

Actuarial Profession and Actuarial Education in China

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Actuarial Profession and Practitioners in China



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Actuarial profession and practitioners in China

The current status of Chinese insurance industry:

- As of 2018, there were 91 life insurance companies in China, with 63 Chinese companies and 28 foreign ones. Also there were 88 property insurance companies, with 66 Chinese enterprises and 22 foreign ones.
- In 2018, the original insurance premium income was 3801.662 billion CNY, an increase of 3.92% compared to the previous year. Of which the premium income of property insurance companies was 1175.569 billion CNY, an increase of 11.52%. The premium income of life insurance companies was 2626.687 billion CNY, with an increase of 0.85%.
- Ever since the reform and opening up, especially since China's entry into the WTO in 2001, China's insurance industry has made great progress. However, the rapid development of the insurance industry also makes us wonder whether actuaries in China can meet the needs of the industry.

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Actuarial profession and practitioners in China

Prediction of actuarial talents demand in China: from the perspective of the overall scale of the insurance industry

Traditional insurance areas		Non-traditional insurance areas	
Market size <ul style="list-style-type: none">Assume 80% annual growth in the first 5 years and 60% thereafter until the 10th year	Actuarial staff density <ul style="list-style-type: none">Assume it takes 10 years to reach the current US level (19.28 people / billion US dollars)	<ul style="list-style-type: none">New industries such as big data, Internet, and AI probably need 15-25 thousands talents in the next decade	<ul style="list-style-type: none">The demand for pension, social insurance industries probably will be 4-6 thousands in the next decade
It is estimated that the demand for actuarial talents in traditional insurance areas will reach 15,000 in 5 years and 30,000 in 10 years		It is estimated that the demand for actuarial talents in non-traditional insurance will reach 10,000-15,000 in 5 years and 20,000-30,000 in 10 years	

In summary, it is estimated that the demand for actuaries will reach 30,000 in the next five years, and the demand in ten years will reach 50,000 to 60,000.

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Actuarial profession and practitioners in China

Chinese actuarial practitioners:

- According to the statistics of the China Banking and Insurance Regulatory Commission (CBIRC), as of April 2018, there were 978 Fellowships and 1,123 Associates in China. There were 3,843 actuarial practitioners.
- Information about Fellows: 978 fellows hold one or more actuarial certificates, of which 588 fellows are FCAA (China), 483 are FSA or FCAS, 67 are FIA, 10 are Fellows of Actuaries Institute of Australia. Finally, 19 actuaries hold other certificates. There are 269 fellows who hold two or more actuarial certificates.
- Information about Associates: 1,123 associates hold one or more associate qualifications, of which 625 associates are ACAA (China), 580 are ASA or ACAS (USA), 26 are Associates (UK), and 10 are Associates of Actuaries Institute of Australia.

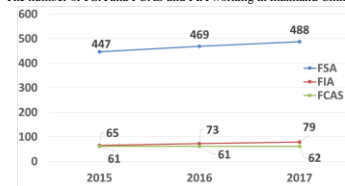
(P.S. Actuarial practitioners refer to those who are engaged in professional job requiring for actuarial knowledge or actuarial work experience.)

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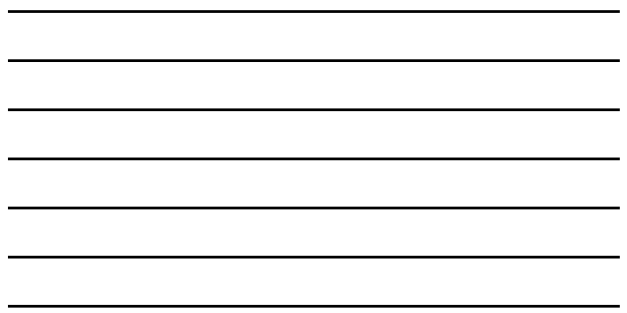
Actuarial profession and practitioners in China

The number of FSA and FCAS and FIA working in mainland China:



In recent years, the number of FSA and FCAS and FIA working in mainland China has continued to increase. However, it is worth noting that the number of FSA is large and its growth rate is high, while the number of FIA and FCAS is small with low growth rate.

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Actuarial profession and practitioners in China

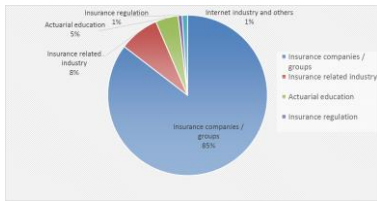
Characteristics of actuarial practitioners in China
(1) mainly concentrated in the insurance industry:

- 3,282 actuarial practitioners work for insurance companies and insurance groups, with the proportion of 85.4%. Of which 1,967 are in life insurance companies, 962 in property insurance companies, 182 in reinsurance companies, and 171 in insurance groups.
- 341 actuarial practitioners are in insurance related industries, accounting for 8.1%. Of which 207 are in accounting firms, 81 in actuarial consulting companies, 15 in insurance asset management companies, and 9 in actuarial associations.
- 178 actuarial practitioners work in universities, accounting for 4.6%.
- 29 actuarial practitioners work in regulatory departments, accounting for 0.8%.
- 42 actuarial practitioners work in Internet companies, securities, funds and other industries, accounting for 1.1%.

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Actuarial profession and practitioners in China

Characteristics of actuarial practitioners in China
(1) Mainly concentrated in the insurance industry:



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Actuarial profession and practitioners in China

Characteristics of actuarial practitioners in China
(2) High educational level:

- 2,867 actuarial practitioners have masters degree or above, accounting for 78%, of which 83 have doctor degrees, 798 with undergraduates degree and below, accounting for 22%.
- 1,214 actuarial practitioners have overseas study experience, accounting for 33%. Of which: 349 in the US, 328 in the UK, 206 in Australia, 136 in Canada, 92 in Hong Kong, and 103 in other countries.
- 1,587 actuarial practitioners graduated from famous universities in China with prestigious programs in actuarial science, accounting for 44%. Of which: 435 from Nankai University, 196 from CUFE, 176 from SUFE, 164 from East China Normal University, 127 from Hunan University, 125 from Renmin University, 120 from Fudan University, 112 from SWUFE, 75 from Peking University, 578 from University of Science and Technology of China.

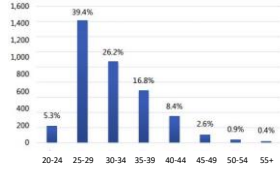
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Actuarial profession and practitioners in China

Characteristics of actuarial practitioners in China

(3) Young ages:

The average age is 32 years old.
 --192 practitioners: aged 24 and below, accounting for 5.3%.
 --1,432 practitioners: aged 25-29, accounting for 39.4%.
 --954 practitioners: aged 30-34, accounting for 26.2%.
 --611 practitioners: aged 35-39, accounting for 16.8%.
 --447 practitioners: aged 40 and over, accounting for 12.3%.



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Actuarial profession and practitioners in China

Characteristics of actuarial practitioners in China

(4) Mainly engaged in traditional actuarial work:

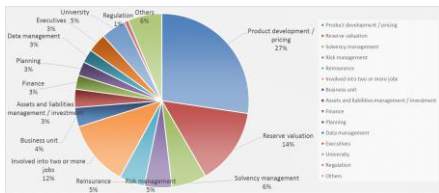
- 2,937 practitioners are engaged in traditional actuarial work, accounting for 70.1%. Of which:
 --1,053 work for product development / pricing, accounting for 27.4%.
 --548 work for reserve valuation, accounting for 14.3%.
 --248 work for solvency management, accounting for 6.5%.
 --196 work for risk management, accounting for 5.1%.
 --181 work for reinsurance, accounting for 4.7%.
 --469 practitioners are engaged in two or more actuarial work, accounting for 12.2%.
- 565 practitioners are engaged in non-traditional actuarial work, accounting for 14.7%, such as in business unit, asset and liability management / investment, finance, planning, data management.
 --134 practitioners are executives, accounting for 3.5%.
 --178 practitioners in education and training, accounting for 4.6%.
 --29 practitioners work in regulatory departments, accounting for 0.8%.

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Actuarial profession and practitioners in China

Characteristics of actuarial practitioners in China

(4) Mainly engaged in traditional actuarial work:



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Actuarial profession and practitioners in China

Summary of the current status:

There is a big gap between China insurance market and the developed insurance market, in the aspects of the number and density of actuarial practitioners.

- The scale of premium income in China is about 34% of that in the United States, but the number of actuarial practitioners is only 15% of that in the United States. Practitioners density (the number of actuarial practitioners per billion US dollar premium) is about 43% of that in the United States.
- If calculated using the practitioners density in the US and the current premium scale in China, the demand for actuaries in China is 8,984, and the gap of shortfall is 5,141.

Country	The number of actuarial practitioners	The scale of premium income (billion USD)	Practitioners density (persons per billion USD)
Mainland China	3,843	466	8.35
USA	26,060	1,352	19.28

In summary, at present the insurance industry does not pay enough attention to actuarial techniques, resulting in the limited role of actuaries. There is still a broad market demand for actuarial profession.

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The Current Status of Actuarial Education in China



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Actuarial education in China

The origin of China actuarial education

-- In 1988, with the support of SOA, Nankai University enrolled 15 actuarial master students.
 -- In 1991, the first class of actuarial masters graduated, and Nankai University enrolled the second class of actuarial masters.

-- At the 1990s, some other universities began to enroll actuarial master students.

Actuarial major / actuarial programs

-- Major of actuarial science for undergraduates: 13 universities have been approved by the Ministry of Education as of 2019.

-- Graduate and PhD programs with specialties in actuarial science: about 15-20 universities have actuarial programs.

The number of faculty in universities: 178

-- Among them: 9 FCAA (China), 12 ACAA (China), 12 ASA (USA), 3 Associates (UK).
 -- 25 professors with industry experience.

There are nearly 500 masters of actuarial science, and about 60 doctors of actuarial science annually.

(data source: according to the questionnaire issued by CBIRC to Chinese universities in 2018)

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Actuarial education in China

Current status of non-life insurance actuarial education in China:

Courses Curriculum:

- Mainly refer to CAS.
- Occasionally with reference to the UK and Australia.
- Universities provide with basic courses, the actuarial association (CAA) offers advanced courses.

Main problems in non-life insurance actuarial examination of CAA:

- Too many examination courses, too less key points, resulting in unnecessary cost.
- The curriculum are updated too slow to keep up with the requirements in the new era.
- Lack of some guidance, the syllabus determined by professors individually, and the education quality cannot be guaranteed.

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Proposals for Actuarial Profession Development and Actuarial Education in China



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Proposals for Actuarial Profession Development and Actuarial Education

Increase the scale of actuarial practitioners

- ▶ Firstly, China Association of Actuaries (CAA) is expected to restore the actuarial exams as soon as possible. The China Banking and Insurance Regulatory Commission (CIRC) and CAA apply to the Ministry of Human Resources and Social Security of the People's Republic of China, hoping that the cancelled qualification examination can be included into the professional qualification examination system as soon as possible.
- ▶ Secondly, encourage educational cooperation between overseas associations of actuaries, insurance institutions and domestic universities, and strengthen the cultivation of actuarial talents.
- ▶ Thirdly, currently there have been some relevant regulatory requirements, stating that insurance institution should hire the chief actuary and a sufficient number of actuaries in some specific departments.

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Proposals for Actuarial Profession Development and Actuarial Education

Improve quality

- ▶ Firstly, reform the CAA examination system and design a better course system. For instance,
 - Update some actuarial education curriculum.
 - Improve the requirements for modern actuarial statistical models and methods.
 - Emphasize computer applications and programming skills.
 - Improve the application capabilities of machine learning and big data analytics.
- ▶ Secondly, reward outstanding actuaries. Establish the "Excellent Actuary Awards Project", encourage insurance institutions to hire excellent actuaries as chief actuaries and other senior management positions. Actuaries who have made significant contributions to industry actuarial rules, actuarial techniques, and prevention of major risks are awarded.
- ▶ Thirdly, strengthen self-discipline in the industry and punish actuaries who violate laws, regulations or professional ethics. In addition to the penalties of existing laws and regulations, the association of actuaries should establish and improve their own professional ethics system, which can fire the actuaries who have lost the bottom line and principles, and punish and educate the actuaries who have made serious mistakes.

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Proposals for Actuarial Profession Development and Actuarial Education

Play roles

- ▶ Improve the system of chief actuaries and provide support so that actuaries can give professional opinions independently and objectively.
- ▶ Encourage actuaries to participate in areas such as social security and catastrophe risk management, so that they can play an important role in social management.
- ▶ Strengthen the role of actuaries in financial auditing and solvency auditing.
- ▶ Encourage actuaries to participate in formulating regulatory systems.
- ▶ Encourage actuaries to participate in formulating international rules and introduce China's actuarial practice to the world, playing a role in the international actuarial stage.

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Thanks

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