

## 摘要

改革开放以来,我国经济建设取得了举世瞩目的伟大成就,综合国力取得了极大的提升。但是,经济的高速增长也造成了环境污染问题的日益凸显,即经济发展伴随着“高碳”特征。对此,习近平总书记在第七十五届联合国大会提出我国争取在2030年前实现碳达峰、2060年前实现碳中和的目标。双碳目标的实现离不开绿色转型的支持,而绿色技术创新则是绿色转型的关键力量。受限于绿色技术创新的研发周期长、难度大、所需资金多等特征,单纯依靠企业的内部资金显然是不足的,因此解决如何引导社会资金流向绿色项目的难题迫在眉睫。为此,我国积极推动绿色金融体系的建设,为经济的高质量发展打下坚实基础。

2017年6月,国务院常务会议宣布在五省八区设立绿色金融改革创新试验区,此举标志着我国绿色金融发展进入了一个新阶段。这一决策不仅体现了国家层面对于绿色金融发展的顶层设计,还通过具体的区域实践,将绿色金融战略落到实处,实现了“自上而下”与“自下而上”的有机结合。作为绿色金融体系建设的重要一环,本文以首批绿色金融改革创新试验区的设立为准自然实验,以2012—2022年我国A股上市工业企业作为研究对象,采用双重差分模型以识别试验区政策对企业绿色技术创新的净效应,并探究该政策对企业绿色技术创新“质量”和“数量”的影响情况,在此基础上利用中介效应模型和三重差分模型检验其中的作用机理,最后从产权、行业和地区进行异质性分析。本文从微观的企业绿色技术创新角度对宏观的绿色金融政策进行效果评价,进而为政策的调整和扩大提供建议,并为我国实现高质量绿色技术创新发展寻找路径。

研究发现:(1)试验区政策能够显著提升上市工业企业的绿色技术创新水平。相较于绿色实用新型专利,试验区政策更能提升上市工业企业的绿色发明专利申请数量。

(2)在作用路径方面,试验区政策有助于减轻企业的融资约束和削弱信息不对称程度来促进绿色技术创新。(3)在异质性分析方面,试验区政策对绿色技术创新的促进作用在非国有企业、非重污染企业以及东部地区的企业中表现得尤为突出,而国有企业、重污染企业以及中、西部地区企业并未对试验区政策进行积极响应。最后,本文基于上述研究结果,得出以下政策建议:在积极推进绿色金融体系建设的大背景下,政府应逐步完善绿色金融改革创新方案,持续推进绿色金融改革创新试验区的建立,并为重污染行业制定更合适的转型方案;而市场应持续完善绿色金融配套机制,并加强金融机构之间的协作以充分发挥绿色金融政策效益;企业则需要更加积极地承担环境责任、拥抱绿色金融政策以加大绿色产业建设,方能推动经济的高质量发展。

**关键词:** 绿色金融政策; 绿色技术创新; 融资约束; 信息不对称

## Abstract

Since the reform and opening up, China's economic construction has made great achievements that attract worldwide attention, and the comprehensive national strength has been greatly improved. However, the rapid economic growth has also caused the increasingly prominent problem of environmental pollution, that is, economic development is accompanied by "high carbon" characteristics. The realization of the dual-carbon goal cannot be separated from the support of green transformation, and green technology innovation is the key force of green transformation. Limited by the characteristics of long research and development cycle of green technology innovation, difficulty, and funds required, it is obvious that relying solely on internal funds of enterprises is insufficient, so it is urgent to solve the problem of how to guide social funds to flow to green projects. To this end, China is proactively advancing the development of a financial system that emphasizes environmental sustainability to lay a solid foundation for high-quality economic development.

In June 2017, the executive meeting of The State Council announced the establishment of green finance reform and innovation pilot zones in five provinces and eight districts, marking a new stage in the development of green finance in China. This decision not only reflects the top-level design for the development of green finance at the national level, but also implements the green finance strategy through specific regional practices, and realizes the organic combination of "top-down" and "bottom-up". As a crucial component in the development of the green finance framework, this study utilizes the inception of the initial green finance reform and innovation pilot zones as a quasi-natural experiment. It focuses on China's A-share listed industrial companies from the years 2012 to 2022 for analysis, and adopts the different-difference model to verify the impact of pilot zone policies on enterprises' green technology innovation. It also explores the influence of the policy on the "quality" and "quantity" of enterprises' green technology innovation. On this basis, the intermediary effect model and triple difference model are used to test the mechanism of action. Finally, the heterogeneity analysis is carried out from property rights, industries and regions. This thesis evaluates the effect of macro green finance policy from the perspective of micro-enterprise green technology innovation, and then provides suggestions for policy adjustment and expansion, and finds a path for China to achieve high-quality green technology innovation and development.

The findings are as follows: (1) the pilot zone policy can improve the green technology innovation level of listed industrial enterprises. Compared with green utility model patents, the pilot zone policy can improve the number of green invention patent applications of listed industrial enterprises. (2) In terms of action path, the pilot zone policy mainly promotes the green technology innovation of enterprises by easing the financing constraints of enterprises and weakening the degree of information asymmetry. (3) In terms of heterogeneity analysis, the role of the pilot zone policy in promoting green technology innovation is particularly prominent in non-state-owned enterprises, non-heavy polluting enterprises and enterprises in the eastern region, while state-owned enterprises, heavy polluting enterprises and enterprises in central and western regions do not respond positively to the pilot zone policy. Finally, according to the research results, this thesis draws the following policy recommendations: Under the background of actively promoting the construction of green finance system, the government should gradually improve the reform and innovation plan of green finance, continue to promote the establishment of pilot zone, and formulate more appropriate transformation plans for heavily polluting industries; The market should continue to improve the supporting mechanism of green finance, and strengthen the cooperation among financial institutions to give full play to the benefits of green finance policies; Enterprises need to take more active environmental responsibilities and embrace green financial policies to increase the construction of green industries in order to promote high-quality economic development.

**Key Words:** green finance policy;green technology innovation;financing constraints; information asymmetry

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# 1 绪论

## 1.1 研究背景

改革开放以来,我国经济在要素驱动下的粗放型增长模式中实现了显著的提升。然而,这一增长过程伴随着资源的大量消耗和环境的严重污染,逐渐成为我国经济社会可持续发展的主要障碍。当前,我国正处于转型升级的关键时期,迫切需要优化经济结构,转变经济发展方式,以实现更加健康和可持续的经济增长。新发展理念提出,为我国经济绿色转型指明了方向。其中,“创新、协调、绿色、开放、共享”的理念,不仅强调经济发展的质量和效益,更注重可持续发展以及生态环境的保护。特别是针对“碳达峰”和“碳中和”的目标,我国正积极推进绿色技术的进步,加快构建绿色技术创新体系,以科技的力量推动经济社会的绿色化、低碳化转型。党的二十大报告中再次强调“加快发展方式绿色转型”、“推动经济社会发展绿色化、低碳化”,“立足我国能源资源禀赋,推进碳达峰碳中和”,构建市场导向的绿色技术创新体系、实施绿色技术创新已成为推动经济绿色发展的应有之举。

大力发展绿色金融不仅是全面贯彻我国推进生态文明建设总体部署的重要组成部分,也是加快我国经济社会绿色转型的重要措施,更是世界经济发展的大势所趋。自2016年《关于构建金融体系的指导意见》实施以来,我国绿色金融市场规模稳步扩张,绿色信贷和绿色债券的发行量均跃居世界前列。为了进一步深化改革,2017年6月,国务院常务会议确定了广东、浙江、江西、贵州和新疆五省(区)作为首批绿色金融改革创新试验区的建设地点,这一决策标志着我国绿色金融发展进入了新的历史阶段。这一阶段的绿色金融改革,既注重顶层设计的宏观指导,又鼓励区域层面的创新探索,实现了“自上而下”与“自下而上”的有机结合。通过差异化的试点原则,各试验区根据自身特点和发展需求,构建了各具特色的绿色金融发展模式,为推动我国绿色金融体系的整体进步奠定了坚实基础。

试验区的建设旨在引导金融资源更多地流向绿色环保项目,并且削减对高污染产业的资金支持。这一举措不仅有助于优化金融资源调配,还能通过市场机制促使企业积极投入到绿色产业,进而为可持续发展注入活力。以推动绿色产业的发展为核心,试验区在绿色金融标准制定、绿色金融产品与服务的创新,以及激励与约束机制的构建等方面进行了积极探索,并已取得一定的成效。截至2022年末,试验区绿色贷款余额达1.26万亿元,在全国绿色贷款余额的占比为5.72%,高于一般贷款占比1.64个百分点,而绿色债券发行规模达3214.18亿元。这些成绩充分展示了试验区在促进绿色金融业务扩展、缓解地方绿色项目资金不足问题上的积极作用,为我国的绿色发展注入了强大动力。

绿色金融改革创新试验区作为我国推动绿色金融发展的重要政策,旨在加快绿色金

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