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屈志光 著

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# 《中南财经政法大学青年学术文库》

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## 总 序

一个没有思想活动和缺乏学术氛围的大学校园，哪怕它在物质上再美丽、再现代，在精神上也是荒凉和贫瘠的。欧洲历史上最早的大学就是源于学术。大学与学术的关联不仅体现在字面上，更重要的是，思想与学术，可谓大学的生命力与活力之源。

中南财经政法大学是一所学术气氛浓郁的财经政法类高等学府。范文澜、嵇文甫、潘梓年、马哲民等一代学术宗师播撒的学术火种，五十多年来一代代薪火相传。世纪之交，在合并组建新校而揭开学校发展新的历史篇章的时候，学校确立了“学术兴校，科研强校”的发展战略。这不仅是对学校五十多年学术文化与学术传统的历史性传承，而且是谱写 21 世纪学校发展新篇章的战略性的手笔。

“学术兴校，科研强校”的“兴”与“强”，是奋斗目标，更是奋斗过程。我们是目的论与过程论的统一论者。我们将对宏伟目标的追求过程寓于脚踏实地的奋斗过程之中。由学校斥资资助出版《中南财经政法大学青年学术文库》，就是学校采取的具体举措之一。

本文库的指导思想或学术旨趣，首先在于推出学术精品。通过资助出版学术精品，形成精品学术成果的园地，培育精品意识和精品氛围，以提高学术成果的质量和水平，为繁荣国家财经、政法、管理以及人文科学研究，解决党和国家面临的重大经济、社会问题，作出我校应有的贡献。其次，培养学术队伍，特别是通过对一批处在“成长期”的中青年学术骨干的成果予以资助推出，促进学术梯队的建设，提高学术队伍的实力与水平。再次，培育学术特色。通过资助出版在学术思想、学术方法以及学术见解等方面有独到和创新之处的科研成果，培育科研特色，以形成有我校特色的学术流派与学术思想体系。因此，本文库重点面向中青年，重点面

向精品，重点面向原创性学术专著。

春华秋实。让我们共同来精心耕种文库这块学术园地，让学术果实挂满枝头，让思想之花满园飘香。



2009 年 10 月

## Preface

A university campus, if it holds no intellectual activities or possesses no academic atmosphere, no matter how physically beautiful or modern it is, it would be spiritually desolate and barren. In fact, the earliest historical European universities started from academic learning. The relationship between a university and the academic learning cannot just be interpreted literally, but more importantly, it should be set on the ideas and academic learning which are the so-called sources of the energy and vitality of all universities.

Zhongnan University of Economics and Law is a high education institution which enjoys rich academic atmosphere. Having the academic germs seeded by such great masters as Fanwenlan, Jiwenfu, Panzinian and Mazhemmin, generations of scholars and students in this university have been sharing the favorable academic atmosphere and making their own contributions to it, especially during the past fifty – five years. As a result, at the beginning of the new century when a new historical new page is turned over with the combination of Zhongnan University of Finance and Economics and Zhongnan University of Politics and Law, the newly established university has set its developing strategy as “Making the University Prosperous with academic learning; Strengthening the University with scientific research”, which is not only a historical inheritance of more than fifty years of academic culture and tradition, but also a strategic decision which is to lift our university onto a higher developing stage in the 21st century.

Our ultimate goal is to make the university prosperous and strong, even through our struggling process, in a greater sense. We tend to unify the destination and the process as to combine the pursuing process of our magnificent goal with the practical struggling process. The youth's Academic Library of Zhongnan University of Economics and Law, funded by the university, is one of our specific

measures.

The guideline or academic theme of this Library lies first at promoting the publishing of selected academic works. By funding them, an academic garden with high – quality fruits can come into being. We should also make great efforts to form the awareness and atmosphere of selected works and improve the quality and standard of our academic productions, so as to make our own contributions in developing such fields as finance, economics, politics, law and literate humanity, as well as in working out solutions for major economic and social problems facing our country and the Communist Party. Secondly, our aim is to form some academic teams, especially through funding the publishing of works of the middle – aged and young academic cadreman, to boost the construction of academic teams and enhance the strength and standard of our academic groups. Thirdly, we aim at making a specific academic field of our university. By funding those academic fruits which have some original or innovative points in their ideas, methods and views, we expect to engender our own characteristic in scientific research. Our final goal is to form an academic school and establish an academic idea system of our university through our efforts. Thus, this Library makes great emphases particularly on the middle – aged and young people, selected works, and original academic monographs.

Sowing seeds in the spring will lead to a prospective harvest in the autumn. Thus, let us get together to cultivate this academic garden and make it be opulent with academic fruits and intellectual flowers.

Wu Handong



## 摘 要

全球气温急剧上升、生态环境不断恶化、资源能源日益枯竭、自然灾害明显频发、极端气候反复出现，这一系列问题的交替呈现与持续加剧已经成为经济社会可持续发展的瓶颈，直接威胁着人类的生存与发展。WWF（世界自然基金会）发布的《地球生命力报告 2012》指出，随着人口的增长，人类对资源的需求正在不断增加，给地球的生物多样性带来巨大压力，地球多样性自 1970 年以来下降了 28%，热带地区已经下降了 60%。尽管各种生态危机的起因并不相同，但是从根本上看，它们都有着共同的特征，即资本的总体配置不当。在过去的 100 多年里，大量资本被倾注于房地产、化石燃料、结构性金融资产及其内嵌衍生品；相比之下，只有微不足道的资本被投资于可再生能源、生态系统和生物多样性保护，以及环境污染治理、水土保持等方面。

为深入贯彻落实科学发展观，我国大力调整产业结构，积极转变发展方式，坚定不移地走资源节约型、环境友好型发展道路，先后制定和实施了环境保护、循环经济发展、生态省（市）建设、国土主体功能区规划、低碳经济试点、生态经济区建设等一系列重大战略措施，生态环境建设投资力度逐年加大，生态资本化与资本生态化已经成为生态环境建设的方向和趋势，生态资本投资正在迅速成为生态经济可持续发展的有效模式与现实路径。然而，相对于生态资本投资实践的蓬勃发展，生态资本投资理论研究明显滞后，尤其是生态资本投资收益方面的研究亟须破题，这既是加快经济发展方式生态化转变的战略节点，又是有效破解当前经济发展与环境保护两难困境的现实问题，具有重要的理论与实践意义。

本书以生态资本投资收益为研究主题，是依托国家自然科学基金项目“生态资本运营机制与管理模式研究”（项目编号：70873135）所进行的延续与拓展研究。本书采用文献梳理与社会调查相结合、理论演绎与案例比较相结合，以及博弈分析、产权分析等多种研究方法，以生态资本及其投

资收益的概念界定为逻辑起点,以生态资本理论、价值投资理论、生态产品生产理论为理论基础,以生态资本投资的实践探索为现实基础,旨在通过生态资本投资的价值分析,探讨生态资本投资收益的形成机理、影响因素和制度创新,并结合我国统计数据进行生态资本投资收益的实证检验,以期科学定位生态资本投资的价值取向,规范生态资本投资方式和投资强度,为推进绿色繁荣、建设美丽中国提供理论依据和决策参考。

本书的研究内容与篇章结构安排如下:

导论 交代选题的背景和研究的理论与现实意义;考察国内外与本选题有关的研究动态,对相关文献和研究成果进行回顾与述评;陈述研究的思路方法与技术路线;介绍本书框架和可能的创新点,指出有待进一步深入研究的问题。

第一章 核心概念与理论基础。本章对生态资本、生态资本投资、生态资本投资收益等核心概念加以界定,阐明本研究的理论基础,并进行理论评析与思考。

第二章 生态资本短缺及其投资现状。本章指明了生态资本存量估算的缺失,介绍了生态资本存量与流量的分类估算方法;依据生态资本相对于物质资本的最佳比例,进行了我国生态资本短缺的简易估算;并以生态资本投资的实践探索为基础,结合问卷调查,重点剖析了我国生态资本投资过程中存在的问题,指出投资收益的实现是生态资本投资的关键问题。

第三章 生态资本投资的价值分析。本章从生态资本投资的基本要素出发,指出了生态资本投资的价值构成包括生态价值、经济价值和社会价值;通过构建宏观经济动态均衡模型,探讨了生态资本投资价值的宏观均衡实现;分析了生态资本投资价值的微观转化过程,其中,生态资源的资产化是其价值创造过程,生态资产的资本化是其价值增值过程,生态资本的产品化是其价值转换过程,生态产品的市场化是其价值实现过程。

第四章 生态资本投资收益的形成机理。本章指出投资价值是投资收益的本质与源泉,从生态、经济、社会三个维度,分析了生态资本投资的收益类型;考察了生态资本投资生态收益的最佳持续量,阐述了生态规律对生态资本投资生态收益的制约;基于三种生产理论探讨了生态资本投资对经济增长的促进与优化机理;进行了生态资本投资的代际公平、就业促进、福利增加等社会收益形成机理分析。

第五章 生态资本投资收益的影响因素。本章归纳了生态资本投资收

益的影响条件,其中,生态效用是其认知条件,生态需求是其约束条件,生态技术是其支持条件,生态市场是其保障条件;在介绍生态资本公共投资主导性的基础上,分析了生态资本公共投资收益的影响因素;基于生态资本私人投资不足的客观现实,探讨了生态资本私人投资收益的影响因素。

**第六章 生态资本投资收益的制度创新。**本章从生态资本投资收益的产权解释出发,探讨了生态资本投资收益权的界定思路;通过对比机制设计与自然演化的制度观,介绍了生态资本投资收益的机制设计;指出了生态资本投资收益的制度保障,包括生态资本价值核算、生态资本产权交易、生态资本权益补偿、生态资本投资保险及生态资本投资基金等制度。

**第七章 生态资本投资收益的实证检验。**本章利用国内的统计数据,检验了生态资本投资的生态收益、经济收益和社会收益;在生态资本效率测度的基础上,进行了生态资本投资对生态资本效率影响的 Tobit 回归分析;鉴于生态资本投资收益的区域外溢,进行了生态资本投资收益外溢的空间计量分析。

**研究结论与政策建议** 阐述前文研究所得出的基本结论,给出政策建议,讨论后续研究的努力方向和重点内容。

本研究可能的创新点,主要表现在以下几个方面:

第一,本书从“生态资本投资”的视角展开研究,在选题上具有一定的挑战性与原创性。生态资本投资是通过一系列有目的、有计划的生态恢复建设、环境污染治理、生态技术研发等活动,对特定范围内的生态资源进行一定的投入,并经过与开发对象的有机结合,使生态资源质量及数量指标均有所改善,并且这种改善最终反映在生态资本存量增加上的投资行为。生态建设、环境保护并不是消极的生态维护行为,而是一种积极主动的生产性投资。本书是生态资本理论与资本投资理论交叉融合研究范式的有益尝试,有可能引发资本及资本投资结构的深层变革。

第二,本书从生态、经济和社会三个维度,阐述生态资本投资所形成的预期收益和增量收益,在研究思路上具有较强的整体性与系统性。在“生态—经济—社会”复合系统中,生态环境已不再是“天然的自然”,而是“人化的自然”,故多数情况下,生态资本实质上是人造生态资本。鉴于当前学术界对生态资本的价值核算尚未有实质性突破,本书立足于生态资本投资所遵循的“生态—经济—社会”综合价值取向,避开生态资本

存量评估的理论难题,重点调整生态资本投资所形成的预期收益和增量收益,体现了生态资本投资生态收益、经济收益与社会收益的统一。

第三,本书在研究思路上具有较好的理论逻辑性。基于生态资本投资的价值分析,通过构建生态资本投资宏观均衡模型,分析了生态资本投资价值的宏观均衡实现;阐述了生态资源的资产化、生态资产的资本化、生态资本的产品化、生态产品的市场化等生态资本投资价值的微观转化过程;归纳了生态资本投资收益的影响条件,其中,生态效用是其认知条件,生态需求是其约束条件,生态技术是其支持条件,生态市场是其保障条件;重点探讨了生态资本投资收益的形成机理、影响因素与制度创新,本书在研究思路上具有较好的理论逻辑性。

第四,本书研究成果能够为规范生态资本投资方式和投资强度,提供理论依据和决策参考。生态资本投资从本质上说是一种生态资本产权投资,其之所以在实践中具有较强的吸引力,便是因为投资所获得的产权能够带来收益,因此,投资收益权是生态资本产权投资的核心。本书从生态资本投资收益的产权解释出发,阐述了生态资本投资收益权的界定思路,指出了生态资本投资收益的制度保障,包括生态资本价值核算、生态资本产权交易、生态资本权益补偿、生态资本投资保险及生态资本投资基金等制度。研究成果能够为缓解我国经济社会可持续发展面临的资源环境约束提供参考。

第五,本书在实证检验上具有较好的实践性与指导性。本研究通过引入案例分析,以实地调研为基础,利用我国30个省份2003—2010年面板数据集等统计数据,尝试性地进行了生态资本投资收益形成的分类检验,考察了生态资本投资对生态资本效率的影响,并借助空间地理加权回归模型,探讨了生态资本投资收益的区域外溢,得到了超出预期的计量结果,蕴含着有重要价值的丰富信息,具有一定的实际应用价值。

然而,本书毕竟只是对生态资本投资收益问题作了初步探索,还有待进一步完善:一是本书更多的是一种“理念倡导”,即将生态建设、环境保护等“看作”一种积极主动的生产性投资。对于不同投资主体的投资收益如何影响其生态资本投资行为等问题,本书却未作详尽探讨,还有待完善。二是本书借助高级宏观经济学分析方法,尝试性地分析了生态资本投资对经济增长的促进与优化机理,然而对于生态资本投资收益的影响因素等问题,却只是将其简化为一个参数或假设,这一问题尚需深入研究。三

是由于统计数据存在口径不一、残缺不全等问题，生态资本投资及其收益的数据很难准确估算。鉴于研究数据的可获得性，本书在进行生态资本投资收益的实证检验时，选取了一些“指代变量”，这也使得本书的研究结果只是“一家之言”，有较强的主观性。

**关键词：**生态资本；投资价值；投资收益

## Abstract

There are series of problems occurring alternately and continuing to increase, such as global temperatures rising sharply, the ecological environment worsening, energy resource increasingly drying up, natural disasters occurring frequently and extreme weather appearing again and again. All of them have already become the bottleneck of sustainable development of the economic society and directly threat to human survival and development. WWF have released *The Earth Vitality Report 2012*, which have pointed out that with the growth of the population, human demands for resources have being increasing, which have brought a huge pressure to the earth's biological diversity. Diversity in the earth has fallen by 28% since 1970 and the tropical zones have dropped by 60%. In fact, although all the causes of ecological crisis are not the same, fundamentally, they all have common features, that is, the improper overall configuration of capital. In the past 100 years, a lot of capital has been focused on real estate, fossil fuels and structured financial assets and its embedded derivatives. By contrast, only a tiny capital has been invested in renewable energy, ecosystems and biodiversity protection, and water and soil conservation, etc.

To further implement the scientific outlook on development, our country adjusts the industrial structures, transforms the development mode, walks a road of resource conservation and environment friendly development, and successively formulates and implements a series of major strategic measures, such as environmental protection, recycling economy development, the construction of ecological province (city), land development plan, the low carbon economy pilot and ecological economic zone construction. Then, ecological environment construction investment increases year by year, and ecology capitalization and capital ecological become the direction and trend of ecological environment construction. Eco-

logical capital investment is rapidly becoming an effective mode of ecological economic sustainable development. However, relatively to the vigorous development of ecological capital investment practice, the theoretical research of ecological capital investment obviously lags, especially the studies on the return of ecological capital investment. This is both a strategic node of speeding up the ecological transformation of the economic development pattern and a practical problem to break the current dilemma of economic development and environmental protection. It has importantly theoretical and practical meaning.

This book uses ecological capital investment as the subject, relying on the national natural science fund project, *Research On the Ecological Capital Operation Mechanism and Management Mode* (Item number: 70873135), adopting literature research combines with social investigation, comprehensive induction combines with case comparison and game, property rights, etc. It uses the concept definition of ecological capital and the return of its investment as the logical starting point, ecological capital theory, value investment theory, and production theory as the theoretical basis, the prototype exploration of ecological capital investment as practice basis. It aims to through the analysis of the value of ecological capital investment to explore the formation mechanism, influencing factors and institutional innovation of the return of ecological capital investment. This book implements empirical test of the return of ecological capital investment with China's data to scientifically position value orientation of ecological capital investment, and standard its way and intensity. It will provide theoretical basis and decision-making reference to promote green prosperity and build beautiful China.

The research contents and chapters' structure arrangement of this book are as follows:

**Introduction** It describes the background of selected topic and theoretical and practical meaning of the research, investigates the research dynamic at home and abroad to review and comment the relevant literature and research results, states thinking method and technical route of the research, and introduces the framework and possible innovation points to point out the problem which are going to be further in-depth studied.

**Chapter I** the core concepts and theoretical basis. It defines the core con-

cepts of ecological capital; ecological capital investment, the return of ecological capital investment, and so on, clarifies the theoretical basis of this study, and carries on theoretical analysis and thinking.

Chapter II ecological capital shortage and the current status of its investment. Firstly, the chapter points out the lack of the estimation of ecological capital stock, introduces the classified estimation methods of ecological capital stock and flow. Secondly, according to the best ratio which is ecological capital relative to physical capital, it easily estimates the ecological capital shortage in our country. Thirdly, basing on the practice exploration of ecological capital investment, combining with the questionnaire survey, it analyzes the problems existing in the process of ecological capital investment in our country and points out that the realization of the investment returns is the key problem of ecological capital investment.

Chapter III the value analysis of ecological capital investment. Firstly, the chapter embarks from the basic elements of ecological capital investment and points out its value composition, including ecological value, economic value and social value. Secondly, it discusses the macroscopic balancing of the ecological capital investment value by building a macroeconomic dynamic equilibrium model. Thirdly, it analyses the microstructure transformation process of the ecological capital investment value. Among them, the ecological resources capitalization is its process of value creation, the ecological property capitalization is its process of value increment, the ecological capital productization is its process of value transformation and the ecological products marketization is its process of value realization.

Chapter IV the formation mechanism of ecological capital investment. Firstly, the chapter points out that the investment value is the essence and source of investment returns, and analyses the income types of ecological capital investment from three dimensions of ecological, economic and social. Secondly, it investigates the best continuous quantity of the ecological return of ecological capital investment, and elaborates its constraint which is the ecological rules made for it. Thirdly, it discusses the promoting and optimization mechanisms which are the ecological capital investment made for economic growth basing on the three



kinds of production theory. Fourthly, it carries out the yield formation mechanism analysis, such as intergenerational equity, employment, welfare return and so on.

Chapter V the influence factors of ecological capital investment. Firstly, the chapter expounds the influence conditions of ecological capital investment. Among them, the ecological function is its cognitive condition, the ecological demand is its constraint condition, the ecological technology is its support conditions, and the ecological market is its guarantee condition. Secondly, it analyses the yield influence factors of public investment of ecological capital basing on introducing dominant public investment of ecological capital. Thirdly, it discusses the influence factors of private investment basing on the objective reality of the lack of private investment.

Chapter VI the system innovation of ecological capital investment. Firstly, the chapter discusses the definition of the return of ecological capital investment, starting from its property interpretation. Secondly, it introduces the design of ecological capital investment mechanism by comparing the system view of mechanism design and the natural evolution. Thirdly, it points out the institutional guarantee of the return of ecological capital investment, including ecological capital value accounting, ecological capital property right trading, ecological capital equity compensation, ecological capital investment insurance and ecological capital investment fund and so on.

Chapter VII the empirical test of the return of ecological capital investment. Firstly, the chapter uses statistics in China to examine ecological return, economic return and social return of ecological capital investment. Secondly, on the basis of measuring ecological capital efficiency, it carries out the Tobit regression analysis of ecological capital investment to ecological capital efficiency. Thirdly, in view of the area overflowing, it carries out the spatial econometric analysis of the overflow of the return of ecological capital investment.

Research conclusions and policy recommendations It expounds the former basic conclusions, gives policy suggestions, and discusses the further research direction and key contents.

The possible innovation points of the research mainly manifest in the follow-