financial stability at the state level, as a rule, is assigned to the central bank. In some cases, the function may also be assigned to a mega-regulator or an interdepartmental council (committee) on financial stability, which may include representatives of the central bank, the Ministry of Finance, as well as the department responsible for microprudential regulation and supervision of banking and non-banking financial intermediaries.

The author of the study suggests the following algorithm of the methodology for determining the financial stability of the current life insurance model (Figure 2).

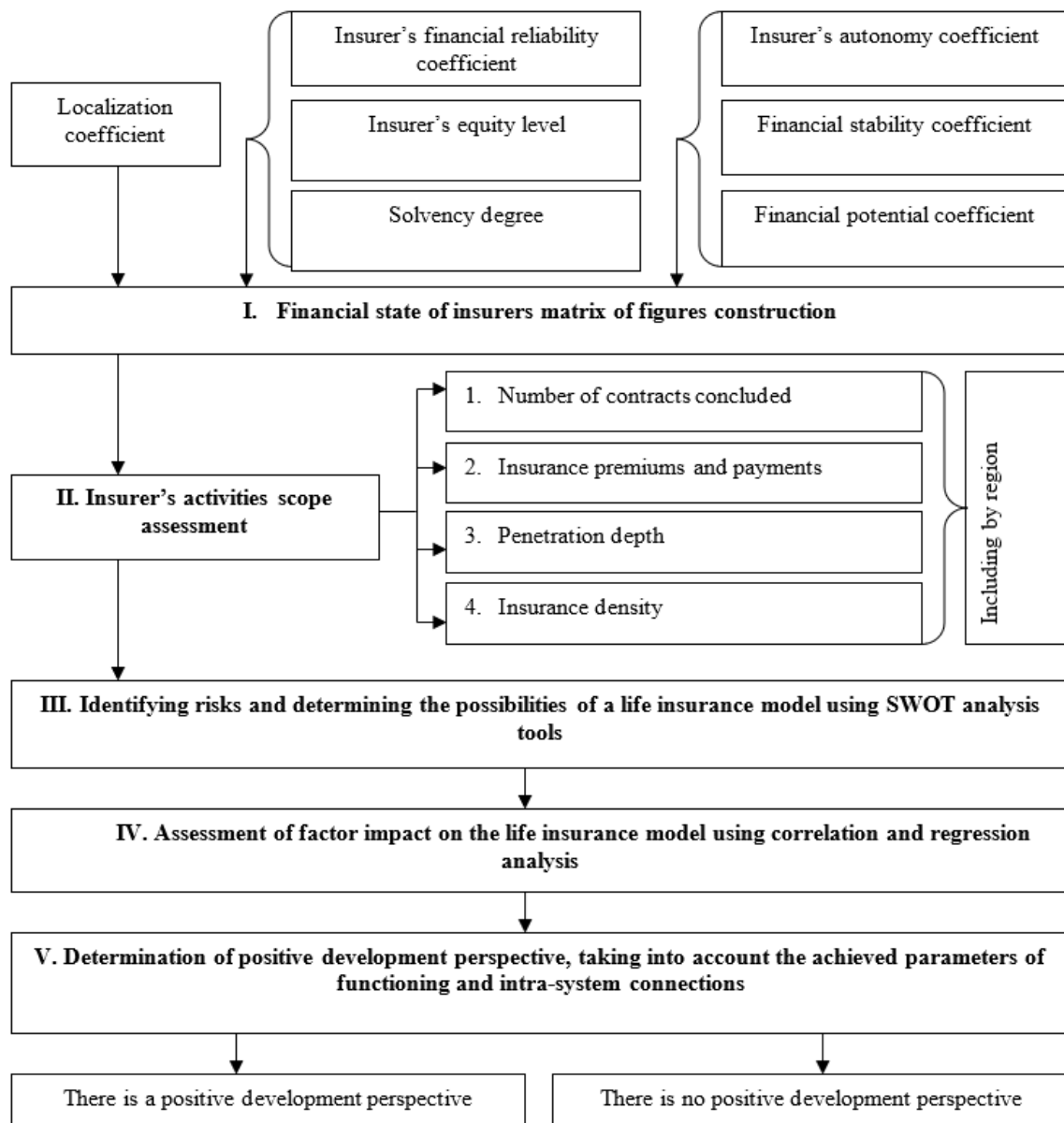


Figure 2. The algorithm of the methodology for determining the financial stability of the current life insurance model.

In our opinion, the basis of the life insurance model financial stability is the financial stability of insurers (Odinokova, 2019), since it acts as a link between the state and the population when conducting a financial policy of redistribution of resources and risks. On the one hand, the relationship with consumers of services depends on the state and policy of financial stability management of the insurer. For example, if the financial stability is high enough, then the insurance company will pursue a loyal policy towards its customers. On the other hand, the state of insurer's financial stability influenced by "macroprudential policy, which is a set of

measures to reduce systemic risk in the financial market or in individual sectors" (Lobo-Guerrero, 2016).

At the same time, the financial stability of the current model should have three important characteristics. Firstly, the financial stability of the current model facilitates the efficient allocation of resources in space and time. Secondly it allows to assess, copy and distribute financial risks and manage them. Finally, the financial stability of the current model retains the ability to perform its functions regardless of

financial and various economic shocks, as well as increasing imbalances.

However, it is important to emphasize once again that this set of characteristics that determine the financial stability of the life insurance model does not guarantee the effectiveness of its institutions (the Institute of Social Insurance and the Institute of Private life insurance). Although stability may be a necessary condition for the complex interaction of its (model) participants, it is certainly not a sufficient condition for efficiency.

Achieving and maintaining the financial stability of the life insurance model should be balanced with other, possibly higher priority, goals, for example, such as improving economic and institutional efficiency. This suggests that financial stability itself is not an aim for systems, but plays a supporting role in improving the ability of the model and its elements to perform their functions.

Conclusions

This study developed for the life insurance model a theoretical platform based on a new scientific idea about the systemic convergence of public and private life insurance and its structuring within the framework of various models formation: The author's interpretation of the life insurance concept proposed here, in contrast to the existing ones, is presented as a system of life insurance protection for citizens (human capital) of a certain country, ordered in accordance with the target vector of development and formalizing the process of its model organizing. The concept is based on the fundamental interrelationships of structural elements (public and private levels of life insurance) used in the study of regularity, rationality and efficiency of functioning.

In order to identify the capabilities of the models used, methods for shaping its components, such as kineticism, combinatorics, transformation, modular design and deconstruction, have been identified, the tools of which allow the state to influence the structure of the model, dynamics and development trends.

It should also be noted that the developed methodological tools allow us to study the development figures and assess the effectiveness of the life insurance model functioning in the country as a whole, as well as objectively prove the significant role of each structural component of its subsystem in ensuring insurance coverage of human capital risks.

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