Research on Insurance Regulation under the Background of InsurTech

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Abstract. In order to realize the digital transformation of China's insurance industry, it is necessary to consider that the booming development of insurance technology brings technical risks, data and information security risks and even induces systemic risks, forcing regulators to conduct in-depth research on insurance supervision. However, traditional insurance supervision has the disadvantages of lagging regulatory concepts, lack of technology and insufficient new regulatory talents, which can't effectively deal with the risks brought by insurance technology innovation. Therefore, it is necessary to improve the insurance regulatory system and realize insurance regulatory innovation, so as to better cope with the risks and challenges brought by insurance science and technology. To innovate the insurance regulatory system, break through the limitations of traditional regulation , optimizing the data regulatory system, establishing an experimental regulatory mechanism, and cultivating composite insurance talents, so as to promote the healthy development of the insurance industry.

Keywords: Insurtech; Insurance regulation; Regulatory model

1   Introduction

With the rapid development of insurance technology and continuous innovation in insurance services and products, there have been some new changes in the functions of traditional insurance systems. At the same time, financial regulatory authorities have continuously issued guidance and regulatory policies to encourage the insurance industry to deepen the application of insurance technology[1]. The traditional regulatory model of the insurance market is a "command control" type, where regulators rely on pre established rules to supervise insurance companies. Once insurance companies break the red line of rules, they will be subject to sanctions from regulators[2]. This regulatory model adopts a "one size fits all" approach to reflect fairness and justice. However, with the emergence of insurance technology, the drawbacks of traditional insurance regulatory models are gradually exposed[3]. There are mainly the following aspects: First, traditional insurance regulation is a static regulatory model. Whereas insurance is based on the existence of risk and changes

with the change of risk, so the insurance market is a dynamic market[4]. Secondly, data and technology is a huge shortcoming of traditional insurance regulation. The data construction of insurance regulation lags far behind the innovation of insurance technology. The huge data gap has led to serious "information asymmetry", and insurance regulators are unable to accurately identify risks, and then assess and formulate appropriate programs. Thirdly, there is a lack of supervisory talent. Insurtech puts forward high requirements for the quality of supervision talents. They should not only be familiar with insurance business, but also be able to skillfully use Big data, cloud computing and other information technologies.

In view of the above propositions, this paper focuses on systematically organizing and absorbing the lessons learned from Chinese and foreign insurance science and technology regulation, researching on "science and technology-based" insurance regulation to break through the limitations of traditional regulation and innovative regulatory methods, constructing a regulatory system with science and technology as the core, optimizing the data regulatory system, establishing an experimental regulatory mechanism, and cultivating composite insurance talents, so as to Protect the legitimate rights and interests of insurance consumers and promote the healthy development of the insurance industry.

2   Risks in InsurTech

2.1   Technical risks

Firstly, there are technical risks associated with device operation. If there are technical vulnerabilities or programming errors in platform devices, it may cause losses to insurance companies and consumers. Secondly, there is the risk of virus transmission, as hidden viruses in the internet may attack insurance systems, leading to their paralysis during operation. Once again, operational risk refers to inappropriate operations and internal control procedures, information system failures, and human errors[5]. Finally, there is the risk of online payment. After insurance consumers pay premiums online, there are security risks to whether their fees enter the insurance company's system. When insurance consumers input a secret key or password and transmit it through the network, they may be intercepted by hackers through illegal means during the transmission process, and use the intercepted information to engage in criminal activities, causing insurance consumers to suffer losses

2.2   Systematic risk

In the operational framework of insurance technology, the cooperation between insurance companies and technology companies is becoming increasingly close. Insurance companies can provide efficient and convenient insurance services through insurance technology. At the same time, the development of insurance technology has enhanced the Intersectionality between businesses. Especially in non-traditional insurance business, information segmentation between different business platforms will hide the problem of information asymmetry under different platforms, increasing

its Systematic risk. In addition, the financial risks of a single platform will also be transferred to other platforms under the Intersectionality effect of business, thus making the risks more infectious. In the application of insurance technology, if causal relationships are not tested, data correlation will increase the risk of erroneous predictions. If the algorithm is incorrect at the system level, the data advantage of insurance technology companies will no longer exist. So, once an insurance technology company reaches a certain scale, its bankruptcy may harm the related companies[6].

2.3   Data and Information Security Risks

The application of insurance technology not only enhances the intelligence of insurance products, but also brings many risks in data and information security. On the one hand, the insurance technology business model relies on the authenticity of the data itself. If false and erroneous information is mixed in the data, it may lead to incorrect analysis, prediction, and decision-making. On the other hand, with the development of insurance technology, data service providers will have unprecedented information privileges. Through centralized management and quantitative technology of information, data service providers can easily obtain a large amount of private information from users. Therefore, once data service providers abuse information, it will leak the privacy of insurance technology users. In addition, data information security risks also come from potential data intrusions. Hackers can use Big data to simultaneously control millions of puppet machines and launch attacks. Hackers hidden in Big data can mislead security detection.

3   Optimize the insurance regulatory model

Against the backdrop of the development of insurance technology, insurance regulation is urgently facing a modern transformation of traditional regulatory concepts, methods, and models. The new type of insurance regulation is a product of the combination of regulation and technology, and is the application of data-driven technology in monitoring, regulatory reporting, and compliance[7]. Science and technology governance is the use of modern scientific and technological means, using vertical hierarchical governance and horizontal joint governance to strengthen the concept of public governance, implement measures of public governance, and reflect the principle of diversified consultation and governance subjects[8].It can achieve consistency through standardization and maintain differences through standardization, thus conforming to the governance concept of 'multi center' or 'light center'[9].

3.1   Transforming the concept of insurance regulation

Insurance regulation in the context of insurtech should first establish an open and inclusive regulatory concept. Traditional insurance regulation realizes the regulatory purpose by adopting mandatory requirements for the regulated. This regulatory

concept is rigid, and the means of treatment is rigid and single method. The new insurance regulation advocates the "adaptive" regulatory concept, i.e., the regulatory approach, regulatory objectives, and regulatory system should be flexibly adjusted according to the regulatory target, regulatory environment, etc., and the regulatory means should be randomized to quickly adapt to different regulatory situations. As a financial industry, insurance has high dynamics and high risk, so the regulatory rules cannot keep pace with insurance innovation at any time.

3.2   Diversified insurance regulatory measures

The traditional insurance regulatory process is characterized by an "ex post facto" approach. With the increasing complexity of insurance technology products, "ex-post facto" regulation is obviously "inadequate", and it is difficult to effectively respond to various insurance technology innovative products. The "technology-based" insurance supervision highlights the diversified regulatory path, based on the traditional supervision, to adopt a variety of new regulatory means. Specifically, there are the following regulatory tools. The first is automated regulation that includes artificial intelligence technology, blockchain encryption technology, automatic machine learning technology, big data technology and so on. The second is appropriateness regulation. "Technology-based" insurance regulation allows insurance technology to grow in an environment that is neither "over-indulgent" nor stifles innovation due to harsh regulation, thus encouraging innovation while maintaining the healthy and stable development of the insurance industry. Third, ex ante regulation. It enables timely monitoring and effective prevention of risks when they first emerge.

3.3   Intelligent insurance regulatory model

Traditional insurance supervision is mainly done manually. With the accelerated application of insurance technology, manual supervision alone cannot synchronize with the huge information data of insurance companies to form effective supervision. In addition, the single "manual supervision" relies on individual professional ethics and quality, which is prone to moral risks. As a brand-new regulatory model, the new insurance supervision is characterized by technology-centered intelligence. Specifically, it includes the following aspects. First, the means of supervision is centered on "technology". Second, the use of data technology creates precise regulation. Third, the dynamics of insurance supervision.

4   Conclusions

4.1   Improve the regulatory system for insurance technology

One is in terms of technology regulation. It is necessary and urgent for regulatory authorities to master and utilize new technologies to implement regulation, increase investment in regulatory technology, and thereby improve the scientific and effective

nature of regulation[10]. Specifically: First, Big data review and supervision. Secondly, the integration of supervised algorithms to clarify how increasingly complex insurance technologies can best supervise and communicate with insurance consumers; Thirdly, blockchain, by exploring the benefits and risks that blockchain and insurance smart contracts bring to insurance businesses, reinsurance businesses, and consumers, including evaluating potential regulatory barriers to blockchain innovation applications. The second aspect is innovation guidance. Firstly, promote insurance technology to play a leading role in innovation and establish efficient regulation in the form of best practices; Secondly, establish insurance innovation authorization and licensing requirements, and evaluate how they can be applied in insurance practice, such as treating insurance technology companies equally with traditional insurance companies; Thirdly, establish an insurance innovation center platform to strengthen experience exchange and business cooperation among insurance enterprises, thereby promoting the development of insurance technology in China. For example, in terms of car insurance, the former China Insurance Regulatory Commission established a "tax insurance synchronization" online collection model based on real-time interaction between the car insurance platform and the tax source system of tax authorities.

4.2   Establish an experimental regulatory mechanism

Under the experimental regulatory model, by exempting its establishment and complying with relevant regulatory obligations, supplemented by lower regulations and following cost advantages, the regulated testing products can gain relevant empirical experience during the testing period and be adjusted to assist in their growth and development. The main purpose of this model is to strengthen communication and exchange between regulatory authorities and fintech innovation enterprises, intervene early, and change from the traditional "development before supervision" to "development while supervision". By fully understanding fintech information and providing policy guidance, regulators can establish a good cooperative relationship with the regulated, and promote efficient supervision [11]. The "regulatory sandbox" in the UK includes the evaluation criteria for whether financial technology innovation products can enter the regulatory sandbox, the operational process of the regulatory sandbox, consumer protection measures, the Financial Conduct Authority (FCA)'s right to terminate testing, and the reporting and assistance mechanism after testing is completed [12]. The specific process is shown in Figure 1. China can draw on this model when developing innovative insurance technology products.
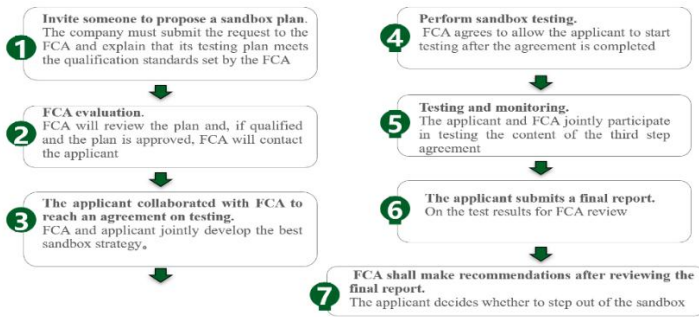
Fig. 1. UK FinTech Regulatory Sandbox Flowchart

4.3   Optimize data supervision system

One is to establish a sharing mechanism for insurance industry data platforms. Accelerating the construction of data integration information platforms between financial industries such as insurance, banking, and securities, improving the efficiency of departmental collaborative management, has a significant positive effect on implementing joint supervision [13].The second is to establish data security and information protection mechanisms. The important content of insurance technology regulation is data security and personal information protection. Data security mainly refers to the integrity of data, which means that "data has not been modified or even intentionally manufactured during its lifecycle, and during transmission and storage, it is ensured that data is not tampered with unauthorized or can be detected in a timely manner" [14]. Based on this, the EU has issued the General Data Protection Regulations, which strictly regulate the acquisition, storage, and use of user data. The above legislation is worth learning from in China.

4.4   Cultivate composite insurance talents

Cultivate composite insurance talents and accelerate the construction of a highland for insurance technology supervision talents. At present, the insurance industry is in a state of imbalanced talent supply and demand, especially in the field of insurance technology risk regulation, where there is a higher demand for talents and a greater need for composite and excellent talents. Based on this, the following points need to be achieved in cultivating composite insurance talents: firstly, to promote the deep integration of industry, academia, and research. Insurance companies and universities should strengthen communication and exchange, actively promote universities to improve their training goals according to the needs of the insurance industry, and strengthen cooperation in cultivating composite talents. Secondly, insurance companies should strengthen the independent cultivation of internal composite applied talents. Finally, at the same time, it is necessary to strengthen the introduction of composite talents. Drawing on advanced talent management ideas, promoting

innovation and regulation of insurance technology, and evaluating its role in practice, in order to ensure the implementation of the concept of composite talents.

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