China's Pension Fund
Investment Behavior Research

中国养老
基金投资行为研究

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总　序

　　改革开放30年多年以来，中国社会发生了翻天覆地的变化，其巨变集中体现在社会经济结构的转型上。中国社会经济结构的转型是多维度、多层面的，包括计划经济向市场经济的转型，农业社会向工业社会以及信息化、知识化社会的转型，农村社会向城市社会的转型，封闭社会向日益开放社会的转型。伴随中国社会经济结构的转型，社会保障制度建设与改革发展既是其中的重要内容，也是维系整个改革开放事业顺利进行和促进国家发展进步的基本制度保障。回顾中国社会保障改革发展历程，与整个改革开放事业一样，同样波澜壮阔，同样非同寻常。中国社会保障制度建设与变革，以其所具有的全局性、普遍性、深刻性和复杂性，已经并还在继续影响着中国全面深化改革的进程。

　　《中共中央关于制定国民经济和社会发展第十三个五年规划的建议》将建立更加公平更可持续的社会保障制度作为"十三五"我国社会保障改革发展的指导思想。在人口老龄化挑战日益逼近的脚步声中，在新型城镇化步伐日益加快的进程中，在经济步入新常态的发展格局下，在社会风险日趋严峻的现实挑战下，我国社会保障制度建设的步伐只能加快，社会保障理论创新、制度创新、机制创新对于实现制度的可持续发展更显得至关重要。由于社会保障制度安排的复杂性以及社会公众的高度敏感性，需要我们对社会保障制度建构的宏观背景、约束条件、发展经验、制度设计及有效运行等进行深入细致的梳理和反思，认真总结经验教训。我们要从历史经验的总结中，从国际经验的学习借鉴中，从未来挑战的应对策略中，对社会保障制度建设进行整体、系统、动态的分析思考，在理论创新、制度创新、管理机制创新的同步整合中，实现中国社会保障制度改革发展的历史性跨越。

　　可以预见，随着我国综合国力的日益增强，城乡居民社会保障需求的增长，中国社会保障制度建设必将迈出新的步伐，未来将会有越来越多的城乡居

民直接受惠于这场意义深远的重大民生工程，这自不待言。但由于中国社会保障制度建设的复杂性、长期性和高度敏感性，需要从战略发展高度，从整体性、系统性、科学性的高度关注其科学发展、统筹协调发展和可持续发展问题。而这一目标的实现，则具有巨大的挑战性，需要我们系统总结社会保障制度国际、国内发展的经验教训，从制度变迁的路径依赖中，积极探索适合我国国情的社会保障制度创新之路；需要我们从历史、现实及未来的结合中，探讨社会保障发展的内在轨迹和发展规律；需要我们从思维方式转变的高度，总结提炼制约社会保障制度可持续发展的各种显性和隐性的因素及其相互作用的机制，从历史研究、比较研究、系统研究框架中，实现社会保障的理论创新和制度创新；需要我们从社会保障的改革实践中，总结和提炼中国特色社会保障的理论模式、制度模式，从而实现理论创新和制度创新的新跨越。

"老龄化与社会保障研究中心"是四川省社会科学重点研究基地，该中心的研究方向为：老龄化与养老保障、社会医疗保障管理体制机制创新、社会保障基金管理与金融市场发展。老龄化与社会保障研究中心始终坚持以引领学科发展前沿和服务经济社会发展为根本目标，以学科建设为牵引，以学术团队建设为抓手，以人才培养、科学研究和学术创新为主要任务，努力将中心建设成在国内具有广泛社会影响力的社会保障理论和政策研究高地，成为四川省和国家社会保障改革决策的重要智库。有鉴于此，老龄化与社会保障研究中心以努力构建中国特色社会保障理论体系为己任，以分析和解决中国社会保障制度建设实践中的重大问题、紧迫问题为导向，推出社会保障前沿问题研究系列丛书。希望该系列丛书能够切实推动中国社会保障理论创新，为推进中国社会保障制度创新和管理机制创新做出应有的贡献。

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林义

2016 年 1 月于敬一斋

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摘　要

　　为应对老龄化挑战而进行的多支柱养老保障体系改革促进了巨额养老金资本的形成。"养老金资本主义"已成为工业化国家热议的话题之一。然而从现收现付制向积累制的转变并不能自动解决老龄化问题，唯有通过基金的投资创造新的资源来促进经济增长，才能为日益增多的老年人口提供更多的资金转移，才能体现出制度改革的优势。但是，金融危机的反复发生，为养老基金的市场化投资带来了巨大的风险，在宏观经济、金融市场剧烈波动的环境下，实现保值增值是积累制养老金计划能否可持续的决定性因素之一。一方面，突破传统的理论框架，为养老基金寻找新的投资方法和策略以保证其获得稳定且较高的长期回报已成为全球社会保障界关注的核心问题之一；另一方面，养老基金已成为资本市场上重要的机构投资者，其投资行为对资本市场的波动、上市公司治理以及金融创新都有着重要的影响。如何规范养老基金的投资行为，使其成为宏观经济发展的重要推动力，亦是养老基金投资管理研究的重要任务。

　　"未富先老"的中国，在养老保险制度可持续发展上面临着更为严峻的挑战。一系列的养老金制度改革措施也将成功的关键点指向了基金的投资运营。只有在取得长期稳定的投资收益的前提下，各种积累制养老保险才能发挥出制度优势，我国多层次养老保障体系才能得以持续。然而，养老基金投资管理在我国却是一项全新的事业，"谁来管理""如何投资""怎么监督"等投资管理中的基本问题尚在讨论之中。如何推进我国养老基金投资运营体制的改革，如何采用科学、合理的投资策略，如何健全保障养老基金投资安全的长效机制，这些问题都是未来我国养老基金投资管理研究的重要对象。

　　与传统养老基金投资管理研究不同的是，本书将行为金融学理论引入上述关键问题的研究中，综合运用标准金融和行为金融相关理论，侧重描述和解释养老基金具体投资行为是怎样的、这些行为又与在传统标准金融理论下的结论有何不同、产生这些行为的微观基础是什么、这些行为又会对养老基金投资运

营甚至宏观经济产生哪些影响，如何通过制度建设、激励机制和监管约束等方式让养老基金的投资管理行为更符合特定养老金制度的目标要求，以期为我国养老基金投资管理提供理论与实践上的借鉴。本书的研究价值和意义可能在于：第一，能够突破标准金融理论在养老基金投资运营方面的局限与困难，丰富养老基金投资管理理论；同时，将行为研究应用于养老基金投资运营中，也能丰富行为科学相关理论的素材。第二，从微观个体行为以及产生这种行为的更深层次的心理、社会等动因入手，能够更为准确地分析和解释我国养老基金投资管理中的各种现象与问题。第三，采用宏微观相结合的分析思路，有助于更为清晰地把握影响我国养老基金投资绩效的关键因素，厘清动态金融经济环境下养老基金长期投资的基本思路。

本书由8章组成，各章主要研究内容和观点如下：

第1章　绪论　本章对国内外前期相关研究进行梳理和简要评述，分析了现有国内外研究的不足，并指出本研究的价值和意义所在。本章还阐述了本书的基本思路、总体框架和主要研究方法。最后提出本研究的主要创新点和有待进一步研究之处。

第2章　养老基金投资管理的基本理论　本章通过对养老基金投资管理基本理论的阐述，明确了在标准金融和行为金融两大理论框架内对养老基金投资管理的不同要求和建议。本书认为，标准金融理论仍是养老基金投资管理最重要的理论基础，但有着其自身无法克服的缺陷。行为金融理论从人的心理动机和行为方式出发分析了养老基金投资参与者的投资决策过程，提出了一系列更接近实际投资行为的理论建议，为养老基金投资管理体制的完善和行为的规范提供了一个全新的途径。

第3章　国际养老基金投资行为及其影响因素分析　本章从养老基金投资行为的总体特征出发，分析了国际养老基金在不同历史时期、不同制度模式下的行为特征，并梳理了养老基金投资过程中的一些非理性行为表现。①分析了作为机构投资者的养老基金的投资方式并对比了养老基金与其他机构投资者的投资行为差异。②本章按照时间排序分析了不同历史时期养老基金投资行为的演化过程及其影响因素。③本章分别分析了不同管理模式、受益方式、监管规则和治理结构下的养老基金的投资行为表现。④本章以行为金融理论为基础，分析了养老基金在投资过程中存在的非理性行为，并从心理过程角度分析了这些非理性行为出现的原因。如何在波动的经济金融环境中为养老基金探索一个更为完善的投资方式，规避非理性行为的产生，是本书研究的重要任务之一。⑤本章基于对国际养老基金投资行为的分析，总结了有利于完善我国养老基金

投资管理的三点启示。

第4章 中国养老基金投资管理制度对投资行为的影响分析 本章将我国养老基金分为基本养老基金、企业年金基金和全国社会保障基金，分别分析了各类基金管理体制与投资行为的变迁以及现行管理制度对投资行为的影响。本章认为，统筹层次低下所带来的严格投资限制，是基本养老保险基金仍停留在"银行存款"投资体制模式下的根本原因；企业年金受托人与投资管理人分离的受托模式导致了一些短期化投资行为的产生；全国社会保障基金行政管理体制限制了基金的市场化投资活动，基金的委托投资也不可避免地导致一些短线操作的行为。如何建立有效的制度机制来规范我国养老基金的投资行为，亦是本书研究的一个逻辑起点。

第5章 基于行为要素的中国养老基金资产配置管理分析 首先，本章较为详细地阐述了行为资产组合理论的基本思想与模型框架，认为各国养老基金管理机构资产配置的行为与 BPT-MA 模型的解释更为接近。其次，本章就养老基金资产配置的基本过程以及我国养老基金资产配置的现状和行为进行了分析。最后，本章通过实例研究，比较了传统投资理论和行为投资组合理论下养老基金资产配置策略的差异。在同样的资产收益率条件下，基于行为理性差异系数的投资组合更注重风险投资，对反映投资者风险偏好较好的资产有较高的适应性，而基于传统均值方差模型的投资组合更为看重风险与收益之间的关系。

第6章 中国养老基金投资监管行为分析 本章首先分析了现阶段我国养老基金监管模式对投资行为的影响，认为要打破"放宽投资"与"陷入混乱"的恶性循环，应在放松投资限制的同时强化监督。其次，本章基于博弈理论分析了养老基金监管机构与投资机构的行为互动。最后，本章基于行为金融学中的"前景价值"理论分析了针对养老基金投资机构的行为控制措施。本研究发现，在监管机构积极监管的条件下，投资机构采取利他策略的成本前景值要小于触发风险、声誉与经济损失和不良行为收入的前景值之和。

第7章 中国养老基金股票投资行为实证分析 首先，本章从行业分布、市值分布、市场分布、持股时间等方面分析了我国养老基金的选股与持股行为。其次，本章选用 ITM 模型分析了我国养老基金动量与反转交易策略的运用。本研究发现，我国基金在大多数时候表现出了与市场涨跌即与大多数投资者相一致的投资行为，但在某些市场转折点上采取了一些反转交易策略，但不同的投资管理人在投资理念和投资方式上存在一定差异。最后，本章采用 LSV 方法及其修正模型对我国养老基金股票市场投资的羊群行为进行检验。本研究发现，2006—2013 年我国养老基金总体羊群行为并不显著，仅有个别季度表

现出了轻微的羊群行为。我国养老基金各投资组合在总体上表现为相互独立的随机交易模式，各基金之间的模仿程度较低。

第8章　基于投资行为的研究成果提出完善中国养老基金投资管理的对策建议　首先，我国养老基金应坚持积累性质基金投资的长期性。其次，应发挥资产配置在基金投资中的核心作用。再次，需要重视投资管理机构在投资过程中的心理状态。最后，应注重制度安排对养老基金投资管理行为的影响。

本书在现有研究的基础上，通过理论分析和经验研究两个方面对养老基金的投资行为表现以及导致养老基金投资行为差异的主要原因进行了深入研究。其可能的贡献和创新之处有：

第一，在研究视角上，投资的专业性、规范性是养老基金获得长期稳定投资回报的关键因素，关系到我国养老保障制度改革的成败。虽然国内外学者对养老基金投资管理进行了大量的研究，但仍缺乏对养老基金投资行为及其影响因素的全面、系统的分析。与传统宏观分析不同，本研究从行为金融和制度分析的视角对养老基金投资的微观行为进行了研究。从这个角度看，本书的研究是一个新的有益尝试。

第二，在理论研究上，本研究首先对标准金融和行为金融两种分析框架下的养老基金投资分析理论进行了梳理，并探讨了标准金融和行为金融理论在养老基金投资行为研究中的不同分析思路和分析途径。其次，本书总结了养老基金投资所独有的行为特征，并分析了不同历史时期、不同制度模式下养老基金投资行为的差异。本研究还从我国养老金制度与投资行为演化的角度探讨了现有投资管理体制对养老基金具体投资行为的影响。而上述分析也少见于目前的国内外研究中。

第三，在实证分析上，本研究将行为投资组合理论应用于养老基金资产配置决策中，并利用现实数据比较了均值方差模型和行为投资组合模型在养老基金资产配置决策方面的差异。

第四，在投资监管上，本研究讨论了我国养老基金投资监管中的非理性行为，并运用前景理论分析了在委托代理模式下养老基金监管者对投资管理机构行为控制的有效方式。本研究还以现实数据为基础，运用行为金融理论中的LSV模型和ITM模型对我国养老基金股票投资的羊群行为和动量交易策略进行了检验和分析。这些探索性研究不仅能够在一定程度上拓展我国行为金融研究的领域，也为后续研究提供了有益的参考。

关键词： 养老基金；行为金融；投资行为；行为偏差；投资策略

Abstract

The multi—pillar pension system reform conducted in response to cope with the challenges of aging led to the formation of a huge amount of pension capital. "Capitalization of pension fund" has become one of the hot topics in industrialized countries. However, the transformation from pay—as—you—go to accumulation system can't solve the aging problem automatically. Only by creating new resources through fund investment and promote economic growth can we provide more fund transfers for the growing elderly population and reflect the advantages of system reform. However, repeated occurrence of financial crisis brings a huge risk in the marketization of investment of pension funds. Realizing the preservation and appreciation of pension funds in the macroeconomic and financial market environment with fierce volatility is one of the decisive factors for the sustainability of accumulative pension fund plan. Breaking through the traditional theoretical framework and searching for new investment methods and strategies for pension funds in order to ensure stable and higher long—term returns has become one of the key issues of global concern in the social security field. On the other hand, pension fund has become an important institutional investor in the capital market, and investment behaviors have a significant impact on the volatility of capital market, governance of listed corporations and financial innovation. How to regulate the investment behaviors of pension fund and make it become an important driving force for economic development is also an important task in the research on investment management.

China, "which is getting old before getting rich", is faced with more serious challenges in the sustainable development of the endowment insurance system. A series of measures to reform the pension system also points the key to success to the fund's investment operation. Only under the premise of making long—term and stable return

on investment can a variety of accumulated endowment insurances give play to the advantages of the pension system and can the multi-level old-age security system of our country be sustained. However, the management of pension fund investment in our country is a brand new business, "who will manage it" "how to invest it" "how to supervise it" and other basic problems in the investment management are still under discussion. Therefore, how to promote the reform of the investment and operation system of China's pension fund? How to adopt scientific and reasonable investment strategies? How to perfect the long-term mechanism to ensure the safety of pension fund investment? And other issues will be the important objects to study on in the future research on the investment management of pension fund in China.

What is different from the research on the traditional pension fund investment management is that this book will introduce behavioral financial theory into the study on the above mentioned key problems, comprehensively apply standard theories relating to finance and behavior finance, focus on and describe the following issues: What are the specific investment behaviors of pension funds? How do these behaviors differ from the conclusion under traditional financial theory? What is the microeconomic foundation of these behaviors? What kind of impact will these actions produce on the pension fund investment and operation and even the macro economy? How to make the investment management of pension funds more in line with the specific goal of the pension system through establishment of a system, incentive mechanism and regulatory constraints and other ways? We conduct the above studies with the hope to provide theoretical and practical references for the investment management of pension funds in China. The value and significance of the study might lies in: First, it can break through limitations and difficulties in the pension fund investment and operation of standard finance theory and enrich the management theory of pension fund investment; meanwhile, applying behavior study in the investment and operation of pension fund can also enrich materials if theories relating to behavior science. Second, we can conduct more accurate analysis and interpretation of various phenomena and problems of investment and management of China's pension funds starting from the deeper psychological and social motivations which leads to this behavior. Third, adopting the analyzing thought which combines macro and micro analysis can grasp the key factors affecting the performance of China's pension fund investment more clearly and clarify the basic ideas of long-term investment of pension fund under dynamic financial and

economic environment.

This book consists of 8 chapters, the main research contents and viewpoints of each chapter are as follows:

The first chapter is introduction. It puts forward the research topic, sorts out and briefly comments on the previous relevant researches at home and abroad, analyzes the deficiencies of current researches at home and abroad and points out the value and significance of the study in this chapter. This chapter also elaborates basic ideas, overall framework and main research methods of the research in this book. Lastly, it proposes the main innovative points and shortcomings of this chapter.

The second chapter specifies different requirements and suggestions on the management of pension fund investment under the two major theoretical frameworks which are standard finance and behavior finance through the elaboration of basic theory of pension fund investment and management. This chapter argues that standard financial theory is still the most important theoretical basis of pension fund investment management, but it has its own insurmountable defects. Behavioral finance theory analyzes the investment decision-making process of people participating in pension fund investment starting from people's psychological motivation and behavior mode, and puts forward a series of theoretical suggestions which are more close to the actual investment behaviors so as to provide a brand new way for perfection of the pension fund's investment management system and code of conduct. It is also one of the important starting points of the research in this chapter.

The third chapter starts from the general characteristics of the pension fund investment behaviors, analyzes the behavior characteristics of international pension funds in different historical periods and different system modes, and summarizes some non-rational behaviors in the process of pension fund investment. ①This chapter analyzes the investment mode of pension funds as institutional investors and the differences in investment behaviors between pension funds and other institutional investors. ②This chapter analyzes the evolution process and its influencing factors in different periods of the history of pension funds investment behaviors according to the time sequence. ③ This chapter analyzes the investment behaviors of the pension fund under different management modes, profit modes, regulation rules and governance structures respectively. ④This chapter analyzes irrational behaviors existing in the investment process of the pension funds based on the behavioral finance theory, and analyzes the reasons

of these irrational behaviors from the perspective of psychological process. How to explore a more perfect way of investment and avoid the occurrence of irrational behaviors for pension funds in the fluctuating economic and financial environments also one of the logical starting points of this study. ⑤ Based on the analysis of international pension fund's investment behaviors, this chapter sums up three inspirations perfecting China's pension fund investment management.

The fourth chapter focuses on the impact of management system of China's pension fund on investment behaviors. The paper divides China's pension funds into basic pension fund, corporate annuity fund and national social security fund, and analyzes the changes of various types of fund management systems and investment behaviors respectively and the impact of existing management system on investment behaviors. This chapter argues that strict investment restrictions caused by low level of overall planning is the root cause of that the basic endowment insurance fund remains in the "bank deposit" investment system; the entrusting mode which separate enterprise's annuity trustee and investment manager leads to some shortterm investment behaviors; the national social security fund administrative system limits the marketized investment activities of the fund, the fund's entrusted investments will also inevitably lead to some short-term operation behaviors. How to establish an effective system and mechanism to regulate the investment behaviors of China's pension fund is also a logical starting point of this study.

The fifth chapter introduces behavior factors and carries out analysis on the asset allocation of China's pension funds. First of all, this chapter expounds basic ideology and model framework of behavioral portfolio theory, and argues that the asset allocation behaviors of pension fund management institutions of other countries are closer to the interpretation of BPT-MA model. Secondly, it analyzes the basic process of asset allocation of pension funds and the current situation and behavior of asset allocation of pension funds in China. Thirdly, it compares the differences of pension fund asset allocation strategies under traditional investment theory and behavioral portfolio theory through case study. In the same asset yield condition, investment portfolios based on behavioral rational difference coefficient pay more attention to risks and have higher adaptability to assets which reflect investors' risk preferences, while portfolios based on traditional mean variance model pay more attention to the relationship between risks and returns.

The sixth chapter analyzes the supervision of investment of pension funds in China. It first analyzes the impact of pension fund supervision mode of China at this stage on investment behaviors. It argues that in order to break the vicious spiral of "easing conditions for investments" and "falling into disorder", we should strengthen the supervision while easing investment restrictions. Secondly, based on the game theory, this chapter analyzes the control of regulators on the behaviors of pension fund investment institutions. Thirdly, based on the "future value" theory in behavioral finance, it analyzes behavior control measures targeting at the behaviors of pension fund investment institutions, and finds out that under the positive regulatory conditions of regulators, the prospect value of the cost for investment institutions to adopt altruistic strategy is less than the total prospect value of initiating risk, reputation and economic loss as well as income from misconducts.

The seventh chapter conducts an empirical study on the stock investment of pension funds in China. First of all, this chapter analyzes the stock selection and holding behavior of pension fund in China in terms of industry distribution, market value distribution, market distribution, holding time and other aspects. Secondly, this chapter selects ITM model and analyzes the use of China's pension fund momentum and reversal trading strategy. This study found that most of the funds in China showed investment behaviors which are consistent with the fluctuations of market prices and the majority of investors, but some reversal trading strategies are adopted in some market's turning points. However, there are certain differences in the investment philosophy and style for different investment managers. Thirdly, this chapter tests the herding behaviors of China's pension fund investment in the stock market by using LSV method and its modified model. The study found that from 2006 to 2013, the herding behavior of China's pension fund is not significant in general, only a few quarters showed slight herding behavior. Various investment portfolios of China's pension fund are represented as random trading patterns which are independent of each other in general. The imitation degree among funds is low.

The eighth chapter is based on the research result of behavioral finance and puts forward four policy suggestions on China's pension fund investment management. Firstly, the pension fund in China should adhere to the long—term nature of accumulation fund investment. Secondly, we should give play to the central role of asset allocation in the fund investment. Thirdly, we need to pay attention to the mental state of

investment management institutions in the investment process. Fourthly, we should pay attention to the influence of institutional arrangement on the pension fund investment management behavior.

Based on the existing research, this book carries out in-depth research on the investment behaviors as well as the main reason for the differences of investment behaviors of pension funds through theoretical analysis and empirical study. Its possible contributions and innovations are as follows:

Firstly, in terms of research perspective, professionalism and standardization of investment is the key factor to decide whether pension fund can obtain long-term and stable return on investment, which affects the success or failure of the reform of endowment insurance system in our country. Although there are very rich researches of domestic and foreign scholars on pension fund investment management, detailed and systematic analysis of the pension fund investment behavior and its influencing factors are still lacking. Different from traditional macro analysis, this book studies the micro behaviors of pension fund investment from the perspective of behavioral finance and system analysis. This study is a new beneficial attempt if we look at it from this perspective.

Secondly, in terms of theoretical research, this book first sorts out pension fund investment analysis theories under two kinds of analysis frameworks which are standard finance and behavioral finance, and discusses different analysis ideas and analysis pathways of standard finance and behavioral finance theory in the study of pension fund investment behaviors. Then this book summarizes exclusive behavior features of pension fund investment, and analyzes the differences of pension fund investment behaviors of different historical periods and different system modes. This book also discusses the impact of the existing investment management system on specific investment behaviors of pension funds from the perspective of evolution of the pension system and investment behavior in our country. The above analysis is also rare in previous domestic and foreign researches.

Thirdly, on the basis of empirical analysis, this study applies behavioral portfolio theory to the decision of asset allocation of pension funds, and uses real data to compare mean variance model and behavior investment portfolio model in the asset allocation decision of pension fund.

Fevrthly, in terms of the investment supervision, this book discusses the

irrational behaviors of China's pension fund regulation and supervision, and analyzes the effective way for the pension fund regulators to control the behaviors of investment management institutions under the model of entrusted agency by using prospect theory. Based on the real data and tests, this book analyzes the herding behavior and momentum trading strategy of China's pension fund stock investment, this book using LSV model and ITM model in behavioral finance. These exploratory researches can not only expard the research field of behavioral finance in China to some extent, but also provide some useful refernces for follow-up studies.

Keywords: Pension Fund; Behavioral Finance; Investment Behavior; Behavior Deviation; Investment Strategy

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