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# China:

# An Era of Insurance Innovation

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# China: An Era of Insurance Innovation

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## Executive Summary

The Chinese insurance market is grappling with product innovation, business growth and regulatory oversight as it tries to keep pace with a sharp growth in demand across product segments.

In this context, the authors have highlighted insurance trends in China, based on available research and literature, with a particular focus on topics that will drive the enterprise risk management (ERM) function of insurance companies. ERM provides an opportunity for insurers to identify and mitigate potential insurance risks by enhancing their policies and risk management activities. This report explores the insurance trends in detail, drawing on findings from interviews of practitioners in the Chinese market, to provide context for the drivers of ERM transformation.

To discuss how innovation and the business and regulatory environments affect the insurance industry, the report is divided into three major sections:

1. **Innovation.** As a key driver of technological change, artificial intelligence (AI) and machine learning (ML) have several impacts on the insurance industry, including new actuarial forecasts and customer segmentation, as well as business process automation and operational efficiencies. While the ERM function is not a direct enabler of innovation, it participates in the process of identifying and mitigating potential risks. For example, underwriting and product management require review of materiality and risk, which can be done using in-house AI/ML models.
2. **Business environment.** To deepen customer-centric initiatives, the insurance industry is adopting digital channels and technology to develop products that can interact with, attract and retain customers. The other key focus areas of insurers are widening distribution channels, deepening customer engagement and improving operational efficiency. In some cases, insurers are achieving these objectives by collaborating with start-ups and insurtechs (providers of technology that can streamline operations, provide a better service or save money). Foreign-owned insurers are working to expand their share of the Chinese insurance market by widening their distribution reach and sales efforts. This will continue to drive acquisitions or joint ventures with domestic insurers and, potentially, smaller domestic insurers.
3. **Regulatory environment.** Since joining the World Trade Organization in 2002, China has made concerted efforts to modernize its insurance industry. In 2019, China removed laws that had required foreign insurers to participate in joint ventures with Chinese insurance firms, so they now can compete nationwide on even footing with domestic insurers in the fast-evolving Chinese market. The loosening of regulations led to a wave of acquisitions by foreign firms seeking to play a larger role in the Chinese insurance market. Other regulatory initiatives are ongoing. China is updating insurance regulations to improve industry practices, improve insurer solvency, reduce systematic financial risk by updating standards on risk capital (e.g., the China Risk-Oriented Solvency System body of regulation known as C-ROSS), and increase data privacy and data security. These regulations are driving changes enterprise-wide, particularly in risk and compliance, data management and marketing functions.

In each of these sections, the authors have included key opinions of the practitioners interviewed. At the end of the report is a conclusion note, which is followed by methodology and further details about the insurance practitioners who participated in the interview process.



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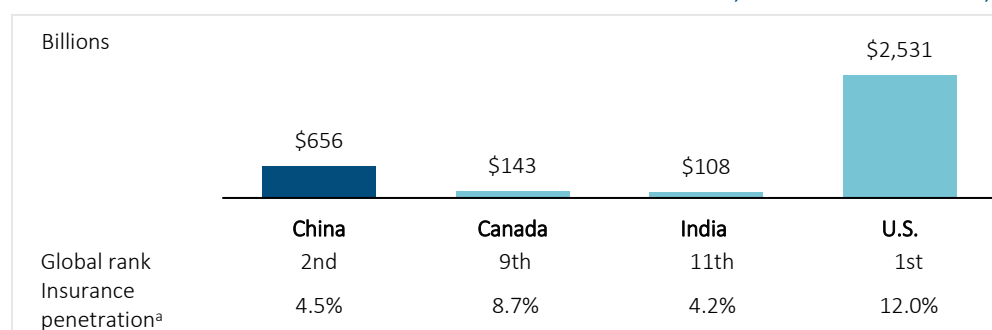
## Section 1: Introduction

With a population of 1.4 billion,<sup>1</sup> steady economic growth and increasing wealth, China represents one of the world's most attractive insurance markets. In 2018, 344 million, or 25 percent, of China's population were in households categorized as middle income by China's National Bureau of Statistics—specifically, households with incomes of 100,000 to 500,000 renminbi (RMB) per year (equivalent to about \$16,000 to \$80,000 in U.S. dollars).<sup>2</sup> By 2020, the middle-income group had grown to about 492 million.<sup>3</sup> In this bracket, 46.8% are between 25 and 54 years old, often considered insurers' key customer segment.<sup>4</sup>

The size of the country's population and rising household income levels provide ample opportunity for the insurance industry. In fact, the base is staggering already. With \$656 billion in annual premiums as of 2020,<sup>5</sup> China is the second-largest insurance market worldwide after the United States, which had \$2,531 billion in annual premiums (see Figure 1).

**Figure 1**

### TOTAL INSURANCE PREMIUM VOLUME AND GLOBAL RANK BY SIZE, SELECTED COUNTRIES, 2020



<sup>a</sup>Insurance penetration expressed as the ratio of total premiums to GDP.

Source: "World Insurance: The Recovery Gains Pace," in Sigma, no. 3, Swiss Re Institute, March 2021, <https://swissre.com/>; Life and Non-life Insurance Penetration by Country 2020, Statista, April 11, 2022; Naveen Kumar, "Covid Brings Life Insurance Penetration in India to Global Levels," Economic Times, January 31, 2022, <https://economictimes.indiatimes.com>.

### 1.1 INSURANCE MARKET GROWTH

After decades of annual double-digit premium gains, China's insurers are entering an era of more disciplined growth. This transition is changing practices. For example, life insurers previously made heavy use of high-guaranteed-return products, and property and casualty (P&C) entities relied on high-cost growth.<sup>6</sup>

In 2021, Chinese insurers recorded a 4.1% increase in premium income to RMB 4.5 trillion (about \$713 billion), and total assets increased to RMB 24.9 trillion (about \$3.9 trillion), according to the CBIRC.<sup>7</sup> There is considerable room

<sup>1</sup> Population, Total—China, World Bank, <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=CN> (accessed May 31, 2022).

<sup>2</sup> Terry Sicular, Xiuna Yang and Björn Gustafsson, The Rise of China's Global Middle Class in International Perspective, IZA Discussion Paper no. 14531, IZA Institute of Labor Economics, July 2021, <https://ftp.iza.org/dp14531.pdf> (accessed May 31, 2022).

<sup>3</sup> Final number has not been published at the date of preparation of this report, but was projected to reach 490 million in 2020, per research published by the Development Research Centre of the State Council, Macroeconomic Research Department, "(Expert Views) Research on the Development of Middle-Income Groups During the '14th Five-Year Plan' Period," National Development And Reform Commission, December 13, 2021, <https://www.ndrc.gov.cn/>, (accessed May 31, 2022).

<sup>4</sup> The 2020 White Paper on Asset Allocation of China's Middle-Class Households, PUYI, July 2, 2022, <http://www.puyiwm.com/product/research/368> (accessed May 31, 2022).

<sup>5</sup> More recent comparative figures were not available to the authors of this report.

<sup>6</sup> "China Insurance 2021: Balancing Growth with Governance," S&P Global Ratings, February 2, 2021, <https://www.spglobal.com> (accessed May 31, 2022).

<sup>7</sup> "China's insurance sector reports steady expansion in 2021," China Daily, February 13, 2022, <https://www.chinadailyhk.com/article/259454> (accessed May 31, 2022).

for the industry to grow further. As of 2020, China's proportion of premium income as a percentage of GDP was 4.5%, considerably behind developed markets such as Canada (8.7%) and the United States (12%), though higher than in India (4.2%).<sup>8</sup>

Each year, repeat consumers renew insurance policies with a value of billions of renminbi. During the first three quarters of 2021, accumulated premiums of RMB 34.5 billion (about \$5.5 billion) were issued. In the third quarter of 2021, assets worth RMB 24.3 trillion (\$3.9 trillion) were being managed, including life and non-life insurance. That said, China's general insurance industry is forecast to grow to \$300 billion by 2025 in direct written premiums. Swiss Re projects that China will become the world's top insurance market by the mid-2030s.<sup>9</sup>

According to official statistics, China's insurance industry saw stable operation and premium recovery in 2020. Original premiums income grew 6.12% year-on-year to RMB 4.53 trillion (about \$700 million). With steadily growing asset size and relatively constant asset mix, total assets rose 13.29% from the beginning of the year to RMB 23.30 trillion (about \$3.52 trillion), and net assets rose 10.95% to RMB 2.75 trillion (about \$420 million).<sup>10</sup>

## 1.2 AGING POPULATION

The aging population poses various challenges to Chinese society but also creates a welcoming environment for accelerated innovation and development of the insurance industry. While China has state-run insurance offerings (such as the China Health Insurance Fund, which covers 96.8% of the population),<sup>11</sup> the government recognizes the need for private-sector insurers to play a larger role to improve public health through broader health coverage and broaden the state pension system via new pension investment offerings, such as annuity-like endowments products.<sup>12</sup>

As of 2020, 12.6% of the population—about 176 million—was older than 65, with an increase to 22.3%, or about 310 million, expected by 2035.<sup>13</sup> (Figure 2 shows the age distribution that the National Bureau of Statistics forecasts for China's population in 2022.) With an average life expectancy of 77.7 years and more than 80% of the elderly suffering from at least one chronic disease,<sup>14</sup> the increasing elderly population will lead to increasing pension and health care expenses. In the meantime, China's working-age population is shrinking, with the labor force (persons aged 15 to 59) falling by 6.7% between 2010 and 2020.<sup>15</sup> China's 2021 census revealed a fertility rate of just 1.3 per woman, one of the lowest in the world.<sup>16</sup>

<sup>8</sup> Life and non-life insurance penetration by country 2020, Statista, April 11, 2022, <https://www.statista.com/statistics/381174/insurance-penetration-in-selected-countries-worldwide/> (accessed May 31, 2022); Naveen Kumar, Covid brings life insurance penetration in India to global levels," Economic Times, January 31, 2022, <https://economictimes.indiatimes.com/> (accessed May 31, 2022).

<sup>9</sup> Martina Fuchs, "Interview: China Expected to Be World's Top Insurance Market, Says Swiss Economist," Xinhua, December 25, 2021, <https://english.news.cn/20211225/01abdd18f9ef4c2097a8aca994498d47/c.html> (accessed May 31, 2022).

<sup>10</sup> "Risk Assessment Report on China Insurance Industry in 2021 Issued," China Insurance Security Fund (CISF), October 10, 2021, <http://www.cisf.cn:8088/fxjc/bxyfxpbg/2015.jsp> (accessed May 31, 2022).

<sup>11</sup> Mia Nulimaimaiti, "Can China's Creaky Health Insurance Scheme Withstand Its Ageing Population and Coronavirus?," South China Morning Post, January 1, 2022, <https://www.scmp.com/> (accessed May 31, 2022).

<sup>12</sup> Georgina Lee and Enoch Yiu, "China Turns to Private Insurers to Help Unlock US\$15.3 Trillion of Savings and Avert a Crisis in State Pension System," South China Morning Post, May 19, 2021, <https://www.scmp.com/> (accessed May 31, 2022).

<sup>13</sup> "Report: China will Enter an Aging Society around 2022 and Should Respond Scientifically," China News, June 19, 2020, <https://www.chinanews.com.cn/gn/2020/06-19/9216394.shtml> (accessed May 31, 2022)

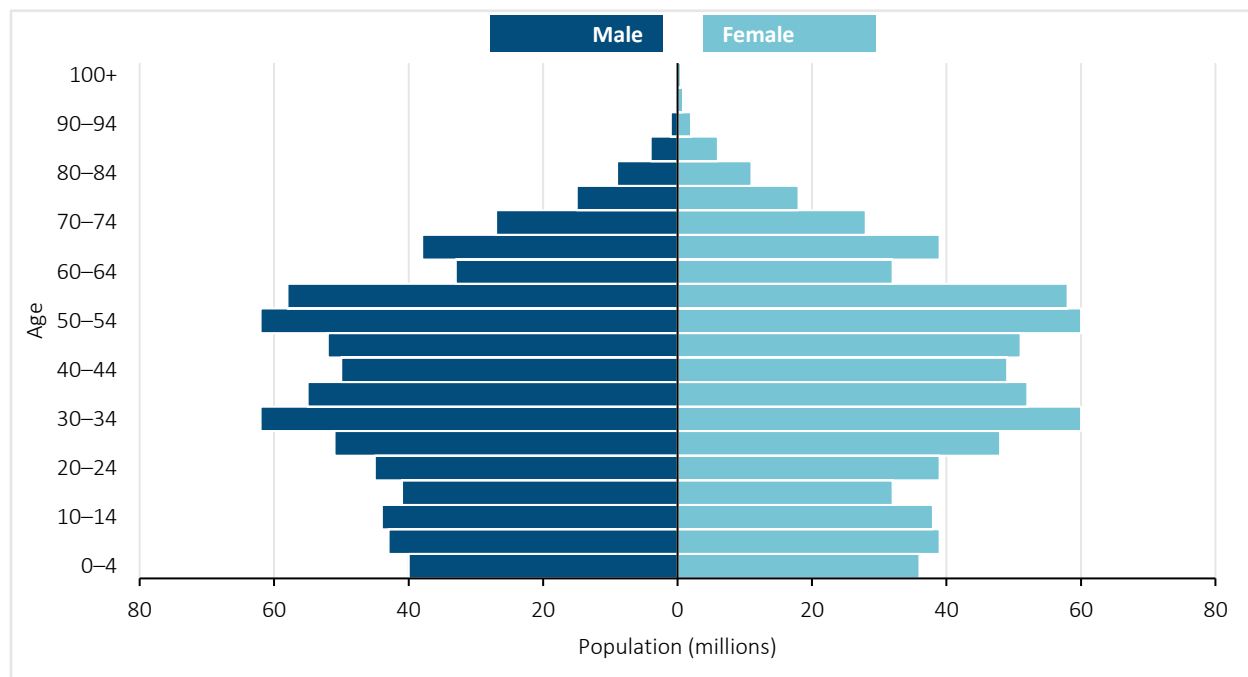
<sup>14</sup> Mia Nulimaimaiti, "Can China's Creaky Health Insurance Scheme Withstand its Ageing Population and Coronavirus?" Jan 1, 2022, <https://www.scmp.com/economy/china-economy/article/3161718/can-chinas-creaky-health-insurance-scheme-withstand-its> (accessed May 31, 2022).

<sup>15</sup> Ibid.

<sup>16</sup> Helen Gao, "China's Generation of Only Children Wants the Same for Their Kids," Foreign Policy, November 4, 2021, <https://foreignpolicy.com/2021/11/04/china-one-child-policy-fertility-rates/> (accessed May 31, 2022).

Figure 2

## CHINA POPULATION PYRAMID, FORECAST FOR 2022



Source: Census data, China National Bureau of Statistics, <http://www.stats.gov.cn/tjsj/pcsi/> (accessed May 31, 2022).

## Section 2: Research on Insurance and Enterprise Risk Management (ERM) in China

Research on China's insurance market and enterprise risk management is conducted by actuarial organizations both inside and outside the country. Findings are published by the China Insurance Security Fund (CISF) and by organizations with expertise in risk management and AI/ML ethics.

### 2.1 ACTUARIAL ORGANIZATIONS IN CHINA

The actuarial profession has evolved in China along with the transformation of the country's insurance landscape. One sign of that evolution was the establishment of the China Association of Actuaries (CAA), in 2007. The CAA is a member of the International Actuarial Association. Its main responsibilities include formulating actuarial practicing standards and self-regulatory systems for the sector, organizing actuarial exams, conducting ethical and disciplinary education, organizing business exchanges and academic research, and promoting international cooperation.<sup>17</sup>

Along with the CAA, several international actuarial organizations conduct research and liaise with Chinese insurance companies, regulators and practitioners:

- The Canadian Institute of Actuaries (CIA) has a committee that focuses on topics related to actuarial practice in China but does not have a local presence in China.

<sup>17</sup> Wei Yingning, "The Introduction About the Development of Chinese Actuarial Profession," presentation to the International Actuarial Association, Sydney, April 8, 2011, [https://www.actuaries.org/PRESIDENTS/Documents/Sydney/WEI\\_Yingning.pdf](https://www.actuaries.org/PRESIDENTS/Documents/Sydney/WEI_Yingning.pdf) (accessed May 31, 2022).



- The Casualty Actuarial Society (CAS) chartered its China Committee in 2019. The committee aims to strengthen, develop and engage the CAS’s community of actuaries in China and Asia. It also works with volunteer CAS members to provide actuarial support to candidates, academics and regulators.<sup>18</sup>
- The Institute and Faculty of Actuaries (IFoA), through its subsidiary ICA 98 Ltd., has been granted regulatory permission to establish a representative office in Beijing to develop IFoA’s relationship with the CAA, local regulators and businesses to support its members.<sup>19</sup>
- The Society of Actuaries (SOA) chartered its China Committee in 2016. The committee, with offices in Beijing and Hong Kong, coordinates SOA’s activities in China. Oversight and additional support are provided by the SOA International Committee and other staff at the SOA’s U.S. headquarters.<sup>20</sup>

The staff qualification requirement is particularly relevant to practitioners who work at insurance companies, such as actuaries. In this sense, the actuarial profession has also evolved in China along with the transformation of the insurance business. The former China Insurance Regulatory Commission (CIRC) focused on improving the education and training of its employees in actuarial science. CIRC employees were seconded to learn actuarial science while China’s own actuarial exams were being developed.

The CAA is often requested to develop new standards for the Chinese insurance industry, such as developing guidance for embedded-value calculation after China implemented the new solvency regulation known as C-ROSS (China Risk-Oriented Solvency System) in 2016.<sup>21</sup> The CAA also regularly organizes webcasts jointly with the SOA, CAS, IFoA and other actuarial organizations for their members. At these webcasts, members from these organizations share views on emerging and trending topics within the insurance industry in China and globally.<sup>22</sup>

## 2.2 INSURANCE PUBLICATIONS

The China Insurance Security Fund (CISF) publishes quarterly, annual and ongoing research reports related to key topics of importance to the insurance industry.<sup>23</sup> The CISF system is an important risk resolution tool for Chinese regulators and a self-help mechanism for managing risks in the financial sector with the aim to strengthen risk control awareness and risk management.

In 2021, the CISF issued its *Risk Assessment Report on China Insurance Industry*,<sup>24</sup> which provides an overview of the state and risks of the industry. Its aim is to promote better risk management capabilities within the industry. The report is organized into four parts: economic and financial environment, market overview, industry risk assessment, and expert observations. After reviewing the internal and external environments of China’s insurance industry in 2020, the report gives a comprehensive analysis of the state of the industry, highlighting the impact of the COVID-19 as well as the current operating and development risks.

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<sup>18</sup> “Casualty Actuarial Society Hires Ran Guo, FCAS, as First China-Based Staff Actuary,” news release, Casualty Actuarial Society, April 2, 2019, <https://www.casact.org/article/casualty-actuarial-society-hires-ran-guo-fcas-first-china-based-staff-actuary-0> (accessed May 31, 2022).

<sup>19</sup> “IFoA Is First Actuarial Association to Open a Representative Office in Beijing, as Business License Is Granted,” news release, Institute and Faculty of Actuaries, June 5, 2014, <https://www.actuaries.org.uk/> (accessed May 31, 2022).

<sup>20</sup> “China Committee,” Society of Actuaries, <https://www.soa.org> (accessed May 31, 2022).

<sup>21</sup> Hans Wagner, “Chinese Actuarial Association (CAA),” *The Actuary*, <https://theactuarmagazine.org/> (accessed May 31, 2022).

<sup>22</sup> “How to Transform Traditional Actuaries under the New Situation?” *China Banking and Insurance News*, December 6, 2019, [http://xw.cbimc.cn/2019-12/06/content\\_315107.htm](http://xw.cbimc.cn/2019-12/06/content_315107.htm) (accessed May 31, 2022).

<sup>23</sup> “CISF Profile,” China Insurance Security Fund, <http://www.cisf.cn:8088/gsj/jjjj/index.jsp> (accessed May 31, 2022). Some content is published on WeChat.

<sup>24</sup> CISF, “Risk Assessment Report on China Insurance Industry.”

## 2.3 OTHER PUBLICATIONS

Further information comes from publications related to risk management and AI/ML ethics.

### 2.3.1 RISK MANAGEMENT

In 2021, the CAA, under the supervision of the CBIRC, published *Risk Management Report on Accidental Injury in the Chinese Insurance Industry*, *The New Energy Vehicle Commercial Insurance Benchmark Pure Risk Premium Table (Trial)*, and the *National Health Education for the Prevention of Major Diseases Guide*. These three publications aimed to promote insurance product innovation, provide a reference for insurance product pricing, and educate the public about prevention of major diseases and the broad role of insurance companies in health care.

### 2.3.2 AI/ML ETHICS

As the industry continues to adopt AI/ML technology, the governance, ethics and fairness of AI/ML applications have become leading areas of concern for think tanks, technology firms and regulators worldwide. For instance, a 2019 research paper by ETH Zurich's Health Ethics and Policy Lab analyzed 84 guidelines and white papers on AI principles published by various firms, think tanks and regulatory bodies around the globe and found a convergence around core ethical principles, such as transparency, justice and fairness, non-maleficence and responsibility.<sup>25</sup>

In June 2021, the China Academy of Information and Communication, together with JD Explore Academy,<sup>26</sup> published a white paper on trustworthy AI.<sup>27</sup> The paper discusses the importance of maintaining a trustworthy, transparent and inclusive AI system and suggests how to develop a better AI system at the regulatory, academic, firm and industry levels.

## Section 3: State of Innovation

The innovation journey of the insurance industry is tied to multiple factors, including business environment, regulations, market size, growth and customer needs. Of late, it is also tied to customers' growing familiarity with technology. With mobile computing and digitization, as customers have become accustomed to searching for information online, they have shifted their purchasing patterns away from in-person sales toward online insurance.

### 3.1 FORCES WITH IMPACT ON INNOVATION

The three innovation phases identified in Table 1 have not been the only catalysts driving innovation. The influence of Chinese tech giants in the insurance industry has the potential to be a transformative force. For example, Baidu, Alibaba, Tencent and Xiaomi (BATX) have massive user populations, granular data on users, and in-app payments that may be combined for a seamless experience. Tencent and Alipay have integrated various medical services, such as online appointments, telehealth and pharmacy orders, into their apps. As a result, these players can provide

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<sup>25</sup> Anna Jobin, Marcello Lenca, and Effy Vayena, "Artificial Intelligence: The Global Landscape of Ethics Guidelines," Health Ethics & Policy Lab, ETH Zurich, 2019, <https://arxiv.org/ftp/arxiv/papers/1906/1906.11668.pdf> (accessed May 31, 2022).

<sup>26</sup> JD (Jingdong) is China's largest online retailer and its biggest overall retailer, as well as the country's biggest internet company by revenue. It was founded in 1998 as Jingdong Century Trading Co. The JD Explore Academy is a research institute of JD that focuses on AI, quantum computation, data science and decentralized computing.

<sup>27</sup> "Research Results—Authoritative Release—White Paper," Chinese Academy of Information and Communications Technology, July 2021, [http://www.caict.ac.cn/kxyj/qwfb/bps/202107/t20210708\\_380126.htm](http://www.caict.ac.cn/kxyj/qwfb/bps/202107/t20210708_380126.htm) (accessed May 31, 2022).

significant competition to traditional insurers. However, it remains to be seen how the recent Data Security Law (DSL) and Personal Information Protection Law (PIPL) will impact the ability of the BATX to compete in the sector.<sup>28</sup>

**Table 1**  
**STAGES OF INNOVATION IN CHINA'S INSURANCE MARKET**

	Before 2008	2008–2016	2017 to date
Regulatory actions	<ul style="list-style-type: none"> <li>Research, identification and implementation of global best practices and regulation</li> </ul>	<ul style="list-style-type: none"> <li>Creation of a comprehensive, multi-pillar regulatory framework (along the lines of Solvency II in Europe)</li> <li>Communicate clear, positive forward guidance for the insurance industry</li> </ul>	<ul style="list-style-type: none"> <li>Enhancement of existing regulatory framework to address domestic market characteristics and priorities (solvency, data privacy and data security)</li> <li>Liberalization of the insurance market to increase competitiveness (removing restrictions for foreign insurers)</li> </ul>
Insurer moves	<ul style="list-style-type: none"> <li>Digitization of the core insurance business, e.g., underwriting process</li> <li>Providing online outreach, information and purchasing funnels to customers and traditional insurance brokers</li> <li>Automation and computerization of back-end processes, especially underwriting and claims processing</li> </ul>	<ul style="list-style-type: none"> <li>Development of mobile services</li> <li>Development of nontraditional insurance products, e.g., term life</li> <li>Ecosystem of digital services to help customers with activities connected to their insurance policy—both day-to-day activities (making a doctor's appointment) and occasional ones (buying a home or a car)</li> </ul>	<ul style="list-style-type: none"> <li>Shift to end-to-end digital interaction, from sales to claims, away from in-person service delivery</li> <li>Major Chinese tech firms experiment with insurance-like offerings and/or partnerships with insurers</li> <li>Integration of customers' insurance accounts with digital services such as WeChat<sup>a</sup> to provide comprehensive financial services and access to insurance products</li> </ul>
Overall impact	<ul style="list-style-type: none"> <li>For some insurers, these steps led to the creation of siloed, stand-alone sites for handling various types of insurance, such as auto, health and life</li> <li>Some of these transformative efforts are still ongoing</li> </ul>	<ul style="list-style-type: none"> <li>By extending the type and number of offerings, insurance companies increased the number of customer interactions and strengthened customers' connection to their insurers; these practices continue to see iterative, ongoing enhancement</li> </ul>	<ul style="list-style-type: none"> <li>Offerings that are not only tailored to customers' needs and life stage but also marketed in the most effective way</li> <li>More rigorous oversight of new insurance products, including insurance-like products created by tech firms</li> </ul>

<sup>a</sup> WeChat is a widespread instant-messaging and social-media app released in 2011. The WeChat payment feature was launched in 2013.

Tech giants experimenting with the insurance industry include Tencent (the developer of WeChat) and Ant Group (which includes Ant Financial, Alibaba, and Alipay). In 2017, Tencent introduced its own insurance platform, WeSure. The platform offers electronics insurance and medical insurance and has expanded into wealth management offerings. It has 50 million customers, and 80% of its customer base was born after 1980.<sup>29</sup> Ant Group has experimented with a variety of offerings, including an insurance-like "mutual aid" platform, which reached up to 100

<sup>28</sup> Olivier Milcamps, "In China, the BATX Are Storming the Health Insurance Sector: What Lessons Can We Learn from It Today?," PMP, <https://pmpstrategy.com/> (accessed May 31, 2022).

<sup>29</sup> "Tencent's WeSure Wades into Life and Wealth Distribution," Digfin, November 4, 2020, <https://www.digfingroup.com/> (accessed May 31, 2022).

million members prior to its closing in 2021;<sup>30</sup> a portal for comparison shopping motor<sup>31</sup> (vehicle) insurance; and AI-/deep-learning-based tools for customer risk scoring and automotive damage claims processing.<sup>32</sup>

While the tech giants are a competitive threat to traditional insurers, it is worth mentioning that the tech giants may have to undergo additional regulatory review or special holding company structure restrictions, which are yet to be identified. PIPL also restricts their ability to use the full breadth of their customer data for alternative purposes, such as cross-selling.

In this context, the ERM function has been evolving to continually address and mitigate insurance risks and to manage risks associated with transformative forces. For example, the COVID-19 pandemic sped up adoption of digital platforms to support customers during mobility restrictions. Rapid change is leading to innovation, particularly around AI/ML. ERM functions are developing and adopting in-house AI/ML models in various areas of the insurance value chain, such as underwriting and product management. But these models require review of materiality and risk, and the methodologies and documentation may require additional assessment because of regulatory interest around AI/ML explainability and as ethics topics evolve.

### 3.2 PRACTITIONERS' OPINIONS ON INNOVATION ADOPTION

During interviews, insurance industry practitioners opined on various innovation areas, particularly risk management and value chain. In general, practitioners explained how their insurance companies have been innovating based on market segment focus, current business needs and customer journey.

While the ERM function is not necessarily an enabler of innovation, it serves the role of a facilitator to provide risk management oversight and risk mitigation, particularly to mitigate regulatory risk. For example, while introducing pilot products, the ERM function will look at insurance risks associated with those pilot products holistically, including regulatory approval and business risk materiality.

Also, because of the extensive and granular data that many insurers—health, life and P&C—have already collected on customers, they are looking at advanced analytics and AI/ML to leverage the data. Many are exploring the use of alternative data sets, such as data from social media. Some practitioners indicated their insurance companies are planning to invest in AI/ML and big data applications for better risk modeling and customer risk identification. Others are adopting and increasing AI/ML usage in the insurance value chain, including marketing, underwriting activities and product management. Various practitioners appreciated a business culture that allows freedom of experimentation at their companies, which allows them to rapidly test new business opportunities and drive innovation.

While practitioners often expressed interest in and ongoing initiatives to adopt AI/ML, some raised concerns on how effective or agile this adoption can be, owing to the prevailing business environment—namely, the changing needs of the customers and market. Other practitioners discussed the effect that new data privacy and data-sharing regulations recently issued in China will have in this innovation process (a topic discussed in detail in Section 5). Given the highly technical nature of AI/ML adoption, practitioners also mentioned challenges in liaising with nontechnical business units to follow best practices during the model development process. For example, actuaries

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<sup>30</sup> "Highlight of the Week—Mutual Insurance: Healthcare Utopia Sparks Fresh Controversy," *Global FinTech Weekly* (AMTD), July 8, 2019, [https://www.amtdgroup.com/sites/default/files/reports/EN\\_AMTD%20Global%20Fintech%20Weekly\\_Vol.3.pdf](https://www.amtdgroup.com/sites/default/files/reports/EN_AMTD%20Global%20Fintech%20Weekly_Vol.3.pdf) (accessed May 31, 2022)

<sup>31</sup> Motor insurance is also referred by practitioners outside China as vehicle insurance or auto insurance, it may be used interchangeably to refer to either personal or commercial insurance.

<sup>32</sup> Tjun Tang, Michelle Hu, and Angelo Candraia, "Why Chinese Insurers Lead the Way in Digital Innovation," BCG, February 27, 2018, <https://www.bcg.com/publications/2018/chinese-insurers-digital-innovation> (accessed May 31, 2022).

may need to meet with multiple internal committees to discuss legal, compliance and data privacy aspects during model development.

In the context of insurance risks and innovation of tools, a practitioner highlighted the importance of adopting prudent best practices around asset-liability management (ALM), a key activity supported by the asset-liability committee, which is typically integrated with the actuarial, treasury, investment and other ERM senior risk functions. A particular concern was around mismatches between the long duration of existing insurance portfolio liabilities and the primarily shorter-term investment assets available in the Chinese capital markets—specifically, lining up the expiration of the liability and the asset. Also, the importance of tools, investment and innovation in the ALM process highlights the important role of Chinese regulators. For example, a 2017 regulation restricts insurers with poor ALM from selling short-term products while insurers with strong controls are rewarded with product approvals.<sup>33</sup>

Interviewed practitioners provided an overview on the type of innovations their organizations will need in the next five years, as summarized in Table 2. In the short term (next one to two years), practitioners identified improvements that are primarily pragmatic to address current business needs, such as focusing on C-ROSS Phase II regulation. For the medium term (next three to five years), practitioners focus on technological developments and business model factors, such as AI/ML adoption.

**Table 2**  
**INNOVATION ROAD MAP FOR PRACTITIONERS**

Short-term innovation (next 1–2 years)	Medium-term innovation (next 3–5 years)
<ul style="list-style-type: none"> <li>• Innovations focused on reviewing products and IT risks for C-ROSS</li> <li>• Enhancement of ERM policy practices and meeting regulator’s requirements for China Risk Oriented Solvency System Phase II (C-ROSS), Solvency-Aligned Risk Management Requirement and Assessment (SARMRA) and Integrated Risk Rating (IRR)</li> <li>• Digitization and automation initiatives, including data management</li> <li>• Developing solutions for data sharing (a big challenge in using AI/ML models)</li> <li>• Business model innovations, especially because of the high turnover rate among consumers</li> <li>• Environmental and sustainability risk management and mitigation of risk for customers</li> </ul>	<ul style="list-style-type: none"> <li>• Investment in risk management applications, using AI/ML and big data modeling</li> <li>• Innovations on services to achieve business target and reduce climate change</li> <li>• Use of AI/ML and big data and other technologies or tools to study customers, improve underwriting and control aspects of risk mitigation (e.g., reputation risk)</li> <li>• Use of external data, including social media, to study customer needs and behavior and other ecological priorities</li> <li>• ALM systems to deal with duration match, profitability, and product segmentation issues</li> </ul>

Source: Interviews with practitioners.

In the short term, most practitioners identified desired areas for improvement that are primarily related to compliance with DSL, PIPL and other regulatory obligations such as C-ROSS (see Section 5). These desired innovations include improvements to policies and capabilities in IT risk and data sharing within their organizations. New focus areas in risk management, such as environmental, social and governance (ESG) and sustainability, were mentioned by one practitioner, whose firm has a dedicated team identifying emerging potential risks and analyzing their potential impact on the company’s business segments and product offerings.

<sup>33</sup> “China Tightens Oversight of Insurers’ Asset Liability Management,” Reuters, July 28, 2017, <https://www.reuters.com/> (accessed May 31, 2022).

For the medium term, practitioners are primarily focused on developing AI/ML capabilities for risk modeling, risk identification and underwriting, as well as exploring its uses to develop controls in aspects such as reputational risks. Availability and applicability of big data and external data sets, such as from social media, also will be a contributing factor. One practitioner mentioned that their company is actively following trends in digitization, biometrics, sales platforms and devices or gadgets that integrate with the internet of things (IoT). The rapid evolution of the consumer technology market leads to parallel evolution in the business environment; new technology generates new customer data and opportunities for new marketing and sales funnels. For instance, the launch of Alipay and Chinese tech giants' forays into insurance have led to changes in the modes of purchasing insurance. However, the ability to use external data will undoubtedly be affected by evolving regulatory policy on data privacy and security.

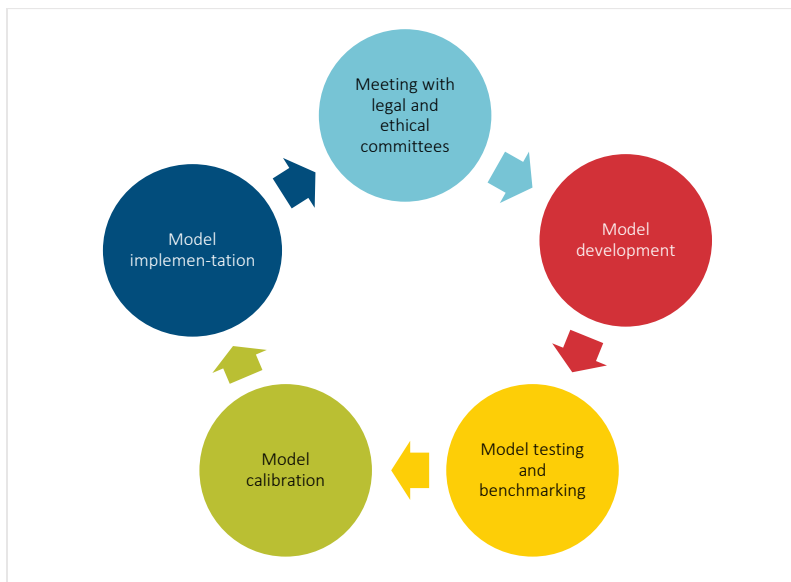
### 3.2.1 AI/ML ADOPTION JOURNEY

Practitioners expressed, in general, an ongoing need to adapt to changes in market demand, including innovative product offerings, as well as solutions such as ways to reduce customer turnover and better identify risks across portfolios. An experimental approach is taken for developing and implementing AI/ML applications, as summarized in Figure 3. As part of this innovation effort, practitioners indicated a wide range of business use cases across the insurance value chain where AI/ML applications could be incorporated.

In the case of product design and marketing, practitioners said AI/ML allows for better personalization, more accurate segmentation, and dynamic pricing when results are benchmarked against traditional actuarial models. For pricing and underwriting, AI/ML use cases include accelerated risk assessment, underwriting and smart contracts, regulation permitting.

Practitioners mentioned it was too early to measure AI/ML adoption benefits, since some of these initiatives were still in an experimental phase or being reviewed to ensure regulatory compliance. However, they expected some benefits in areas such as automated claims processing and customer service from greatly reducing customers' waiting time. They also expected benefits in fraud management, investment and trading, and cybersecurity tools.

**Figure 3**  
EXPERIMENTAL PROCESS FOR AI/ML MODELS



Source: Interviews with practitioners.

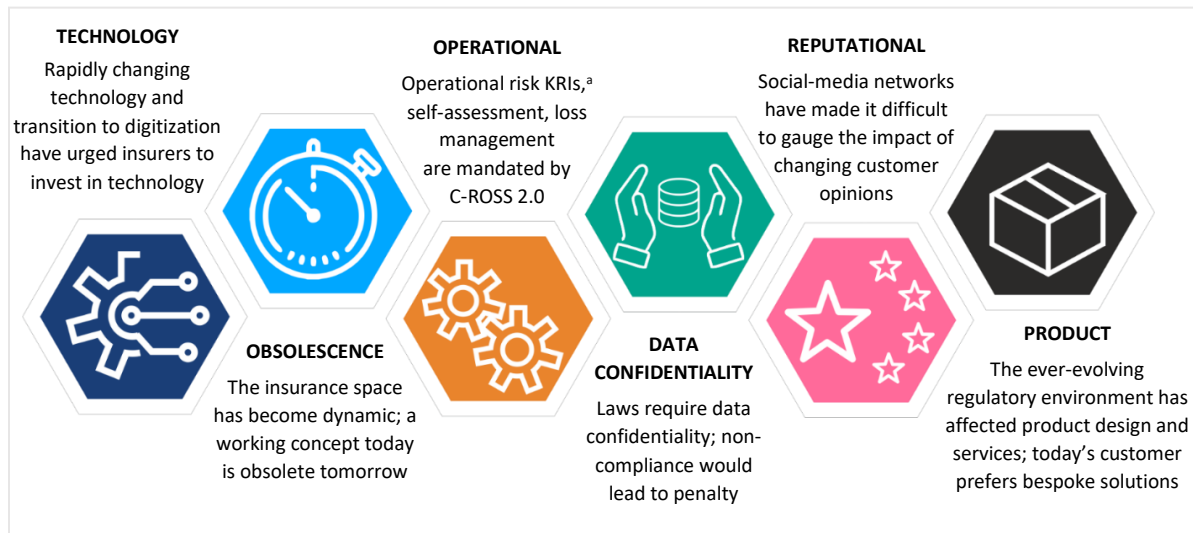
### 3.2.2 EMERGING ERM BEST PRACTICES FOR INNOVATION

As mentioned earlier, insurers in China are adopting AI/ML in various use cases, and gradually evaluating more innovative business models, regulation permitting. Large, traditional insurance companies tend to focus on their direct-to-customer strategy and aim to enhance overall customer experience. The internet insurance business, in contrast, is more focused on product innovation. Income from the internet channel still accounts for a relatively small share of the total premium income, and more integration with offline business is needed. Many insurers have partnered with third-party platforms such as hotel and flight booking sites to provide tailor-made insurance products. From a technical perspective, firms have adopted face recognition, image identification, predictive modeling and smart insurance. Some of these applications lead to ERM oversight, particularly from the operational risk point of view.

One practitioner said that to encourage internal innovation, their company has created a business innovation department. This department is empowered to approve and fund experiments within other departments at the firm, without requiring senior risk management approval. The streamlined approval process focuses on managing project costs, expected premiums, potential losses to the company, and regulatory adherence. By eliminating roadblocks to pilot projects, this insurer has been able to encourage internal innovation. The practitioner expressed that an earlier culture fearful of innovation is now replaced by one of openness to experimentation. The pilot projects are materially small and overseen by the innovation team; however, the practitioner mentioned there is no explicit ERM oversight for the innovation team itself. Hence, integrating a layer of ERM oversight to the innovation process would be a further improvement. Nonetheless, regulatory risk oversight was present.

Another enabler of innovation is careful assessment of key risk insurance factors (see Figure 4) and partnership with third-party providers. Practitioners expressed that their organizations have looked or are looking at establishing subsidiaries focused on advanced technologies, particularly through partnerships with start-ups or insurtechs.<sup>34</sup>

**Figure 4**  
**KEY INSURANCE RISK FACTORS THE ERM FUNCTION FOCUSES ON DURING THE INNOVATION PROCESS**



<sup>a</sup>Key risk indicators.  
 Source: Interviews with practitioners.

<sup>34</sup> An insurtech is any company or technology that is used by insurance companies to streamline operations, provide a better service or save money.

## Section 4: Business Environment

The financial services industry, including insurance, is becoming customer-centric for sustainable growth. Key drivers of this shift are technological change and consumer access to overwhelming choices and information. Insurance companies are equally affected by these factors and must innovate and develop products that can interact with, attract and retain customers. The key focus areas may include products, distribution channels, customer engagement and operational efficiency,<sup>35</sup> using start-ups and insurtechs.<sup>36</sup>

### 4.1 KEY FEATURES OF CHINA'S INSURANCE ENVIRONMENT

In 2015, China initiated a national strategic plan, Made in China 2025, which outlined the country's strategy to modernize its industrial capability.<sup>37</sup> The plan focuses on integrating advanced technology, including AI, within the manufacturing sector. Due to recent regulation and government support, insurance companies have also prioritized AI/ML development and investment (for further details, see Section 5).

In 2016, the government of China released the outline of the 13th Five-Year Plan for the National Economic and Social Development of the People's Republic of China, which mentions China's intention of "making breakthroughs in artificial intelligence technologies for emerging areas."<sup>38</sup> Since the announcement of this plan, the insurtech index (a measure the popularity of insurtech in the Chinese insurance industry) has significantly increased, according to a study jointly conducted by Fudan University and Swiss Re.<sup>39</sup> Five years later, the outline of the 14th Five-Year Plan dedicates an entire chapter to the development of the digital economy. The plan identifies digital areas that are crucial to building a strong digital economy: cloud computing, big data, IoT, industrial internet, blockchain, virtual reality and AI.<sup>40</sup>

The government has also promulgated new rules and standards that are driving some of the changes in the business environment (as discussed in Section 5). Two key data-related laws came into force in late 2021. The Personal Information Protection Law (PIPL) creates restrictions on the retention, storage and processing of personal information much as the EU's GDPR does, while the Data Security Law categorizes data based on potential impact to national security and prevents its release to foreign law enforcement.<sup>41</sup> These regulations arose in the context of ongoing digitization of society, an extensive increase in the use of online services during the COVID-19 pandemic, and ongoing concerns about the role of technology in society.

<sup>35</sup> Digitalization in Insurance: Customer Insights That Matter, Deloitte, 2021, <https://www2.deloitte.com/cn/en/pages/human-capital/articles/digitalization-in-insurance.html> (accessed May 31, 2022).

<sup>36</sup> The start-ups tend to build expertise around specific areas within the value chain—for example, marketing, product development or operations. A study conducted by Fudan University and Swiss Re undertook a keyword analysis from the road show presentations of 104 insurtech start-ups. It was observed that start-ups concentrate on providing services in the health and life insurance fields. They are also involved in different value chain activities, with claims and underwriting activities being mentioned most frequently.

<sup>37</sup> "Notice of the State Council on Issuing 'Made in China 2025,'" State Council Information Office of the People's Republic of China, May 8, 2015, <http://www.scio.gov.cn/xwfbh/xwfbh/wqfbh/37601/39571/xgzc39577/Document/1644483/1644483.htm> (accessed May 31, 2022).

<sup>38</sup> "Outline of the 13th Five-Year Plan for the National Economic and Social Development of the People's Republic of China," Chinalawinfo Co., March 16, 2016, <http://www.lawinfolchina.com/display.aspx?id=3fe76ec605b256e9bdfb&lib=law> (accessed May 31, 2022).

<sup>39</sup> Yufei Cao, Xian Xu, and Yuan Zhou, "How InsurTech Affects Insurance Premiums? Evidence from China," ActuView, July 7, 2021, <https://www.actuview.com/> (accessed May 31, 2022); "China InsurTech Development Report," Fudan Development Institute, October 31, 2021, <https://fddi.fudan.edu.cn/> (accessed May 31, 2022). The insurtech index is constructed using the standardized number of news articles (including online and print media) that mention "insurtech" in each month. The researchers have also created the insurtech AI index, the insurtech blockchain index by measuring the number of articles that mention both "insurtech" and "AI" or "insurtech" and "blockchain."

<sup>40</sup> "14th Five Year Plan," National Development and Reform Commission, March 2021, <https://www.ndrc.gov.cn/> (accessed May 31, 2022).

<sup>41</sup> Ryan D. Junck, Bradley A. Klein, Akira Kumaki, et al., "China's New Data Security and Personal Information Protection Laws: What They Mean for Multinational Companies," Skadden, Arps, Slate, Meagher & Flom, November 3, 2021, <https://www.skadden.com/> (accessed May 31, 2022).



As shown in Figure 1, insurance penetration in China was a relatively low 4.5% as of 2020. Several factors contribute to this level of insurance penetration:<sup>42</sup>

- Historically low awareness of insurance and insurance not being mandatory
- Less product choice than in developed markets (e.g., limited variable annuity and universal life products)
- Less-developed sales channels and customer services (e.g., commission-only compensation of underwriters)

The Insurance Consumer Confidence Index (ICCI) has had values above 66 since its inception in 2015, indicating that consumers have tended to hold an optimistic view of the insurance industry over the past years.<sup>43</sup> The confidence index is calculated as the weighted average of several sub-indicators, including consumer's confidence in macro environment, insurance industry, individual spending, etc. The index gives a value from 0 to 100, and values above 50 indicate average to high confidence levels.

The following insurance subtopics discuss various trends and challenges faced by insurers, particularly around insurance products, distribution channels, customer loyalty, operational efficiency, inflation, migration and other matters of concern.

#### 4.1.1 PRODUCTS AND PILOT PROGRAMS

Products with flexible coverage and payment terms are gaining prominence, a trend furthered by the pandemic. Customers are now better informed than previously and are on the lookout for comprehensive and personalized products. In response, companies are becoming nimbler. They are deploying robotic process automation (RPA) and no-code or low-code tools to accelerate the configuration of insurance product riders by automatically identifying attributes or characteristics of the consumers. They also are using data analytics to iterate products that are more customer oriented and focused on the consumer market.

Among regulatory pilot programs, China's National Development and Reform Commission and the Ministry of Commerce recently announced a new pilot program called Insurance Connect, which will allow insurers in Hong Kong and Macau direct settlement of medical bills at public hospitals in Shenzhen (which is situated across from Hong Kong in mainland China).<sup>44</sup> Regulators will also establish insurance service centers in Shenzhen to provide after-sales service on behalf of Hong Kong insurers. While this pilot does not involve cross-border sales by Hong Kong insurance companies in the mainland (or vice versa), it allows Hong Kong insurance agencies to expand into Shenzhen, increasing competition in the region.<sup>45</sup>

#### 4.1.2 OPERATIONAL EFFICIENCY: DIGITAL DISTRIBUTION CHANNELS AND CUSTOMER LOYALTY

Operational efficiency is the key to unlock lower premiums. Insurance companies can automate simple processes to eliminate manual work and lower resource costs. Good data architecture can enable insurers to generate insights, assist in making business decisions, and reduce the number of errors and manual checkpoints. Most insurers have implemented e-claim services through web or mobile applications with a fully automated review process, streamlining the claim process.

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<sup>42</sup> China Market Opportunities for Foreign Insurance Companies Under the New Opening-Up Policies, Deloitte, June 2020, <https://www2.deloitte.com/> (accessed May 31, 2022).

<sup>43</sup> The Consumer Protection Bureau of CBIRC and CISF have published the index since 2015.

<sup>44</sup> Iris Ouyang and Enoch Yiu, "Beijing's New Measures Supporting 'Insurance Connect' Scheme May Boost Hong Kong Insurers' Expansion into Bay Area," South China Morning Post, January 28, 2022, <https://www.scmp.com/> (accessed May 31 2022).

<sup>45</sup> Enoch Yiu, "Insurance Connect' Will Be Next Big Step for Greater Bay Area, with Two Services Centres Expected to Be Set Up by End of Year," South China Morning Post, July 24, 2020, <https://www.scmp.com/> (accessed May 31, 2022).

Expanding or building nationwide insurance sales channels, though, likely remains a concern for most insurers, particularly for foreign ones (e.g., raising the build-or-buy question).<sup>46</sup> Digital channels are being embraced for their convenience and transparency. Due to cost savings, time constraints and efficiency, consumers are shifting away from traditional, in-person sales and service to digital platforms, where customers can easily compare premiums and product features and receive instant responses. Insurers must go where the consumers are and where the demand is, and the new generation of consumers (such as the middle-income population mentioned in Section 1) is online. This requires digital distribution from insurers. Insurers are navigating this new way of conducting business and are developing capabilities to address the distribution issue.

Another recent innovation in digital distribution channels was the creation of mutual-aid platforms, which had around 150 million Chinese members in 2019.<sup>47</sup> About 68% of these members lacked private insurance, and 72% lived in smaller cities. The largest platform, tech giant Ant Group's Xiang Hu Bao (XHB), offered up to \$45,000 in coverage for 100 types of illnesses, attracting 100 million participants at its peak.<sup>48</sup> In April 2021, the China Banking and Insurance Regulatory Commission (CBIRC) began investigating and shutting down mutual-aid platforms out of concern that they could create risks due to their lack of regulatory oversight, unsupervised funds and large numbers of members.<sup>49</sup> While XHB explored options to become a licensed medical insurance provider, Ant Group shut down XHB on January 28, 2022.<sup>50</sup>

Based on a 2021 report by the CISF,<sup>51</sup> the COVID-19 pandemic has imposed several challenges on the insurance industry:

- Personal insurance companies' business growth was hindered as the traditional salesperson-based model became less effective due to the COVID-19 response. Social distancing and rounds of lockdowns slowed use of the traditional sales distribution channel. Moreover, income from high-profitability products such as regular premiums also decreased. Slower business development led to decreases in sales staff's income, which triggered a wave of resignations. Several major insurance companies observed an annual decrease in the number of salespersons by the end of 2020.
- Many insurance companies have increased investment in the distribution channels at banks and post offices, as these have regained popularity. The increased competition has led to increased costs for insurance companies, presenting a challenge for small and medium-size insurance companies. Although these channels led to rapid growth in original-premiums income, most policies underwritten from these channels were single-premium policies, which are less profitable.
- Although insurance companies are incorporating digital transformation and starting to shift to internet sales distribution channels in response to the COVID-19 pandemic, the internet sales distribution channels remain relatively underdeveloped and opportunities remain for growing online sales channels to sell long-term insurance products.

<sup>46</sup> China Market Opportunities for Foreign Insurance Companies under the New Opening-Up Policies, Deloitte, June 2020, <https://www2.deloitte.com/> (accessed May 31, 2022).

<sup>47</sup> Rong Yi, "Platform Mutual Aid for Healthcare Coverage in China," white paper, Milliman, January 2022, [https://www.milliman.com/-/media/milliman/pdfs/2022-articles/2-2-22\\_platform\\_mutual\\_aid\\_for\\_healthcare\\_coverage\\_in\\_china.ashx](https://www.milliman.com/-/media/milliman/pdfs/2022-articles/2-2-22_platform_mutual_aid_for_healthcare_coverage_in_china.ashx), (accessed in May 2022).

<sup>48</sup> "Ant Group to Shutter Xiang Hu Bao Mutual Aid Platform," PYMNTS, December 28, 2021, <https://www.pymnts.com/news/international/2021/ant-group-to-shutter-xiang-hu-bao-mutual-aid-platform/> (accessed May 31, 2022).

<sup>49</sup> Tracy Li, "Popular Online Mutual Aid Services Shutting Down", Shine, April 3, 2021, <https://www.shine.cn/biz/finance/2104036954/> (accessed May 31, 2022)

<sup>50</sup> Wu Yujian and Denise Jia, "China May Regulate Online Health-Care Mutual Aid Platforms," Caixin Global, September 9, 2020, <https://www.caixinglobal.com/2020-09-09/china-may-regulate-online-health-care-mutual-aid-platforms-101602911.html>, (accessed May 31, 2022).

<sup>51</sup> CISF, "Risk Assessment Report on China Insurance Industry."

As in-person services decline and insurers adopt real-time responses to enhance overall user experience, external data sources and the Internet of Things (IoT) can provide insurers and practitioners with more data for defining the risk profiles and behavior of new and existing customers. The availability of new data sources and advanced analytics offers a possibility for insurers to create data-driven market offerings, improve the accuracy and speed of the underwriting processes, and support data-driven marketing activities.

Additionally, as mentioned in Section 3 of this report, insurers are adopting AI/ML in the insurance value chain, particularly for underwriting and product management—two critical areas in which insurers can pursue digital distribution channels. These AI/ML initiatives are aimed at accelerating many of the traditional activities required to manage insurance products.

For insurers, customer stickiness is commonly affected by premiums and price transparency. The entire customer journey, from product search to underwriting and claim payment, must satisfy consumers' expectations. For that, the user experience and user interface (UX/UI) may need to be updated to be effective in the new digital distribution channels. By modernizing the value chain and exploring automation and AI, companies can streamline the end-to-end process. Omnichannel interaction and customer communication can increase the potential customer touchpoints and interactions. Involvement of social-media platforms and the increasing presence of insurance companies on such platforms have enhanced real-time customer loyalty and engagement.

#### 4.1.3 INFLATION

Worldwide, the insurance industry considers two aspects of inflation that may pose an additional risk to the premiums issued: unexpected inflation<sup>52</sup> and social inflation.<sup>53</sup> On unexpected inflation, there is evidence of increased inflation in 2021, driven by the reopening of markets and base effects from pandemic-related disruptions. On social inflation, the authors of this report didn't find conclusive evidence of litigation against insurers driving premiums up in the insurance market.

A key area of concern to the government is medical unexpected inflation, which affects population and is critical during events such as the pandemic. Medical inflation has been observed in the past. For example, in China between 2007 and 2012, medical inflation outpaced general inflation, which affected profit margins for health insurance products. Products launched with good profit margins would face profit compression, as premiums could not be updated to match inflation. However, medical price inflation is not part of China's consumer price index (CPI), as it is not considered part of the basic consumer basket. In September 2021, China announced its Pilot Program for Deepening the Price Reform of Medical Services to review pricing for health care providers and set guidelines for pricing at public institutions.<sup>54</sup> This pilot program was jointly launched by eight government agencies and creates measures to reduce overprescribing and to rein in costs at public hospitals. Private hospitals, while allowed to use market pricing, will be subject to increased regulatory oversight, including pricing investigations and public disclosure of price irregularities.<sup>55</sup> The pilot will run in five cities ahead of a national rollout by 2025.

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<sup>52</sup> "Costs of Expected and Unexpected Inflation," AlphaBetaPrep, <https://alphabetaprep.com/cfa-level-1/costs-of-expected-and-unexpected-inflation/#:~:text=Expected%20inflation%20is%20the%20inflation,their%20pricing%2C%20costing%2C%20etc> (accessed in May 31, 2022).

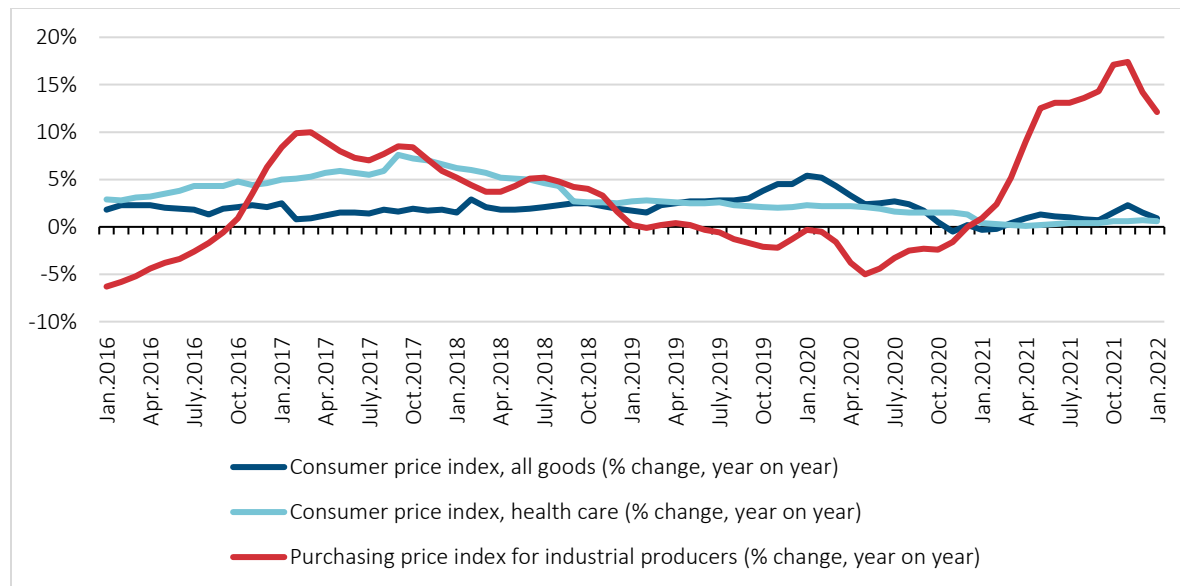
<sup>53</sup> "What Is Social Inflation, and Why Is It Hurting Insurance?," Insurance Business America, January 3, 2020, <https://www.insurancebusinessmag.com/> (accessed May 31, 2022).

<sup>54</sup> "The Pilot Program for Deepening the Price Reform of Medical Services," State Council of the People's Republic of China (PRoC), August 25, 2021, [http://www.gov.cn/zhengce/zhengceku/2021-09/01/content\\_5634738.htm](http://www.gov.cn/zhengce/zhengceku/2021-09/01/content_5634738.htm) (accessed May 31, 2022).

<sup>55</sup> "China Ramps Up Healthcare Reform with Pilot Pricing Scheme," Reuters, September 1, 2021, <https://www.reuters.com/world/china/china-plans-pilot-programme-healthcare-service-pricing-reform-2021-08-31/>, (accessed May 31, 2022).

China's consumer price index (CPI) measures a limited set of inflation components, which, as mentioned do not include unexpected medical inflation. The CPI has been stably low, averaging 2% since 2015,<sup>56</sup> and increasing merely 0.7% in the year following September 2020, according to official statistics available at the time of writing (see Figure 5). However, according to a September 2021 article published in *The Actuary*,<sup>57</sup> China has recently experienced medical inflation of 6% to 8% annually. Moreover, the Chinese producer price index (PPI) rose as high as 13.5% in October 2021 (the highest in 26 years) and continues to rise faster than CPI. These price increases will likely get passed on to consumers.<sup>58</sup>

**Figure 5**  
**CHINA INFLATION GAP BETWEEN PPI, CPI AND HEALTH CARE CPI**



Source: China National Bureau of Statistics, <http://www.stats.gov.cn/> (accessed May 31, 2022).

The low CPI is mainly attributed to low food prices. The PPI tracks mainly prices related to industrial goods, which are components not measured on the CPI,<sup>59</sup> effectively resulting in two mutually exclusive indexes that measure inflation of components at different levels. According to the Statistics Bureau, the price of refined coal increased 18.9% and the price of unprocessed coal rose 12.1% month on month in September 2021, due to increasing demand and tightening supply.<sup>60</sup> China's supply capacity for downstream consumer goods is strong due to the efficient supply chain and infrastructure, so there is a gap between the CPI and the PPI.<sup>61</sup> It is also worth noting that different parts of China have quite different

<sup>56</sup> Inflation, Consumer Prices (Annual %)-China, World Bank, <https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?locations=CN> (accessed May 31, 2022).

<sup>57</sup> Liguang Zhang, "HDHL Medical Insurance in China: Part 2," *The Actuary*, September 2021, <https://theactuarymagazine.org/> (accessed May 31, 2022).

<sup>58</sup> "China's Inflation Risks Build as Producers Pass on Costs," *Bloomberg*, November 10, 2021, <https://www.bloomberg.com/news/articles/2021-11-10/china-factory-inflation-surges-to-26-year-high-cpi-picks-up> (accessed May 31, 2022).

<sup>59</sup> "September 2021 Price Data Review: PPI to CPI Transmission Is Limited," *Shanghai Securities Journal*, October 14, 2021, [https://pdf.dfcfw.com/pdf/H3\\_AP202110141522635467\\_1.pdf?1634247412000.pdf](https://pdf.dfcfw.com/pdf/H3_AP202110141522635467_1.pdf?1634247412000.pdf) (accessed May 31, 2022).

<sup>60</sup> "The National Bureau of Statistics Interprets the September 2021 CPI and PPI Data," *State Council of the PRC*, October 14, 2021, [http://www.gov.cn/xinwen/2021-10/14/content\\_5642395.htm](http://www.gov.cn/xinwen/2021-10/14/content_5642395.htm) (accessed May 31, 2022).

<sup>61</sup> Why PPI Keeps Rising, *National Bureau of Statistics*, May 12, 2021, [http://www.gov.cn/xinwen/2021-05/12/content\\_5605901.htm](http://www.gov.cn/xinwen/2021-05/12/content_5605901.htm) (accessed May 31, 2022).

levels of economic development, so they can experience different inflation levels than those reported in Figure 5.

#### 4.1.4 LIFE AND HEALTH INSURANCE

An additional component having an impact on the insurance business environment, particularly costs, is internal migration.<sup>62</sup> Over the past 30 years, rapid economic development and elimination of policies on labor migration have enabled movement of rural families into cities, seeking to improve incomes and consumption. While these migrant workers typically have greater spending power than other rural families, they may not be eligible for social welfare and security measures in the city, where these benefits are typically limited to those holding urban *hukou* (household registration).<sup>63</sup> Migrant workers—typically young, healthy and working in factories—can receive health care; however, they pay for but don't receive the same social health insurance outside their home county/city as people who hold urban *hukou*. Without medical insurance, they need to pay the cost from their own pocket. In many cases, the medical expense might be high compared with the amount they make working at factories, construction sites and other locations.

In recent years, some cities are making efforts to bridge this gap through policies that encourage migrant workers to participate in welfare programs. For instance, Beijing and Shenzhen offer migrant workers reduced contribution rates to enroll in their social insurance programs. However, participation has been relatively low because of workers' high mobility, informal employment and low wages, as well as lack of awareness about these programs.<sup>64</sup> That said, these migrants may benefit from insurance solutions that can handle high mobility, such as mutual-aid and digital-distribution initiatives mentioned in Sections 3 and 4.

One measure aiming at prevention-oriented public-health interventions is Healthy China 2030, a government action plan announced in July 2016. Along with reviews of regulation to encourage health care innovation, the plan includes an emphasis on public-health interventions such as smoking cessation and increased screening for chronic diseases.<sup>65</sup> China's social health insurance covers the expenses of many of these screenings. The rollout of this plan will influence long-term insurance claims.

#### 4.1.5 GENERAL INSURANCE

In China as in many other countries, external factors are affecting the insurance industry. For example, the automotive industry is evolving due to the insurability of self-driving cars (risk frequency changes) and transition to electric vehicles (increased cost/severity). With price liberalization and slowing automobile sales, motor (vehicle) insurance growth is slowing, and profit margins are shrinking.<sup>66</sup>

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<sup>62</sup> Chinese nationals who work in cities other than their home places are known as *liudong renkou*, or "floating population."

<sup>63</sup> Chuanbo Chen and C. Cindy Fan, "China's Hukou Puzzle, Why Don't Rural Migrants Want Urban Hukou", *The China Review*, Vol. 16, No. 3, 2016. According to Chen and Fan (2016), as early as 2001, small cities like Changzhi in Shanxi province had also started hukou reforms. However, Chen and Fan (2016) highlight that there is a "mismatch" between the soften hukou reform and people's willingness of transferring their rural hukou status to urban hukou status. The reason behind is that only middle to small cities are very open to accept migrant workers with rural hukou and grant them with urban hukou; larger cities are still being restrictive. However, it seems that instead of having an urban hukou, people now care more about which city the urban hukou status is linked to. The issue has evolved to what Chen and Fan (2016) call "the question of where more so than what."

<sup>64</sup> Yaojiang Shi, Yu Bai, Yanni Shen, et al., "Effects of Parental Migration on Mental Health of Left-Behind Children: Evidence from Northwestern China," *China and World Economy* 24, no. 3 (2016): 105–22. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/cwe.12161> (accessed May 31, 2022).

<sup>65</sup> "Healthy China 2030: China's Healthcare Journey," Bayer, June 25, 2018, <https://www.bayer.com/> (accessed May 31, 2022).

<sup>66</sup> 2020 China Insurance Outlook: Trends and Imperatives Shaping the Life and Non-life Markets, EY, 2019, <https://assets.ey.com/>, accessed in May 2022.

The two main sources of original premiums income in the Chinese insurance industry in 2020 were property insurance and personal (life and health) insurance, with property insurance accounting for 26.4% and personal insurance accounting for 73.6% of the entire market.<sup>67</sup>

In 2020, based on data available at the time of writing, motor (vehicle) insurance was the largest segment of the property insurance category, accounting for 60.7% of general insurance direct written premiums, but it experienced growth of only 0.7% due to changes in regulations, which lowered mandatory motor (vehicle) liability premium prices by up to 50%.<sup>68</sup> A decline in vehicle sales due to pandemic-related restrictions also affected motor (vehicle) insurance premiums last year, though these are forecast to experience record growth of 6% in both 2021 and 2022. The three largest segments following motor (vehicle) insurance were short-term health insurance, liability insurance and agricultural insurance. Agricultural and disaster insurance have both grown due to government subsidies, while new product development initiatives, such as grain insurance, are expected to enhance coverage over the coming years.<sup>69</sup>

Within the personal insurance category, life insurance was the largest insurance line, with a share of 72% by the end of 2020. Behind life insurance were health insurance and personal accident insurance.

#### 4.2 OVERVIEW OF FOREIGN-OWNED INSURANCE COMPANIES

Nearly 50 foreign insurers have entered the Chinese market since the 1990s.<sup>70</sup> However, in large part due to regulatory restrictions around foreign ownership, the 10 largest life and non-life insurers were Chinese controlled at year-end 2018. They had a total market share of 73.5% in life insurance and 85.2% in non-life insurance. The largest foreign or joint-venture insurer was ICBC-AXA, accounting for just 1.3% of the market for direct written premium basis.<sup>71</sup>

In the past two years, the CBIRC has made significant regulatory changes in the insurance industry. It has loosened many restrictions, allowing foreign insurers to compete in the market. The following changes are particularly notable:

- **April 2018.** The CBIRC announced that, effective immediately, all foreign-invested insurance agencies would be able to conduct the same insurance activities as domestic firms, including insurance proposals, claims processing, reinsurance, and consultancy services in relation to disaster insurance, risk assessment and risk management. All rules and regulations for foreign-owned insurance companies are the same as those for domestic insurers.
- **January 2020.** The CBIRC repealed a 51% cap on foreign ownership in Chinese life insurance firms, allowing foreign investors to own 100% in Chinese insurance companies.<sup>72</sup>

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<sup>67</sup> "Risk Assessment Report on China Insurance Industry.", CISF, <http://www.cisf.cn/> (accessed May 31, 2022).

<sup>68</sup> "China Insurance Industry to Hit \$313bn in 2025: Globaldata," Italian Trade Agency, November 26, 2021, <https://www.ice.it/index.php/it/news/notizie-dal-mondo/196597>, (accessed May 31, 2022).

<sup>69</sup> "Global Data: General Insurance Industry in China to Reach US\$313.0bn in 2025, Forecasts GlobalData," MarketScreener, November 16, 2021, <https://www.marketscreener.com/> (accessed May 31, 2022); Chris Seekings, "China's General Insurance Market Set for Huge Growth," The Actuary, November 17, 2021, <https://www.theactuary.com/news/2021/11/17/chinas-general-insurance-market-set-huge-growth>, (accessed May 31, 2022).

<sup>70</sup> China Market Opportunities for Foreign Insurance Companies Under the New Opening-Up Policies, Deloitte, June 2020, <https://www2.deloitte.com/> (accessed May 31, 2022).

<sup>71</sup> Ibid.

<sup>72</sup> Edwin Northover, Tingting Wu, and Fengjian Ao, "China to Allow 100% Foreign Ownership in Life Insurers from January 1, 2020," Debevoise & Plimpton, December 11, 2019, <https://www.debevoise.com/insights/publications/2019/12/china-to-allow> (accessed May 31, 2022).

- **January 2020.** The CBIRC removed market entry conditions, which previously required foreign firms to have at least 30 years of history in the insurance industry and a representative office in China for two or more years prior to establishing a local insurance subsidiary.
- **December 2021.** The CBIRC announced plans to repeal the 25% ownership cap on Chinese insurance asset management companies.<sup>73</sup> Currently, there are 31 insurance management firms in China, with RMB 19 trillion (\$3 trillion) of assets under management, including four joint ventures.<sup>74</sup>

A series of major consolidations have followed, with a breadth of Western insurance companies looking to increase their investment or market share in China. In 2019, AXA acquired the remaining 50% stake in AXA-Tianping Property & Casualty.<sup>75</sup> Allianz China Life acquired the remainder of Allianz China Life from its joint venture partner, CITIC Trust.<sup>76</sup> HSBC received regulatory approval to acquire the remaining 50% of HSBC Life China from its joint venture. Other insurers, including Prudential, also announced plans to increase their shareholding in joint ventures, possibly funded by a sale of its US-based business segments.<sup>77</sup>

Compared with the foreign insurance industry of five to 10 years ago, many newer international insurers and reinsurers operate in China as of the first quarter of 2022. This includes new applications approved to operate insurance in China, such as, Allianz and ACE in 2020.

Foreign-owned insurers take the following roadmap to enter or re-enter the China insurance market:

- Joint venture (JV) partnership or buying out existing JV partners
- Setting up wholly foreign-owned enterprises
- Acquiring existing insurers in China (with existing licenses and sales channels)
- Other partnerships, such as insurtech companies acquiring customers and channels

#### 4.3 PRACTITIONERS' OPINIONS ABOUT THE BUSINESS ENVIRONMENT

Industry practitioners in China say the most relevant emerging risks for the insurance business are financial volatility, cybersecurity, pandemics and disruptive technology (see Table 3). The perception of emerging risk varies between practitioners in China and those in the United States.

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<sup>73</sup> "CBIRC to Remove Foreign Ownership Cap for Insurance AMCs," China Justice Observer, January 10, 2022,

<https://www.chinajusticeobserver.com/a/cbirc-to-remove-foreign-ownership-cap-for-insurance-amcs> (accessed May 31, 2022).

<sup>74</sup> Hui Ching-hoo, "China to Allow 100% Foreign Ownership of Insurance Asset Managers," Asia Asset Management, December 14, 2021, <https://www.asiaasset.com/post/25469-cbirc-1213>, (accessed May 31, 2022).

<sup>75</sup> "AXA Has Completed the Acquisition of the Remaining 50% Stake in AXA Tianping," press release, AXA, December 13, 2019, <https://www.axa.com/en/press/press-releases/axa-has-completed-the-acquisition-of-the-remaining-50-stake-in-axa-tianping> (accessed May 31, 2022).

<sup>76</sup> "Allianz China Life to Become Wholly-Owned Subsidiary of Allianz China Insurance Holding," press release, Allianz, February 5, 2021, <https://www.allianz.com/> (accessed May 31, 2022).

<sup>77</sup> "Exclusive: Prudential Eyes Full Control of China Venture, Considers U.S. Options," Reuters, February 6, 2020, <https://www.reuters.com/article/us-prudential-china-exclusive/exclusive-prudential-eyes-full-control-of-china-venture-considers-u-s-options-idUSKBN2001TS> (accessed May 31, 2022).

**Table 3**  
**PRACTITIONER RANKINGS OF MOST RELEVANT EMERGING RISKS**

Ranking	Chinese practitioners <sup>a</sup>	US practitioners
1	Financial volatility	Climate change
2	Cyber/networks	Cyber/networks
3	Pandemic/infectious diseases	Pandemics/ infectious diseases <sup>b</sup>
4	Disruptive technology	Financial volatility

<sup>a</sup>The risk category ranking is not performed in the ERM study, but the authors have arranged the list in an order that reflects the average conclusion of the measuring instrument.

<sup>b</sup>In 2019, disruptive technology was ranked third in the United States and Canada.

Source: Practitioners interviewed; Max J. Rudolph, 15th Annual Survey of Emerging Risks, SOA Research Institute, January 2022, <https://www.soa.org/>.

Practitioners in China have provided their views about how key risk factors could affect the insurance business. They have also shared details about the impact, speed, direction and type of change, based on a Risk Factors Card, described in Table 4. This is useful to interpret how practitioners qualified each risk factor according to the relevance at their own insurance company.

**Table 4**  
**RISK FACTORS CARD: HOW PRACTITIONERS QUALIFIED RISK FACTORS' RELEVANCE TO THEIR COMPANY**

Item	Change to insurance business
Impact	<ul style="list-style-type: none"> <li>• <b>Low.</b> Limited or no impact on the insurance business</li> <li>• <b>Medium.</b> Potentially material impact on the insurance business</li> <li>• <b>High.</b> Material or relevant impact on the insurance business</li> </ul>
Speed	<ul style="list-style-type: none"> <li>• <b>Radical.</b> A rapidly or exponentially changing business environment that affects the insurance business</li> <li>• <b>Incremental.</b> A slowly or linearly changing business environment</li> </ul>
Direction	<ul style="list-style-type: none"> <li>• <b>Positive.</b> A risk factor expected to have a positive impact on the insurance business</li> <li>• <b>Negative.</b> A risk factor expected to have a negative impact on the insurance business</li> </ul>
Type	<ul style="list-style-type: none"> <li>• <b>Core.</b> Directly affects the insurer's value chain activities (i.e., is core to insurance business activities, such as underwriting)</li> <li>• <b>Peripheral.</b> Indirectly affects the insurer's value chain activities (i.e., is peripheral to insurance business activities, such as use of technology)</li> </ul>

Source: Practitioners Interviewed.

### Demographics

While China's total population is still slowly growing, the working-age population has peaked, and the dependency ratio is rising. The Chinese population has reached moderate wealth, but the rising median age of the population will weigh on the speed of economic growth and create challenges, such as increasing health care costs and the need to finance retirement spending. These are societal challenges but opportunities for insurers.

### Financial Volatility

The practitioners indicated that medical inflation is an area of concern in China, and the basket of goods used to measure overall and component CPI have been affected at different inflation rates. (Please also refer to the



discussion of inflation earlier in this section.) This is reflected in different areas of the insurance business—for example, the medical costs exacerbated by the pandemic affecting policies and premiums.<sup>78</sup>

In general, this change in prices is somewhat mitigated by policyholders who will use their social health insurance reimbursement (i.e., use part of their salary to pay for health insurance), which is a stimulus around health insurance. However, some residual risk goes back to the insurance and the calculation of premiums. As a way to reduce the inflation risks, some practitioners proposed increasing the pool base of health care products, such as adding contractual riders to products that traditionally do not incorporate a health benefit. This includes commercial insurance policies to cover some health costs, regulation permitting.

Another practitioner mentioned that the inflation rate has affected the claim process by increasing the gap between the claim and the policyholder loss amount. For example, due to the increase in costs since the COVID-19 pandemic, repair expenses for suppliers and factories in the motor (vehicle) insurance business has increased, since many car parts produced have higher costs or are unavailable. This unexpected increase has led to the repricing of many of the products. Hence, financial volatility drives some of the incremental impacts from operational risks that have a high impact on both the core and peripheral aspects for insurers.

### **Cybersecurity**

Practitioners consider cybersecurity as having a high impact on the company and potentially a radically negative effect on the company's reputation. However, while this is a high-impact risk, it is considered peripheral because it doesn't affect the core insurance business and lies more in the arena of operational risk, though still part of the ERM function.

The practitioners stated they are struggling to stay up-to-date with evolving ERM practices. Some respondents are addressing cybersecurity threats by constantly upgrading their risk management practices alongside the technology; hence, there is a radical obsolescence risk. There are also concerns about not knowing where the next threat will be, and in that context, they indicated the difficulty of protecting the business against cyberattacks or threats if cybersecurity is not properly understood and managed.

### **Pandemic/Infectious Diseases**

Before 2020, practitioners indicated limited awareness of the contractual aspects of insurance that would be affected by a pandemic. Since then, this awareness has increased. Practitioners mentioned that the legal risks regarding infectious diseases or a pandemic can have a substantial impact on the business. However, this can be mitigated when included at the core of the business and in the underwriting process. For example, at the start of the pandemic,<sup>79</sup> practitioners participated in internal meetings of the ERM function to discuss how to mitigate disputes about insurance claims or contractual-language issues, especially around travel, health, business interruption and supply chain disruption insurance coverages. Practitioners expressed concerns that new diseases or pandemics could change traditional insurance business models,<sup>80</sup> possibly bringing about fundamental changes on the business side.

### **Disruptive Technology**

According to practitioners, sales platforms and digital channels are the major focus areas of the insurance sector in China, since this is part of the disruptive technology driving the insurance business. With the rapid development of

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<sup>78</sup> Examples of price hikes in the health industry include changes in treatment costs and high prices of targeted medications for specific diseases, such as cancer. Yichen Zhang, Haishaerjiang Wushouer, Sheng Han, et al., The Impacts of Government Reimbursement Negotiation on Targeted Anticancer Medication Price, Volume and Spending in China, *BMJ Global Health*, 6, July 2021, <https://pubmed.ncbi.nlm.nih.gov/34266848/> (accessed May 31, 2022).

<sup>79</sup> The outbreak was discovered in Wuhan in November 2019. It is possible that human-to-human transmission was happening before the discovery.

<sup>80</sup> Changes may include decentralized insurance, updates to insurance products (such as travel insurance), and contractual insurance terms.

technology, the business environment also is changing rapidly. In addition, the purchase pattern of insurance products affects the development of technology and vice versa.

Online insurance platforms have made insurance purchases easier, and insurers can collect the required information online. Some practitioners believe the improved data collection mechanisms are enhancing customers' buying experiences. Despite this, practitioners opine that the insurance market is challenging because potential clients wonder why they need to buy insurance and pay fixed premium amounts in a high-inflation environment, in which inflation reduces the value of the insured amounts; perhaps introducing products with premiums that rise with inflation would mitigate that. Still, according to practitioners, selling is a challenge, and convincing policyholders to continue paying premiums is even more difficult.

Some practitioners indicated that their companies are adopting blockchain.<sup>81</sup> For example, they are using it, regulation permitting, to improve the transparency of the data between ceding insurers and reinsurers, where they have now a sharing mechanism in place. According to the practitioner, this has greatly helped their company's technical accounting department manage the statement of account from ceding insurers.

#### 4.3.1 CHALLENGES TO FOREIGN-OWNED INSURERS

Practitioners working at foreign-owned insurers in China expressed that their main challenges pertain to business competition: development of competitive insurance products, building good sales and service teams, establishing nationwide branches, and promoting their companies' online insurance business. As with domestic firms, they expressed that navigating cybersecurity issues and the slowing economic growth that followed the onset of the pandemic also has been challenging.

Practitioners considered that while local and foreign-owned companies may compete in the same business environment, the cultural differences between local and international stakeholders may lead companies to adopt completely different business strategies. One senior practitioner at a foreign-owned insurer stated that while they are obligated to shareholders as an internationally publicly traded company, their peers in companies from mainland China may take different paths, particularly in the case of state-sponsored enterprises.

#### 4.3.2 EMERGING ERM BEST PRACTICES FOR THE BUSINESS ENVIRONMENT

The ERM function at insurance companies is enhancing their policies, processes, tools and practices to deal with the emerging problems emanating from model risk management, data, cybersecurity, technology risk, digitization, and product transformation. This emerging practice is coupled with efforts from the operational risk functions, which typically track all known risks, such as cyber security threats and how to mitigate and monitor them.

Also, new regulations have triggered data quality checks and data governance practices in the ERM function. There is also scope for insurers to develop digital channels that require data capabilities and enhanced data storage, as permitted by regulations. For example, while the online insurance business has a strong focus on storing data and filtering risks, practitioners in the ERM function expressed some frustration about the fact they cannot "lift and shift" data collected and reuse it for marketing; the data can only be used for the purpose originally intended, such as underwriting. This added limitation for data use needs to be considered when developing proper ERM functions and sale point solutions.

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<sup>81</sup> A system in which a record of transactions is maintained across several computers that are linked in a peer-to-peer network.

While data is not a technology by itself, it affects the use of technology. In this sense, practitioners mentioned having some initial challenges with the adoption of recent data regulations (which are detailed in the Section 5):

- **Data privacy.** Insurers must deal with personal data protection when they are navigating and experimenting with AI/ML initiatives and defining/adhering to ethical principles and use of AI.
- **Adoption cost.** Complying with the regulations will increase costs on systems and internal controls to mitigate data risks

Insurers are struggling with talent availability and domain expertise in the ERM function and model risk management (MRM) work groups to develop and implement new regulations—for example, the speed required for procuring human capital, given that ample business experience and training are needed to deal with the regulatory changes. On the modeling side, ERM encourages and facilitates discussions in the MRM function so that model developers (for example, actuaries and data scientists) can meet with multiple internal committees to discuss legal, compliance and data privacy aspects during the model design process.

China-based insurers follow other emerging topics that drive ERM practices, such as climate risk, but the practitioners interviewed did not go into depth about other explicit practices or challenges. With regard to ESG, insurers are engaging in ongoing efforts to improve their companies' ability to respond to ESG disclosure requirements, which they say is a growing area of focus in China.

Multinational insurance companies with operations in China combine a local entity in China and group/parent ERM requirements into one official and global ERM framework. Practitioners handle the following responsibilities:

- **Local entity (bottom-up).** Follow regulations, particularly those outlined in C-ROSS, which are rule-based requirements and provide ample details about the base guidance the insurance industry must follow around ERM, particularly policy setup, risk appetite, systems, and talent requirements.
- **Group/parent (top-down).** Establish a global or corporate ERM framework. It would typically have key ERM guiding principles that local-level entities have the freedom to adopt.
- **Transversal analysis.** While freedom is given to local entities to adopt domestic ERM requirements, the group/parent company may conduct a risk aggregation or integration process to transversely analyze the risks exposure in each of the ERM areas by entity, particularly the proper amalgamation between the group principles, controls and practices and the local entity implementation of the ERM principles, framework and local requirements.

## Section 5: Insurance Regulatory Environment

The history of the modern insurance industry in China dates to 1929, when the Chinese government drafted legislation based on French insurance law. However, regulations came into effect only in 1935, with the passing of a new insurance law. The law, which limited the activities of foreign insurers and their agents, was amended in 1937. The amendment enabled foreign reinsurers to partner with local Chinese insurers and attain the business scale required to grow the insurance market in China.

While insurance regulation stayed idle due to China's intense transformation for nearly 50 years, the insurance law again gained momentum from the 1980s with the shift to a market-based economy. In 1995, the government passed the first major insurance legislation, the Insurance Law of the People's Republic of China (ILPRC; see Table 5).<sup>82</sup> The ILPRC required insurance companies to employ actuarial professionals recognized by the insurance supervision and control authority and establish an actuarial report system.

The ILPRC was amended for the first time in 2002 to fulfill China's commitments to the World Trade Organization (WTO).<sup>83</sup> While this was a regulatory advancement, the full scope of risk management was limited. For example, the following examples are the only mentions of "risks" in the ILPRC:<sup>84</sup>

- **Mitigate risks.** Property and casualty (P&C) insurers are to supervise safety conditions to eliminate unsafe factors and latent risks.
- **Communication.** Policyholders are to disclose and communicate increases in risks underlying their contracts.
- **Premium commensurate with risk.** Insurer is to reduce premium in the event of risk reduction.
- **Liabilities.** The insurer is to establish risk exposure units to measure the liabilities.
- **Contractual disclosure.** The insurance clauses and premium rates for insured risks are to be submitted to the insurance supervision and control authority for record keeping.
- **Fine risks.** The regulatory authority has the authority to impose sanctions in the event of failure to submit insurance clauses and premium rates for risks insured.

The China Banking and Insurance Regulatory Commission (CBIRC) is the resulting agency from the 2018 merger of the China Banking Regulatory Commission (CBRC) and the China Insurance Regulatory Commission (CIRC). The CBRC (established 2003) and the CIRC (established 1998) are China's former regulatory bodies for the banking sector and the insurance sector prior to the merger. Under new structural changes to the Chinese government, the People's Bank of China (PBoC), which is the principal regulator of China's electronic payment and credit card clearing systems,<sup>85</sup> drafts new laws and rules for the banking and insurance sectors, while CBIRC oversees compliance.

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<sup>82</sup> Insurance Law of the People's Republic of China adopted June 3, 1995, updated April 14, 2016, [http://english.court.gov.cn/2016-04/14/content\\_24532982.htm](http://english.court.gov.cn/2016-04/14/content_24532982.htm) (accessed May 31, 2022).

<sup>83</sup> China joined the WTO in December 2001.

<sup>84</sup> These risks were in a nascent stage relative to the holistic approach typically covered in today's enterprise risk management (ERM) by insurance companies.

<sup>85</sup> China Banking and Insurance Regulatory Commission Organization Chart. US-China Business Council, April 2021, [https://www.uschina.org/sites/default/files/2021.4.15\\_cbirc.pdf](https://www.uschina.org/sites/default/files/2021.4.15_cbirc.pdf) (accessed May 31, 2022).

Table 5

## TIMELINE OF KEY REGULATIONS AND THE BUSINESS ENVIRONMENT AFFECTING THE INSURANCE INDUSTRY

	Year	Key regulatory event	Key business environment event		
Pre-2008: Foundational	1992	Interim administrative measures of foreign insurance companies in Shanghai	AIA (HK) receives approval to establish a branch in Shanghai		
	1995	Insurance Law of the People's Republic of China (ILPRC)			
	1996	Regulations for the Administration of Insurance Agents (trial implementation)			
	2002	ILPRC amended for first time to fulfill China's WTO commitments	China joins the WTO	New York Life (US), Metropolitan (US), Nippon Life (Japan) obtain licenses	
		Regulation of the People's Republic of China on the Administration of Foreign-Funded Insurance Companies			
	2003	Regulation on Solvency Margin and Regulatory Indicators for Insurance Companies			
	2004	CIRC creates China Insurance Security Fund (CISF)			
2006		Regulation on Compulsory Traffic Accident Liability Insurance for Motorized Vehicles			
2008–2015: Developing	2008	Minimum Capital Requirement (MCR)			
	2010	CIRC introduces first regulation for management of insurance groups			
	2013	C-ROSS conceptual framework published	China's first insurtech company, ZhongAn Insurance, founded		
	2014	Consultation and refinement of C-ROSS	CIRC approves creation of Insurance Asset Management Association of China (IAMAC), a national self-regulatory organization of China's insurance asset management industry		
	2015	C-ROSS regime begins	Provisional measures for regulation of internet insurance businesses	13th Five-Year Plan for the National Economic and Social Development of the People's Republic of China (focus on AI/ML and innovation)	
2015–2021: Growing	2016		C-ROSS Phase 1 in effect		
	2017	Provisional measures for the retrospective administration of insurance sales practices	IFRS 17 Insurance Contracts published		
	2018	Notice to expand business scope for insurers and amendment of the rules for administration of foreign insurers in China	Merger of CBRC and CIRC to become CBIRC	AXA announces acquisition of stocks to become wholly foreign-owned P&C insurer Allianz receives CBIRC approval for wholly foreign-owned insurer	
	2020	Ministry of Finance issues a revised draft of its Chinese Accounting Standard 25 (CAS 25), updated due to IFRS 17	Motor (Vehicle) insurance reform, including increased coverage, accelerated product innovation and encouragement for adoption of advanced technologies	AIA announces intent to convert into wholly foreign-owned insurer	

	Year	Key regulatory event	Key business environment event
2021–present: Latest events	2021	Data Security Law (DSL) and Personal Information Protection Law (PIPL)	14th Five-Year Plan for the National Economic and Social Development of the People's Republic of China, including full chapter on digital economy
		CBIRC releases Life Insurance Company Regulatory Entity Professional Responsibility Reform Plan; 39 insurance companies to be directly regulated by CBIRC	Decision on Amending the Implementation Rules of the Regulations of the People's Republic of China on Foreign-Funded Insurance Companies
		Code of Corporate Governance of Banking and Insurance Institutions	CBIRC issues Rules on Accident Insurance Business
		CBIRC revises Regulations on the Solvency Management of Insurance Companies, based on principles from C-ROSS	CBIRC issues Rules on Insurance Group Companies
		Rules on Reputational Risk Management of Banking and Insurance Institutions (provisional)	CBIRC revises Measures on Insurance Clauses and Premium Rates of Property & Casualty Insurance Companies
	2022	Securities Regulatory Commission and Ministry of Ecology and Environment issue ESG disclosure requirements	C-ROSS Phase 2 in effect
		Implementation Measures of the Rules on Reserve of Non-life Insurance Business of Insurance Companies	Rules on Information Technology Outsourcing Risks of Banking and Insurance Institutions

Source: CBIRC, [www.cbirc.gov.cn](http://www.cbirc.gov.cn) (accessed May 31, 2022); [www.cbirc.gov.cn](http://www.cbirc.gov.cn) (accessed May 31, 2022); the Government of China, [www.gov.cn](http://www.gov.cn); [www.gov.cn](http://www.gov.cn) (accessed May 31, 2022); CISF, [www.cisf.cn](http://www.cisf.cn) (accessed May 31, 2022); “About Zhong An”, [www.zhongan.com](http://www.zhongan.com); [www.zhongan.com](http://www.zhongan.com) (accessed May 31, 2022); “AXA to acquire the remaining 50% stake in AXA Tianping to accelerate its growth in China as the #1 foreign P&C insurer”, 2018, (accessed May 31, 2022); “Allianz receives CBIRC approval for preparatory establishment of China’s first fully-owned foreign insurance holding company”, 2018, [www.allianz.com](http://www.allianz.com) (accessed May 31, 2022); “AIA Approved as the First Foreign Company with a Wholly-owned Life Insurance Subsidiary in Mainland China”, 2020, <https://www.aia.com/> (accessed May 31, 2022).

In 2004, the CIRC established the China Insurance Security Fund (CISF), a state-run insurance industry guarantee scheme. Insurance companies contribute to the CISF in proportion to their business volume. The CISF serves as a backstop to the industry in case insurer assets are insufficient to meet claims. The CISF can also provide financial assistance to insurance companies that are judged by regulators to be in financial distress; it is authorized to acquire equity in troubled insurers until they undergo restructuring and return to profitability.<sup>86</sup> The CISF is able to receive liquidity support from the PBoC in times of stress. With its role as a market-based “self-help” system, CISF serves as an important risk reduction tool for the insurance industry: in addition to its role as a financial backstop, CISF conducts ongoing studies about risks faced by the Chinese insurance industry.<sup>87</sup>

The ILPRC was amended extensively in 2009 to incorporate several significant changes to China’s legal and regulatory landscape for insurance and reinsurance. The amended law enhanced solvency and corporate governance rules and policyholder protection. It also abolished preferential treatment of domestic reinsurers.<sup>88</sup>

<sup>86</sup> People’s Republic of China: Financial Sector Assessment Program—Detailed Assessment of Observance of the Insurance Core Principles, International Monetary Fund, Monetary and Capital Markets Department, December 26, 2017, <https://books.google.co.in/> (accessed May 31, 2022).

<sup>87</sup> China Insurance Security Fund, <http://www.cisf.cn:8088/gsj/zc/> (accessed May 31, 2022).

<sup>88</sup> A History of Insurance in China, Swiss Re, 2017, <https://www.swissre.com/> (accessed May 31, 2022).

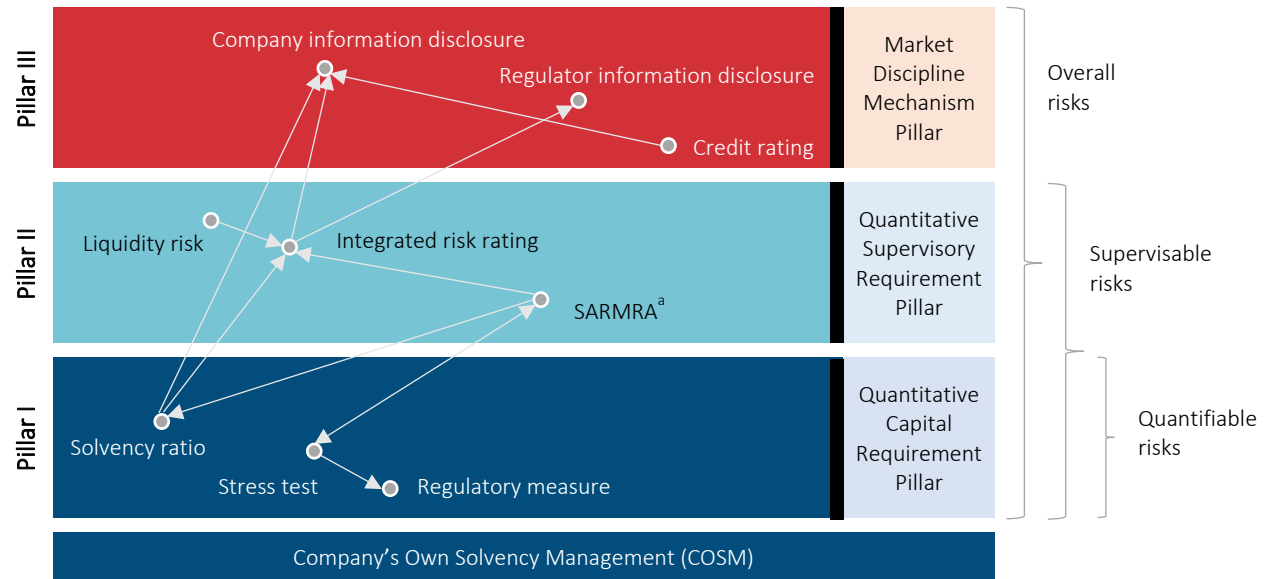
### 5.1 SOLVENCY REGULATION

In 2003, the former CIRC issued the Regulation on Solvency Margin and Regulatory Indicators for Insurance Companies, which specified that an insurance company should ensure that its actual solvency margin was not lower than the minimum solvency margin at any time.

In 2008, the Insurance Company Solvency Regulation, updating the Solvency Margin and Regulatory Indicators for Insurance Companies, was established to set the Minimum Capital Requirement (MCR) as the greater of a percentage of the previous year’s premiums and a different percentage of the average claims experienced over the past three years by the insurer. These volume-based measures do not accurately reflect the underlying insurance market, credit and operational risks faced by the industry.<sup>89</sup>

In 2010, CIRC introduced the first regulation for the management of insurance groups. CIRC would comprehensively evaluate an insurer’s overall risk rating based on quantitative results. The China Banking and Insurance Regulatory Commission (CBIRC) is responsible for overseeing the banking and insurance sectors as an independent, ministry-level supervisory office that reports directly to the State Council. It is responsible for monitoring liquidity levels, capital adequacy ratios, reserve ratio requirements, and the prevalence of nonperforming loans in domestic banks. It also regulates the insurance market, supervises activities of insurance agencies, and establishes risk control mechanisms for the insurance industry.

**Figure 6**  
**C-ROSS FRAMEWORK AND LINKAGE OF KEY RISK AND REPORTING ELEMENTS WITHIN PILLARS**



<sup>a</sup>Solvency-aligned risk management requirement and assessment.  
 Source: C-ROSS regulation. Diagram design from Zhao Yulong, “Standing at the C-ROSS of China’s Insurance History,” *Actuaries*, July 2014, <https://www.actuaries.asn.au/>. Analysis of China’s new C-ROSS solvency capital regime, Milliman, November 2015, <https://www.milliman.com/>. The arrows represent the linkage within each of the C-ROSS pillar elements.

<sup>89</sup> Phil Joubert, Cliff Sheng, Anupam Sahay, and Anthony Bice, C-ROSS: Preparing for Solvency II with Chinese Characteristics, Oliver Wyman, July 2014, <https://www.oliverwyman.com/our-expertise/insights/2014/jul/c-ross-preparing-for-solvency-ii.html> (accessed May 31, 2022).

C-ROSS was established in 2015 with the intention to strengthen capital requirements, risk management and governance in the insurance industry (see Figure 6). C-ROSS is a framework structured in three pillars, in a similar manner as the Basel and Solvency II frameworks (see Table 6).

The C-ROSS framework has incorporated international learnings and best practices. From the European Insurance and Occupational Pensions Authority (EIOPA), it adopted a multi-pillar approach, risk-based capital requirements and differentiated treatment by insurance tier or types and level of disclosure. It applies Japan’s approach to risk-based capital requirements and differentiated treatment by insurance tier or types and level of disclosure. And it adapts Singapore’s multi-pillar approach, risk-based capital requirements and differentiated treatment by insurance tier or types and level of disclosure.

**Table 6**

**C-ROSS IS STRUCTURED IN THREE PILLARS**

<b>Pillar I: Quantitative capital requirements</b>	<b>Pillar II: Qualitative supervisory requirements</b>	<b>Pillar III: Market self-discipline mechanisms</b>
Formula-based calculations of required capital: <ul style="list-style-type: none"> <li>• Own fund, asset assessment of available capital and recognition criteria</li> <li>• Minimum capital: regulatory capital requirements and quantitative capital requirements by insurance line</li> <li>• Capital charges based on types of investments held</li> <li>• Solvency ratios: valuation of liabilities and recognition</li> <li>• Stress testing: basic/adverse scenario solvency test</li> <li>• Regulatory measures</li> </ul>	Adjustments for insurer’s risk controls and governance structure, which act as an overlay to the minimum capital requirement calculated in Pillar I: <ul style="list-style-type: none"> <li>• Integrated risk rating (IRR): A rating system used to determine the level of intervention applied by the regulator</li> <li>• Solvency-Aligned Risk Management Requirement and Assessment (SARMRA): An explicit assessment of the risk management processes of a company that has a direct, quantitative impact on its minimum capital</li> <li>• Liquidity risk: A series of liquidity risk indicators that must be calculated and communicated to the CBIRC on a regular basis</li> </ul>	Manage “unsupervisable” and systemic risks by improving transparency and communication between all market players and by enhancing disclosure and data availability to investors, ratings agencies and counterparties: <ul style="list-style-type: none"> <li>• Insurance company’s public information disclosure</li> <li>• Regulator’s public information disclosure</li> <li>• Insurance company’s credit rating</li> </ul>

Source: Ping An annual report, 2020, <https://group.pingan.com/> (accessed May 31, 2022); Notice of the China Banking and Insurance Regulatory Commission on Issuing the Solvency Regulatory Rules for Insurance Companies (II), China Banking and Insurance Regulatory Commission, December 30, 2021, <http://www.cbirc.gov.cn> (accessed May 31, 2022); Phil Joubert, Cliff Sheng, Anupam Sahay, and Anthony Bice, C-ROSS: Preparing for Solvency II with Chinese Characteristics, Oliver Wyman, July 2014, <https://www.oliverwyman.com/> (accessed May 31, 2022); Analysis of China’s New C-ROSS Solvency Capital Regime, Milliman, November 2015, <https://cn.milliman.com/> (accessed May 31, 2022).

In December 2021, the CBIRC issued Phase II of C-ROSS. The updated regulation raised risk capital charges for insurers.<sup>90</sup> The implementation of C-ROSS Phase II, in effect since January 2022, aims to strengthen Chinese insurers’ capital base and give risk management a greater weight in their business decisions. C-ROSS Phase II saw significant changes affecting insurers’ ERM functions, especially in the context of its updated solvency requirements, as part of the solvency-aligned risk management requirements and assessment (SARMRA). New in C-ROSS II, foreign insurers with similar solvency systems in their home jurisdictions receive favorable treatment; certain overseas reinsurance activities have also seen their risk factors reduced.<sup>91</sup>

<sup>90</sup> “C-ROSS Phase 2 Strengthens Chinese Insurers’ Credit Profiles,” Fitch Ratings, January 3, 2022, <https://www.fitchratings.com/> (accessed May 31, 2022)

<sup>91</sup> “Interpretations on C-ROSS II”, Deloitte, n.d., <https://www2.deloitte.com/> (accessed May 31, 2022).



The CBIRC has provided insurers with a transition period to comply with regulations and fully implement the regime by 2025.<sup>92</sup>

### 5.1.1 INTEGRATED RISK RATING

The integrated risk rating (IRR) is the average of an insurer's quantitative score based on the level and movement of the core solvency adequacy ratio and integrated solvency adequacy ratio<sup>93</sup> and the insurer's score on the "risk difficult to quantify," also known as the four risks—operational, strategic, reputational and liquidity. Inclusion of risk assessments will improve the insurer's capital. The changes are more likely to affect non-life insurers, since tightening of capital requirement by other insurers can be partly offset by capital release from the interest rate risk. Core capital would decrease, so the industry's core solvency ratio would decrease. The industry average comprehensive solvency ratios for the life and non-life markets were 232% and 286%, respectively, as of the end of third quarter 2021.

As of the second quarter of 2021, the CBIRC rated 95 insurance companies as Class A, 76 as Class B, five as Class C, and two as Class D (see Table 7).<sup>94</sup> Classes A, B, C and D are the integrated risk ratings assigned by the CBIRC according to the C-ROSS framework. According to C-ROSS Phase II Rule 11, the ratings are calculated based on the quantitative solvency adequacy ratio and the overall risk measures (operational, strategic, reputational and liquidity).<sup>95</sup> Class A includes firms with above-standard solvency adequacy ratios and minimal overall risks. Class D includes insurers that have below-standard solvency adequacy ratios or that have adequacy ratios meeting the standard but bear high risk in at least one of the risk categories.

**Table 7**

#### DISTRIBUTION OF INTEGRATED RISK RATINGS OF INSURERS, Q2 2020–Q2 2021

Rating class	Q2 2020 <sup>a</sup>	Q3 2020	Q4 2020	Q1 2021	Q2 2021
A	99	98	100	100	95
B	72	73	71	72	76
C	5	5	3	4	5
D	1	1	3	2	2

<sup>a</sup>No data available before Q2 2020.

Source: CBIRC, <http://www.cbirc.gov.cn> (accessed March 31, 2022).

### 5.1.2 SOLVENCY-ALIGNED RISK MANAGEMENT REQUIREMENT AND ASSESSMENT (SARMRA)

SARMRA is the regulator's evaluation of insurers' risk management, controls and corporate governance structures.<sup>96</sup> SARMRA rates insurers' risk framework for both completeness (weighted 60%) and effectiveness (weighted 40%).

<sup>92</sup> Fitch Ratings, "C-ROSS Phase 2."

<sup>93</sup> The core solvency adequacy ratio—the ratio of core capital to minimum capital—measures the adequacy of insurer's high-quality capital. The integrated solvency adequacy ratio—the ratio of actual capital to minimum capital—measures the adequacy of the insurer's capital from a holistic perspective. Referring to Rule 1 of the Solvency Regulation (II), core capital refers to capital that can absorb losses whether the insurer is of going concern or in bankruptcy settlement. Actual capital is the sum of the core capital and the supplementary capital. Supplementary capital refers to capital that can absorb losses when the insurer is in bankruptcy settlement. Milliman, Analysis of China's New C-ROSS Solvency Capital Regime, <https://cn.milliman.com/-/media/milliman/importedfiles/uploadedfiles/insight/2015/analysis-china-c-ross.ashx> (accessed in May 31, 2022).

<sup>94</sup> CBIRC, <http://www.cbirc.gov.cn> (accessed March 31, 2022).

<sup>95</sup> Notice on the Issuance of the Solvency Regulation (II), CBIRC, December 30, 2021,

<http://www.cbirc.gov.cn/cn/view/pages/governmentDetail.html?docId=1027892&itemId=861&generalType=1>, (accessed May 31, 2022)

<sup>96</sup> Joubert et al., C-ROSS: Preparing for Solvency II.

Insurers with effective controls, as indicated by higher scores on SARMRA, receive a smaller Pillar II multiplier, resulting in lower minimum capital requirements.

In C-ROSS Phase II, SARMRA focuses on the regulatory requirements for Class I companies and relaxes the requirements for Class II companies. Classes I and II are groups of insurers classified based on multiple criteria under C-ROSS II. Key changes include increased requirements on risk concentration, where a variable control risk factor was implemented, which acts as a multiplier for minimum required capital. Phase II also implements industry-relative scores in lieu of absolute values.<sup>97</sup>

### 5.1.3 LIQUIDITY RISK

C-ROSS evaluates insurers' liquidity risk management and requires insurers to regularly monitor and report on liquidity risk. The CBIRC monitors liquidity risk via a mixture of various liquidity ratios, cash flow stress tests, and other quantitative and non-quantitative information. A key change aimed at faster liquidity risk identification and response is the new requirement for insurers to disaggregate their reported liquidity risk statistics by business segments, including P&C, life insurance and reinsurance.<sup>98</sup>

### 5.1.4 OPERATIONAL RISK

In recent years, patterns of operational risk events in the Chinese insurance industry have gradually shifted from high frequency, low loss to low frequency, high loss—a sign of maturing capabilities rather than a low-hanging-fruit approach.<sup>99</sup> C-ROSS defines operational risk as the risk of direct or indirect loss due to inadequate internal operating processes, staffing, systems or external events, including legal and regulatory compliance risks (excluding strategic and reputational risks).

In recent years, the CBIRC has demonstrated an increased focus on operational risks, as seen by the volume of relevant regulation since 2018. Some of the regulations include Notice of the CBIRC on Organizing and Launching the Special Verification and Review of the Personal Insurance Products (2018), the 2018 Special Action Work Plan for Combating Illegal Commercial Insurance Activities (2018), and the Notice on the Work Plan for the Clean-up and Rectification of the Accident Insurance Market (2020).<sup>100</sup>

## 5.2 REPORTING AND DISCLOSURE

Changes that affect the business environment and influence the way the ERM function identifies and mitigates risks include the following key important reporting and disclosure topics:

- IFRS-17 has taken a staggered approach to adopting the new standard, with listed insurance companies expected to adopt by January 1, 2023,<sup>101</sup> and other companies by the beginning of 2026. The Ministry of Finance issued a revised draft of its Chinese Accounting Standard 25 (CAS 25) in December 2020, which aligns mainland China's accounting requirements for insurance contracts with IFRS 17.

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<sup>97</sup> Deloitte, "Interpretations on C-ROSS II."

<sup>98</sup> Ibid.

<sup>99</sup> "CRO Said: Using Intelligent Risk Control Technology to Improve the Operational Risk Management and Control Capabilities of Insurance Companies (No. 5, 2021)," CISF, October 27, 2021, <http://www.cisf.cn/> (accessed May 31, 2022).

<sup>100</sup> Ibid.

<sup>101</sup> Insurance Contracts were first released in May 2017, in line with the IFRS 17 accounting adoption date of January 1, 2023.

- In mainland China, the Securities Regulatory Commission (CSRC), in collaboration with the Ministry of Ecology and Environment, will introduce requirements for China-listed companies to disclose ESG risks to the enterprise value associated with their operations in China.<sup>102</sup>

### 5.3 OTHER RELEVANT REGULATORY CHANGES

Other regulatory changes relevant to ERM at insurers address digitization and record keeping, motor (vehicle) insurance reform, health services, insurance business and sales, the use of artificial intelligence and machine learning, protection of consumer data, cybersecurity and the balance between regulation and innovation.

#### 5.3.1 DIGITIZATION AND RECORD KEEPING

As insurers compete for market share, the CBIRC has emphasized its role in overseeing misleading market practices, forced sales and inflated fees. The Provisional Measures for the Retrospective Administration of Insurance Sales Practices of 2017 require insurance companies and insurance intermediaries to record and keep the key materials involved in the insurance sales process by collecting audiovisual materials and electronic data. This ensures that sales practices can be replayed and assessed to minimize improper selling of products, particularly by commission-only sales agents. In August 2021, CBIRC announced that it would investigate online insurers for misleading marketing, forced sales and inflated fees in the interest of consumers.<sup>103</sup> These measures show the regulators' focus on consumer protection and are particularly relevant in the evolving digitization era.

#### 5.3.2 MOTOR (VEHICLE) INSURANCE REFORM

Motor insurance is one of the most important business segments in the Chinese insurance industry and accounted for more than 60% the P&C insurance industry from 2017 to 2020.<sup>104</sup> In 2020, the CBIRC launched comprehensive motor insurance reform,<sup>105</sup> which focused on increasing coverage, accelerating motor insurance product innovation, and encouraging adoption of advanced technologies. It covered pricing and fee structures, fair market competition and differentiation of roles and responsibilities. The reform lowered the expense ratio and increased the premium and liability limit for compulsory motor insurance. The CBIRC disclosed in 2021 that the reform had lowered costs for consumers by RMB 170 billion since the reform was launched.<sup>106</sup>

While costs for consumers declined, many insurance companies that offered motor insurance were bearing losses as of June 2021, with an industry average operating expense ratio of 98.61% as a result of the reform.<sup>107</sup> Industry experts are urging insurers to focus on increasing investment in the product development stage and product innovation, in order to dynamically match the insurance premium and the associated risks. The motor insurance reform has mentioned several newly emerged products such as usage-based insurance and insurance for electric vehicles. Insurance companies are encouraged to experiment with innovative products using pilot programs.

<sup>102</sup> The Future of Sustainability Reporting Standards: The Policy Evolution and the Actions Companies Can Take Today, EY, June 2021, <https://assets.ey.com/> (accessed May 31, 2022).

<sup>103</sup> "China to Step Up Scrutiny of Online Insurance Sector—Media," Reuters, August 12, 2021, <https://www.reuters.com/world/china/china-step-up-scrutiny-online-insurance-sector-media-2021-08-12/> (accessed May 31, 2022).

<sup>104</sup> "China Insurance 2021.," S&P Global Ratings, <https://spglobal.com/> (accessed May 31, 2022).

<sup>105</sup> Notice of the China Banking and Insurance Regulatory Commission on Issuing the Guiding Opinions on Implementing Comprehensive Reform of Auto Insurance, CBIRC, September 2, 2020, [http://www.gov.cn/zhengce/zhengceku/2020-09/04/content\\_5540321.htm](http://www.gov.cn/zhengce/zhengceku/2020-09/04/content_5540321.htm) (accessed May 31, 2022).

<sup>106</sup> "China Banking and Insurance Regulatory Commission: Auto Insurance Reform Reduces Consumer Spending by 170 Billion Yuan," CCTV, September 9, 2021, <https://auto.cctv.com/2021/09/09/ARTIMzGbz5Q8hV6dpJLQDMQu210909.shtml> (accessed May 31, 2022).

<sup>107</sup> "Observation of Insurance Risk: Frontier Research of 'Insurance Industry Risk Observation,'" CISF, 2022 Vol.1, <https://mp.weixin.qq.com/> (accessed May 31, 2022).

### 5.3.3 HEALTH SERVICES

On September 6, 2020, the CBIRC published the *Circular on Regulating the Health Management Services of Insurance Companies*. When providing health management services, an insurance company should not provide a client's personal information or health data to a third party without the client's prior consent and should protect data security and personal privacy in accordance with the law.

### 5.3.4 INSURANCE BUSINESS AND SALES

On June 30, 2020, the CBIRC issued the *Circular on Standardizing Traceability Management of Online Insurance Sales Activities* to address certain significant problems with online insurance and standardize online insurance sales activities. Focusing on the management of sales web pages and records of the sales process, the circular establishes a traceability system for online insurance sales to facilitate the reconstruction of the sales process, prevent misleading tactics and protect consumers' rights.

### 5.3.5 RESPONSIBLE USE OF AI/ML

In June 2019, the National New Generation Artificial Intelligence Governance Expert Committee of China issued *Governance Principles for the New Generation Artificial Intelligence—Developing Responsible Artificial Intelligence*.<sup>108</sup> It highlights principles that all stakeholders involved in AI development must consider, including harmony and friendliness; fairness and justice; inclusivity and sharing; respect of privacy, security and safety; shared responsibility; and agile governance.

Several significant regulatory changes in 2021 have the potential to change the insurance landscape and will require continued efforts toward achieving compliance:

- The related Data Security Law (DSL), which came into effect on September 1, 2021, classifies data as “core” (concerning Chinese national security and citizens' welfare and public interests) or “important” (the second-highest category, currently pending further clarification). Core and important data will have to be localized within China for all business purposes through all the steps of data processing.<sup>109</sup>
- Disclosure of insurer's core and important data to foreign law enforcement agencies is prohibited without prior approval by Chinese regulators. Finally, the law establishes standards for data security, with requirements for an officer or team to oversee data security and provide regular assessments to Chinese regulators. DSL penalties for core data include fines of up to RMB 10 million (roughly \$1.5 million), forced shutdowns or license revocations of businesses, as well as potential criminal liabilities.<sup>110</sup>
- The Personal Information Protection Law (PIPL), which came into effect on November 1, 2021, requires cross-border data transfers to be approved by the Cyberspace Administration of China, the data protection regulatory agency.<sup>111</sup> The law also requires personal data to be deleted when the business purpose has been achieved, when the user revokes consent or after a retention period expires.<sup>112</sup> Finally, PIPL requires

<sup>108</sup> Lorand Laskai and Graham Webster, “Translation: Chinese Expert Group Offers ‘Governance Principles’ for ‘Responsible AI,’” *New America*, June 17, 2019, <https://www.newamerica.org/> (accessed May 31, 2022).

<sup>109</sup> Core data refers to “data involving national security, lifelines of the national economy, important people's livelihood and major public interests” and important data refers to “data collected or derived in the PRC that closely relates to national security, economic development, and public interests.” The law has divided all data into three categories: core, important, and general data. “China's New Data Security Law: What to Know,” *Client Alert Commentary* (Latham & Watkins), July 21, 2021, <https://www.lw.com/thoughtLeadership/china-new-data-security-law-what-to-know> (accessed May 31, 2022).

<sup>110</sup> Junck et al., “China's New Data Security and Personal Information Protection Laws.”

<sup>111</sup> “China's PIPL Takes Effect, Compliance ‘a Challenge,’” *IAPP*, November 1, 2021, <https://iapp.org/news/a/chinas-pipl-takes-effect-compliance-a-challenge/>, (accessed May 31, 2022).

<sup>112</sup> Junck et al., “China's New Data Security and Personal Information Protection Laws.”

algorithms and other automated decisions to follow principles of transparency and fairness and to avoid discriminatory pricing and marketing based on protected characteristics.

Table 8 summarizes key and overlapping AI principles that have been proposed in China, Indian, North America and Europe.

**Table 8**  
**AI PRINCIPLES IN DIFFERENT REGIONS**

China (general guidance)	India (general guidance)	North America (specific to insurers)	Europe (specific to insurers)
Harmony and friendliness	Protection and reinforcement of positive human values	Fair and ethical	Fairness and nondiscrimination
Fairness and justice	Equality, inclusivity and nondiscrimination		
Respect of privacy	Transparency, privacy and security	Transparency	Transparency and explainability
Security and safety	Safety and reliability	Accountability and compliance	Human oversight
Shared responsibility	Accountability		
Agile governance	Safety and reliability	Security, safety and robustness	Robustness and performance
Inclusivity and sharing	Equality, inclusivity and nondiscrimination	Not included	Not included
Not included	Not included	Not included	Data governance of record keeping
Not included	Not included	Not included	Proportional

Source: Responsible AI: Approach Document for India, Part 1—Principles for Responsible AI, NITI Aayog, February 2021, <https://www.niti.gov.in/> (accessed March 31, 2022); National Association of Insurance Commissioners (NAIC) Principles on Artificial Intelligence (AI), National Association of Insurance Commissioners, 2020, <https://content.naic.org> (accessed March 31, 2022); “EIOPA Publishes Report on Artificial Intelligence Governance Principles,” EIOPA, June 17, 2021, <https://www.eiopa.europa.eu/> (accessed March 31, 2022).

In August 2020, the Chinese government’s standards-setting bodies published the Guidelines for the Construction of a National New Generation Artificial Intelligence Standards System,<sup>113</sup> with the aim to promote a more mature and established AI standard system, including ethics.

The following year, the National New Generation Artificial Intelligence Governance Expert Committee issued the Code of Ethics for a New Generation of Artificial Intelligence.<sup>114</sup> This code of ethics aims to integrate ethics and morality into the entire life cycle of AI development and to provide ethical guidance for all stakeholders engaged in AI-related activities.

### 5.3.6 CONSUMER DATA PROTECTION

Globally, regulatory focus includes data privacy laws as an important component to achieve appropriate protection of consumer data. Data privacy laws have emerged rather rapidly. They include the European Union’s General Data Protection Regulation (GDPR) in 2016.

<sup>113</sup> “Guidelines for the Establishment of the New Generation of Artificial Intelligence Standards System Released by SAC, CAC, NDRC, MOST and MIIT in China,” SESEC IV Archive 2016–2020, August 25, 2020, <https://sesec.eu/> (accessed May 31, 2022).

<sup>114</sup> “A New Generation of Artificial Intelligence Ethics Code,” Ministry of Science and Technology of the PRC, September 26, 2021, [http://www.most.gov.cn/kjbgz/202109/t20210926\\_177063.html](http://www.most.gov.cn/kjbgz/202109/t20210926_177063.html) (accessed May 31, 2022).

The insurance companies in China operate in a highly regulated environment, and regulators pay great attention to data security and confidentiality. On June 28, 2020, the Standing Committee of the National People’s Congress published the draft of the DSL, setting the basic rules for data security protection and management. As mentioned in the previous section, DSL came into effect in China in September 2021, and all insurance companies must comply with it. In November 2021, PIPL was introduced. Both these laws are a big step toward global standardization of consumer privacy rights.

PIPL is targeted at personal information protection and addresses leakage of personal data. It is applicable to organizations and individuals who process personally identifiable information in China. It lists stringent requirements for data sharing and transfer that must be followed by organizations and controllers.<sup>115</sup> Penalties and fines for data breaches include revenue confiscation and business cessation.<sup>116</sup> PIPL refers to the following basic principles: lawfulness, necessity and good faith, clear and reasonable purpose, transparency, accuracy and security.

PIPL, DSL and China’s cybersecurity law<sup>117</sup> (discussed next) lie at the core of China’s framework for data security and personal data protection. On the basis of the three laws, the Cyberspace Administration of China on October 29, 2021, published a draft of Measures for Data Export Security Assessments and has collected feedback from the public.<sup>118</sup> If these measures take effect, both foreign insurers and domestic insurers that have business operations outside of China would face additional regulations on their data-exporting activities.

### 5.3.7 CYBERSECURITY

On December 30, 2021, the CBIRC promulgated Measures for the Supervision of Information Technology Outsourcing Risks of Banking and Insurance Institutions. The measures consist of seven chapters with comprehensive requirements for the risk management of information technology outsourcing by banking and insurance institutions:<sup>119</sup>

- Chapter 1 clearly defines general requirements for the risk management of information technology outsourcing in the general provisions. Banking and insurance institutions should establish an information technology outsourcing management system that is compatible with the strategic objectives of the information technology of their own institutions and should integrate the risks of information technology outsourcing into the comprehensive risk management system, which is effective control of risks due to outsourcing.
- Chapter 2 provides requirements for the organization and responsibilities of banking and insurance institutions, outsourcing strategies, outsourcing prohibitions, service provider management strategies, outsourcing classifications, outsourcing hierarchical management, and exit strategies in the governance of information technology outsourcing.

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<sup>115</sup> Similar to “data controller” in GDPR, PIPL refers to controllers as “personal information handlers,” which are “organizations and individuals that, in personal information handling activities, autonomously decide handling purposes and handling methods.” Stanford University. “Translation: Personal Information Protection Law of the People’s Republic of China—Effective Nov. 1, 2021,” DigiChina (Stanford University), August 20, 2021, <https://digichina.stanford.edu/> (accessed May 31, 2022).

<sup>116</sup> “The China Personal Information Protection Law (PIPL),” May 2021, Deloitte, <https://www2.deloitte.com/> (accessed May 31, 2022).

<sup>117</sup> The cybersecurity law aims to “safeguard cyberspace sovereignty and national security ... and promote the healthy development of the informatization of the economy and society.” Laskai and Webster, “Translation: Chinese Expert Group Offers ‘Governance Principles.’”

<sup>118</sup> Notice of the Cyberspace Administration of China on Public Comments on the “Measures for the Security Assessment of Data Exports (Draft for Comment),” Office of the Central Cyberspace Affairs Commission, October 29, 2021, <http://www.cac.gov.cn/> (accessed May 31, 2022)

<sup>119</sup> Notice of the General Office of the China Banking and Insurance Regulatory Commission on Printing and Distributing Measures for the Supervision of Information Technology Outsourcing Risks of Banking and Insurance Institutions [2021] No. 141, CBIRC, December 31, 2021, <http://www.cbirc.gov.cn/cn/view/pages/ItemDetail.html?docId=1029035&itemId=928&generalType=0> (accessed May 31, 2022).

- Chapter 3 presents regulatory requirements for the access of information technology outsourcing, including pre-access assessment, due diligence, and contracts, and puts forward additional requirements for nonresident centralized outsourcing, cross-border outsourcing, and interbank and related outsourcing.
- Chapter 4 lays out requirements for the monitoring and evaluation of information technology outsourcing and makes provisions for outsourcing process monitoring, efficiency and quality monitoring, service monitoring and evaluation, service provider operation monitoring, abnormal correction, related outsourcing evaluation and outsourcing termination.
- Chapter 5 standardizes the risk management of information technology outsourcing and puts forward requirements for outsourcing risk identification and assessment, business continuity management, information security management, concentration risk management, nonresident outsourcing field inspection, annual risk assessment, and audits.
- Chapter 6 provides for the implementation of outsourcing supervision and management by regulatory agencies, including prior reporting requirements, major event reporting, regulatory assessment and supervision inspection, risk monitoring, regulatory intervention, on-site verification and regulatory accountability.
- Chapter 7 presents supplementary provisions covering key definitions and legal interpretation.

### 5.3.8 INNOVATION AND REGULATORY MODERATION

The Chinese government's increased regulation is a response to insurers' innovations. As insurers experiment with new products and distribution, overseers must monitor the risks.

Regulators seem intent on promoting higher-quality growth for the sector. This is suggested in the steady rollout of new regulations in the last two years (Table 5) and in increased penalties imposed on rule breakers. For example, in the fourth quarter of 2020, around 250 penalties were imposed, compared with 175 in the fourth quarter of 2019. Regulators may even publicly name entities for rule violations or perhaps ban products. China has issued regulations governing aspects of product updates, investment allocation and risk management.<sup>120</sup>

From the insurance companies' perspective, the potential penalties for operational risk events have significantly increased. In 2020, the CBIRC issued 2,084 administrative penalty decisions on more than 1,000 insurance companies.<sup>121</sup> The top five violations in the motor (vehicle) insurance section include preparation of false materials, fictitious intermediary business to obtain fees, false financial or business data, provision of benefits to policy applicants beyond the insurance policies, and fictitious expenses. The CBIRC also issued several circulars on personal insurance companies, which address issues regarding ambiguity or violation of legal requirements in the product's terms and conditions, defects in product design, unreasonable rates and submission of nonconforming information.

### 5.4 PRACTITIONERS' OPINIONS ABOUT THE INSURANCE REGULATORY ENVIRONMENT

Over the past decade, the regulatory landscape has transformed significantly, with an impact on the business environment for life, health and P&C insurers. Significant impacts occurred in the areas of solvency, integrated risk rating, motor (vehicle) insurance, health services, consumer data protection, insurance business and sales, and ERM.

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<sup>120</sup> "China Insurance 2021.", S&P Global Ratings, <https://spglobal.com/> (accessed May 31, 2022).

<sup>121</sup> "Risk Assessment Report on China Insurance Industry.", CISF, <http://www.cisf.cn/> (accessed May 31, 2022).

The interviewed practitioners appreciate how the regulatory authorities are proceeding in gathering industry feedback about their readiness for, understanding of and speed of adopting upcoming regulation. These types of industry-regulatory approaches help them deal with regulatory initiatives more effectively.

#### 5.4.1 PARTICIPATION IN THE PROCESS

While Chinese regulations change rapidly, regulators seek the opinions of insurance companies via consultation papers during the regulation-drafting process. Practitioners appreciate the legislative process in China and the way in which regulatory authorities liaise with the industry before adopting a new initiative. For instance, regulators may circulate a consultation paper and draft reports to a pool of key insurers. Insurance companies can then meet with the regulator for better understanding of the proposed new rules and participate by providing suggestions, commenting and even analyzing the impact of the new regulation before it comes into effect.

Several practitioners noted that their companies actively provide feedback during this phase; this is a best practice. Risk departments should closely monitor the developing regulations and participate in the consultation process. To keep pace and deal with regulatory changes, practitioners are adopting the approach described in Table 9.

**Table 9**  
**PRACTITIONERS' APPROACH TO KEEPING UP WITH REGULATIONS**

Consultation papers	Discussion panels	ERM impact analysis
Participate in the regulatory change processes before a new law is published. The regulatory authority disseminates consultation papers, so practitioners can provide suggestions and/or comments	Request meetings with the regulatory authority to understand the motivation, terms and challenges in implementing the regulation once it is released	Analyze and measure the risk and impact and understand strategic impact. Practitioners use this analysis to test changes in the model within its life cycle and assess the impact of regulatory changes

Source: Practitioners interviewed.

#### 5.4.2 HANDLING COMPLIANCE CHALLENGES

Practitioners indicated that the Chinese society continues to see a rapid rate of technological changes, and insurers are working hard to keep up, despite their systematic approach to deal with these changes. According to one practitioner, insurers are increasingly using externally sourced data sets, such as data from social media (including WeChat, Sina Weibo and Tencent QQ), regulation permitting. The digitization trend presents new opportunities through the availability of new data and business channels but also creates additional cybersecurity risks. Most of the interviewed practitioners appreciated regulators' effort to evolve the insurance market and expressed interest in learning more ways to keep up with the regulatory environment's rapid transformation.

The recent laws (described in Table 5) mandate that Chinese insurance businesses act as independent subsidiaries from the standpoint of data usage and security. Practitioners noted that compliance with these laws is affecting previously planned marketing strategies by restricting the eligible uses of customer data, as well as requiring thorough reviews of business processes and models to ensure compliance. They expressed concerns that data sharing between business subsidiaries is becoming more challenging, which may cause roadblocks for larger AI/ML rollouts that require access to large data sets. Practitioners are concerned about measuring the financial and business impacts of recent regulatory changes on data security, which are considered relevant to their companies.

Chinese regulators have been paying close attention to data security, including compliance with DSL and PIPL. These laws limit how consumer data can be used and establish additional standards on data protection, according to practitioners.



Practitioners mentioned being unable to use the data gathered during product marketing as part of the underwriting process, which prevents companies from improving their risk models. Companies also have to bear the costs associated with improving systems and internal controls to remain compliant and mitigate risks.

Practitioners expressed they have made business model changes in response to PIPL. To date, regulatory guidance on DSL has been very broad, with additional regulatory guidance and clarifications—in particular, the definition of “important” data—still to come. Companies will have to consistently emphasize compliance with DSL and PIPL as guidance evolves. For example, negative news in the insurance industry often involved customer information leakage; spam calls, which could lead to a loss of consumers’ trust; and reputational risk. Until recently, limited oversight or regulations around data protection led insurers to invest and focus more on the sales side, with less focus on compliance requirements and personal information protection capabilities. With DSL and PIPL, insurers need to invest more in mid- to back-office support services in order to comply with the laws.

Practitioners expressed that the laws are being enforced evenly between domestic and foreign companies. However, the nature of DSL means that multinational companies will be particularly affected by the restrictions on cross-border data transfer.<sup>122</sup>

Practitioners also expressed how the scope of regulations varies depending on the types of insurance business, such as life insurers, P&C insurers, reinsurers, foreign-funded insurers and domestic insurers. Following are some examples:

- Life and health insurance companies must comply with the rules and regulations promulgated by the CBIRC, including the Provisions on Basic Services for Life Insurance Business, the Administrative Measures for the Telemarketing Business of Personal Insurance Products, the Administrative Provisions on Authenticity Management of Personal Insurance Customer Information, the Administrative Provisions on Insurance Terms, and Insurance Rates of Life Insurance Companies.
- P&C insurance companies must comply with rules and regulations that include the Administrative Provisions on Insurance Terms and Insurance Rates of Property Insurance Companies, and the Guidelines on Development of Insurance Products by Property Insurance Companies.
- Reinsurers must comply with rules and regulations including the Administrative Provisions on Reinsurance Business and the Provisions on the Establishment of Reinsurance Companies.
- Foreign investment insurance companies are subject to the Administrative Regulations on Foreign-Funded Insurance Companies and the Implementation Regulations for the Regulations on Administration of Foreign-Funded Insurance Companies.
- Insurance institutions conducting internet insurance businesses must comply with rules and regulations that include the Measures for the Regulation of Internet Insurance Businesses and the Notice on Internet Business Retrospective Sales Activities Management.

#### 5.4.3 EMERGING ERM BEST PRACTICES FOR THE REGULATORY ENVIRONMENT

The recent regulations (see Table 5) and C-ROSS (detailed in Figure 6 and Table 6), combined with the adoption of risk-based capital concepts, are triggering changes to the ERM function at insurance companies. The ongoing

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<sup>122</sup> Karry Lai, “Primer: China’s Data Security Law,” IFLR, November 11, 2021, <https://www.iflr.com/article/b1vdly3c367qc/primer-chinas-data-security-law> (accessed May 31, 2022).

transformation and emerging best practices are paving the way to ensure solvency of China's insurance industry while improving competitiveness.<sup>123</sup>

The recent regulations have increased expectations for qualitative risks, such as operational risk. Insurers are improving ERM literacy internally, increasing awareness of risk culture, and ensuring effective internal risk governance. Therefore, ERM teams will need to develop new enterprise-wide metrics and controls to better mitigate business risks while ensuring effective internal communication on risk culture. ERM teams will need to have the authority and resources necessary to meet regulatory objectives.

In fact, according to CISF, preventing systemic risks is the top priority of financial regulation. As the insurance industry enters a new era of accelerated development, the insurance security fund system is to play an increasingly influential role.<sup>124</sup>

Industry experts have also suggested that insurance companies focus on corporate governance and set up an ERM framework around it. Insurance companies may consider exploring intervention tools, such as having full-time independent directors with supporting management mechanisms prescribed in the charter and utilizing big data and innovative technologies to build an information platform for more effective corporate governance.<sup>125</sup>

Practitioners have indicated that regulations on personal data protection and ethical use of AI would have a positive impact on the core insurance business (see Table 4) and will particularly affect ERM practices, requiring updates in the policy, tools, and processes. Also, the recent data laws enforced by China's data security regulator, the Cyberspace Administration,<sup>126</sup> require significant compliance efforts by all companies in China, particularly multinationals, including insurers.

Under the draft of the Data Export Security Assessments regulation, all important data that undergo data export activities are subject to security assessments conducted by the provincial-level and state-level internet information department. Specifically, security assessment is required for data conveying important information, coming from more than one million persons, and used in providing personal information to overseas recipients. The security assessment will focus on the "legality, propriety, and necessity of the purpose, scope, and methods, etc. of exporting the data."<sup>127</sup> Not only does this have important implications for how foreign insurers should handle data, but also domestic insurers that have business operations overseas or have filed IPOs in foreign countries are subject to the regulation.<sup>128</sup> In anticipation of the regulation being finalized, insurers are taking preparatory actions that include forming working groups that monitor data export activity; upgrading data collection, processing and storage infrastructure; formulating internal audit policy on products and services that involve data export; and constructing a data export risk self-assessment in the ERM framework.

Practitioners also identified digital transformation as a key area of impact, given the linkage with multiple insurance risks. Regarding digital transformation, the CBIRC issued the Guiding Principles on the Digital Transformation of the Banking and Insurance Industry on January 10, 2022. Banking and insurance institutions are required to

<sup>123</sup> Zhao Yulong, "China's C-ROSS: A New Solvency System Down the Road," *The Actuary*, February/March 2014, <https://theactuarmagazine.org/wp-content/uploads/2016/12/act-2014-vol11-iss1.pdf> (accessed May 31, 2022).

<sup>124</sup> Yu Hua, "Address from the Chairwoman," China Insurance Security Fund, n.d., <http://www.cisf.cn:8088/gsj/zc/index.jsp> (accessed May 31, 2022).

<sup>125</sup> Yu Hua, "Give Full Play to the Advantages of Corporate Governance and Strengthen the Prevention and Control of Financial Risks—Based on Some Reflections on the Practice of Insurance Protection Fund Companies to Prevent and Defuse Risks," *Insurance Industry Risk Watch*, February 7, 2022, <https://mp.weixin.qq.com/> (accessed May 31, 2022).

<sup>126</sup> Latham & Watkins, "China's New Data Security Law."

<sup>127</sup> Measures for Data Export Security Assessments (Draft for Solicitation of Comments), China Law Translate, October 29, 2021, <https://www.chinalawtranslate.com/en/data-export-assessment-draft/> (accessed May 31, 2022).

<sup>128</sup> Interpretation of the Measures for Security Assessment of Data Export (Draft for Solicitation of Comments), *Security Insider*, October 29, 2021, <https://www.secrss.com/articles/35545> (accessed May 31, 2022).

conscientiously implement it, considering actual business environment conditions that practitioners said are of interest to the ERM function.

The Guiding Principles emphasize that insurance institutions should strengthen top-level design and planning, scientifically formulate digital-transformation strategies and make plans to promote work. It is necessary to vigorously promote the digital transformation of business operations and management; actively develop industrial digital finance; promote the digital transformation of personal financial services; strengthen the digital construction of financial-market business; comprehensively promote the construction of a digital scene operation system; build a safe, efficient and win-win financial-service ecosystem; and strengthen digital risk control capacity building. It is necessary to improve four aspects of data governance and application capabilities:

- Improving the data governance system,
- Enhancing data management capabilities,
- Strengthening data quality control, and
- Improving data application capabilities.

Additionally, the Guiding Principles highlight the importance of strengthening insurers' scientific and technological capabilities, increasing the elastic supply of data center infrastructure, improving the support capacity of scientific and technological architecture, promoting the agile transformation of scientific and technological management, and improving the application of new technologies and the ability to manage risks independently.

The Guiding Principles underline that insurance institutions should strengthen the management of strategic risks and compliance of innovative businesses and liquidity, operational and outsourcing risks while preventing model and algorithm risks. Insurers also should strengthen network security and privacy protection as well as data security. These principles also highlight the requirements of strengthening organizational safeguards and ensuring efficient supervision and management.<sup>129</sup>

## Section 6: Conclusions

With recent regulations on data privacy and C-ROSS Phase II coming into effect in China, insurers are now expected to ramp up their focus on mitigating quantitative and qualitative risks, including operational risk. The enterprise risk management (ERM) function provides an opportunity to streamline this requirement. Insurers' ERM functions are looking to enhance their policies, processes, tools and practices to deal with problems emanating from model risk management, data, cybersecurity, technology risk, digitization and product transformation, as observed by the insurance practitioners interviewed.

While the ERM function is neither an enabler of innovation nor a tool to fully navigate business environment or regulatory oversight, it participates and plays a key role in the process insurance companies and practitioners follow to identify and mitigate potential insurance-related risks.

Insurance practitioners have identified digital transformation as an emerging risk of impact in some areas of the sales process. Practitioners have indicated that the recent regulations around personal data protection, ethical use of AI, and the business environment may require continued efforts, including revisiting the insurance business model. From the technological perspective, firms have adopted multiple solutions to streamline their business

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<sup>129</sup> Guidance of the General Office of the China Banking and Insurance Regulatory Commission on the Digital Transformation of the Banking and Insurance Industry. CBIRC. January 26, 2022, <http://www.cbirc.gov.cn/cn/view/pages/governmentDetail.html?docId=1034763&itemId=861&generalType=1> (accessed May 31, 2022).

operations, including face recognition, image identification, predictive modeling and smart insurance, with some of these leading to new ERM practices and innovation oversight, particularly from the perspectives of model risk management and operational risk.

Insurance practitioners have provided valuable opinions that shed light on the complex innovation, business and regulatory environment prevailing in China and the stage of the insurance industry, including challenges and opportunities for domestic and foreign-owned insurers. For the latter, practitioners expressed optimism about the new era in the insurance industry. In general, practitioners have recognized the rapid pace at which the Chinese market is changing and the importance of the ERM function to keep up.

In fact, digitization and adoption of technological solutions have posed fresh challenges to insurers. These challenges are overlaid with regulatory moderation (sanctions) and reputational risks because of the way social networks drive consumer behavior, all this while China's demographic profile continues to evolve.

Against this backdrop, insurers and practitioners will need to continue their efforts of integrating guiding principles into their risk management systems and mechanisms while ensuring that key insurance functions have effective compliance, internal control and ethical risk management that encompasses credit, solvency, operational, market and model risks. To this end, more effort is required at the planning phase of product design. In addition, to achieve product stability, insurers need to carry out an intensive review of their business models.

Therefore, ERM is set to be the cornerstone for risk management and corporate governance so that insurers can seamlessly navigate the rapidly changing business environment.

## Section 7: Acknowledgments

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## Section 8: Participating Practitioners

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Other practitioners preferred to remain anonymous.

## Section 9: Methodology

This section includes details about the scope, objectives and procedures of the ERM study.

### Geographical Scope and Research Objective

The full ERM series covers China, India, US and Canada; this report focuses only on China.

The objective of the study is to prepare a report with insights and actionable intelligence to help ERM professionals manage regulatory risks. It provides an overview of the ERM function in insurance innovation, business and regulatory environments.

### Information Sources

Information and/or data for this project was derived from recent ERM literature, insights and suggestions from the Project Oversight Group (POG) members, insurance practitioners' findings (sourced during interviews), historical research and documentation from actuarial sources, and CRISIL's insights. The secondary source of information comprised regulations announced in the geography under study, news and articles, academic papers and white papers.

### Procedures

- **Sample.** With the POG's help, a list of 15 insurers was created, including life, health, non-life and reinsurers. Around 30 invitations were sent out directly to practitioners, and eight interviews were conducted, covering 11 practitioners and eight insurers.
- **Interview timeline.** Practitioners were interviewed from November 2021 to May 2022.
- **Reach.** Some practitioners were contacted directly via email and were invited to participate; others were introduced by the sponsors of the research project. Additionally, a microsite was set up on CRISIL's website to facilitate consistent project information dissemination.
- **Interview process.** A measuring instrument (guide) was prepared with a set of interview questions designed to gather ERM information from practitioners.
- **Interview duration.** Practitioners were invited for a face-to-face interview for 30 to 45 minutes.
- **Interview support.** During the interviews, at least one interviewer was based in the practitioner's location,<sup>130</sup> and an experienced ERM actuary deployed the measuring instrument.
- **Practitioners' views.** Practitioners had a preview of the report so they could share their views.
- **Anonymity.** All the responses were kept anonymous unless the practitioners stated otherwise. The POG had access only to an anonymized version of the practitioners' responses, meaning the version excluded any reference that could help identify the names of participants or companies.
- **Practitioners' profile.** The practitioners contacted were chief risk officers, chief financial officers, chief technology officers, compliance officers, heads of ERM, data protection officers, chief data science or AI/ML officers and appointed actuaries, who have extensive experience in the insurance and regulatory space.
- **Governance.** A periodic review was scheduled with the POG to seek guidance and advice to shape the research.

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<sup>130</sup> Some interviews required translation from Mandarin.

## Section 10: Glossary of Acronyms

This section includes definitions of key acronyms mentioned in the paper.

**CAA:** China Association of Actuaries, which is a member of the International Actuarial Association.

**CAS 25:** Chinese Accounting Standard 25, which aligns mainland China's accounting requirements for insurance contracts with IFRS 17.

**CBIRC:** China Banking and Insurance Regulatory Commission, a regulatory agency supervising the banking and insurance sectors and taking enforcement actions against regulatory violations, which was established in 2018 through the merger of CIRC and CBRC.

**CBRC:** China Banking Regulatory Commission, a former regulatory agency of China supervising the banking sector, which merged with the CIRC to form the CBIRC in 2018.

**CIRC:** China Insurance Regulatory Commission, a former regulatory agency of China supervising and managing the insurance products and services market, which merged with the CBRC to form the CBIRC in 2018.

**CISF:** China Insurance Security Fund, an industrial risk bailout fund that aims to strengthen risk control awareness and risk management.

**C-ROSS:** China Risk-Oriented Solvency System, a framework established in 2015 to strengthen capital requirements, risk management and governance in the insurance industry.

**CSRC:** China Securities Regulatory Commission, a regulatory agency overseeing the securities industry in China.

**DSL:** Data Security Law, which provides a comprehensive framework that regulates data activities carried out in China and classifies data based on its potential impact on Chinese national security.

**ILPRC:** Insurance Law of the People's Republic of China, China's first major insurance legislation, which has gone through several amendments since its 1995 establishment.

**IRR:** Integrated risk rating, a rating system used to determine the level of intervention applied by the regulator under the C-ROSS framework.

**PIPL:** Personal Information Protection Law, China's first comprehensive law designed to regulate online data and protect personal information.

**POG:** Project Oversight Group. A team of volunteers who diligently work in overseeing questionnaire development, analyzing and discussing respondent answers, and reviewing and editing this report for accuracy and relevance.

**SARMRA:** Solvency-aligned risk management requirement and assessment, a regulator's evaluation of insurers' risk management, controls and corporate governance structures under the C-ROSS framework.



## About the Canadian Institute of Actuaries

The Canadian Institute of Actuaries (CIA) is the qualifying and governing body of the actuarial profession in Canada. CIA develops and upholds rigorous standards, shares its risk management expertise, and advances actuarial science for the financial well-being of society. The body has more than 6,000 members, who apply their knowledge of math, statistics, data analytics and business in providing services and advice of the highest quality to help ensure the financial security of all Canadians.

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The CIA

- Promotes the advancement of actuarial science through research
- Provides for the education and qualification of members and prospective members
- Ensures that actuarial services its members provide meet extremely high professional standards
- Is self-regulating and enforces rules of professional conduct
- Is an advocate for the profession with governments and the public in the development of public policy

The CIA and its members are active in the international actuarial community. The CIA is a founding member of the International Actuarial Association and was involved in the 1998 restructuring of the body.

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The purposes of the Casualty Actuarial Society are:

- To advance the body of knowledge of actuarial science applied to general insurance, including property, casualty and similar risk exposures
- To expand the application of actuarial science to enterprise risks and systemic risks
- To establish and maintain standards of qualification for membership
- To promote and maintain high standards of conduct and competence
- To increase the awareness of actuarial science
- To contribute to the well-being of society as a whole

In principle and in practice, the CAS values and seeks diverse participation within the property/casualty actuarial profession. In support of those values, the CAS encourages an inclusive community where differences are celebrated and all have the opportunity to participate to their fullest potential in its success. The CAS commits time and resources to accomplish this objective.

Actuaries are required to adhere to the high standards of conduct, practice and qualifications of the actuarial profession, thereby supporting the actuarial profession in fulfilling its responsibility to the public.

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## About the Society of Actuaries Research Institute

Serving as the research arm of the Society of Actuaries (SOA), the SOA Research Institute provides objective, data-driven research, bringing together tried and true practices and future-focused approaches to address societal challenges and business needs. The institute provides trusted knowledge, extensive experience and new technologies to help effectively identify, predict and manage risks.

Representing the thousands of actuaries who help conduct critical research, the SOA Research Institute provides clarity and solutions on risks and societal challenges. The institute connects actuaries, academics, employers, the insurance industry, regulators, research partners, foundations and research institutions, sponsors and non-governmental organizations, building an effective network which provides support, knowledge and expertise regarding the management of risk to benefit the industry and the public.

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Harnessing its peer-reviewed research, leading-edge technologies, new data tools and innovative practices, the institute seeks to understand the underlying causes of risk and the possible outcomes. It develops objective research spanning a variety of topics with its strategic research programs: aging and retirement; actuarial innovation and technology; mortality and longevity; diversity, equity and inclusion; healthcare cost trends; and catastrophe and climate risk. The Institute has a large volume of topical research available, including an expanding collection of international and market-specific research, experience studies, models and timely research.

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