



博士

► 上海市社会科学 ◀

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中国非寿险保险公司的 偿付能力研究

ZHONGGUO FEISHOUXIAN BAOXIAN GONGSI DE CHANGFU NENGLI YANJIU

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内 容 提 要

偿付能力是指保险公司支付赔偿或给付债务的能力。如果保险公司经营不善，不但会造成保险人的财务危机，而且还可能引发社会危机。保险业中，风险产生的原因多种多样，但是最终都体现为偿付能力不足。保证保险公司具有持续经营所必须的偿付能力，是政府对保险业监管的根本性问题。

中国保险业的监管系统结合了英国和美国的监管方法，制定了许多确保保险公司的偿付能力的措施。

本书的目的就是检验上述各种保险规定中具体的数值规定。由于寿险业和非寿险业是完全不同的两种险种，所以本文主要是对非寿险保险业进行了分析。利用中国非寿险保险市场的历史数据，构造一些数学模型，为这些规定寻找理论根据。由于计算是以中国非寿险保险市场的历史数据为依据的，计算结果符合中国非寿险保险市场的要求，具有一定的合理性，可供保险监管部门参考。

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序 言

本书是粟芳同学的博士论文,作为她的导师,我很高兴并祝贺她的书出版。

听说我是搞金融保险研究的,经常有人问我,“哪个保险公司值得信赖?”“如果保险公司破产了,我们买的保单怎么办?”由于保险产品是对将来可能发生的损失进行赔偿的一种承诺。那么将来这一承诺是否能够兑现自然是投保人所最关心的问题。这一问题就称为“保险公司的偿付能力”。偿付能力是对保险公司信誉衡量的主要标准,也是对保险公司监管的主要指标。对保险公司的偿付能力提出过高的标准,将导致保险资源浪费,利润下降,最终影响保险的健康发展。对保险公司的偿付能力要求过低,必然将影响投保人的利益保障。制定合适及合理的偿付能力指标是保险监管当局以及学术界所追求的目标。

怎样制定出合理的偿付能力指标呢?通常要考虑多方面的因素,其中最主要的因素是资本市场的运作环境和预测的损失赔偿额。对此,欧美保险的开拓历史悠久。保险市场发展成熟的国家也都有大量的研究。中国的保险刚刚起步,而资本市场与保险市场更有待发展,很多问题都在研究之中。制定合理的保险公司偿付能力指标也是所亟待研究的重要课题之一。粟芳同学选择这一课题作为她的博士论文是很有意义的。但是我对她的论文比较满意并非仅仅是因为论题有意义,更主要的是研究方法和成果有意义。

很久以来,中国的学术界习惯于用定性的方法研究金融和经济问题,这些研究也常常提出了许多合理的研究成果,比如货币供

应要适度。但是何为适度？3%还是10%？为什么是3%而不是10%或者5%等等就没有下文了。往往洋洋数万言、数万字的书就是在模棱两可的文字中间转来转去。在这数字化的年代，定性研究的影响将越来越小，代之而起的是精确的数字，比如货币供应速度的年增长率为3.5%为好，这是根据怎样的数据计算出来的？粟芳同学的论文就符合了这一要求，她总结了欧美各国的保险偿付能力计算公式，并加以改进后，又运用来计算中国保险公司的偿付能力。如果计算结果与目前中国保险监管当局公布的标准有很大的差异，那么谁的结果更合理呢？她提出了挑战，这也是很有意义的一件事情。

如果说我们在母亲肚里“怀胎十月”完成了几十万亿年生物进化的过程，从小学识字到大学毕业完成了人类文明万年知识积累的过程，那么到了研究生，尤其是博士生阶段，继承应该逐渐地结束，创造应该成为主要的任务。这也是我们要求博士论文要有创新的主要原因。粟芳同学的论文是具有一定的开创内容的。因此，我认为这是优秀的博士论文。现在她将这本论文出版成书，让更多的人来分享她的研究成果，这是很有意义的事。为此，我写了以上的文字为序，来表示我的态度和支持。

俞自由

2001年12月24日

本书摘要

中国的保险监管法律中包括了很多具体的数值规定,比如偿付能力额度、资本金要求以及许多准备金的提存比例要求等等。这些规定的严格实施是进行偿付能力监管的重要途径。但是,上述各种规定基本上都是依据经验制定的,没有经过严密的证明和检验,还有待用中国保险市场的历史数据进行验证。本文的目的就是检验中国各种保险规定中具体的数值规定。由于寿险业和非寿险业是完全不同的两种险种,所以本文主要是对非寿险保险业进行了分析。

本文检验了最低偿付能力额度计算公式中的系数、最低资本金要求、准备金的提存比例、经营规模的限制、未到期责任准备金和未决赔款准备金的提存比例等等。除此以外,中国保险业的偿付能力监管体系还有许多需要完善的地方,例如实际资产的认可系数,保险企业偿付能力监管指标体系的制定等等,本文也将在这些方面进行深入细致的探讨。最后,还要分析目前影响中国非寿险保险业偿付能力的各种因素,分析各种风险暴露的程度,为决策机构和保险公司提供有理有据的参考。

本文共六章,分别从不同的方面讨论了中国非寿险保险市场有关偿付能力的问题,从而实现了上述研究目的。第一章是导论,详细介绍了本文的研究意义。

第二章首先介绍了偿付能力的基本概念、影响偿付能力的各种因素、影响途径等。然后介绍了偿付能力监管模式,即英国型、美国型和原日本德国型。第三节介绍了典型国家和地区对偿付能力的监管方法和特点,包括英国、美国、加拿大、日本、欧盟、法国、

澳大利亚、中国香港地区和新加坡。英国的保险业历史悠久,代表着一种宽松的监督风格。中国偿付能力额度的计算公式就是借鉴了英国的做法。本文就英国目前偿付能力监管的各种措施作了详细的介绍。美国的保险业也比较发达,其保险业的监管措施也比较先进。美国的保险业监管属于多层次的监管,既管费率、险种的设计,也密切注意保险公司的偿付能力动向。而且美国还运用了多种偿付能力的管理工具,这些管理工具对发展中的中国保险市场也非常值得借鉴。第四节是对我国的偿付能力监管手段的分析。我国的保险监管手段包括正常层次的监管、偿付能力监管,以及违反法律的惩罚措施。最后,在国际比较的基础上,结合了各典型国家的具体偿付能力监管方法,分析我国偿付能力监管中所存在的问题,并指出了我国保险业偿付能力监管的发展方向。

第三章可以说是理论篇,其中详细地构造和推导了有关偿付能力的各种模型,包括比率法、风险理论法、破产理论法和综合模型法。在比率法中,还根据基本公式,发展了保费收入计算法和赔款支出计算法。并且还进行了比例再保险比率和保险公司营业税率的敏感性分析,从而得出了偿付能力额度与再保险比率以及营业税率之间确切的相关关系,为监管法令之间的互动提供了理论依据。由于风险理论法和破产理论法都是建立在随机过程的基础上,理论推导比较复杂,所以在本文中进行了多种近似,将随机过程的计算简化,使得这两种方法能够直接用于实证研究。除此之外,还就有无比例再保险的不同情况,分别设计推导了不同的计算方法。第四节详细地介绍了国外学者所利用的综合模型法,包括他们所采用的各种会计指标,各种内部变量和外部变量对偿付能力的影响,以及它们之间的相关性分析等等。最后,还根据上述四种模型的特点进行了比较分析。

第四章中,利用了中国非寿险保险市场的历史数据,用比率法、风险理论法和破产理论法分别进行计算。得出了符合中国非

寿险保险市场的最低偿付能力额度计算公式,各险种的风险准备金以及法定资本金要求。并且还研究了中国非寿险市场的各公司是否适合进行再保险,而且还就有没有再保险分别进行了详细的计算和分析。研究结果表明,中国目前的偿付能力额度的计算公式不太符合中国非寿险保险市场,目前法律规定的偿付能力额度偏低,使得中国非寿险保险公司暴露的风险程度较大。而且,法定资本金的要求过高,使得中国非寿险市场的进入壁垒较高,不利于非寿险保险业的发展。目前中国非寿险保险公司再保险的成本低于自己承保的成本,进行再保险非常有利。除此之外,还根据三种模型计算结果的特点、计算结果的形式等对中国保险监管措施提出了建议。

第五章针对有关偿付能力监管中各种相关问题进行了研究。偿付能力额度的定义是实际资产减去实际负债的差额。而实际资产是各种资产数量乘以资产的风险系数。第一节分析了中国经济市场的各种资产所存在的风险,然后借鉴了美国风险资产系数的设定,并考虑中国与美国经济市场的不同,完整地设计了中国保险公司实际资产的风险系数表、风险资产的计算方法等等。第二节中检验了各种与偿付能力有关的具体比例规定,包括自留保费的规模、未到期责任准备金、法定再保险比率以及已发生未报告准备金的提存比例规定。每一项规定都从两个方面进行了分析,首先分析了这些规定的实际遵守情况,然后再检验它们的理论依据。分析结果表明,非寿险公司的扩张速度较快,自留保费占资本金和公积金总和的比率超过了四倍。但是其他准备金及法定再保险率的实施情况都较好,各公司基本上都严格遵守了《保险法》以及其他的保险管理规定。第三节建立了中国保险市场偿付能力监管指标体系。目前各国的保险监管模式都在由严格监管向松散监管转变,即保险监管部门仅严格控制保险公司的偿付能力,而不再过多地控制其具体经营事项。而且监管方法以定量监管为主。一些发

达国家早已建立了偿付能力的监管指标体系。这些指标体系在国外已经运用了近二十年,实践证明是可行而且有效的。本文从中国保险业现状出发,借鉴国外的先进经验,根据中国现行的保险法律法规,提出了一套符合中国保险业现状的偿付能力监管指标体系,供保险公司及保险监管部门参考。

第六章用综合模型的方法分析了影响中国非寿险保险市场的各种因素,包括内部因素和外部因素。针对中国非寿险保险市场数据少的特点,采用了灰色系统的方法进行定量分析。并就内部因素、外部因素以及内外部因素分别进行了分析。最后,得出了各种风险对偿付能力的影响程度,分析了外部因素和内部因素对偿付能力的相对重要性,还得出了目前中国非寿险保险公司的偿付能力应该防范的最大风险。

本文中的所有结论都是根据中国非寿险保险市场的实际情况得出来的。理论依据合理,采用的数据真实,具有一定的参考价值,值得保险监管部门和保险公司参考。

关键词: 偿付能力额度,资本金,实际资产系数,灰色关联分析

ABSTRACT

There are so much detailed insurance solvency regulations in the insurance law of China, such as solvency margin, capital request, and the drawing ratio of reserves. All of those regulations are very important to keep the solvency of insurance company. But many of them are laid down according with the experience and without been testified. So, it's very important to test on the foundation of history data in Chinese insurance market. The purpose of this dissertation is just to test some of those regulations. Non-life insurance market is mainly analyzed because of the difference between non-life and life insurance market.

In this dissertation, the request of minimum solvency margin, minimum capital request, and the drawing of reserves are tested. Then, the requests of maximum premium written, unexpired insurance reserve and outstanding loss reserve are also tested. Except that, the China insurance regulation system still has many problems, such as the admitted asset ratio, financial index system of insurance companies. Etc. All those are designed concretely in this dissertation. At last, those factors that affect the solvency problem of Chinese insurance companies are analyzed to get their comparative risks.

There are six chapters. Chinese insurance market is analyzed from different direction, and the above purposes are carried out

at last. In Chapter one, the contents of this dissertation are introduced, including how and why to choose this project, the methods and the structure of this dissertation.

In Chapter two, the basic concepts of solvency are introduced, such as solvency, solvency margin, and what are those factors that influence solvency, and how do they affect. Then, three typical insurance regulation systems are introduced. They are Britain, U. S. A, and Japan. So, those regulations of different countries and their characters are analyzed in detailed in Section three, includes Britain, U. S. A, Canada, Japan, France, Australia and Hong Kong. The insurance history of Britain is very long, and it's regulation system is very loose. China has used the solvency margin calculation of Britain for reference. The regulation methods in Britain are an important part in Section three and introduced very detailed. The insurance is very developed in America, the solvency regulation methods are also perfect. The regulation system includes many fields of insurance company, such as insurance rate, product line and the change of solvency. Many methods are used in American which are very useful to the Chinese insurance market. In Section four, the regulation methods of China are analyzed, which involve normal regulation, solvency regulation and the discipline of insurance industry. At the last Section of this Chapter, compared all the methods of every countries, the problem of Chinese solvency regulation system are found on the combination of so much advanced methods, and many suggestions are given to improve it.

In Chapter three, some solvency models are constructed and

developed, which includes Ratio Model, Risk Theory, Ruin Theory and Comprehensive Model. The Premium Method and Claim Method are constructed on the foundation of Ratio Model. Then, Ratio Model is extended to test the sensitivity of reinsurance rate and sales tax rate. The particular relationships among the solvency and reinsurance rate, sales tax rate are calculated directly. So, when those regulation about reinsurance or sales tax change, the regulation of solvency must change either. Risk Theory and Ruin Theory fund on the stochastic process which is very complex. It must be predigested so that it can be used in demonstration research. Many approximate methods are developed. Except that, different methods are got on different conditions of no reinsurance or proportional reinsurance. The Comprehensive Model is introduced very carefully in Section four. It's about the financial indexes that are used by other scholars, the affect to solvency from interior factors and exterior factors, the relativity among them. Etc. At last, the four solvency models are compared.

Chapter four is demonstration part in this dissertation. Using the history data of Chinese non-life insurance market, the minimum solvency margin is got through Ratio method, risk reserve of every insurance line are got through Risk Theory and minimum capital request are got through Ruin Theory. Then, the operation costs of reassured companies and reinsurance companies are compared. The consequences show that it's useful to reinsurance in China. Different results are got according with whether there are reinsurance. It seems that the minimum solvency margin is a little low, which makes the risk of Chinese

insurance market bigger. The minimum capital request is a little high, which builds a high barrier to enter insurance market and slower the development of Chinese insurance market. Except those, many applicable suggestions are put forward according with the results of those models.

Many relevant problems of solvency are taken into account in Chapter five. The solvency margin is defined as the difference between the admitted asset and admitted liability. The admitted assets are equal to the real assets multiplied with different risk indexes. The assets risks of Chinese economics market are analyzed in Section one. Then, taken the risk indexes of every kind of asset in U. S. A into reference, the asset risk indexes are designed completely considering the economics difference between China and America. The method to calculate the admitted assets is designed also. In Section two, some other regulation about solvency are tested, including the maximum premium written, unexpired insurance reserve, legal reinsurance rate and outstanding loss reserve. The researches are made out from two directions, first is the practice of those regulations, and then is the test of their rationality. The results show that the growth speeds of non-life insurance companies are very fast. The premium written are bigger than the four times of the sum of capital and accumulation fund, while other regulations are practiced very well. Averagely, most insurance companies abide strictly the insurance law and other regulation. The solvency regulation financial system is designed in Section three. Now, the insurance regulation is loosing year after year. The regulation office only pay attention to the solvency instead of

control everything of operation. The most part of regulation methods are quantitative analysis. Many countries have established the solvency regulation financial system, and they have been used for more than twenty years. Their effect and feasibility have been tested. Taking the advanced experience of foreign countries, the solvency regulation financial system is designed according with the reality of Chinese insurance market, and the system also suits with the insurance law and other regulations in China.

The Comprehensive Model is used in Chapter six. Those factors, which have effect on the risk of Chinese insurance market, are analyzed, including interior factors and exterior factors. The history data is so limited in China that the statistical methods can't be used which requests a large sample. So, Grey System is used in this dissertation. The effect of interior factor, exterior factor are analyzed respectively and then compared. Their different effects to solvency are got at last, and the comparatively importance is got also. The result shows that the reinsurance risk is the most important risk, and the interior factors are always more important than exterior factors.

All the results of this dissertation are got from the reality of Chinese insurance market. Those theories used in this dissertation are very sound, and the data used are very real. So, the results are very reasonable. They are worth to be taken as reference by the insurance regulation office and insurance companies.

Key words: Minimum Solvency Margin, Minimum Capital Request, Admitted asset index, Grey Association Method

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