

# GREENING CHINA'S FINANCIAL SYSTEM

## SYNTHESIS REPORT

# 绿化中国金融体系

## 综述报告

Zhang Chenghui, Simon Zadek, Chen Ning and Mark Halle

March 2015

张承惠, 谢孟哲, 陈宁, 马汉理

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FRIDTJOF NANSEN INSTITUTE





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MARCH 2015

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The International Institute for Sustainable Development (IISD) is a Canadian-based, international public policy research institute for sustainable development. It contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change and energy, and management of natural and social capital, as well as the enabling role of communication technologies in these areas. IISD has worked with the government of China since 1992 to promote policy aligned to sustainable development. IISD's China Program carries out research, information exchange, partnerships and advocacy. This work has been supported by the Governments of Norway, Switzerland and the United Kingdom, HSBC and the MAVA Foundation.

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The Development Research Center of the State Council (DRC) is a leading policy research and consulting institution directly under the State Council. It undertakes research on the issues concerning China's economic and social development, as well as reform and opening up. The Finance Research Institute (FRI) focuses on theoretical and policy issues in financial reform and development and provides research and advice to the central government. FRI's research involves policy researchers from financial regulatory departments, Chinese and international academic institutions and international financial organizations.

<http://www.drc.gov.cn/yjlyyyjbm/17.html>

## **THE INQUIRY INTO THE DESIGN OF A SUSTAINABLE FINANCIAL SYSTEM, UNEP**

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme to advance policy options to deliver a step change in the financial system's effectiveness in mobilizing capital towards a green and inclusive economy-in other words, sustainable development. Established in early 2014, it will publish its final report in the second half of 2015.

[www.unep.org/inquiry](http://www.unep.org/inquiry)

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FNI is an independent foundation engaged in research on international environmental, energy and resource management politics. It is based in Oslo and its work includes focus on global environment governance and law, climate change and Chinese energy and environment, as well as other environmental areas. It receives support from the Research Council of Norway, and various Norwegian public bodies, business associations and private companies as well as the European Commission and international research foundations.

<http://www.fni.no/themes/china.html>

## **GREENING CHINA'S FINANCIAL SYSTEM**

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March 2015

Written by Zhang Chenghui, Simon Zadek, Chen Ning and Mark Halle

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国际可持续发展研究院出版

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## 国际可持续发展研究院

国际可持续发展研究院（IISD）在国际贸易与投资、经济政策、气候变化与能源、自然与社会资源管理以及在这些领域中通信技术的作用等方面提供政策咨询，以求为可持续发展做出贡献。自1992年起，国际可持续发展研究院与中国政府部门合作，开展符合可持续发展理念的政策研究。国际可持续发展研究院在中国的项目包括研究、信息交流、合作和倡导。本项目得到挪威、英国和瑞士政府的支持，以及来自MAVA基金会和汇丰银行的支持。

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## 中国国务院发展研究中心金融研究所

国务院发展研究中心（DRC）是直属国务院的政策研究和咨询机构。主要职责是研究国民经济、社会发展和改革开放中全局性、综合性、战略性、长期性、前瞻性以及热点、难点问题，为党中央、国务院提供政策建议和咨询意见。金融研究所（FRI）的主要职责是研究金融改革和发展中重要的理论和政策问题。突出研究金融领域具宏观性、战略性、政策性和预见性的问题，金融研究所重点对中国的货币政策、银行、保险、证券、汇率等监管政策及有关问题进行全方位的研究。

<http://www.drc.gov.cn/yjlyyyjbm/17.html>

## 联合国环境规划署可持续金融体系设计之“探寻”项目

可持续金融体系设计之“探寻”项目由联合国环境规划署发起，旨在推进政策备选方案的确定、使金融体系的有效性得到重大提升、使其能调动资金实现绿色和包容性经济，即可持续发展。项目于2014年初成立，将在2015年下半年出版最终报告。

[www.unep.org/inquiry](http://www.unep.org/inquiry)

## 挪威南森研究所（FNI）

挪威南森研究所是一家独立的基金会，研究国际环境、能源和资源管理政策。总部位于奥斯陆，研究重点包括全球环境治理、法律、气候变化，中国的能源和环境以及其他环境领域。该研究所得得到挪威研究理事会、挪威各政府机构、商业协会、公司、欧洲委员会和国际研究基金会的支持。

<http://www.fni.no/themes/china.html>

## 绿化中国金融体系

综述报告

2015年3月

张承惠、谢孟哲、陈宁、马汉理 撰写

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## ABOUT THIS REPORT

This Synthesis Report is based on an 18-month project, Greening China's Financial System, carried out by the International Institute for Sustainable Development (IISD) and the Finance Research Institute (FRI), Development Research Center (DRC) of the State Council, in association with the United Nations Environment Programme (UNEP) Inquiry into the Design of a Sustainable Financial System, and with support from the Fridtjof Nansen Institute. The aim is to develop specific proposals for greening China's financial system, based on an analysis of current practice in China and an exchange of experience with international experts.

The project was carried out through initial research which led to the publication *Greening China's Financial System: An Initial Exploration* in 2013. This was followed up during 2014 with in-depth research workshops with Chinese and international experts in Beijing, and a study tour by the DRC to Europe and the United States to understand the latest developments in this field. This included attending the Global Green Growth Forum, meetings with the Fridtjof Nansen Institute and other key finance-related institutions in Norway as well as Citi Group in the United States. We also participated in a multi-country symposium hosted by the UNEP Inquiry and the Rockefeller Brothers Foundation that included participants from the central banks of China, Bangladesh and Brazil; the Prudential Regulation Authority of the Bank of England; the U.S. Treasury; Global Green Growth Initiative; and the National Renewable Energy Laboratory.

The research team included both international and Chinese experts. The Chinese team was led by Zhang Chenghui and coordinated by Zhang Liping. Team members include Hui Tian, Wang Gang, Zhuo Xian, Chen Ning, Zheng Zheng, Zhong Ma and the research team in the School of Environment & Natural Resources, Renmin University of China.

The international team was led by Simon Zadek and Mark Halle, and coordinated by Kelly Yu, with editing by Maya Forstater. Authors include Butch Bacani, Alexander Barkawi, Ben Caldecott, Stanislas Dupré, Keith L. Johnson, Sony Kapoor, Sean Kidney, Pierre Monnin, Padraig Oliver, Nick Robins, Jessica Robinson, Mariana Hug Silva, Beate Sonerud and Jakob Thomä.

The full report from the project, including these papers, is available in Chinese through the China Development Press and will be available in English through IISD.

## ACKNOWLEDGEMENTS

In addition to the authors highlighted above, we would like to acknowledge the guidance and insights of a number of people. We are appreciative of the active participation of China's four principle financial regulators: the China Banking Regulatory Commission, the China Insurance Regulatory Commission, the China Securities Regulatory Commission and the People's Bank of China. Mr. Yanfei Ye, deputy director of the China Banking Regulatory Commission Prudential Regulation Bureau, the Environment and Economic Policy Research Center of Ministry of the Environment, China Industrial Bank, and the Investment Research Institute of the Academy of Macroeconomic Research (NDRC) offered great help to the research project. The UNEP Inquiry into the Design of a Sustainable Financial System provided substantial contributions of knowledge and networks. From Norway, Leiv Lunde, Goerild Heggelund and Tor Skudal gave great support to the project.

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Findings and opinions expressed in this paper are not necessarily shared by those contributing to the work, and any errors and omissions are the responsibility of the authors and partner institutions.



## 关于本报告

该报告基于历时18个月的课题“绿化中国的金融体系”而作。该课题由国务院发展研究中心金融研究所与国际可持续发展研究院发起，与联合国环境规划署可持续金融体系设计之“探寻”项目合作开展，并获得挪威南森研究所的支持。该课题旨在通过对中国绿色金融实践的分析 and 与国际专家的交流，提出绿化中国金融体系的具体建议。

经过最初的研究，课题组在2013年出版了报告《绿化中国的金融体系：初步探索》。接着，2014年课题组在北京举办了数次研讨会，邀请中外方专家参与，重点针对特定领域深化研究。在此期间中方课题组赴欧洲和美国了解国际最新动态，参加了全球绿色增长论坛、与挪威南森研究所会面、并参与了由联合国环境规划署和洛克菲勒兄弟基金会合办的多国论坛。与会者来自中国、孟加拉和巴西的央行、英国审慎监管局、美国财政部、全球绿色增长研究所、国家可再生能源实验室等。

中方课题组成员来自国内外相关领域的专家及研究人员。中方课题组负责人为张承惠，课题协调人张丽平。课题组成员包括田辉、王刚、卓贤、陈宁、郑征、马中及中国人民大学环境学院课题组。

外方课题组负责人为谢孟哲及马汉理，课题协调人余晓文，作者包括本·凯德科特、尼克·罗宾斯、皮埃尔·莫宁、亚历山大·巴卡维、索尼·卡普尔、布奇·巴卡尼、肖恩·肯德尼、帕里克·奥利弗、贝亚特·斯坦·杜普雷、雅各布·托马、玛丽安娜·哈格·席尔瓦、基思·约翰逊、杰西卡·罗宾逊。

该课题的完整版包括了所有报告，中文版由中国发展出版社出版，英文版将由国际可持续发展研究院出版。

## 致谢

除了上述的中外方作者外，我们还想感谢一些为我们提供了指导和见解的同仁。我们感谢中国四家主要金融监管机构（银监会、保监会、证监会和人民银行）的积极参与。在课题研究期间，银监会审慎规制局（原统计部）叶燕斐主任、环境保护部环境与经济政策研究中心、中国兴业银行、国家发改委宏观研究院投资研究所给课题组提供了很大帮助；联合国环境规划署“可持续金融体系设计之探寻”项目(UNEP-Inquiry)对课题研究给予了知识和联络上的支持。同时我们十分感激Leiv Lunde, Goerild Heggelund和Tor Skudal给予我们的帮助和支持。

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本文中的结论和观点并不一定代表支持方，如有错误和遗漏，均由作者和合作机构承担责任。

## WORKING PAPERS

### PHASE ONE WORKING PAPERS

- *China's Green Finance: Status Quo, Issues and Future*, Development Research Center of the State Council
- *Using Innovative Policy and Regulatory Approaches to Incentivize the Alignment of Investment Strategies with Sustainability Considerations*, Jessica Robinson, Association for Sustainable & Responsible Investment in Asia
- *Integrating Environmental Risks into Asset Valuations: The Potential for Stranded Assets and the Implications for Long-Term Investors*, Nick Robins, HSBC Climate Change Centre of Excellence (now co-Director UNEP Inquiry)
- *Introduction to Institutional Investor Fiduciary Duties*, Keith L. Johnson, Institutional Investor Services Group, Reinhart Boerner Van Deuren s.c.
- *Governance, Accountability and Transparency: Advancing Green Finance*, Mariana Silva, International Institute for Sustainable Development
- *Growing a Green Bonds Market in China*, Sean Kidney and Pdraig Oliver, Climate Bonds Initiative

### PHASE ONE SYNTHESIS PAPER

- *Greening China's Financial System: An Initial Exploration*, Simon Zadek and Zhang Chenghui (available from: [http://www.iisd.org/pdf/2014/greening\\_china\\_financial\\_system\\_en.pdf](http://www.iisd.org/pdf/2014/greening_china_financial_system_en.pdf))

### PHASE TWO WORKING PAPERS

#### China expert papers

- *Green Finance Framework Paper*, Zhuo Xian & Zhang Liping, Development Research Center of the State Council
- *Demand for Green Finance*, Zheng Zheng, Development Research Center of the State Council
- *Industry and Policy Environment for the Development of Green Finance*, Ma Zhong and Lan Hong, School of Environment and Natural Resources, Renmin University of China
- *Practices and Experience of Development of Green Finance in China*, Tian Hui, Development Research Center of the State Council
- *Problems and Difficulties in the Development of China's Green Finance*, Wang Gang, Development Research Center of the State Council

#### International expert papers

- *A Systemic View of the Insurance Industry, Regulation and Sustainable Development: International Developments and Policy Proposals for China*, Butch Bacani, UNEP FI Principles for Sustainable Insurance Initiative
- *Greening China's Financial Markets: The Risks and Opportunities of Stranded Assets*, Ben Caldecott & Nick Robins University of Oxford's Smith School of Enterprise and the Environment
- *Alignment of Investment Strategies with Climate Scenarios: Perspectives for Financial Institutions*, Stanislas Dupré and Jakob Thomä, 2° Investing Initiative
- *Internalizing Climate Mitigation for Financial Policy-Makers*, Sony Kapoor, Re-Define
- *Greening China's Bond Market: Facilitating Green Investment and Improving Transparency and Stability in Financial Markets*, Sean Kidney, Pdraig Oliver and Beate Sonerud, Climate Bonds Initiative
- *Monetary Policy and Green Finance: Exploring the Links*, Pierre Monnin and Alexander Barkawi, Council on Economic Policies

A book containing all of the Phase Two working papers is available through China Development Press, and will be available in English through IISD in April 2015.

## 工作论文

### 阶段一工作论文

- 《中国绿色金融发展的现状、问题与未来发展》
- 《应用创新的政策和监管方式来鼓励投资政策融合可持续发展因素》，杰西卡·罗宾逊，亚洲可持续发展投资协会
- 《将环境风险纳入资产估值：搁浅资产的潜力和对长期投资者的影响》，尼克·罗宾，汇丰银行全球卓越气候变化中心（现联合国环境规划署可持续金融体系设计之“探寻”项目）
- 《机构投资者信托责任的介绍》，基思·约翰逊，机构投资者服务集团
- 《公司治理、问责制和透明度：推进绿色金融发展》，玛丽安娜·席尔瓦，国际可持续发展研究院
- 《发展中国的绿色债券市场》，肖恩·肯德尼和帕里克·奥利弗，气候债券倡议组织

### 阶段一综述报告

- 《绿化中国的金融体系：初步探索》，谢孟哲和张承惠  
链接：[http://www.iisd.org/pdf/2014/greening\\_china\\_financial\\_system\\_en.pdf](http://www.iisd.org/pdf/2014/greening_china_financial_system_en.pdf)

### 阶段二工作论文

#### 中方专家报告

- 《绿色金融：将绿水青山变为金山银山的金融机制》，卓贤 张丽平，国务院发展研究中心
- 《绿色金融需求》，郑征，国家发展和改革委员会投资研究所
- 《绿色金融发展的产业政策环境》，马中及中国人民大学环境学院课题组，中国人民大学环境学院
- 《中国绿色金融体系发展的经验和教训》，田辉，国务院发展研究中心
- 《中国绿色金融发展中的问题与难点》，王刚，国务院发展研究中心

#### 外方专家报告

- 《关于保险业及其监管与可持续发展的系统性观点：国际发展趋势及对中国的政策建议》，布奇·巴卡尼，联合国环境规划署金融行动计划可持续保险原则倡议
- 《绿化中国的金融市场：搁浅资产的风险与机遇》，本·凯德科特和尼克·罗宾斯，牛津大学史密斯企业与环境学院
- 《将投资战略与气候情景协调一致：金融机构的视角》，斯坦·杜普雷和雅各布·托马，2° 投资倡议
- 《将减缓气候变化纳入金融决策》索尼·卡普尔，Re-Define
- 《绿化中国债券市场：加速绿色投资、推进金融市场透明化和稳定性》，肖恩·肯德尼，帕里克·奥利弗和贝亚特·索诺德，气候债券倡议组织
- 《货币政策与绿色金融——探索其关联性》，皮埃尔·莫宁和亚利山大·巴卡维，经济政策委员会

涵盖所有第二阶段论文的书稿将由中国发展出版社出版，英文版将在四月由国际可持续发展研究院出版。

## 序言一

2014年，我国经济总量突破10万亿美元，成为全球“10万亿美元俱乐部”仅有的两个成员之一。与此同时，我国也面临着前所未有的资源环境压力。近年来，全国雾霾现象呈严重化趋势，日益成为困扰经济社会发展的环境难题。不仅如此，水体污染、土地污染问题也日趋严重，能源资源浪费和过度使用等现象仍较普遍。导致上述问题的深层次原因是不合理的粗放型发展方式。经过三十多年的高速增长后，我国经济发展进入新常态。随着增长阶段的转换，传统的数量扩张型经济增长模式难以为继，迫切需要形成“发展质量导向”的新机制，其中的一个关键要素，就是要全面推进绿色发展。新常态下加快绿色发展，既要解决好认识问题，把绿色发展看成发展模式的重大转型，看成潜力巨大的发展机遇，更要理念、战略、政策落到实处，形成绿色发展的可行目标和评价机制，促进绿色发展的激励机制和支持体系。在这种大背景下，大力发展绿色金融就成为新常态下的必然选择。

习近平总书记指出，“既要绿水青山也要金山银山，绿水青山就是金山银山”。这充分揭示出绿色发展的动力来源。要使“绿水青山”成为“金山银山”，使人们有积极性保护和扩展“绿水青山”，加快发展绿色金融体系至关重要。社会公众追求、钟情绿水青山，是因为绿水青山带来了实实在在的好处，提高了人民群众的生活质量，因此，是有价值的。但这种价值不能悬在空中，必须落到地上，应该也可以做到可度量、可评价、可交易，做到市场化、货币化、资本化。只有如此，绿色发展才可能有持久动力和可持续性。在此过程中，金融的介入是题中应有之义，更有意义的是，为真正意义上的金融创新提供了广大的舞台。由于许多绿色金融产品具有明显的正外部性，应当得到政府资源和政策的支持。在一些场合，还需要直接使用政策性金融工具。经过努力，在可预期的将来，绿色金融有可能成为整个金融体系的重要组成部分。长期来看，随着绿色发展成为社会高度认同的发展模式，所有金融活动都应该是“绿色”的。

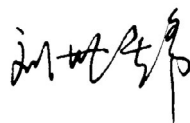
国际上关于绿色金融的讨论和研究已有较长历史。尤其是后金融危机以来，建设包括绿色金融在内的绿色可持续经济体系逐渐成为全球共识。绿色金融概念的提出，旨在通过重塑金融体系来推动绿色和包容性经济发展，其内涵包括多个方面，例如金融机构在投融资活动中充分考虑环境因素，减少乃至停止对污染项目的支持，加大对治理环境项目的扶持；构建绿色金融体系的整体框架，将社会风险、治理风险等纳入到该体系中去。目前，“绿色金融”概念正在向更大范围扩散，越来越多的国家开始将绿色金融纳入政策体系，而机构投资者已经成为发达国家推动绿色金融的重要力量。中国在绿色金融发展方面的经验越来越受到国际社会的重视。作为地球村的一员，中国在绿色金融领域加强国际交流与合作，不仅可以借鉴国际有益经验，而且可以通过积极参与国际绿色金融体系的构建和发展，贡献更多的中国理论智慧和实践经验。

国务院发展研究中心（DRC）金融研究所自2013年开始与国际可持续发展研究院（IISD）合作开展了“绿化中国金融体系”课题研究。在过去的两年多时间里，课题组对中国和国际的绿色金融发展进行了深入探讨。从本书的内容可以看到，这项研究具有突出的前瞻性和创新性，是目前我国全面研究绿色金融问题的重要成果。在绿色金融的中国实践与经验方面，课题组通过对中国绿色金融宏观环境、发展现状和政策环境等多角度的分析评估，总结归纳了中国绿色金融体系发展的经验和教训，包括政府和市场之间的权利义务分配、协调机制及配套政策的重要性和均衡发展等问题。在此基础上，课题组提出了绿色金融的概念框架，提出绿色金融不应局限于以往所重点关注的清洁能源、低碳交通、能效建筑等



方面，而应扩展视野，为产业结构调整、传统企业节能改造、环境污染治理等提供金融支持。这是中国绿色金融体系有别于发达国家绿色金融的重要特征。另外，针对中国绿色金融的需求规模，课题组以中国绿色投资发展和融资结构特征为研究重点，估算出中国对绿色金融的需求每年在2万亿元左右。课题组对中国环境产业也进行了分析研究，研究内容涉及法律法规、管理体制、环保投资、绿色金融相关环境产业政策等多个方面。在国际实践与经验方面，课题组对国际绿色金融范畴中的前沿和热点问题，包括搁浅资产、货币政策与绿色金融、绿色保险和绿色债券，以及气候变化的影响和风险等逐一进行了分析，对国内外最新实践和趋势进行了比较和总结。在这些成果的基础上，课题组提出了中国发展绿色金融的行动框架。

目前，国内外对于绿色金融的研究仍处于探索阶段。展望未来，随着新兴产业的不断涌现和科学技术的持续进步，人们对“绿色”、“可持续”等概念的理解也必将继续深入，关于绿色金融的研究和讨论仍需持续下去。我期待包括课题组专家在内的各界研究力量能为中国和世界绿色金融体系的发展贡献更多的真知灼见。



国务院发展研究中心副主任

2015年1月于北京

## 序言二


中国领导层已郑重向民众作出建设“生态文明”的承诺，即打造一个在自然资源、生态系统和“行星界限”范围内运转稳定、繁荣的国家。正如本综述报告明确指出，要达到这个目标将是一项巨大的挑战。

与此同时，尚未有任何大国勇于在“绿色转型”问题上作出如此明确有力的承诺，如果中国真的能够成为先驱，对地球的积极影响将是举世瞩目的。绿色转型需要各行各业、各个层面的实际行动，要求向绿色基础设施开发转变，需要大规模的技术升级与革新，对已受污染的地方进行清理，还涉及对产品和服务的生产和消费方式进行反思。

然而，核心的挑战在于金融管理的规则，原因有两个：首先，转型需要成本，特别是当转型的规模与挑战同样巨大、且要在短时间内使得中国迅速迈向可持续发展道路的时候。绿色转型所需的投入不容小觑，但更不能忽视中国社会经济为目前遭受的环境问题所付出的代价。的确，问题不在于中国能否承担绿色转型的投入，而在于中国能否承担不对此投入的后果。

第二，金融管理的规则很大程度上决定着对投资者的行为是激励还是遏制。如果这些规则有利于绿色投资，我们就能加快进度；如果不利于绿色投资，就将成为绿色转型的障碍。

本项目由中国国务院发展研究中心金融研究所和国际可持续发展研究院（IISD），以及联合国环境规划署可持续金融体系设计之“探寻”项目联合发起。本项目广泛探讨了改革中国资本市场和金融机构管理规则的可选措施，并识别了中国最急需和短期内最可能实施的方案。研究成果是一个供中国领导层参考的路线图，若被采纳，将大力加速绿色转型，实现他们的公开郑重承诺。这个代表国务院发展研究中心声音的路线图意义重大，其下属的金融研究所是为中国金融市场改革出谋划策的关键部门。本次研究报告中提出的建议，以及在本综合报告中概括的观点，都是切实可行的，且多数能在相对短期内实施，不仅为中国、也为全世界指明了通往生态文明的必由之路。



国际可持续发展研究院（IISD）院长



国务院发展研究中心金融研究所所长

## FOREWORD – LIU SHIJIN

In 2014, China's gross economic output exceeded \$10 trillion, making China one of the only two members of the “\$10 trillion” club in the world. At the same time, China is also facing unprecedented challenges from the depletion and pollution of its resources and the deterioration of its environment. Air pollution has become increasingly prevalent and serious in recent years, and is now a major obstacle to China's economic and social development. To compound the issue, water pollution and land pollution have reached alarming levels; wasteful and excess use of energy and resources are still a common sight around the country. The deep-rooted cause of these environmental woes is the crude, extensive economic growth model. However, after more than three decades of rapid expansion, China's economic development has entered a new normal. As the national economy shifts into a new gear, China's traditional growth model, which is mostly focused and reliant on quantitative increases, can no longer be sustained. Instead, China will have to quickly identify a new system that allows for qualitative development, a crucial element of which is the promotion of green development on the national level. Accelerating the pace of green development under the new normal will not only require the adoption of a new mindset—that green development represents a major transformation of the national growth model and limitless future potentials—but, more importantly, also the implementation and realization of green philosophies, strategies, and policies, so that we have both achievable targets and evaluation mechanisms for green development as well as the related incentive measures and support systems for facilitating a green economy. Against this new economic climate, actively developing green finance is an inevitable choice for China.


President Xi Jinping once articulated the motivation for green development with the remark that “[China] wants clear waters and green mountains just as much as golden and silver mountains. In fact, clear waters and green mountains are China's gold and silver.” Fortuitously, a rapid development of China's green finance system holds the key to sparking the public's interest in actively protecting and expanding “clear waters and green mountains” and turning them into “golden and silver mountains.” Clear waters and green mountains are desired and admired by the public because they bring actual benefits and improve their quality of life, and thus have great intrinsic value. This value cannot dwell on paper only but has to be realized, and should be measurable, evaluable and tradable as well as marketed, monetized and capitalized to provide the engine necessary for making green development a lasting and sustainable undertaking. Finance will be an integral component of this transformative process. Even more significantly, green development will build an even bigger stage for bona fide financial innovations. Because of the significant positive externalities that many green financial products create, they should be supported by government resources and policies. In some instances, policy-based financial instruments should be used directly. Through these efforts, green finance can become a key component of China's overall financial system in the foreseeable future. In the long run, after green development matures into a highly-recognized model for economic growth, all financial activities should be green.

The discussion and research on green finance has a long history internationally. Notably, after the world financial crisis, the building of a green and sustainable economic system, which encompasses green finance, is quickly becoming a global consensus. The concept of green finance is proposed to promote green and inclusive economic growth through reshaping existing financial systems. This multi-faceted concept defines many actionable initiatives that include, among others, requiring financial institutions to give full consideration to the environmental impacts of their investments, reducing or even cutting off support to polluting projects, increasing the support for environment restoration projects, and building a general framework of the green finance system that incorporates social and governance risks. Currently, the concept of “green finance” is spreading and gaining traction globally, as more and more countries start to include

green finance in their policy framework, and institutional investors in developed countries have already become a major force in advancing green finance agendas. China’s experience in developing its own green finance system has also steadily attracted wider attention from the international community. As a member of the global village, strengthening its involvement in the international green dialogues and cooperative efforts will not only help China to learn from positive international experiences, but also allow China to actively participate in the building and development of the global green finance system, and contribute its theoretical acumen and practical experience to the international community.

Since 2013, the Development Research Center of the State Council (DRC) has collaborated with the International Institute for Sustainable Development (IISD) on the topic of “greening China’s finance system.” And for the past two years, the task group has dedicated itself to in-depth research and discussions about the development of green finance, both in China and internationally. This *synthesis report* is the product of that research’s outstanding insight and innovativeness, and represents an important domestic milestone in the development of comprehensive research on green finance. On the subject of China’s practices and experiences in green finance, the task group pivoted their discussions by first analyzing and evaluating the macro environment, current state, policy environment and other aspects related to the domestic green finance, then summarized China’s experiences and lessons in developing its green finance system including the importance of the appropriate division of rights and obligations between the government and the market, of the coordination mechanism and the supporting policies, as well as how to achieve a balanced development. On this factual basis, the task group outlined a conceptual framework for China’s green finance system and proposed that the system should not limit itself to conventional focal points such as clean energy, low-carbon transportation and energy-efficient buildings, but should instead expand its scope to provide financial support for the restructuring of China’s industrial sector, the green transformation of traditional enterprises and the cleanup of environmental pollution, which will constitute the key departures of China’s green finance system from those of the developed countries. In addition, based on the development and financing characteristics of China’s green investments, the task group estimated that building China’s green finance system would require an investment of around two trillion yuan per annum. Lastly on the domestic front, the task group studied China’s current environmental industry, covering topics including laws and regulations, management system, environmental investments, and environmental and industry policies relating to green finance. On the subject of international practices and experiences in green finance, the task group scrutinized a wide range of hot issues at the forefront of the international green finance industry, including stranded assets, monetary policies and green finance, green insurance, green bonds, and the impacts and risks of climate change, and compared and reviewed the latest domestic and international practices and trends in green finance. On top of all of this groundwork, the task group offered an action plan for developing China’s green finance system.

At present, domestic and international thinking and research on green finance is still in an explorative stage. With the steady emergence of new industries and continued progress in science and technology, we expect that our understanding of “green” and “sustainability” will be ever more profound, and that the research and discussions on green finance will continue well into the future. I look forward to scholars and researchers—including the experts of this task group—contributing more wisdom to the development of China’s and the international green finance system.



**Liu Shijin, Vice President, Development Research  
Center of the State Council, PRC**



## FOREWORD – ZHANG CHENGHUI AND SCOTT VAUGHAN

The Chinese leadership has expressed a strong public commitment to building an “ecological civilization”—a stable and prosperous country that operates within the limits imposed by natural resources, ecosystems and planetary boundaries. As this synthesis report lays out compellingly, reaching this goal is a formidable challenge.

At the same time, no major country has made so clear and so forceful a commitment to making the green transition and, if China is genuinely able to lead the way, the positive impact on the planet will be enormous. The green transition will need action at all levels and in all sectors. It will require a shift to green infrastructure development. It will demand a large-scale upgrading and renewal of technology. It will require clean-up of polluted sites. And it will involve reviewing the way in which goods and services are produced and consumed.

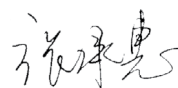
At the heart of the challenge, however, lie the rules that govern finance, for two reasons. First, the transition will carry costs, especially if it is to take place at a scale commensurate with the challenges and on a timeline that will place China quickly on a path to sustainability. The investment necessary for the green transition is considerable, but not when compared with the cost to China’s society and economy of the environmental problems from which the country currently suffers. Indeed, the question is not whether China can afford the investment required for the green transition, but whether it can afford not to make that investment.

Second, however, the rules governing finance to a large extent determine the incentives and disincentives that guide the behaviour of investors. To the extent that these rules reward green investment, our progress will be quicker; but to the extent that they reward brown investment, they are an obstacle to the green transition.

The DRC-IISD project, in association with the UNEP Inquiry into the Design of a Sustainable Financial System, has explored a wide range of possible reforms to the rules governing China’s capital markets and financial institutions with a view to identifying both those that are most urgently needed and those most ripe for short-term implementation. The result is a roadmap for China’s leadership that, if followed, will greatly accelerate the green transition to which they have publicly and forcefully committed. It is significant that this roadmap represents the voice of DRC, whose Finance Institute is a pivotal source of research aimed at informing decisions that shape China’s financial market reform. The recommendations contained in the report of this work, and that are summarized in this synthesis, are practical and most could be implemented on a relatively short time scale. They represent the surest path towards the eco-civilization that not only China but the whole world must achieve.



**Scott Vaughan, President of International  
Institute for Sustainable Development**



**Zhang Chenghui, Director General of Finance  
Research Institute of DRC**

## EXECUTIVE SUMMARY

Realizing sustainable development depends on “greening finance”—that is, ensuring that the financial institutions charged with allocating available financial assets take environmental and social factors into account when allocating credit, making investments and providing other financial services such as insurance.

Transforming from a resource and pollution-intensive economy to a green economy is now a strategic priority for China. Success depends on the development of green industries and the transformation and reduced importance of many traditional industries. Key priorities include clean energy, industrial energy conservation, building energy conservation, transport energy conservation, improvement of energy efficiency and environmental pollution control. Investment needs across key green sectors in China will be approximately RMB2.9 trillion per year from 2015 to 2020 (US\$460 billion). Two thirds of this, about RMB2.0 trillion annually (US\$320 billion), will need to come from domestic and international financial and capital markets, given fiscal limitations and priorities.

At the same time, China’s financial system is developing rapidly, with key priorities being to internationalize its practices, increase its sophistication and depth, and improve its efficiency in ensuring the productivity of available financial assets and its overall contribution to China’s development. There is an alignment between China’s green economy and financial priorities and its capital market policy priorities. Improved flows of green finance will both accelerate the transition towards a sustainable real economy and improve the efficiency, productivity and resilience of China’s financial system.

That is, greening a country’s financial system is not an “additional” performance requirement but concerns the efficiency and effectiveness of the whole system. A lack of green financing, after all, delivers poor allocation of capital, mispriced risks and weaker long-term economic growth, creating stresses that ultimately lead to financial market instability and underperformance.

Greening finance is a growing focus for the Chinese government through the promotion of *green credit*, *green securities* and *green insurance*. However, despite significant progress, some constraints must still be overcome: first, perverse price signals resulting from absent or inappropriate policies; second, unwillingness of short-term-focused investors to finance green development projects that often require higher upfront investment and give slower returns; and third, a lack of clear definitions and frameworks, which results in inadequate enabling policies, regulations and standards. Furthermore, progress is constrained by divergent interests and approaches between central and local government, as well as between government and market institutions.

The international context is one of growing awareness about, and action on, green finance in both developing and developed countries. Though international experience remains at an early, largely ad-hoc stage, broad consensus is emerging in some key areas:

- **Better information** is crucial for embedding sustainability considerations in risk assessment and investment decisions, with many initiatives focused on transparency, metrics, indexes, incentives, reporting and governance, notably in banking and stock markets.
- **Systems, competencies and culture** of financial institutions need to reflect environmental and social responsibilities in ways that inform decisionmaking. This calls for increased action by financial institutions, as well as by central banks and regulators, to require enhanced and demonstrable environmental risk management across not only the banking community but also pension funds and insurance companies, as well as public investment vehicles such as development banks and sovereign wealth funds.

- **Assets at risk of becoming “stranded”** due to high environmental costs need to be more effectively monitored, with suitable precautionary measures being taken by both financial institutions and, potentially, central banks and financial regulators concerned with financial stability.
- **Greening debt markets** through product innovation (such as green bonds), robust and unified standards, regulation and, potentially, tax incentives can significantly advance long-term, green investment flows and associated outcomes.
- **Monetary policies** that have fundamental influence on the economy and society as a whole need to be designed to take greater account of environmental and broader sustainable development objectives.

A systematic approach to developing green finance in China through policies targeted across these and other areas could both unlock domestic opportunities for green economic growth and catalyze related developments internationally.

This paper proposes a framework for actions covering five key areas that, if adopted by the Chinese government, would promote the systematic development of green finance.

## Green Finance: Framework for Action

**A. Establish and strengthen legal frameworks** – including environmental laws and law enforcement that contribute to the demand for green finance.

**B. Improve coordination and information** sharing between environmental, financial and industrial regulators and with third-party institutions

### C. Develop comprehensive policy support for green finance

1. Align monetary policy with sustainable development goals
2. Continue to strengthen green credit policies in banking
3. Provide incentives to grow the market for green securities, including green bonds
4. Expand the scope of green insurance and strengthen environmental liability insurance regulations.
5. Use fiscal incentives to accelerate the development of green finance markets.

**D. Foster the development of the information infrastructure** with information on environmental costs and a green credit rating system.

**E. Green the policy banks** as leaders in establishing markets and best practices for commercial banks.

## 内容摘要

绿色金融是实现可持续发展的必要条件。这需要金融机构在负责分配信贷、进行投资和提供保险等其他金融服务的过程中，考虑到此等可用金融资产的分配的环境和社会效应。

目前，中国的战略重点是从主要依靠投资（并由此带来资源高消耗和高污染）的旧增长模式转向更加注重可持续和效率的绿色发展模式。该转型的成功与否不光取决于绿色产业的发展，还取决于众多传统产业的转型和其占国内经济比重的降低。绿色经济的重点领域覆盖面极广，包括清洁能源、工业节能、建筑节能、交通节能、能源效率提高和环境污染治理。中国绿色产业在 2015 – 2020 年期间每年的投资需求将达到人民币 2.9 万亿元。考虑到中国的财政状况和发展规划，这笔资金的三分之二（每年约 2 万亿元）需要从国内外金融市场和资本市场筹集。

与此同时，中国的金融体系亦在飞速发展。其当前的主要目标为加强国际化程度、提升专业度、业务深度和工作效率，以确保可用金融资产的有效利用，并为中国整体经济的增长做出实质贡献。值得注意的是，中国绿色经济的发展目标与中国金融和资本市场的政策目标之间有多个共同点。提高绿色金融的普及性不仅能加快中国向可持续实体经济的转型，还将提高中国金融体系的效率、效益和抗御风险能力。换言之，一个国家的金融体系向绿色金融的转型不是一项“额外”业绩要求，而是影响整个金融体系有效运作的关键举措。绿色金融的缺失，将致使资金配置欠佳、风险定价错误和长期经济增长乏力，所产生的各种压力将最终导致金融市场的不稳定和业绩不佳。

绿色信贷、绿色证券和绿色保险的推广，预示着绿色金融正日益成为中国政府的重要工作。绿色金融的发展举目可见，但其还需克服诸多困难。一是政策的缺位或不适当造成价格信号扭曲；二是绿色发展项目普遍前期投入大、回报慢，重视短期回报的投资者不愿投资；三是绿色金融的概念和定义不清，缺少绿色发展战略的顶层设计。此外，中央政府和地方政府之间、政府与市场机构之间的利益和行动分歧也进一步限制了绿色金融的发展；四是用来推动绿色金融资金流的市场和产品存在缺陷。

当前的国际背景是，各发展中国家和发达国家对绿色金融日趋关注，并更愿为其采取行动。尽管现有的各项国际经验还只是零散的、非系统性的，但是各国正逐步对以下重点领域达成广泛共识：

- 更可靠的环境信息对于将可持续发展因素纳入风险评估和投资决策而言至关重要。银行和股票市场已开展多项以环境透明度、指标、指数、激励、报告和治理为重点的计划。
- 金融机构的制度、能力和文化需要反映环境和社会责任，使之影响其投资决策。金融机构、央行以及监管机构应采取进一步行动，要求银行、养老基金、保险公司以及开发银行和主权财富基金等公共投资主体实施更加严格、且行之有效的环境风险管理制度。
- 对于有可能被高昂的环境成本“搁浅”的资产，施行更加有效的监控。对此，金融机构以及关心金融系统稳定的央行和金融监管机构需要采取适当的风险防范措施。
- 绿化债券市场，通过产品创新（例如“绿色债券”）、实施健全统一的标准和规章以及潜在的税收激励政策，显著提升长期投资、绿色投资的流动性，并由此带来其他利好。
- 鉴于货币政策对经济和社会整体有广泛的影响，应在货币政策制定中纳入更多环境和广义的可持续发展目标。



通过制定针对上述和其他重点工作的政策，中国的绿色金融可以实现系统性的发展。其结果是，中国不仅可以释放国内绿色经济的发展机遇，还可以促进国际相关领域的共同发展。

本报告提出的行动框架涉及五大领域，对系统推进中国绿色金融发展提出了一整套政策建议。

## 绿色金融：行动框架

**一、制定和加强法律框架**——包括以法律的形式确立绿色金融制度，并加大执法力度。

**二、完善信息协调和共享**——加强环境、金融和行业监管机构以及第三方机构之间的协调合作

### 三、完善绿色金融政策支持体系

1. 促进货币政策与绿色金融目标相协调
2. 继续强化银行业的绿色信贷政策
3. 加大绿色证券（包括绿色债券）市场发展的优惠政策力度
4. 扩大绿色保险的服务范围，强化与环境责任保险有关的规章制度
5. 采用财税激励措施加快绿色金融市场的发展

**四、促进包含环境成本的信息基础设施的发展**，以及绿色信贷评级体系的发展。

**五、发挥政策性金融机构在绿色金融领域的引导作用**，使其牵头为商业银行建立市场和最佳实践。

# GREENING CHINA'S FINANCIAL SYSTEM

## SYNTHESIS REPORT

ZHANG CHENGHUI, SIMON ZADEK, CHEN NING AND MARK HALLE



# 1

## 1 BACKGROUND

Over the past 30 years, China has developed rapidly to become the world's second largest economy, reaching the status of a middle-income country. Realizing this success, however, has involved a development approach entailing massive and inefficient resource use and extensive damage to the quality of air, water and soil (MEP, 2013).

Despite industrial and credit policies to curb the development of high pollution-generating and energy-intensive industries, the scale of these industries and practices continues to grow. While the energy intensity of the economy has decreased, total energy consumption continues to rise. At the same time, the traditional competitive advantage of low-cost production has gradually weakened, leading to an imperative for industrial restructuring aligned to higher value-added, cleaner and resource-efficient development (Zhejiang, 2012) (see Box 1).

Transforming from a resource and pollution-intensive economy to a green economy is now a strategic priority for China. Success depends on the development of green industries and the transformation and reduced importance of many traditional industries. Key priorities include clean energy, industrial energy conservation, building energy conservation, transport energy conservation, improvement of energy efficiency and environmental pollution control. Investment needs across key green sectors in China will be approximately RMB2.9 trillion per year from 2015 to 2020 (US\$460 billion). Two thirds of this, about RMB2.0 trillion (US\$320 billion) annually, will need to come from domestic and international financial and capital markets, given fiscal limitations and priorities.

At the same time, China's financial system itself is also developing and facing challenges to efficiency and stability (see Box 2). Green policies have been strengthened during the 11th and 12th Five-Year Plan (FYP) periods (2006–2010 and 2011–2015), including a new and stronger Environmental Protection Law and measures to enhance allocation of capital towards green financing needs.

Premier Li Keqiang's commitment to *“resolutely declare war on pollution as we declared war against poverty”* (Reuters, 2014) highlights the high priority being placed on environmental protection, as was the greater discussion of environmental issues in the Third Plenary Session of the 18th Central Committee of the Communist Party of China.

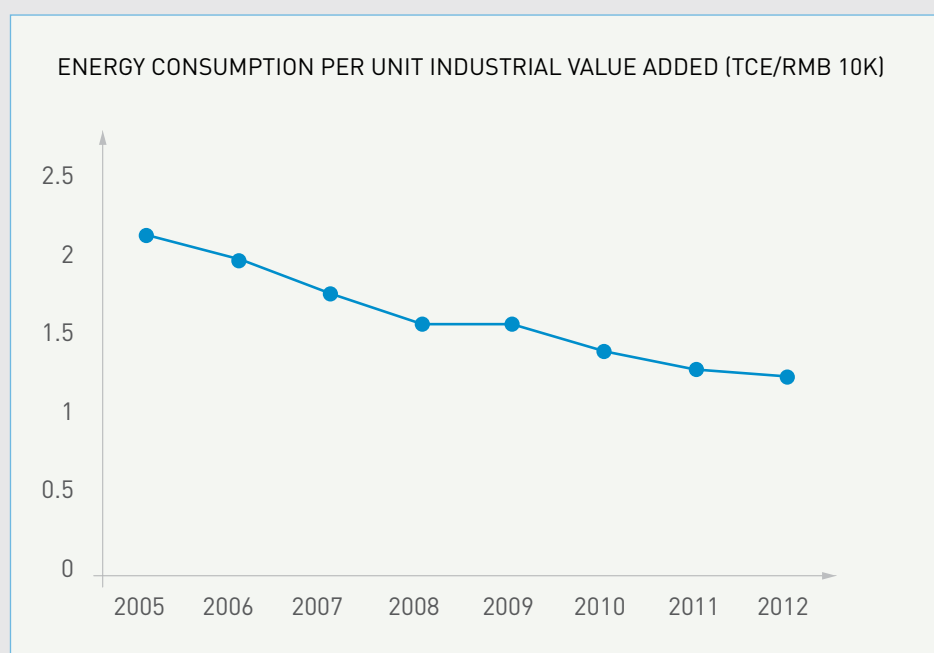
## Box 1: The Challenge of Green Development in China

Environmental damage poses significant risks to the country's quality of life, economic competitiveness, resilience and long-term growth. The estimated cost of pollution damage is between 3 per cent and 6 per cent of GDP and rising (World Bank/SEPA, 2007).


China became the world's second largest economy in 2010, but has been the number one emitter of conventional pollutants since 2005, and by 2011 it was also the largest carbon dioxide emitter. The risk of major environmental accidents, and daily concerns about air, water and soil quality make environmental issues a widespread concern. Only 3 out of 74 cities monitored for air quality met minimum standards in 2014. An estimated 60 per cent of underground water monitoring sites have poor quality, and 19 per cent of arable land is badly polluted.

China is actively pursuing industrial restructuring; it is identifying dirty and inefficient industries to be restricted and eliminated, and high-tech, high value-added sectors to be encouraged. However, despite these policies, the fastest growing sectors from 2005–2011 were the “restricted” industries such as coal, minerals, metals and chemicals. The country has succeeded in cutting the energy intensity of the economy, but there are fewer opportunities for further savings from simple energy conservation (NDRC, 2011).

FIGURE 1 : CHINA'S INDUSTRIAL ENERGY CONSUMPTION LEVEL, 2005–2012



At the same, China's development continues to require natural resources. At present, China's per capita energy consumption is only one seventh of that of the United States and one quarter of the average of Organisation for Economic Co-operation and Development (OECD) states. Consumption of some important resources has not reached its peak. The dilemma of reconciling production and consumption with energy conservation and emission reduction is its challenge for green development in China.

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## 1.1 CHINA'S FINANCIAL SYSTEM<sup>1</sup>

China's financial system is dominated by banking, providing about three fifths of total credit to the market economy. The banking system is fairly concentrated, with half of the total loan market originated by five banks.

There is strong government involvement, with the central bank setting maximum interest rates for deposits, previously setting minimum interest rates for loans and often setting target levels for loan volumes. The five largest banks are majority-owned by the central government and there is significant government ownership in other banks. The major banks tend to lend predominantly to large, state-owned enterprises, and rebalancing the financial system to allow smaller, private firms to gain access to capital has been a key focus of ongoing debates and reforms.

Loans between state-owned banks and enterprises are seen as carrying implicit guarantees. Private guarantees from other companies, individuals and dedicated guarantee companies have also played a large role in fuelling credit expansion, underpinning about a quarter of total outstanding loans. It is feared that risk assessment by banks has relied excessively on these guarantees, and that undercapitalized guarantee chains could be a source of financial instability.

Bond markets are a source of credit mainly for larger firms. The market is growing rapidly, although it remains smaller and less sophisticated than in the United States and Europe. Banks are the largest holders of corporate bonds. Net issuance of corporate bonds increased by 65 per cent in 2012, according to the People's Bank of China figures and represents about 16 per cent of net new credit.

Stock markets are also growing, but tend to be dominated by short-term trading rather than long-term investors, with the annual turnover rate reaching a recent high of 293 per cent. The size of the stock market is limited through very close control of Initial Public Offerings (IPOs). There are few institutional investors, with assets under management in 2012 equivalent to only about 5.1 per cent of GDP (compared to 240 per cent in the United States).

## 1.2 THE DEVELOPMENT OF GREEN FINANCE IN CHINA

China first adopted an environmental protection law in 1989. The initial approach relied largely on administrative enforcement and fines (Zhang & Zhao, 2003). However, over the past 15 years, the government has begun to approach environmental issues through a more comprehensive set of legal, economic, financial and technological measures, including those directly focused on mobilizing green finance from the financial system (see Box 2).

Overall, these early developments in green finance have had some success in supporting economic restructuring by influencing the allocation of financial resources, with increasing investment identified as market-based green finance (see Box 3).

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<sup>1</sup> This section is based on Elliott & Yan (2013)



## Box 2: Green Finance in China

**“Green credit” has been the key policy for green finance in China’s banking-dominated system** (China Banking Regulatory Commission [CBRC], 2011). In 2006 the China Industrial Bank together with the International Finance Corporation (IFC) established the first “green credit” product in China—a loan fund for energy conservation and emission reduction projects.

In 2007 the former State Environmental Protection Administration and the People’s Bank of China and CBRC jointly released the *Opinions on Implementing Environmental Protection Policies and Rules and Preventing Credit Risks*, calling on banks to make compliance with environmental laws and regulations a necessary condition for loan approval, to actively offer credit support for “encouraged” industries and disallow credit for projects in “restricted” and “to-be-eliminated” industries (SEPA/CBRC, 2007).

In 2012 the CBRC issued the *Green Credit Guidelines*, stipulating that banking financial institutions shall increase their support to the green, low-carbon and circular economy and adopt stronger environmental and social risk management for clients in the “restricted” industries category (CRBC, 2012).

Three policy-based banks—the Agricultural Development Bank of China, the China Development Bank and the Export-Import Bank of China—have each been tasked with supporting environmental protection and efficiency improvement in relation to their own areas of investment focus.

**Compulsory environmental liability insurance for high-risk industries is being piloted.** Since the 1990s, local government environmental protection departments have explored the use of environmental liability insurance.

In 2007 the former State Environmental Protection Administration and CIRC jointly released the *Guiding Opinions on Environmental Pollution Liability Insurance* to actively promote environmental pollution liability insurance.

In 2008 pilots of national environmental pollution liability insurance started in Jiangsu, Hubei, Hunan, Chongqing and Shenzhen.

In 2013 the Ministry of Environmental Protection and CIRC jointly released the *Guidance on Pilots of Compulsory Environmental Pollution Liability Insurance* to guide local governments to promote the pilot work of compulsory environmental pollution liability insurance in industries such as heavy metals and petrochemicals. Pilot projects have been carried out in more than 10 provinces and more than 2,000 enterprises have purchased the insurance with total amount insured close to RMB20 billion.


**Companies seeking finance through the capital markets are required to undertake environmental audits.** As China’s capital market is growing rapidly, more and more enterprises have pursued IPO-based financing pathways. A “green securities” policy has been developed, which requires high-pollution and energy-intensive enterprises to undertake environmental audits in order to access the capital markets.

In 2008 the former State Environmental Protection Administration together with the China Securities Regulatory Commission released the *Guiding Opinions on Strengthening Supervision and Management of Environmental Protection by Listed Companies*, requiring these audits, and since then standards have been developed.

**A carbon market is developing.** China’s emissions trading market has developed rapidly over the past 20 years, from demonstration pilots to setting up of broader systems and trading platforms (Du et al., 2013). Pilots have been initiated in seven provinces and cities, including Shenzhen, Shanghai, Beijing, Guangdong, Tianjin, Hubei and Chongqing, testing different operational methods. Overall these pilots have distributed one billion tonnes of carbon emission quotas to around 2,000 emission-control enterprises (Chen and Reklef, 2014). Commercial banks are moving into the country’s fledgling carbon markets, developing financial products to help clients hedge carbon-trading risks and finance new investment using carbon certificates as collateral.

**Private equity and venture capital funds** have gradually increased investment in green sectors including, renewable energy and clean technology.

**Intermediary service institutions and green non-governmental organizations** have also been developed to provide information and advice, and to undertake public interest prosecutions and campaigns.

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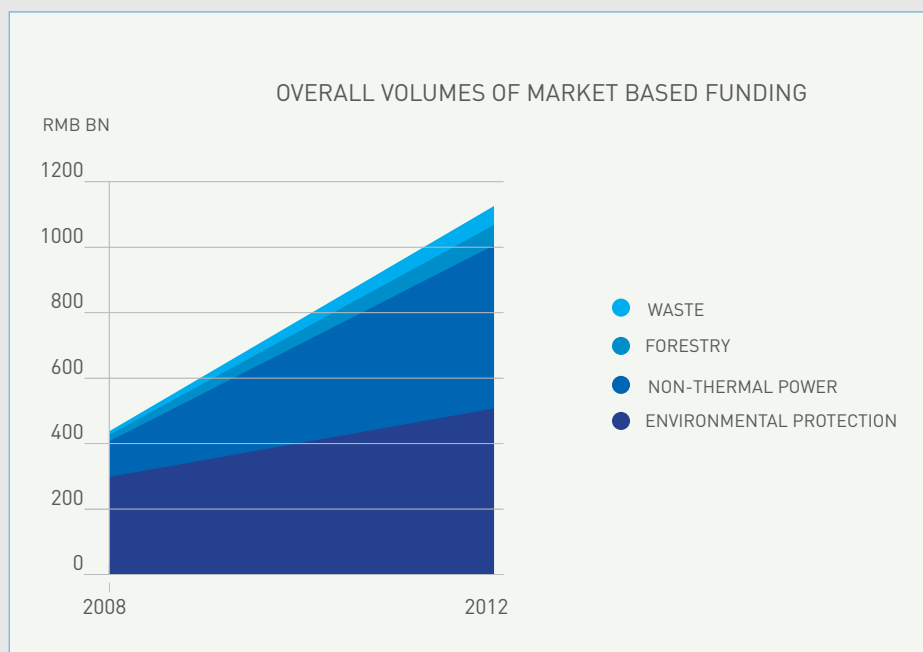
See also Jun, M., Yu, S. (2014) *Green Finance Policies and Their Application in China*, *China Finance Review*, 2014, (2). Xiang, D. A (2012) *Review of Research on Green Finance*. *Journal of Zhongnan University of Economics and Law*.

### Box 3: Scale of Green Finance

Using a definition of green investment that includes environmental pollution control, waste management, forestry and all forms of renewable energy including nuclear power, the DRC estimates that green investment in China exceeded an estimated RMB 1,261.4 billion (US\$200 billion) in 2012, or about 2.43 per cent of the GDP.<sup>2</sup>

Around RMB 1,126 billion (US\$180 billion) (70 per cent of the total) was mobilized through market-based channels (mainly bank loans). In 2008 the figure was RMB 438 billion (US\$70 billion) or 67 per cent of the total.

FIGURE 2 : MARKET-BASED GREEN FINANCE 2008 AND 2012



In banking, the number of energy conservation and environmental protection projects supported by loans increased from about 2,700 in 2007 to over 14,000 in 2013, and the loan balance rose from about RMB340 billion (US\$54 billion) in 2007 to about RMB1,600 billion in 2013 (US\$256 billion) (CBRC, 2011). In the field of insurance, the number of enterprises purchasing environmental liability insurance increased from about 700 to over 2000 by the end of 2012, with risk securities of RMB56.8 billion (US\$8.7 billion) by June 2014. By June 2014 over 700 enterprises in these sectors had issued debt-financing tools, raising an estimated RMB968.58 billion (US\$155 billion). A total number of 15 environmental protection-themed funds have been released since 2010, including seven funds in 2014. Seven regional carbon emission pilots are in operation and a national carbon emissions exchange is expected to be established in 2016 (Chen & Reklef, 2014).

Although market-based finance makes up a large share of green investment, it should be noted that users of these commercial loans are largely state-owned enterprises or investment and financing platform companies that use government fiscal support to provide credit enhancement. The solvency of the investment projects are linked with the fiscal strength of local governments.

<sup>2</sup> Historic exchange rates drawn from [http://en.wikipedia.org/wiki/List\\_of\\_renminbi\\_exchange\\_rates](http://en.wikipedia.org/wiki/List_of_renminbi_exchange_rates).

Green credit policies have to some degree restricted the proportion of loans going to high pollution-generating and energy-intensive projects, and also provided support to emerging industries engaged in environmental protection (Yunwen et al, 2014). Many provincial and municipal governments have formulated strategies for green finance development, and are developing frameworks to support financial institutions to allocate capital towards energy conservation and environmental protection industries.

### 1.3 FUTURE DEMAND FOR GREEN FINANCE

This project estimates that around RMB 2,900 billion (US\$465 billion) will be needed for investment in green sectors in China each year, amounting to RMB 17.4 trillion (US\$2.8 trillion)<sup>3</sup> over the period from 2015 to 2020. This amounts to over 3 per cent of GDP. These estimates should be regarded as somewhat conservative and can be taken as the minimum investment demand.

In China, as in other countries, green investments often are, or are perceived to be, high risk, involving larger early investment (with associated lower operating costs) and slower returns than conventional, resource-intensive and high-polluting investments. Particularly where environmental costs and benefits are not adequately internalized through pricing, many of these investments remain unattractive to the private sector and are carried out by the public sector or with explicit or implicit subsidy.

Overall, the financing requirement for green investment is equivalent to about 14 per cent of estimated fiscal revenues for the period, far exceeding the capacity of the public budget. Mobilizing finance beyond the fiscal budget—that is, private capital—is therefore required. From 2015 to 2020, China’s demand for such market-based green finance is estimated to be RMB 2 trillion each year (US\$320 billion).

As the working paper on *The Industrial Policy Environment for the Development of Green Finance* highlights, the imperative of developing market-based green finance channels is not just to remove the overall fiscal burden from the public budget, but to improve decision making and capital allocation (see Box 4)

### 1.4 PROBLEMS CONSTRICTING GREEN FINANCE

At this stage, green finance products are emerging but remain limited by type and coverage, with bank loans providing the main source of financing, followed by environmental liability insurance.

Though China has made progress in the development of green finance, there are still a number of obstacles to meeting the financing needs for its transition to a green economy.

#### **Need for clear green finance definitions and strategy**

China still lacks a complete, unified and explicit conceptual framework, as well as a detailed definition of green finance. Policy-making institutions therefore use a range of definitions, which can lead to a narrowed understanding and conceptual conflicts. China has set out a national strategy for sustainable development, but needs to develop a complete framework for implementation and inter-agency coordination. A clear definition of green finance and a coherent implementation framework are crucial to translating this high-level strategic commitment into laws, policies and practice.

#### **Problems related to real economy environmental laws, regulations and systems**

While China’s environmental regulations have been strengthened, they remain incomplete, with unspecified accountability and weak operability. While China has formulated environmental protection laws, rules, regulations and standards, the relationship between the relevant authorities is not clearly specified. There is a degree of institutional redundancy, functional overlap and, at times, contradictions between different rules and responsibilities, which leads to weak implementation. These weaknesses in real economy regulations

<sup>3</sup> Refer to the working paper *Demand for Green Finance* for details.

## Box 4: The Case for Strengthening and Diversifying Green Finance in China

China's current green financing is dominated by green credit through banking, backed by implicit public funding and guarantees.

When the Chinese economy was at the “catching up” stage of industrial development, direct government intervention enabled rapid, large-scale financing of the leap forward in infrastructure and traditional industries, following a clear technological path and leveraging state-owned banks and enterprises.


However, green projects involve complex technology, as well as market and policy risks, and do not have a clear technological path to follow. Relationship managers and credit officers in banks often lack the specialized knowledge required to assess innovative green projects and tend to direct loans to state-owned enterprises and to businesses backed by guarantee. Government also lacks the information advantage needed for industries at the technological frontier. As a result, rapid, large-scale, long-duration financial allocation induced by direct intervention could easily result in the mismatching of finance at industry level, as well as the subsequent systematic financial risks.

Direct financing through green equity, green bonds and the development of a market for collateralized loans would provide a greater diversity of perspectives from institutional investors, intermediaries and risk investors to evaluate green projects, as well as strengthen risk pricing and expand the financial service supply.

Therefore, the Chinese government's intervention in green finance is seeking to support the use of more market-oriented mechanisms such as capital reserve ratios, differentiated capital risk weights and environmental information disclosure to guide the green finance market into taking on the tasks of price discovery, information identification and risk management.

Currently, the Chinese government provides implicit guarantees for green development projects in areas such as clean energy, which is reflected as local fiscal relief and administrative debt restructuring. Implicit guarantees can certainly mitigate risks for investors, but they can also cut off the “creative disruption” mechanism of the market and prevent sound risk pricing. Enterprises and banks are prone to develop an expectation that the government will step in as a “last resort” so that the soft budget commitments take shape, which is not good for the sustainability or efficiency of green finance.

An effective green finance system would still involve government support, but it would be turned from implicit to explicit through policy-based credit guarantee institutions and credit enhancements.

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translate into perverse incentives against green investment, with resulting increased risks to financial institutions and to the overall health of the economy (see Box 5). Resource- and energy-intensive industries remain attractive to commercial banks, offering high returns to their investment.


### Problems in the operation of the green finance policies

Incomplete and overlapping regulations also create problems for the specific rules relating to green finance. For example, the major foundations for China's development of environmental liability insurance are the two ministerial-level regulations jointly issued by the Ministry of Environmental Protection and the insurance regulator. But there is no effective mechanism for ongoing communication between the different regulators. Another example is in the emissions-trading market, where the legal status of emission rights and the supervision, reporting and authentication systems for carbon markets are still being set up. In banking, a lack of unified and clear standards for information disclosure on green credit implementation results in poor comparability of data. While there are requirements for companies to undertake environmental audits in order to be approved to issuing shares as an IPO, once companies are listed companies these requirements are weaker.

## Box 5: Environmental Supervision and Real Economy Investment Incentives

Strong environmental laws with weak supervision allow pollution to go uncontrolled, resulting in widespread, illicit discharges to air, water and soil. For example, in 2011 between 50,000 and 250,000 tonnes of raw sewage was discharged each day into the Qinghe River in Beijing. Although the strengthening of the capability of sewage treatment plants had reduced such discharges to tens of thousands of tonnes daily by 2013, this still represents serious and unsustainable levels of pollution.

At present, the highest penalty for secret sewage discharge is only RMB30,000 (less than US\$5,000) in Beijing, making the incentive for compliance low. It is estimated that from 2001 to 2011, secret discharges have therefore helped enterprises make excessive profits of between RMB1.5 trillion and 4.4 trillion (US\$240 billion to \$720 billion). The excessive profits are a strong incentive to continue carrying out secret discharges and against investing in environmental protection.

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A key implementation challenge is the tension between the interests of the central government and those of local governments and market actors. Effective implementation of environmental policies depends to a large extent on local government. Yet they face a serious conflict between the need for environmental improvement and the demand to meet targets for short-term economic growth. This situation results in contradictory policies that, on the one hand, support emerging green industries, while on the other hand, provide inadequate supervision of environmental pollution by existing enterprises. Levels of awareness and priority given to environmental issues vary, with more developed regions generally giving it greater emphasis. Competition among local governments that share environmental resources such as river basins can lead to fragmented administration. More broadly, the development of China's green finance is mainly supported by administrative promotion and has not developed through the active behaviour of market actors.

### Need for policies to stimulate development of green financial products and capacity in financial institutions

Policies to stimulate the development of green finance through subsidies and taxes have been slow to develop. While investment in environmental protection from central government budgets has increased, there is often poor integration and a lack of long-term planning, with funds mainly responding to emergent events, often with inadequate, effective supervision. There is little focus on environmental protection as an investment and indifference to profits in the management of these funds.<sup>4</sup>

While green finance is firmly established as a policy area, there is not yet a strategy for developing the institutional capacity, professional skills, and intermediary markets and service institutions needed (Pricewaterhouse Coopers, 2013). For example, implementation of the appraisal system for environmental liability insurance has been held back by insufficient human and material resources, as well as a lack of institutions dedicated to appraisal and inspection of environmental pollution damages.

## 1.5 CHINA'S ROLE IN PROMOTING GLOBAL SUSTAINABLE DEVELOPMENT

China's efforts in green finance have international as well as domestic significance. Through its scale and significance, China plays an important role in promoting regional and global sustainable development through the transformation of its own economic development. Increasingly, the government is also playing a role in developing global frameworks for sustainable development.

<sup>4</sup> Refer to the working paper *Practices and Experience of Development of Green Finance in China* for details.



China's emerging experience with green finance development can provide an example for other countries, especially developing countries. Because of the strategic importance of sustainable social and economic development, China is placing particular emphasis on the development of green finance.

At the same time, the Chinese government has realized that, in order to fulfil this strategy, it must be integrated with environmental and economic policies, with coordination and cooperation from the concerned parties, an approach promoted during the 12th FYP.

China can play a leadership role in promoting sustainable development, especially by strengthening the international policies and regulation of green finance. In November 2014, for example, China and the United States formally announced their respective emission reduction plans in the third *China-US Joint Announcement on Climate Change*.<sup>5</sup> This will be an important contribution to the United Nations Framework Convention on Climate Change Conference of the Parties in Paris in late 2015. At the same time, China has been gradually promoting the formation of several strategic cooperation agreements. For example, the “one belt and one road” regional cooperation strategy proposed by President Xi Jinping and the China-ASEAN New Strategic Partnership proposed by Premier Li Keqiang at the 17th ASEAN-China Summit. In relation to green finance specifically, China is actively participating in international policies and regulatory activities. It will actively promote the spreading of international best practices and experience through international exchange and the formulation of international green finance standards.

<sup>5</sup> China committed to raising the consumption proportion of non-fossil in primary energy to 20 per cent by 2030, and proposed for the first time to stop increasing carbon emissions before 2030; while the United States added the emission reduction target of 2025 on the basis of the emission reduction target of 2020 previously released (i.e., emission reduction by 17 per cent from the level of 2005), and proposed to reduce emissions by 26-28 per cent from the level of 2005, which is equal to the emission reduction by 16 per cent from the 1990 level (NRDC, 2013).

## 2 INTERNATIONAL EXPERIENCE

Internationally, the need to better align the financial system with sustainable development is also receiving increased attention. This applies not only to individual financial institutions that are sensitizing their investment practices to environmental factors, but to broader questions of how the overall framework of regulations, rules and standards may need to change.<sup>6</sup>

Estimates of the investments needed internationally for the transition to a green economy indicate a need for large-scale shifts in asset allocation (ICESDF, 2014). The Global Commission for a New Climate Economy estimates that over US\$13 trillion of additional investment is needed between 2015 and 2030 just for energy efficiency and clean energy. Notably, this increased cost would be largely offset by reduced need for fossil fuel and other high-carbon infrastructure, leaving an overall net additional investment requirement of US\$4 trillion (Global Commission on the Economy and Climate, 2014).

Sustainable development is not, however, only about low-carbon infrastructure. Overall, there is concern that long-term investment is too low to drive balanced global growth and close the employment gap. The Group of Thirty estimates that by 2020 major economies (Brazil, China, France, Germany, India, Japan, Mexico, the United Kingdom and the United States) will require US\$19 trillion a year of long-term investment, in equipment, software and real-estate, infrastructure, training and R&D, up from the current US\$12 trillion (Group of Thirty, 2013). According to forecasts by UNCTAD (2014), developing countries alone have an investment gap of US\$2.5 trillion each year in order to achieve the development goals after 2015. In addition, there is an US\$3.5 trillion investment gap for small and medium-sized enterprise finance (Stein, Goland, & Schiff, 2010).

Today's financial system underinvests in sustainable development and overinvests in unsustainable economic activities (UNFCCC, 2014). Natural resource and carbon-intensive investments continue to rise despite a growing chorus of voices that their value will decline in the face of technology, policy, catastrophic weather events and citizens' choices (Brown, 2013). Annual capital expenditure on oil, gas and coal extraction, transportation and oil refining has more than doubled in real terms since 2000 to surpass US\$1 trillion per year in 2013. By comparison, clean technology investment has increased dramatically over the last decade, but remains small by comparison and insufficient, reaching US\$250 billion investment in renewables and US\$130 billion to improve energy efficiency (International Energy Agency, 2014).

A number of important market and policy failures can be identified in the real economy, including: global annual subsidies for fossil fuels that exceed US\$0.5 trillion (Whitely, 2013), inadequate pricing of emissions and pollution; public procurement that rarely takes account of full life-cycle costs; and environmental law enforcement that is not always stringent.

After the global financial crisis in 2008, there has been growing recognition that market failures in the real economy are only part of the problem, and that while it is imperative to correct these pricing and policy failures, this alone may not be enough (Alexander, 2014). Financial policy-makers, central banks, financial regulators, and financial and capital market standard setters are increasingly recognizing that effective and efficient financial systems must also be green financial systems. In addition, there is growing interest in establishing financial regulations and policies in pursuit of sustainable development.

### 2.1 INTERNATIONAL TRENDS

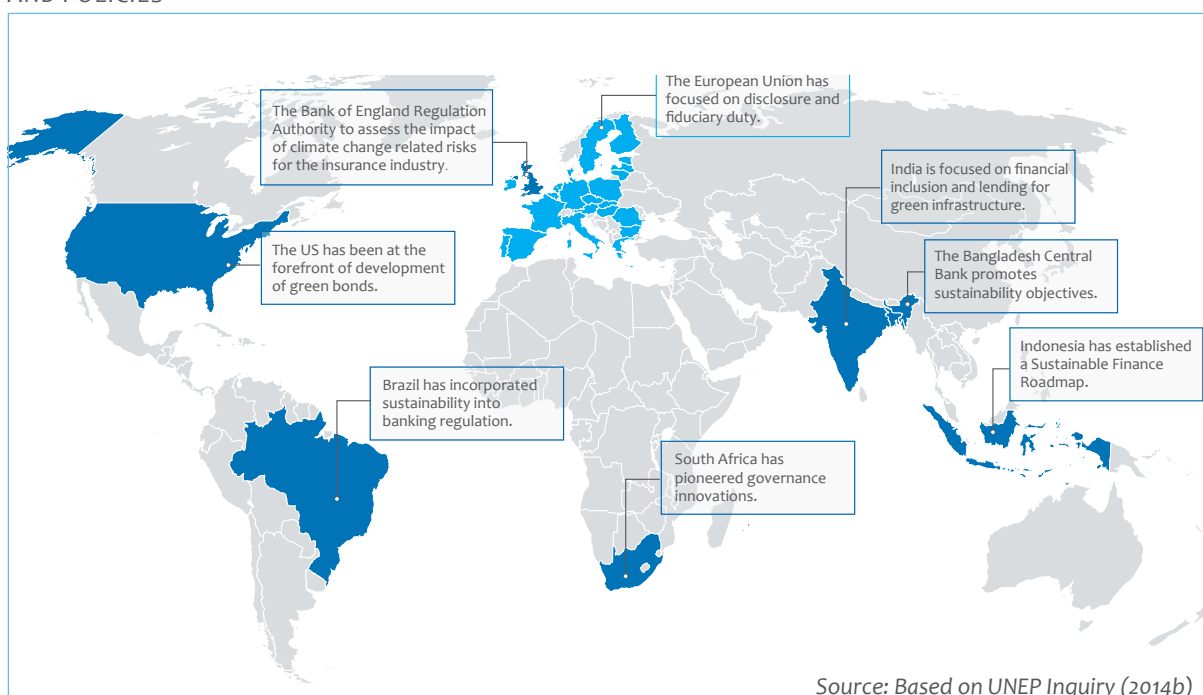
**International experience highlights three overall trends:**

<sup>6</sup> This section draws extensively from the work of the UNEP Inquiry into the Design of a Sustainable Financial System (2014a, 2014b, 2014c).

- **Institutional investors have been an important force to drive green finance in developed countries.** In developed countries, the institutional investors (pension funds, insurance companies, etc.) have played a key role in exerting influence on companies by such means as shareholders' voting rights and by excluding companies not in conformity with sustainability concepts from their investment portfolio through "shareholder activism."
- **More and more countries have started to integrate green finance into their policy systems in both developed and developing countries.** Both developing countries—including Bangladesh, Brazil, Kenya, Uganda, South Africa and India—and developed countries are turning their attention towards regulations and policies to scale up green finance. Internationally, organizations such as UNEP and the World Bank are actively promoting the planning and implementation of green finance.
- **The concept of green finance is expanding to a greater scope.** With the popularization of green finance in recent years, many countries have started to take measures to promote green finance development across banking, insurance and institutional investment, but also increasingly considering monetary policy and the relationship between environmental risks and economic stability.

A growing number of financial rule-makers have introduced—or are considering introducing—the integration of sustainability factors into regulation. For example, the Central Bank of Brazil released new regulatory measures in 2014 requiring commercial banks to implement environmental and social risk management. At the same time, the EU demanded that large listed companies disclose information on their environmental and social policies. Eighty per cent of the foreign assistance projects of the U.S. Department of Treasury now have green requirements. The Bank of England has also started to assess the vulnerability of insurance companies to climate risk, while Norway will give more consideration to climate change-related risks in its investments, taxation and developing countries funds. The Central Bank of Bangladesh has specifically listed the enhancement of financial inclusion as a specific aspect of the monetary policy of the central bank. In South Africa, regulations require enterprises to disclose their finance and sustainability policies and Securities Commission Malaysia issued rules for institutional investors in 2014, making an explicit requirement that institutional investors shall include corporate governance and sustainable development considerations into their investment decision process. In 2014 the Australian Securities Exchange issued new requirements for governance reports of listed companies, requiring that they disclose whether they are facing substantive economic, environmental and social sustainability risk exposure, and how to manage these risks.

FIGURE 3: SOME INTERNATIONAL (NON-CHINA) EXAMPLES OF INNOVATION IN FINANCIAL SYSTEM REGULATION AND POLICIES




## Box 6: Policy Insights and Innovation Examples

*This section draws on the international expert papers.*

**Sustainable development can be shown to be an integral part of financial regulators' policy objectives, and aligned to long-term investors' goals.** A range of actions are already taking place, for example:

- **Disclosure on sustainability impacts and exposure** – the EU, South Africa and the United States have all issued requirements or guidance to companies on reporting on environmental risks and/or carbon exposure.
- **Policies on institutional investment** – South Africa's pension regulations require prudent investing, giving appropriate consideration to any factor that may materially affect the sustainable long-term performance of a fund's assets, including factors of an environmental, social and governance character. The French Foreign Minister called for asset owners to allocate 10 per cent of their portfolios to climate-friendly investments.
- **Directed lending** – The European Central Bank has introduced a Targeted Long Term Refinancing Operation (TLTRO) seeking to direct lending into the real economy, particularly small and medium-sized enterprises. The Reserve Bank of India sets targets for lending to preferential sectors. The Bank of Bangladesh calls for financial institutions to allocate at least 5 per cent of their loan portfolio to green finance.
- **Environmental risk management by banks** – Among others, the central bank in Bangladesh and the Brazilian banking association have already taken steps to incorporate environmental risk into banking regulations. Indonesia has set out an ambitious Road Map for Green Finance.

 **Working Paper: Alignment of Investment Strategies with Climate Scenarios: Perspectives for Financial Institutions, Stanislas Dupré and Jakob Thomä, 2<sup>o</sup> Investing Initiative**  
**Working Paper: Internalising Climate Mitigation for Financial Policy-Makers**

**The transition to a green economy will have an impact on existing asset values across a wide range of sectors.** This stranding of assets through the rise and fall of different technologies, products and businesses is central to well-functioning markets, but could lead to systemic financial risks if financial institutions are not far-sighted enough to anticipate them.

- **Stress tests** are used to assess the resilience of financial institutions in the face of “unlikely but plausible” scenarios. This approach could be extended to environment-related risks for banks, insurers and institutional investors.
- **Systemic risk evaluation.** In the United Kingdom following a high-profile correspondence between a group of investors and the Bank of England, the governor has asked the Financial Policy Committee whether exposure to polluting and environmentally damaging investments might pose a systemic risk to the U.K. financial system.

 **Working Paper: Greening China's Financial Markets: The Risks and Opportunities of Stranded Assets, Ben Caldecott & Nick Robins, University of Oxford's Smith School of Enterprise and the Environment**


**Insurance is fundamentally about managing risks, including risks due to natural disasters and aging populations.** The contribution of the insurance industry to sustainable development relates to its three roles: i) as a financial loss “shock absorber,” ii) in reducing real risks to assets, safety and health and iii) as a significant investor in the real economy.

### Key innovations include:


- **The UN's Principles for Sustainable Insurance** provide a global insurance industry framework to address environmental social and governance issues and have been adopted by insurers representing 15 per cent of world premium volume.
- In the United States, the National Association of Insurance Commissioners has adopted a requirement that insurance companies **disclose to regulators the financial risks they face from climate change**.
- In the United Kingdom, the government invited the Bank of England's Prudential Regulation Authority to **assess the impact of climate change related risks** for the insurance industry.

### Building greater understanding of the relationship of monetary policy is crucial, as it relates to

- **Target setting** – The relationship between inflation goals, commodity prices and sustainable development outcomes, and environmentally related stranded assets and financial stability are areas for further analysis.

 **Working Paper: A Systemic View of the Insurance Industry, Regulation and Sustainable Development, Butch Bacani, UNEP FI Principles for Sustainable Insurance Initiative**

- **Central bank balance management** – A central bank's decision to buy and sell certain types of assets, accept them as collateral, or use them to define borrowing limits and prices, may have significant repercussions for green finance.
- **Differentiated reserve requirements** provide further illustration of sector support that some central banks already provide—and that could possibly be aligned further with the objectives for a green and inclusive economy.

 **Working Paper: Monetary Policy and Green Finance – Exploring the Links, Pierre Monnin and Alexander Barkawi, Council on Economic Policies**

**Green Bonds** are a rapidly growing response to the need for green finance for infrastructure. While they were initially led by international development banks, the size of the bonds have grown and they are increasingly being issued by corporations and other actors. New developments include:

- **Issuance of green city and muni bonds**, with bonds from, among others, Ile de France (Paris), Massachusetts, Gothenburg, Stockholm and Johannesburg.
- **Domestic development banks issuing green bonds to kick-start domestic markets**. Most recently, the German development bank KfW issued its first green bond in July 2014, a € 1.5 billion bond, earmarked for financing renewable energy.
- **Green bonds issued as asset-backed securities** packaging fragmented renewable energy and energy-efficiency assets such as rooftop solar.
- **Development of standards for green bonds**. The Climate Bonds Standards Scheme is developing standardized, science-referenced definitions of green investments for the global bond market. The Green Bond Principles are a set of voluntary guidelines for the design and reporting characteristics of green bonds.

 **Working Paper: Greening China's Bond Market: Facilitating green investment and improving transparency and stability in financial markets, Sean Kidney, Padraig Oliver and Beate Sonerud, Climate Bonds Initiative.**



## 2.3 EMERGING LESSONS

International experience and debate highlight that interventions in the financial system in pursuit of sustainability outcomes may be appropriate under two broad circumstances:

- **Investor and/or systemic risk:** where investment-specific biases in risk pricing need to be corrected in pursuit of efficient markets and fair trading; or where there may be correlated, and thus systemic, risks associated with specific environmental factors (such as the effects on bank balance sheets of policy responses to air pollution or the development of carbon markets), requiring macro-prudential intervention.
- **Policy alignment and coherence:** where there are government policies to promote green finance and where central banks and financial regulators need to align their policies accordingly within their mandates to ensure policy coherence.

Early work by the UNEP Inquiry highlights four key areas of high potential:

- **Integrating sustainability into financial risk management.** Sustainability factors have the potential to impair financial assets and trigger a disorderly market response. Banks and other financial institutions need to be able anticipate the potential for asset impairment and volatility in valuations from environmental and social factors. Stress tests are already used by regulators to assess the resilience of financial institutions in the face of “unlikely but plausible” scenarios (Douglas, 2014). There is increasing interest in extending this approach to environmental factors to encourage financial institutions to enable better anticipation of the risks posed by climate, pollution, energy and water stress, and to assess systemic risk.
- **Institutional investment.** Institutional investors control the largest asset pool in the capital allocation. Individual institutions have been incorporating sustainability factors into their operations, in some cases for decades. Leading institutions are increasingly recognizing a set of market and policy failures that constrain their ability to deliver sustainable value creation for their beneficiaries. These problems include: classic incentive problems (principal agent problem, externalities); inadequate transparency and accountability along the investment chain; market bottlenecks that disable innovation; and insufficient sustainability expertise in the financial system. Critically, in the post-crisis landscape, long-term responsible investors have also recognized that core financial regulations are insufficient to mobilize a sufficient flow of funds towards long-term sustainable development, and there are emerging calls to integrate the critical sustainability dimension in financial reforms.
- **Green bonds.** Bonds are an important instrument for green finance. They can be easily included in the investment portfolio as mid- and long-term financial products by institutional investors. The European Investment Bank issued the first green bond in 2007, and since then the global green bond market has been rapidly developing at the compound annual growth rate of over 50 per cent. The total raised through green bonds had reached US\$50 billion in 2014. Critical issues emerging to enable this market to grow to potential include the need for common standards to ensure market integrity, tax incentives to encourage inflows and credit enhancement to enable institutional allocations. Equally important is the slow, but accelerating incorporation of environmental risk into the routine assessment of creditworthiness by credit rating agencies. This trend has involved market leaders such as Standard & Poor’s, as well as small new entrants focused on sustainability.
- **Monetary policy.** Considering the extensive influence of monetary policies on the whole economy and society, the role of central banks in the development of green finance is increasingly gaining attention. Examples of tools used by central banks include minimum credit quotas for specific sectors (e.g., as applied by the Reserve Bank of India under its Priority Sector Lending guidelines), as well as maximum debt-to-equity ratios that vary for specific products (e.g., as applied for car loans by Bangladesh Bank). Future investments by central banks, as they seek to keep their balance sheets

at current levels and reinvest the proceeds from securities that mature, may not only provide a significant opportunity to promote green finance, but also be warranted to ensure policy coherence. A thorough analysis of further monetary policy instruments with regard to their impact on green finance is equally important.

## 2.4 IMPLICATIONS FOR CHINA

The international experience of green finance development suggests several high-level principles for China:

### 1. INTEGRATE GREEN FINANCE INTO ECONOMIC STRATEGIES.

Since 2007 China has developed frameworks for “green credit” that have gained recognition from the international community. Furthermore, green financial products, including corporate bonds and environmental liability insurance, have emerged. At the same time, green finance concepts have not been adopted among all government departments and financial institutions. Too often, the environment-oriented ideas of green finance development are still perceived as incompatible with economic development. There remains a long road to greening the overall financial system, and it is imperative to integrate green finance concepts into economic strategies and build up conceptual, theoretical and empirical research.

### 2. DEVELOP GREEN FINANCE IN FINANCIAL REFORM AND OPENING UP.

Establishing a mechanism for systematically appraising the state of green finance and strengthening the institutional development of green finance are critical foundations. For example, efforts could be made to strengthen and improve the information disclosure requirements of the financial institutions on environmental performance, develop the green bond market, and strengthen the financial infrastructure, including institutions for appraisal and data analysis. The design of the BRICS Development Bank and Asian Infrastructure Investment Bank could also specify the principle of green finance and conduct business.

### 3. ACTIVELY PARTICIPATE IN INTERNATIONAL COOPERATION.

Developed and developing countries share a common interest in a sound and sustainable financial system, although each with their own particular concerns and priorities. Developing countries have immediate concerns for financial inclusion, and energy access and efficiency, while both developed and developing countries have a common interest in addressing climate change. China started early in the development of green finance and has gained recognition of the international community; it could actively participate in international cooperation projects related to sustainable finance development, and endeavour to reach consensus in the process of defining and designing the future international green finance framework and standards (Shouzun, 2011).

## 3 DEFINITION AND ROLE OF GOVERNMENT IN PROMOTING GREEN FINANCE

Dialogue between Chinese and international experts on green finance promoted through this initiative has supported specific technical discussions on the experience of instruments such as green bonds and environmental reporting requirements. It has also enabled two broader questions to be discussed relevant to green finance internationally and in China: the definition of green finance and the role of government.

### 3.1 DEFINITIONS OF GREEN FINANCE

Greening a country's financial system is not an "additional" performance requirement, but rather concerns the efficiency and effectiveness of the whole system. A lack of green financing, after all, delivers poor allocation of capital, mispriced risks and weaker long-term economic growth, creating stresses that ultimately lead to financial market instability and underperformance. Ultimately achieving sustainable development requires all financial flows to be "greened" to respond to environmental risks.

In order to implement policies and regulations and apply stimulus to green finance, specific and well-recognized definitions are needed. At present, there is no widely accepted definition of green finance on the global level (Inderst et al., 2012). Rather, there are hundreds of different and overlapping definitions of green finance (as well as sustainable finance, climate finance, responsible finance and green investment). The ambiguity of the definition is becoming an impediment to the scaling-up of green finance, leading to growing efforts to unify relevant definitions and standards.

To make sense of the different definitions, it can be useful to look at the division between a narrow or broad approach.

TABLE 1: APPROACHES TO DEFINING GREEN FINANCE

Narrow Definitions	Broad Definitions
Which specific financial flows and instruments can be considered green?	What would it mean for the financial system as a whole to be considered green?
<ul style="list-style-type: none"> <li>Process criteria for assessing environmental management, life-cycle impacts</li> <li>Priority sectors/technologies and issues</li> </ul>	<ul style="list-style-type: none"> <li>Purpose criteria – a financial system that supports sustainable development</li> <li>Substantive criteria for economic transformation, stability, growth etc.</li> </ul>

The purposes and emphases of these two types of definitions are different:

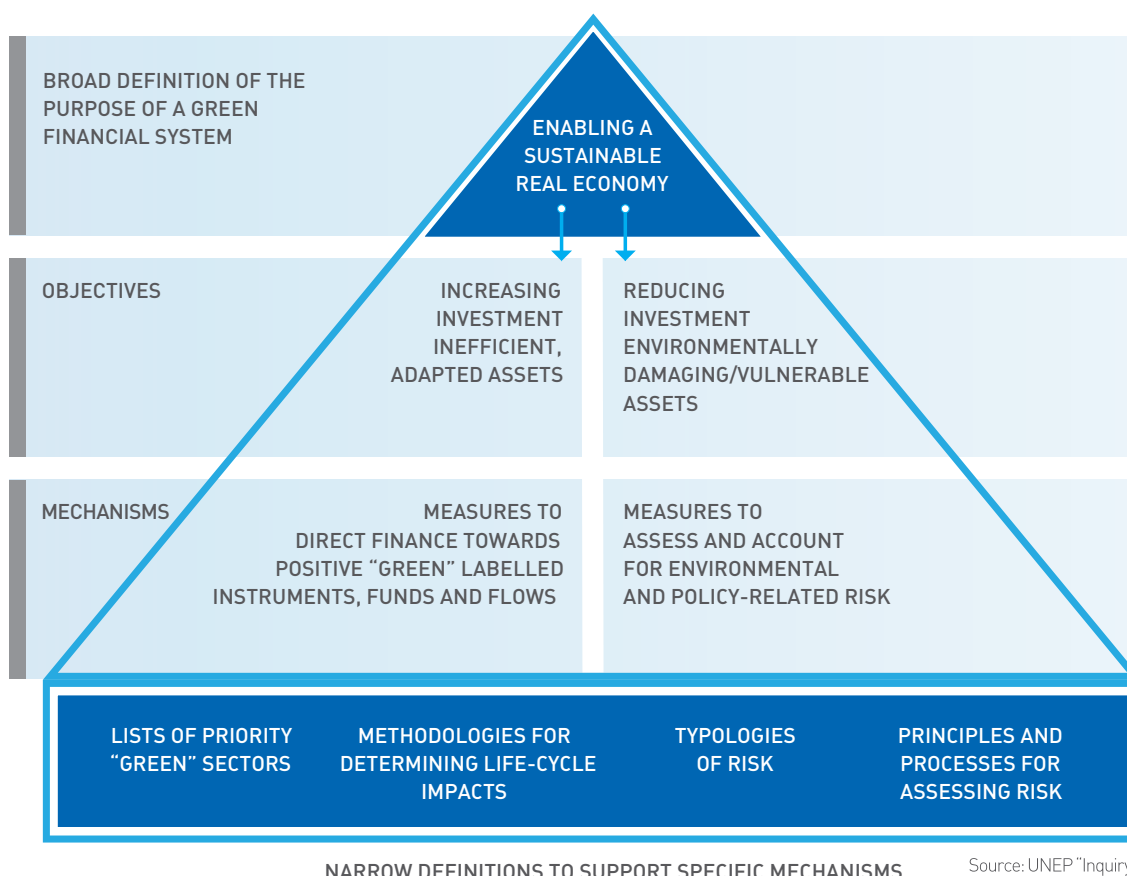
**Narrow definitions** seek to identify what proportion of a particular set of financial assets or institutions can be considered green—for example, to measure volumes of "green investment" or to act as eligibility criteria for particular labels such as for "green bonds." They include both *process criteria* (such as for assessing the quality of environmental, social and governance management) and sector criteria based on ex-ante lists of *priority green and non-green sectors and technologies* (such as renewable energy, recycling, waste management and environmental protection).

**Broad definitions** seek to define the overall goal of the financial system in terms of sustainability and provide a means to assess its effectiveness. They set criteria in terms of the *purpose* of the financial system in allocating capital efficiently and effectively in light of environmental risks. The focus of broad definitions is the stability of the whole financial system and macro-economy.

In setting narrow criteria and definitions for identifying green finance, different countries may reflect different priorities. For example, developed countries tend to attach more importance to carbon emissions. Under some definitions, all uses of fossil fuel energy are ruled out in the criteria for the issuance of green bonds. For developing countries including China, the investments that improve the efficiency of fossil fuel use and reduce the energy consumption per unit of product may be regarded as “green” (for example, the development of high-speed rail).

Agreeing on a single definition of “green finance” for all circumstances is unlikely to be possible. Nevertheless, specific standards for green finance need to be set for different uses. Increasing coherence between definitions of green finance will surely be beneficial to the development of green finance.

FIGURE 4 : FRAMEWORK OF THE DEFINITION OF GREEN FINANCE



### 3.2 THE ROLE OF GOVERNMENT

Green finance in developed countries has tended to reflect the greater emphasis placed on market mechanisms. For example, institutional investors have played a key role in many developed countries, through the use of shareholders’ voting rights and investment choices. Developing countries, on the other hand, tend to rely more on governmental administration and financial regulation to guide financial institutions (Daoxu, 2014).

There are advantages and disadvantages to both of these two modes, and there are signs of integration (Zhenmin, 2013). In developed countries, there are debates on whether self-initiated adjustment within markets is too slow and limited given the scale and urgency of sustainable development challenges. The approaches taken in emerging economies, including China and Brazil, of integrating environmental risk factors in banking regulations is gaining international attention. On the other hand, the effectiveness

of administrative intervention by the governments of the developing countries is being questioned and greater focus is being put on creating a sound policy environment to allow markets to operate without too much direct intervention.

Based on the existing practice, key roles for government are to:

- 1. Determine the definitions, standards, principles and framework of green finance** (Tongyu, 2014).
- 2. Support the development of green finance through fiscal measures.** These measures include consciously choosing green products, greening governmental procurement, requiring state-owned financial institutions to develop and sell green finance products, demanding policy-based financial institutions play a leading role in the fields of green credit and green insurance, enhancing the green investment standards for overseas development assistance and raising green requirements for the portfolios of government-backed institutional investors.
- 3. Guide green finance development through financial policies.** These policies need to target different financial sectors(e.g., green credit policies and risk regulation in banking, disclosure requirements for securities, and in relation to insurance), intensifying the environment risk control of the enterprises.
- 4. Foster awareness of environment risks.** Governments are increasingly requiring listed companies to submit environmental risk reports (or include environment-related disclosure in the annual report) and financial institutions to submit sustainable development reports and conduct environmental stress tests.
- 5. Establish effective coordination and information sharing.** This calls for enhancing communication between financial regulatory authorities and government administrative departments, as well as promoting the wider recognition and practice of the green finance ideas across government.
- 6. Establish the infrastructure to develop green finance.** Ultimately, markets respond to the prices. It is for governments to resolve how to effectively define the property rights for carbon emissions and how to reward environmental protection. They can also support the development of third-party institutions to appraise impacts, costs and risks, and guide the existing professional service institutions (such as credit rating, assets appraisal, accountancy firms, legal service firms, consulting companies and data service companies) to develop specific skills.
- 7. Increase the weight of environmental factors in the performance evaluation of local governments,** and induce local governments and local financial institutions to support and promote green finance development.
- 8. Intensify publicity and education on the ideas of green finance,** support skills development in such fields as environmental risk appraisal and green finance product innovation, and increase the cooperation with overseas institutions.



## 4 ACTION FRAMEWORK

This section proposes a framework of actions that could be taken by the Chinese government to promote the systematic development of green finance.

### 4.1 ESTABLISH AND STRENGTHEN LEGAL FRAMEWORKS

*Legal frameworks are necessary both to directly support the development of green finance and to strengthen enforcement of environmental law—stimulating the business case for investing in environmental protection and pollution control, and creating greater demand for green finance. Measures that could be taken include:*

1. **Integrate green elements into the revision of financial regulations and laws** such as the Law on Commercial Banks, Securities Law and Insurance Law, etc.
2. **Improve environmental protection-related laws, rules and regulations**, with detailed rules for implementation and clear responsibilities for environmental polluters.
3. **Encourage the development of local laws, rules and regulations** to promote green and sustainable economic development in the context of their specific conditions.
4. **Strengthen law enforcement** by responsible governmental agencies to pursue civil, criminal and administrative enforcement of environmental violations.

### 4.2 IMPROVE COORDINATION AND INFORMATION SHARING

*The development of green finance involves the powers and responsibilities of multiple subjects, including the People's Bank of China, China Banking Regulatory Commission, China Securities Regulatory Commission, China Insurance Regulatory Commission, National Development and Reform Commission, in addition to other fiscal and taxation authorities, environmental protection authorities, financial institutions, and private standard setters and intermediaries. Measures that could be taken include:*

1. **Establish a stable coordination mechanism between environmental, financial and industrial regulators** to ensure the uniformity and stability of green finance policies and enable two-way communication and information sharing on technical information, industrial standards and handling of violations of laws and regulations.
2. **Establish a cooperation mechanism with third-party institutions** to take advantage of private standard setters and intermediaries as a complement to legal and policy approaches.

### 4.3 DEVELOP COMPREHENSIVE POLICY SUPPORT FOR GREEN FINANCE

*An overall system of policy support could accelerate the development of green financial products and encourage investors to adjust their investment portfolios to meet the need for green development. This could include fiscal and taxation policies, monetary policies, credit policies and industrial policies.*

#### A. MONETARY POLICY

*Monetary policies have extensive influence on the economy and the whole society. The actions taken by the central bank for interest rate levels, inflation targets and exchange rates are the key elements for investment decision making. Measures that could be taken include:*

1. **Identify and eliminate sector biases in current monetary policy that are misaligned with the objectives for a green economy.** For example, identifying and mitigating biases in conventional monetary policy tools, such as deposit reserve ratio, interest rate, Short-term Liquidity Operations and Standing Lending Facility that are not neutral for the environment.
2. **Establish targeted green refinancing facilities.**
3. **Assess the feasibility of steering asset purchases in the context of quantitative easing into green investments (e.g., through green bonds).**
4. **Include environment-related risks in the models for “stress testing” in relation to financial stability.** This framework can help regulators examine the implications of environment-related risks across the financial system over time and guide macro prudential regulation.
5. **Further explore the relationship between monetary policies and green finance,** including developing a better understanding of the potential aligning of existing monetary policy tools to green finance, and the possible effects of environmental degradation and resource scarcities on price and financial stability.

## B. BANKING

*China’s financial system is dominated by banking, which has been the key focus area to date. To continue integrating green finance into banking regulatory policies, measures that can be taken include:*

1. **Allow eligible green loans to be excluded from the loan-to-deposit ratio indicators** in banking risk management.
2. **Introduce environmental stress tests** as part of banking regulations and develop standardized methodologies for different types of financial asset mixes.
3. **Establish preferential treatment for green assets in use as collateral** against loans.
4. **Build up securitization channels for green credit** through co-operative warehousing arrangements for asset-backed securitization issuance, aggregating assets across several banks to build up these securitization channels to scale.

## C. SECURITIES

*Beyond banking, other financing channels also hold potential for green finance. One key area is advancing the green bond market through the following measures:*

1. **Agree to a set of criteria for green bonds** with a government-endorsed system or third-party assurance system for the green claims of corporate bond issuers.
2. **Provide a price differential for green loans compared to “brown” loans.** A significant flow of green loans is needed to create the necessary deal flow for a mainstream green bond market. Providing a price differential for green loans compared to “brown” loans is one policy option to increase green lending. Policy-makers can achieve this by supporting differential interest rates for green bonds, using different bank capital ratio requirements for green debt products, or offering targeted refinancing for green loans through the central bank at lower rates.
3. **Provide credit enhancements for green securitization.** A certain size deal is required for bond issuance. To tap mainstream bond markets for green finance, smaller loans and assets need to be aggregated and packaged appropriately. Asset-backed securitization issuance can address this need.

4. **Provide tax credits for green corporate bonds.** There is scope to support investment in green bonds by allowing tax-free interest income from green bond investments. This can be put in place by making green bondholders eligible for tax credits equal to the total amount of the interest, or a share of the interest.
5. **Establish dual recourse for green municipal bonds.** Governments and government entities can issue green dual resource bonds or revenue bonds with a government guarantee as a backstop. The primary function of such green dual recourse bonds is to give investors experience in analyzing the performance of green assets, without exposing them to higher risks. As the investors become familiar with the green assets' performance, the market can move to green asset-backed securities.
6. **Issue green city bonds.** Municipal green bonds can be used to finance a wide range of green projects. The key categories for cities in China are rail transport, renewable energy or clean water. They can be issued on the domestic markets, or denominated in RMB in the offshore bond market to attract a wider range of investors.

Another key area is increasing the supply of information on environmental performance related to listed securities to enable better decision making by investors and intermediaries.

1. **Establish a compulsory environmental information disclosure mechanism** for the listed companies and bond-issuing enterprises.
2. **Develop environmentally friendly benchmark equity and bond indices** that are both connected to policy goals and enjoy public sector incentives by collaborating with index providers and stock exchanges. Implementation would require improved data reporting and accounting.
3. **Promote the establishment of a green investor's network** and improve the investors' social responsibility system.

## D. INSURANCE

The existing definition and scope of green insurance is narrow and restricts the potential of insurers to better understand, prevent and reduce environmental risks. Key measures that can be taken include:

1. **Expand the scope of green insurance** to form a set of comprehensive methods and insurance solutions (e.g., the performance insurance for solar panels and wind turbines, building insurance for energy and water efficiency and usage-based insurance).
2. **Strengthen the environmental pollution liability insurance system**, including: improving legal liability frameworks, involving local governments in the development of environmental liability insurance, and providing fiscal and taxation support.
3. **Strengthen the appraisal and inspection mechanism for environmental pollution damages** and improve the environmental damage compensation system. The insurance industry could provide technical support and services for environmental risk appraisal and other insurances.

## E. FISCAL POLICIES

Fiscal incentives can provide a critical catalyst to green finance, both within the real economy and through direct financial sector-facing incentives. The following measures could be taken:

1. **Give tax preferences for green finance business lines** as part of the progress of the reform program to replace the business tax with a value-added tax in the sector.
2. **The People's Bank of China and China Banking Regulatory Commission** could develop a discount loan system form for green investment projects, perhaps building on the system of energy conservation prizes as eligibility criteria.

3. **Reduce and exempt the tax on the returns on investment in green bonds** to support the investment in green bonds and the development of the green bond market.
4. **Use government procurement** to support the development of green enterprises and increase the stability of demand for green finance.

#### 4.4 FOSTER THE DEVELOPMENT OF THE INFORMATION INFRASTRUCTURE

*Appraising green finance requires specialist knowledge about technologies and environmental risks, which in turn requires the support of professional technical evaluation. Measures to foster the development of the necessary independent third-party appraisal include:*

1. **Establish an environmental cost information system to provide a reference for the decision-makers and investors.** This could build on the concept of Natural Capital Liabilities developed by Trucost, which quantifies the environmental costs caused by air pollution, water pollution and waste generation.<sup>7</sup>
2. **Establish a green credit rating system** based on an assessment of the relationship between green factors and the solvency of sovereign governments, local governments and enterprises.

#### 4.5 GREEN THE POLICY BANKS

*China's policy banks can play a key role both in directly providing capital for green investment and in establishing markets and best practices for commercial banks. Key measures could include:*

**Establish a state-level special fund for green finance**, combining investment from government (drawing funds from fines on pollutions, environmental taxes or from the general public budget) and from market institutions, including the social insurance funds, insurance companies and long-term investors.

1. **Require that policy-based banks further green their existing loans (including syndicated loans) and adopt the Equator Principles.** Policy banks would need to establish specialist green finance departments to assess loans based on green finance standards.
2. **Mandate that existing government-backed funds adopt environmental and social responsibility commitments and processes for their investment activities.** This would include, for example, social security insurance funds, medical insurance funds and housing provident funds.

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<sup>7</sup> See [http://www.trucost.com/environmental\\_data](http://www.trucost.com/environmental_data)

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# 绿化中国金融体系

## 综述报告

张承惠, 谢孟哲, 陈宁, 马汉理



# 1

## 第一部分：中国发展绿色金融的背景

“中国仍是发展中国家,绿色金融的重点应不光包括一般的“绿色经济”领域,如清洁能源、低碳交通、绿色建筑,还应包括对工业转型、能源效率提高和重工业污染治理的投资。同时,中国的金融体系正处在转型和变革的关键时期。金融深化程度和复杂程度有别于发达国家。因此,中国绿色金融的发展不应该在原有金融体系基础上修修补补,而应探索出新的金融发展范式。”

工作论文:《绿色金融发展的产业政策环境》

经过三十多年的发展,中国经济取得了举世瞩目的成绩。经济总量位居世界第二,人均收入跨入了中等收入国家行列。然而,传统的高消耗、高污染的粗放经济发展方式也隐含着巨大风险。随着经济的快速增长,中国资源消耗和环境污染等问题日趋严重。虽然中央政府出台了一系列政策限制高污染、高能耗和资源性(“两高一资”)行业的发展,但现实中有的地区高污染行业却依然发展强劲。由此带来严重的空气污染、水污染、土壤污染等问题,不仅对经济的可持续发展形成无法回避的威胁,更造成难以估量的生命、健康损失(环保部 2013)。

目前,环境问题已经上升为重大的民生问题,成为中国急需解决的难题。与此同时,过去数十年积累了大量的结构性矛盾,蕴含着较为严重的财政和金融风险,中国的工业化进程面临资源环境的制约和应对气候变化的新挑战(张哲强, 2012)。(见框 1)

在这种情况下,发展绿色经济已经成为中国必然的战略取向。相应地,为绿色经济提供支持的绿色金融也被赋予了更多的责任和使命。中国的新战略重心已从资源和污染型经济转向绿色经济。这关键在于绿色产业的发展以及传统行业的转型和减弱。重点领域有清洁能源、工业、建筑、交通节能、能效和减排等。2015 年到 2020 年间,在重点领域的投资需要每年 2.9 万亿人民币。鉴于财政拨款局限性,其中三分之二都要来自国内外金融和资本市场。

与此同时,中国的金融体系也在发展中面临效率和稳定方面的挑战(见框 2)。在十一五和十二五期间(2006-2010 和 2011-2015),绿色政策得到重视,包括对《环保法》的新修订和强化,以及一些增加资本分配,满足绿色金融需求的措施。

随着对绿色发展重要性认识的深入,环境生态保护等也逐渐成为中国政府关注的重点。十八届三中全会将生态文明建设提升到了前所未有的高度,为中国绿色金融的发展赋予了新的战略机遇。2014 年习近平总书记就环境保护问题作出 17 次批示,其他 6 位常委批示共 543 次,表明中国最高领导层对环境问题的重视。

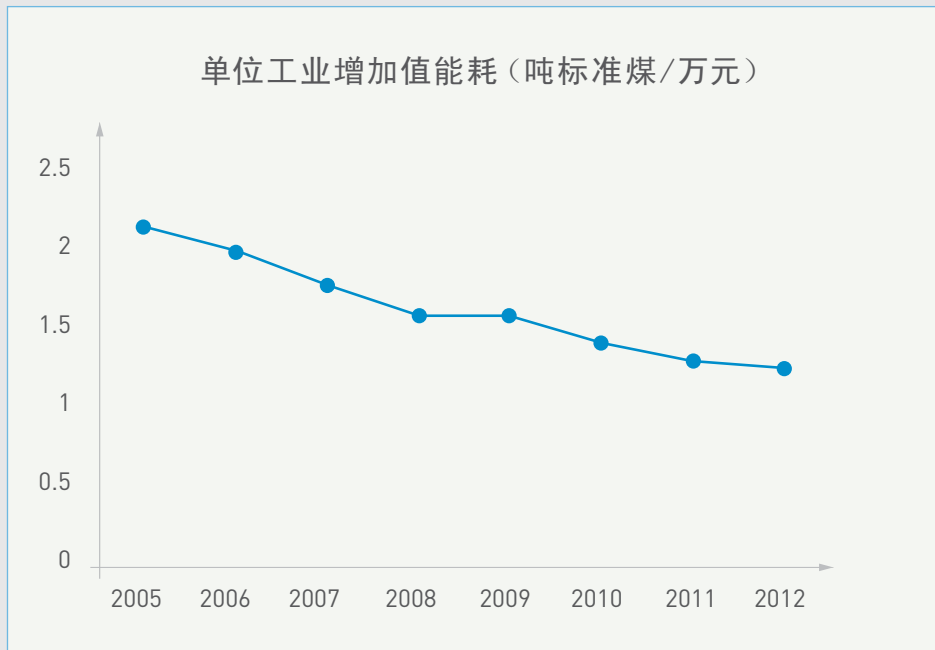
## 框 1：中国绿色发展的挑战

环境破坏对中国人民的生活质量、经济实力、恢复力和长期增长带来巨大风险。据估计，环境污染成本占 GDP 的 3-6% 左右，并仍在增加（世界银行、国家环保总局，2007）。

2010 年，中国成为世界第二大经济体。但是自 2005 年起，中国主要污染物排放量已达到全球第一。2011 年，中国成为世界上 CO<sub>2</sub> 排放量最高的国家。重大环境事故风险、对空气、水和土壤质量的担忧已成为广泛问题。74 个按新大气质量标准实施监测的城市中，仅有 3 个城市空气质量达标。全国地下水较差 - 极差水质的监测点比例约为 60%；耕地土壤污染比重高达 19%。

尽管中国积极进行产业调整，限制高污染、高能耗产业的发展，鼓励高科技、高附加值的行业发展；但是中国产业政策中规定限制发展的行业大多进入到 2005-2011 年发展最快的十大行业，如煤炭开采和洗选业、非金属矿物制品业、有色金属冶炼及压延加工业、化学原料及化学制品制造业。尽管中国在降低整体能耗强度方面已卓有成效，然而传统节能模式下的进一步节能已经乏力（发改委，2011）。

图 1：中国工业能耗水平 2005~2012 年



同时，中国的发展仍需要自然资源。目前，中国人均能耗仅是美国的 1/7，经合组织国家的 1/4。对一些重要资源的消费仍没达到峰值。如何调和节能减排下的生产和消费的矛盾将成为中国绿色发展的一大挑战。

来自：工作论文：《绿色金融发展的产业政策环境》



## 1.1 中国的金融体系<sup>1</sup>

中国的金融体系由银行主导，提供了整个市场上五分之三的信贷。银行体系集中度高，贷款市场的一半来自五大银行。

政府在此间的参与很多，央行设定最高存款利率，先前还设定最低贷款利率，并且经常对贷款量设定目标。最大的五家银行主要由中央政府控股，其他银行也有大量的政府控股。大银行主要向大型国有企业贷款。如何对金融系统进行再平衡，使私有企业能够获得资金，已成为目前辩论和改革的关注点。

国有银行对国有企业的贷款一直有隐性担保。来自其他公司、个人和专业担保公司的私人担保占未偿清贷款的四分之一，并推动了信贷扩张。如果银行过分依赖担保来作风险评估，资金短缺造成的担保链问题恐怕会成为金融不稳定的诱因。

债券市场是大公司主要的融资来源。中国的债券市场发展迅速，尽管仍不及美国和欧洲债市的规模和复杂程度。银行是公司债券的最大持有者。根据人民银行数据，2012年，公司债券净发行量增长了65%，占新增信贷量的16%。

中国的股票市场也在发展，但是倾向于被短线交易主导而非长期投资者，年流通量更是达到293%的新高。由于IPO被严格控制，股票市场规模有限。机构投资者数量很少，2012年拥有的在管资产仅为GDP的5.1%（相比美国这一数字为240%）。

## 1.2 中国绿色金融取得的成就

中国第一部《环保法》于1989年开始实施。最初的执行主要依靠行政力量和罚款（张连辉、赵凌云，2003）。然而，在过去的15年间，政府已经开始通过更多法律、经济、金融和技术相结合的措施来解决环境问题，包括一些通过金融体系直接调动绿色融资的措施（见框2）。

1. 该部分内容改编自《中国金融体系：简介和概述》（Elliott和Yan, 2013）

## 框 2：中国的绿色金融

在中国以银行主导的金融体系中，“绿色信贷”已成为绿色金融的重要政策（中国银行业监督管理委员会，2011）。2006年，中国兴业银行与国际金融公司（IFC）合作开发了中国第一款“绿色信贷”产品：节能减排项目贷款基金。

2007年7月，人民银行、前国家环保总局、银监会三部门联合发布了《关于落实环境保护政策法规防范信贷风险的意见》。意见要求，银行应依据国家环保法律法规进行贷款审批；对节能减排、环保投资等绿色经济项目予以信贷支持，对两高一资行业的信贷供给则施行严格的限制甚至不予贷款（前国家环保总局和银监会，2007）。

2012年2月银监会发布了《绿色信贷指引》，鼓励银行业金融机构增加对绿色、低碳、循环经济的支持，并加强对“限制类”行业客户的环境和社会风险管理（银监会，2012）。

三家政策性银行（中国农业发展银行、中国国家开发银行和中国进出口银行）利用其业务的不同特点，在不同领域以不同方式支持绿色环保产业和生态环境建设。

高环境风险领域试行环境污染责任保险。90年代以来，地方环保部门一直在探索环境污染责任保险的用法。

2007年起，前国家环保总局和保监会联合发布《关于环境污染责任保险工作的指导意见》，积极推动环境污染责任保险。

2008年，全国性的环境污染责任保险试点在江苏、湖北、湖南、重庆和深圳等地展开。

2013年，环境保护部和保监会联合发布《关于开展环境污染强制责任保险试点工作的指导意见》，推动地方政府在涉重金属企业和石油化工等高环境风险行业推进环境污染强制责任保险试点。试点项目已在超过十个省开展，超过2,000家企业已购买保险，总投保金额接近200亿元人民币。

从资本市场融资的公司需接受环保核查。中国的资本市场正在迅速发展，越来越多的企业选择通过IPO上市融资的方式。“绿色证券”政策要求高污染高耗能企业资本市场融资之前再接受环保核查。

2008年，前国家环保局和证监会联合发布了《关于加强上市公司环境保护监督管理工作的指导意见》，要求环保核查，一些相关标准由此得到开发。

碳交易市场正在发展（杜莉、张云、王凤奎，2013）。过去20年间，中国的排污权交易市场发展迅速，从设立示范试点到建立更广泛的系统和交易平台。试点在七个省市开展，包括深圳、上海、北京、广东、天津、湖北和重庆，并试用不同的操作方法。各试点总共向约2,000家排放控制企业贡献了10亿吨二氧化碳排放额（Chen和Reklev,2014）。商业银行正在进入初生的碳交易市场，开发金融产品，帮助客户对冲碳交易风险，用碳排放证书作抵押进行新融资。

私募股权和风险投资基金。正在增加对绿色产业，如可再生能源和清洁技术的投资。

中介服务机构和民间环保组织。也在提供相关信息和建议，民间环保组织还可以作为环境公益的诉讼主体向法院起诉，并开展相关运动。

来自：工作论文：《中国绿色金融体系发展的经验和教训》，马骏、施焜，《绿色金融政策何在中国的运用》，载《新金融评论》2014年第2期，邓翔，《绿色金融研究述评》，载《中南财经政法大学学报》2012年第6期

总而言之，早期的绿色金融发展在支持经济结构调整方面取得了一些成就，影响了金融资源配置，并为市场导向的绿色金融带来更多投资（见框3）。

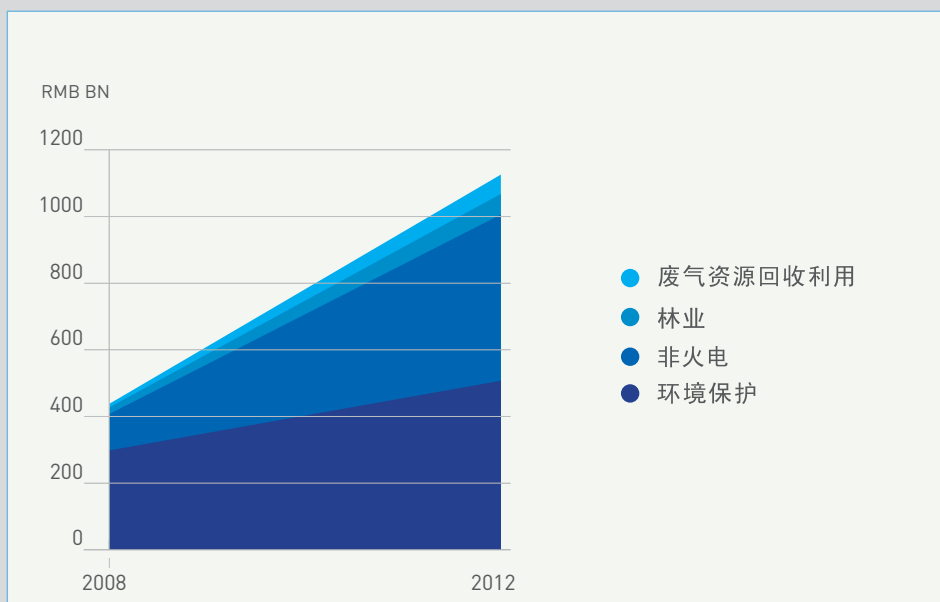
绿色信贷政策一定程度上限制了贷款流向高污染高耗能项目的比例，并支持环保型新兴行业的发展（Yunwen 等，2014）。很多省市级地方政府都制定了绿色金融发展战略和发展框架，支持金融机构向节能环保行业配置资本。

### 框3：绿色金融的规模

所谓绿色投资主要指环境污染治理业、废弃资源综合利用产业，以及一切可再生能源包括核电。按照这个界定，国务院发展研究中心金融研究所估计，2012年，中国的绿色投资规模已经超过12614亿元人民币（2000亿美元），占当年GDP的比重为2.43%<sup>2</sup>。

通过市场实现的融资规模大约为11258亿元人民币（1800亿美元）（占全部投资资金来源的比重为70%）。2008年，这个数字是4380亿元人民币（700亿美元），占全部的67%。

图2：2008、2012年中国绿色金融市场融资及其占比



在绿色信贷领域，银行业金融机构支持节能环保项目的个数从2007年的约2700个上升到2013年的约1.4万多个，贷款余额从2007年的约3400亿元人民币（540亿美元）上升到2013年的约1.6万亿元人民币（2560亿美元）（银监会，2011）。在绿色保险领域，环境责任险的投保企业从2008年的约700家企业增长到2012年底的2000多家。截至2014年6月底，环境责任险的投保企业累计已达2.4万家次，提供风险保障金568亿元人民币（87亿美元）。在绿色证券领域，截至2014年6月15日，超过700家绿色企业发行了债务融资工具<sup>3</sup>，融资额高达9685.8亿元人民币（1550亿美元）。环保主题基金从2010年以来已累计发行15只，其中2014年就发行了7只，占总数的近一半。在目前7个试点的基础上，全国碳排放权交易市场有望在2016年建成并运行（Chen和Reklev，2014）。

虽然商业贷款在绿色投资中占了较大比重，但需要注意的是，这些商业贷款的具体使用者，或者说绿色投资的主体，以国有企业，或者政府财政信用为背景的投融资平台公司占较大比例，可以利用财政支持进行信用增级。这些投资项目本身的债务偿还能力始终与项目所在地政府的财政能力相联系。

来自：工作论文：《绿色金融需求》

2. 根据历史汇率测算，见[http://en.wikipedia.org/wiki/List\\_of\\_renminbi\\_exchange\\_rates](http://en.wikipedia.org/wiki/List_of_renminbi_exchange_rates)

3. 根据银行间交易商协会的数据。

### 1.3 下一步中国经济转型对绿色金融的需求

根据课题组测算，从 2015 年到 2020 年，中国绿色发展的相应投资需求大约为每年 2.9 万亿元人民币（4650 亿美元），总计 17.4 万亿元人民币（2.8 万亿美元）。年度投资平均规模占各年 GDP 的比重将超过 3%。这个数字是一个保守估计，可以被看作最低投资需求。

与其他国家一样，在中国绿色投资普遍（或一般认为）风险高、前期投入大（但是相关运营成本低），投资回报比传统的资源密集污染型投资要慢。特别是当环境成本和收益没有充分体现在定价中时，很多投资对私人部门缺乏吸引力，一般通过公共部门隐性或者显性的补贴实施。

绿色发展的总投入将占到预计财政收入的 14% 以上，大大超出了财政的负担程度。因此，金融支持尤为重要。2015 年到 2020 年的 6 年间，中国新增的绿色金融需求大体上在每年 2 万亿元人民币（3200 亿美元）左右。

如《绿色金融发展的产业政策环境》一文中强调的，建立市场绿色融资渠道的迫切性不仅仅在于减轻公共财政的财政负担，更在于提高决策和资本配置（见框 4）。

### 1.4 未来中国绿色金融发展面临的问题

现阶段，绿色金融产品不断涌现，但是在类型和覆盖范围上仍有局限。银行贷款仍是融资的主要来源，其后是环境污染责任保险。

中国绿色金融的发展虽然已经取得了多方面的成就，但绿色金融在满足上述绿色发展和绿色经济的需求时仍面临一定困难。

#### 需要清晰的绿色金融的定义和战略

迄今为止，中国关于绿色金融尚缺乏完整、统一、明确的概念框架和统计意义上的详细定义，决策者及各参与机构对绿色金融概念的内涵和外延的理解不完全相同，导致各方对绿色金融及相关概念存在理解狭隘、概念冲突等问题。此外，虽然中国明确了绿色可持续发展的国家战略，但缺少一个关于绿色金融战略实施的顶层设计和具体实施规则，部门之间的协调机制仍不完善。这使得该战略难以在金融政策的制定过程中得到完整有效的落实，绿色金融发展的战略和战术层面尚未有效衔接。

#### 相关法律、监管以及制度上存在问题

尽管中国的环境法规已得到加强，但是仍不够完善，存在责任归属不明、执行不力的问题。中国已制定颁布了环境保护的法律、法规、规章、标准和规范性文件，形成了比较完整的环境保护政策体系。然而，现有法律文件之间存在着相当程度的机构重复和职权交叉，政府相关部门关系不明，甚至不同立法文件之间内容矛盾，导致具体实施过程中执行不力。这些实际监管中的缺点导致对绿色投资的负激励，造成金融机构风险增加、危害整个经济体的健康（见框 5）。资源和能源密集型行业仍对商业银行有吸引力，具有较高的投资回报。

#### 框 4：加强和丰富中国绿色金融的案例

目前，中国的绿色融资主要是来自银行业的绿色信贷，得到隐性的公共财政支持和担保。

对于过去处于后发追赶阶段的中国经济而言，政府干预的积极意义在于融资的规模大、速度快且期限长，支持了技术路径明确的基础设施、传统产业的跨越式发展。

然而，很多绿色项目包含复杂的技术、市场风险和政策风险，并没有明确的技术路径。银行的客户经理和信贷员一般缺少专业的知识来评估创新型绿色项目，因此倾向于向国有企业和有担保的公司直接贷款。中国对处于技术前沿的行业并不具有信息优势。因此，直接干预所诱发的大规模、高速度且长期限的金融配置，更容易导致行业性的资金错配以及由此引发的系统性的金融风险。

必须大力发展绿色股票、绿色债券、绿色衍生品等直接融资市场，让大量机构投资者、中介机构、风险投资人乃至互联网用户等主体贡献多角度的判断，实现对项目风险的准确定价，从而拓展金融服务供给空间。

因此，中国对绿色金融的干预应更多地通过财政贴息、结构性准备金率、区别性风险资本权重、完善环保信息披露等市场化工具，引导绿色金融市场更好地发挥价格发现、信息甄别与风险管理作用。

目前，中国对新能源等绿色发展项目采取了隐性担保的方式，表现为区域性金融风险爆发后的地方财政救助、行政性债务重组。隐性担保固然能够解决一时的风险，但也中断了市场“创造性破坏”的机制，容易对企业和银行造成政府“兜底”的预期，从而形成预算软约束，不利于绿色金融的可持续发展。

有效的绿色金融体系仍需要政府的支持，但会从隐性支持变为显性支持，通过政策性信贷担保或者信贷增级的方式。

来自：工作论文：《绿色金融发展的产业政策环境》

#### 绿色金融政策的操作过程中存在问题

对某项绿色金融法规的监管不全或重叠也会造成问题。例如绿色保险中，环责险的主要依据仅是环保部和保监会联合发布的两份部门规章。但是不同监管机构之间并没有有效的信息联通机制。排放权市场的相关法律也存在类似问题，例如排污权和排放权市场上，监测、报告和核证体系尚未建立。银行关于绿色信贷的披露信息缺乏一致、清晰的口径，导致数据缺乏可比性。上市公司关于主要污染物排放情况、治理措施及效果等重要信息的披露也不足，且仅针对 IPO 环节。

执行过程中的一个重要挑战是，中央政府和地方政府之间、政府与市场之间的利益关系存在背离和偏差。在绿色发展的大背景和中央政府的考核压力下，地方政府的行为具有矛盾性：一方面，有绿色发展和改善环境的迫切需要；另一方面，为维持一定的经济增速，又存在容忍破坏环境严重但税收贡献大的产业的动机。表现在行动上，就是一方面积极发展新兴绿色产业，另一方面对现有企业的环境污染监督力度不够。同时，由于中国经济发展水平存在巨大的地区差异，在发达地区，地方政府的环境意识通常强于欠发达地区。此外，条块分割的管理模式因地方政府之间复杂的竞争合作关系而无法满足不同流域、区域管理的需要。加上中央有关职能部门对地方政府消极执行环境政策的行为缺乏制约，最终导致中央政府制订的环境保护制度难以在地方得到有效执行。此外，目前中国绿色金融的发展更多源自行政性推动，而非市场主体的主动行为。



## 框 5：环境监管和企业投资动机

尽管环保法律严格，但是监管不严，使得污染得不到监管，造成对大气、水和土壤大面积的非法排放。2011年，北京清河中游每日有5万到25万吨未经处理的污水直排入河。加强污水处理厂的处理能力之后，2013年每天仍有数万吨未经处理的生活污水直接排入清河，造成严重的不可持续的污染。

目前北京对偷排漏排最高的罚款仅为3万元人民币（5,000美元），这使得守法的动力非常低。据估2001—2011年，低水价和无处理排水帮助企业获得超额利润累计约1.5万亿—4.4万亿元人民币（2,400亿—7,200亿美元）。为了获得更多的超额收益，排污者具有强烈的偷排动机，并且反对环保投资。

来自：工作论文：《绿色金融发展的产业政策环境》

### 绿色金融相关的产品和金融机构的能力需要政策推动

财税价格等配套政策推出较晚，进展滞后。目前，针对金融机构经营绿色金融业务所实施的财税激励政策不完全到位。虽然中央财政对环境保护的投入在逐年增加，但仍存在财政性环保投资缺乏有效整合，环保资金以应急为主而缺少长期统筹考虑，缺少有效监管且重投资轻效益等问题。<sup>4</sup>

尽管绿色金融已在政策领域有一定的地位，但是仍缺少专业人才发展战略，中介市场及服务机构发展相对缓慢（普华永道，2013）。例如绿色保险的关键配套制度——环责险的评估制度就因人力、物力、资源不足，缺少专门的环境污染损害鉴定评估机构等因素而难以落实。

## 1.5 在推进全球可持续发展方面中国的作用

中国在国内和国际推进绿色金融的过程中已经发挥了巨大的作用。鉴于中国经济的规模和影响，它通过自身的经济转型，在推动地区乃至全球的可持续发展方面起到更大作用。中国政府正在进一步发挥作用，开发全球可持续发展框架。

中国发展绿色金融的经验可以为其他国家，尤其是发展中国家提供借鉴。中国政府将经济社会的绿色可持续发展上升为国家战略，给予了前所未有的高度重视，为绿色金融发展赋予了广阔的空间和机遇。同时，中国政府也已经认识到要实现这一战略，需要把绿色金融作为环境经济政策的有机组成部分进行整体规划设计，以平衡好各方利益，加强各相关方的协调和配合，如“十二五”规划中所提倡的。

中国可以在全球绿色可持续发展中发挥带头作用，特别是在加强绿色金融的国际政策和监管层面。2014年11月中美两国第三次《中美气候变化联合声明》<sup>5</sup>（《联合声明》），正式公布了各自减排计划，为2015年的巴黎气候峰会达成新协议做出了重要贡献。同时，中国也在逐步推动多项战略合作协议的形成。例如习近平主席提出的“一带一路”战略，李克强总理在第17次中国-东盟领导人会议上提出的

4. 见工作报告《中国绿色金融体系发展的经验和教训》

5. 中国承诺2030年将非化石能源占一次能源的消费比例提升至20%，并首次提出在2030年之前停止增加碳排放；美国则在早前已公布的2020年减排目标（在2005年的基础上减排17%）基础上，追加了2025年的减排目标——在2005年的基础上减排26%-28%，大致相当于在1990年的基础上减排16%（国家发改委，2013）。



中国 - 东盟新型战略伙伴关系，都显示了中国在支持全球可持续发展方面的良好意愿。具体到国际绿色金融领域，未来中国将通过不同的形式积极参与绿色金融的国际政策和国际监管活动。通过国际交往，积极促进国际绿色金融标准方面制订和应用、促进国际最佳实践经验的传播。

## 第二部分 国际绿色金融的实践和经验

国际上也有越来越多的人关注到，需要把金融体系和可持续发展更好地统一起来。这不仅要求个别金融机构的投资活动要考虑环境因素，更是要考虑怎样转变监管、法规和标准的整体框架。<sup>6</sup>

建设更加绿色和包容性的可持续经济体系逐渐成为全球共识，但建设这一体系中需要资产配置的大规模转移（ICESDF，2014）。根据新气候经济全球委员会的预测，为保持低于2度的气候变化，未来在节能和清洁能源上需要新增投资超13万亿美元。由于发展清洁能源将减少化石燃料和其他高碳基础设施的需求，抵消后需要净增投资4万亿美元。与此同时，全球委员会预计每年需要把6万亿美元的投资“变绿”。

然而，可持续发展不仅是气候相关的基础设施建设。三十国集团预计，出于全球经济增长和就业的担心，主要经济体（巴西、中国、法国、德国、印度、日本、墨西哥、英国和美国）每年还将有19万亿美元的长期投资需求（目前为12万亿美元），主要投资于设备、软件、房地产、基础设施、培训和研发等领域（三十国集团，2013）。联合国贸易和发展会议（UNCTA）预计，要满足2015年后发展目标，仅发展中国家每年就有2.5万亿美元的投资缺口。同时在全球范围内，中小企业贷款需求缺口估计达到3.5万亿美元（Stein, Goland 和 Schiff, 2010）。

但是现有金融体系并不能满足如此巨量的可持续发展资金需求，对不可持续经济却支持过度（UNFCCC，2014）。自然资源和碳密集型投资持续增长，尽管越来越多观点认为，在技术、政策、灾害天气事件和公民选择面前，这些投资的价值将减少（Brown，2013）。在油气碳提取、运输和炼油方面的年度资本支出已超过2000年的两倍。到2013年，已超过一万亿美元。过去十年间，清洁技术投资急剧增长，在可再生能源方面的投资达到2500亿美元，在提高能效方面达到1300亿美元（国际能源机构，2014）。

金融支持不足的原因并非缺少资金，而是企业、投资者和金融机构没有动力。政策缺乏或不当导致实体经济中的价格信号扭曲是导致这个问题的因素之一。实体经济中市场失灵的情况包括每年化石燃料补贴超过0.5万亿美元（Whitely，2013）、污染物（比如碳）定价过低、正面激励不足，例如在公共采购中普遍缺乏考虑整个生命周期的成本，以及在许多国家环境执法不力。

纠正实体经济中的定价和政策失灵非常紧迫，但仅靠这些是不够的。2008年的全球经济危机之后，人们越来越清楚地认识到实体经济中的市场失灵只是部分原因，而尽管纠正定价和政策缺乏很迫切，仅靠这些也是不够的（Alexander，2014）。金融政策决策者、中央银行、金融监管者以及金融和资本市场标准制定者正在认识到有效且高效的金融体系必须同时是绿色的金融体系。此外，各国对通过建立金融监管和政策来实现可持续发展也越发有兴趣。

### 2.1 现有的国际经验

总体上看，国际经验主要体现了三类趋势：

- 机构投资者成为发达国家推动绿色金融的重要力量

在发达国家，机构投资者（养老基金、保险公司等）通过股东投票权、将不符合可持续发展理念的公司排除在投资组合之外等手段对被投资企业施加影响（所谓“积极股东主义”）。

6. 来源：根据联合国环境规划署可持续金融体系设计之“探寻”项目（2014b）整理

- 无论是在发达国家还是新兴国家，越来越多的国家开始将绿色金融纳入到政策体系中去。

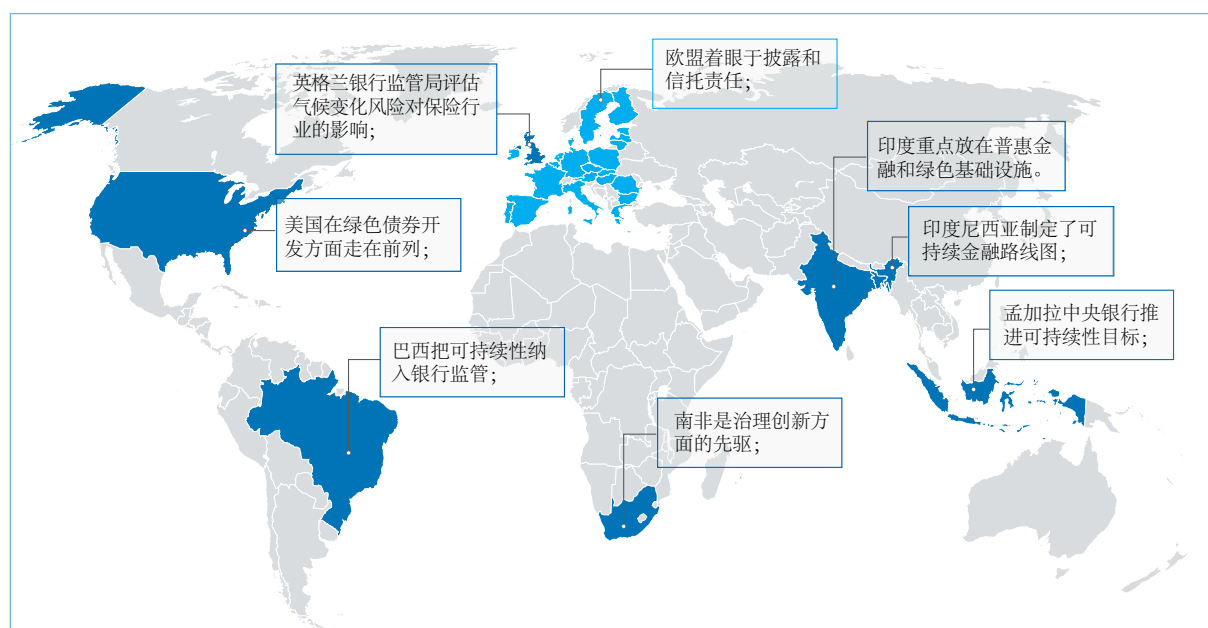
关注绿色金融的，不乏孟加拉、巴西、肯尼亚、乌干达、南非、印度等发展中国家。一些发达国家，也开始关注通过监管和政策推动绿色金融的问题。在国际层面，联合国环境规划署和世界银行等机构正积极推动可持续金融的规划和实施。

- “绿色金融”的概念正在向更大范围扩散。

随着绿色金融理念的推广，近年来不少国家开始采取行动推动绿色金融发展，包括在银行、保险和机构投资领域。现在也开始关注货币政策、环境风险和经济稳定之间的关系。2014年1月，联合国环境规划署建立了“设计可持续金融体系”项目工作组，以期探索如何促进金融体系与可持续发展更紧密结合的政策，乃至对金融体系进行系统性变革。2014年7月，世界银行发布《环境和社会框架：为可持续发展确定标准》报告，试图搭建绿色金融发展的框架、要求、标准和流程。世行旗下的国际金融公司更是在实践中推行可持续发展理念，并成为市场先锋。

很多金融规则制定者已经把可持续发展因素纳入（或者在考虑纳入）监管法规中。例如，巴西中央银行于2014年4月出台了新的监管办法，要求商业银行必须制定环境管理和社会风险管理的战略行动和治理框架，并将其作为整体风险管理的核心要素加以实施；几乎在同时，欧盟要求大上市公司披露实施环境和社会政策的情况；美国财政部有80%的对外援助项目有绿色要求；英格兰银行开始关注保险公司的资金投向；挪威等国政府通过主权基金、税收和发展中国家基金对发展绿色经济进行引导；孟加拉央行特别将增加金融包容度作为中央银行货币政策的明确目标，并对商业银行提供了包括新能源、污染治理、提高能效等内容的信贷指南，目前绿色信贷占比已达5%；南非2011年出台的监管准则要求企业披露其财务与可持续性能力；马来西亚证券委员会2014年1月发布机构投资者规则，明确要求机构投资者应该将公司治理和可持续发展考虑纳入到投资决策程序中。2014年3月，澳大利亚股票交易所发布了新的上市公司治理报告要求，要求上市公司披露是否面临着实质性的经济、环境和社会可持续风险暴露和如何管理这些风险。等等。

图3：国际（除中国）金融监管法规和政策创新举例



来源：根据联合国环境规划署可持续金融体系设计之“探寻”项目（2014b）整理

## 2.2 政策洞察与创新举例<sup>7</sup>

可持续发展可纳入金融监管者的目标，并与长期投资者目标相一致。一些相关行动已经开展：

- 披露可持续影响和敞口：欧盟国家、南非和美国都颁发了对公司披露环境风险及 / 或碳敞口的要求或指导意见。
- 机构投资政策：南非的养老金监管者要求“审慎投资，对任何可能实质影响基金资产的称其可持续表现的因素作出适当考虑，包括环境、社会和治理因素”。法国外长 Laurent Fabius 呼吁资产业主将其资产组合的 10% 配置到“气候友好型”投资方面。
- 定向贷款：欧洲中央银行的定向长期再融资操作（TLTRO）向银行提供再融资服务，让他们向实体经济直接融资，特别是中小企业。印度储备银行对优先部门贷款设定目标。孟加拉银行要求金融机构至少 5% 的贷款应用在绿色金融上。
- 银行的环境风险管理：孟加拉中央银行和巴西银行协会已经采取措施，把环境风险纳入银行监管。印度尼西亚也已经勾勒出颇具野心的绿色金融路线图。

📄 《将投资战略与气候情景协调一致：金融机构的视角》，斯坦·杜普雷和雅各布·托马，2° 投资倡议

📄 《将减缓气候变化纳入金融决策》，索尼·卡普尔，Re-Define

向绿色经济转型的过程中会对现存的各个部门的资产价值产生影响。不同技术、产品与商业的沉浮会产生搁浅资产，这对市场的正常运转至关重要。然而如果金融机构不具备远见来预测这一情况，将会导致系统性的金融风险。

- 压力测试：面对“看似不可能却貌似真实”的情景，压力测试被监管者用来评估金融机构的恢复力。这种方法可以扩展到银行、保险和机构投资者的环境风险领域。
- 评估系统性风险：一群投资者开始与英格兰银行金融政策委员开始高级别联络，要求调查英国的污染和对环境有害的投资是否会给英国金融体系带来系统性风险。

📄 《绿化中国的金融市场：搁浅资产的风险与机遇》，本·凯德科特和尼克·罗宾斯，牛津大学史密斯企业与环境学院

保险本质上是风险管理，包括自然灾害和人口老龄化风险。保险业对可持续发展的作用主要来自它的三个功能：1) 作为 财务损失“减震器”；2) 能够减少资产、安全和健康风险；3) 作为实体经济中的重要机构投资者。提出的创新有：

7. 该章节来自国际专家的工作论文。

- 联合国可持续保险原则作为全球框架用于应对环境、社会和治理方面的环境、社会和治理风险与机会。它已经被拥有全球 15% 的保金的保险公司采用。
- 在美国，美国保监会（NAIC）要求保险公司应向监管者披露其面临的气候变化风险。
- 在英国，政府邀请英国审慎监管局（PRA）评估保险行业的气候变化风险。

📄 《关于保险业及其监管与可持续发展的系统性观点：国际发展趋势及对中国的政策建议》，布奇·巴卡尼，联合国环境规划署金融行动计划可持续保险原则倡议

了解货币政策与以下领域之间的关联至关重要：

- 设定目标：应对通胀目标、大宗商品价格、可持续发展结果、环境相关的搁浅资产以及金融稳定性之间的关系作进一步研究。
- 央行资产管理：央行购买某些类型的资产、将其作为抵押品或用其确定借贷限额和价格的决定也会对绿色金融产生重大影响。
- 差异化的准备金要求：可以使人们更深入地了解某些央行已经提供的部门支持 – 而且这种支持有可能会与绿色和包容性经济目标协调一致。

📄 《货币政策与绿色金融——探索其关联性》，皮埃尔·莫宁和亚利山大·巴卡维，经济政策委员会

绿色债券随着绿色基础设施融资的需求快速增长。尽管绿色债券最初由国际开发银行引领，它的规模正在扩大，并且越来越多的公司和其他机构开始发行。新发展有：

- 绿色市政债发行：如法兰西岛大区（巴黎）、马萨诸塞州、哥德堡、斯德哥尔摩和约翰内斯堡。
- 国内开发银行发行债券启动国内市场。2014 年 7 月，德国开发复兴银行（KfW）刚发行了第一只 15 亿欧元的绿色债券，专项用于可再生能源融资。
- 以资产支持证券形式发行绿色债券。把零散的可再生能源或者能效型资产如屋顶太阳能打包。
- 开发绿色债券标准。“气候债券标准和认证计划”目前正在制定绿色投资的组成的标准化、科学的定义。《绿色债券原则》是关于绿色债券设计和申报特点的一套自愿性指引。

📄 《绿化中国债券市场：加速绿色投资、推进金融市场透明化和稳定性》，肖恩·肯德尼，帕里克·奥利弗和贝亚特·索诺德，气候债券倡议组织



## 2.3 从现有实践中得出的经验：

国际经验和辩论强调为了实现可持续发展，对金融系统进行干预可能是恰当的方法。这主要是在两种大环境下：

- 投资者和系统性风险：当投资偏见可能影响风险定价、进而影响市场效率和公平交易，或者存在与特定环境风险相关的系统性风险（如空气污染或碳市场的法规出台对银行资产负债表的影响）时，需要宏观审慎监管的干预。

- 政策执行协调一致：当有政府政策需要促进绿色金融、央行和金融监管者需要让政策与使命协调一致，以确保政策一致性。

联合国环境规划署可持续金融体系设计之“探寻”项目的前期工作提出了四个具有潜力的领域：

- 应把可持续发展纳入金融风险管理的核心。持续性相关因素可能潜在损害金融资产，触发混乱的市场反应。金融机构应能够从环境和社会因素角度预测潜在的资产价值损害和波动。越来越多的国家正在把可持续性因素加入（或考虑加入）法规中。在欧洲国家，压力测试已经被监管者用来评估金融机构在“看似不可能但却真实存在的”情境下的恢复力（Douglas, 2014）。这方法可以扩展到环境因素，鼓励金融机构更好地预测气候、污染、能源和水压力带来的风险。

- 机构投资。机构投资者控制的是资金配置中最大的资产池，尽管现有一些机构已经把可持续因素纳入其运营超过数十年。但是一些先进的机构已经意识到一系列的市场和政策失灵限制了他们为受益人创造可持续价值的的能力。这些问题包括传统的激励问题（委托/代理人问题、外部性），投资链上缺少透明度和问责制、扼制创新的市场瓶颈，以及金融系统中对可持续性专业能力的匮乏。重要的是，在后危机背景下，长期负责任投资者也意识到了核心金融法规不足以调动长期可持续发展所需的资金流，越来越多的人呼吁将关键可持续发展问题纳入金融改革。

- 绿色债券。绿色债券是绿色金融的重要工具。它作为中长期金融产品更容易被机构投资者纳入投资组合。自2007年欧洲投资银行发行了第一只“绿色债券”以来，全球绿色债券市场以大于50%的复合年均增长率快速发展，2014年绿色债券的余额已达到了400亿美元。要想让绿色债券市场充分发展，关键的问题有：保证市场统一的通用标准、鼓励增加资金流入的税收激励、实现机构配置的信用增级等。同样重要的还有把环境风险纳入对信用评级机构可信度的常规评估，这一进程尽管缓慢但是也在不断加快。通过不断发布新的研究报告，强调碳排放和气候风险的影响，引导新的投资者加入绿色债券市场。这一趋势也促进了市场领导者（如标准普尔）的参与，以及其他关注可持续性的小型新加入者。

- 货币政策。鉴于货币政策对经济和社会整体有广泛的影响。央行在绿色金融中的角色正在逐渐引人注目。央行使用的工具有对特定行业的最低贷款额度（例如印度储备银行的《优先行业贷款指导》），以及对特定产品的最大存贷比（如孟加拉央行对对车贷的要求）。鉴于央行想要把资产负债表保持在现有规模，并对已到期的证券进行再投资，他们未来的投资可能不光会为绿色金融带来巨大机遇，也需要确保政策的一致性。研究未来的货币政策工具会对绿色金融产生何种影响同样很重要。



## 2.4 对中国的启示

国际绿色金融发展的经验对中国的启示主要有以下几点原则：

### 第一，应大力推广绿色金融理念，并将绿色金融纳入经济转型和生态文明战略。

2007年以来，在有关部门的推动下，中国绿色信贷发展较快并得到国际社会好评。与此同时，带有“绿色”性质的企业债、环境责任保险等金融产品也开始兴起。尽管如此，绿色金融理念还远未在政府部门、金融机构中普及，大型投资基金、各类养老保险基金也没有将绿色投资纳入投资组合的评价标准。特别在一些地方，专注于环境导向的绿色金融发展理念往往与GDP导向格格不入。在这种情况下，发展绿色金融任重道远，迫切需要将绿色金融理念纳入经济转型和建设生态文明战略，并为建设绿色金融体系组织专门的概念、理论和实证研究。

### 第二，发展绿色金融需要深化基础制度建设。

具体来看，一是要建立“绿色”评估机制，把握中国绿色金融的发展现状和存在问题，及时提出对策；二是要将环境风险纳入金融机构资产质量评价体系，有效防范环境因素可能引致的风险。三是要加强和改善金融机构在可持续发展方面的信息披露要求，加强评估、数据分析等金融基础设施建设，以鼓励金融机构开发绿色金融产品，吸引投资者将资源更多地配置在绿色发展领域。四是通过更具导向性的政策措施，积极推动绿色债券市场的发展。

### 第三，积极参与相关国际合作项目，争取共识。

在建设绿色金融体系这一共同目标下，发展中国家与发达国家有明显不同的利益诉求。前者更多地关注环境污染治理和能效提高，后者则以气候变化作为主要环境风险因素，有的国家甚至将化石能源的使用完全排除在绿色金融之外。在绿色金融领域中国起步较早且已得到国际认可，未来应以积极的态度参与可持续金融发展的相关国际合作项目，争取在未来国际绿色金融框架定义和设计过程中达成共识、统一标准、共同推进。还要在金砖国家开发银行和亚洲基础设施投资银行运营机制设计中，明确绿色金融原则，并在这一原则指导下开展业务（冯守尊，2011）。

## 第三部分 绿色金融的定义与发展模式

本课题的中外专家关于绿色金融的对话促进了具体的技术讨论，包括绿色债券、环境报告要求等工具的使用。同时，也使国内国外就绿色金融相关的两个更广泛的问题展开讨论，那就是：绿色金融的定义，以及政府的作用。

### 3.1 关于绿色金融的定义

绿化一国的金融体系并非为了提升金融市场效率而提出的“额外”行为要求，而是关系到整个金融体系效率和有效性的核心问题。如果没有绿色金融，最终将导致资金的不合理分配，以及更高风险、更乏力的长期经济增长，并产生不良资产压力，导致金融市场的不稳定和低迷。在可以预见的未来，实现可持续发展需要所有的资金流都应该“绿化”以应对环境风险。

“绿化”金融体系需要对“绿色”有一个明确的、得到认同的定义，这样才能确保政策、规则、标准和激励能够有效运用。目前，国际上并没有一个被广泛采纳的绿色金融定义（Inderst 等，2012）。关于绿色金融，可能已经有上百种不同又有重叠的定义（或者是相近的术语，比如可持续金融、气候金融、环境金融、负责任的金融、绿色投资等）。这种定义上的含糊和范围的不明确，已在很大程度上影响了绿色金融的发展。世界各国关注绿色金融发展人们普遍感到，当前迫切需要统一绿色金融的定义和标准。

概括地看，目前对绿色金融的定义大体上有狭义和广义两类。参见表 2。

表 2 绿色金融的国际定义

狭义	广义
哪种金融活动（或金融工具）是绿色的？	对绿色金融系统整体而言，绿色意味着什么？
<ul style="list-style-type: none"> <li>● 侧重过程：用来评估环境管理、生命周期的影响</li> <li>● 侧重重点行业、技术以及问题</li> </ul>	<ul style="list-style-type: none"> <li>● 侧重目的：一种有助于可持续发展的金融系统</li> <li>● 侧重实质影响：经济转型、稳定、增长等</li> </ul>

两种定义的目的和侧重点有很大的不同：

狭义定义想要确定特定金融资产有多大比例是绿色的。其衡量标准有些是程序标准（如测算“环境、社会和治理”管理），有的是事前定义优先支持的绿色产业（技术）的行业标准（如可再生能源、循环、废弃物管理和环境保护）。狭义定义重点在于评估环境状况，确定绿色金融支持的重点行业、重点技术等。

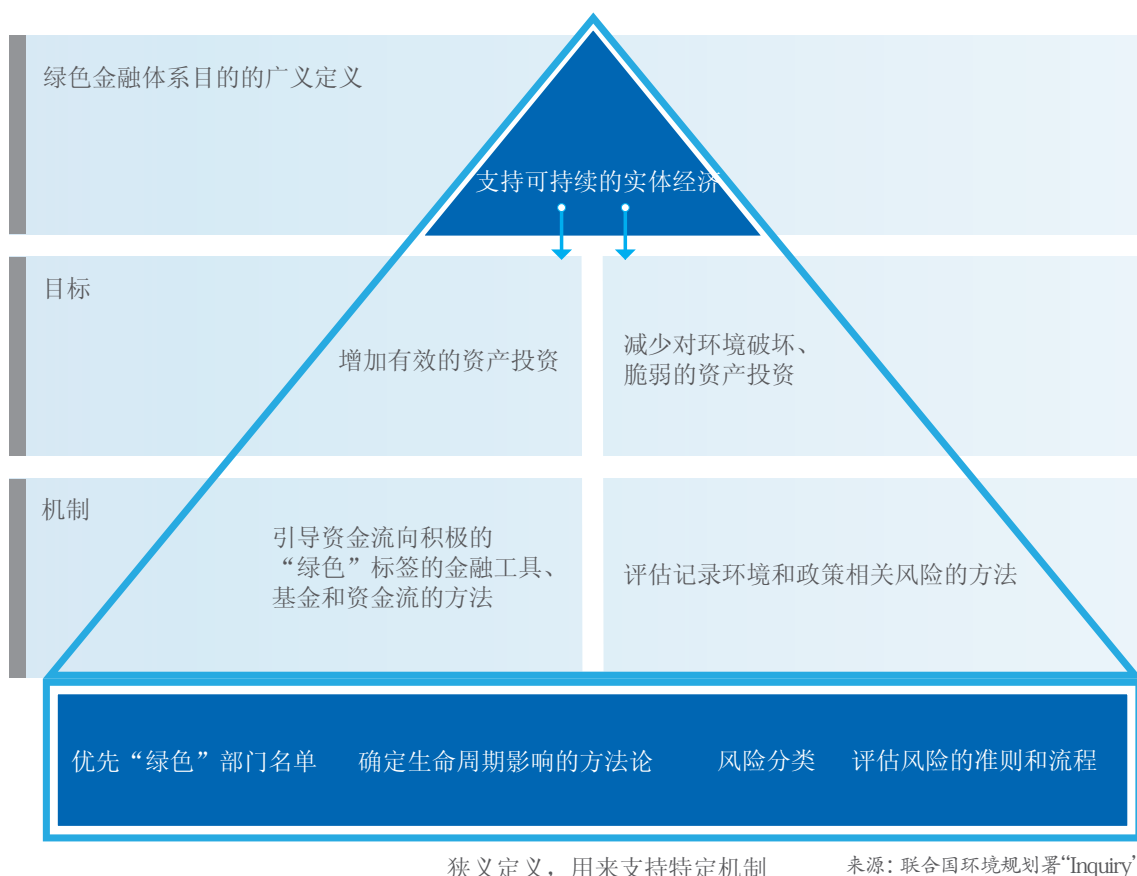
广义定义想要确定金融系统在可持续性方面的整体目标，并提出测量其有效性的方法。根据金融系统的目标设定融资标准，对环境风险有效且高效地进行资本分配。其侧重点在于整个金融系统和宏观经济稳定。

目前发达国家和发展中国家在“绿色金融定义”上的一个重要差别，就是前者更关注气候，将未来的气候变化和相应的技术调整作为金融机构的主要风险因素。例如设在挪威奥斯陆的国际气候和环境研究中心在对绿色债券的发行提供评估意见时，将对化石能源的投资定义为“非绿色”。而在中国等发展中国家，只要能够节约化石能源的使用量、降低单位能耗，其投资都属于“绿色”（例如高铁债券在中国被认为属于绿色债券，但发达国家并不认同）。在发达国家，由于已经完成了工业化进程，工业化早期阶段经常出现的环境污染问题已基本解决，因此在评价一项投资是否“绿色”时，往往不考虑其治污

和防污作用；而在中国，这类投资当然被纳入“绿色”范畴。

在全球范围内要想找到一个所有条件下都成立的“绿色金融”的定义几乎是不可能的。无论如何，至少在一国范围内应有一个明确的绿色金融标准，这是政府应当也能够做到的事情。未来在跨越国境的部分区域范围乃至全球，如果能够明确一个被普遍接受的定义和标准，无疑对绿色金融的发展是十分有利的。

图 3：绿色金融定义框架



### 3.2 政府的角色

发达国家更重视靠市场化机制来发展绿色金融。例如发达国家的机构投资者（如养老基金、保险公司等）通过行使股东投票权和投资决策等手段发挥作用。而发展中国家则更多地依靠政府管理和金融监管，来引导金融机构越来越多地支持可持续发展（周道许，2014）。

很难比较这两种模式的优劣，特别是从长期效用来说（张震敏，2012）。而且这两种模式也开始出现融合的迹象。例如在发达国家，越来越多人认识到，要改变金融市场“可持续”因素影响力偏低的问题，完全依靠市场机制的自发调整是很困难的，必须加大政府的介入和引导。巴西、中国等新兴市场国家在政府推动下将环境风险因素纳入银行监管规则的做法，已经得到国际社会的普遍关注和认可。另一方面，发展中国家政府行政性干预的科学性也开始受到质疑。人们认识到主要靠行政力量推动的绿色金融是有缺陷的，政府应该在激励引导市场意愿、创造良好政策环境方面下功夫，尽可能发挥市场作用，避免过多的直接干预。

根据现有实践，政府至少可以在以下几个方面发挥更大的作用：

第一，明确“绿色”的定义、标准、原则和框架，为绿色金融的发展建立范本和模式（王彤宇，2014）。

第二，通过财政性措施对绿色金融的发展加以引导。这些措施包括：在政府采购时有意识选择“绿色”产品或秉持绿色发展理念的企业的产品；要求国有金融机构更多地开发和销售绿色金融产品；要求政策性金融机构发挥在绿色信贷、绿色保险等领域的带头作用；在对外援助时强化“绿色投资”标准；对政府系机构投资者的投资组合提出“绿色”要求等等。

第三，利用各种金融政策支持和引导绿色金融发展。这些政策在不同的金融行业可能有着不同的特点。例如对银行业，主要通过信贷政策和监管政策促进绿色信贷；对证券业，主要通过投资政策和上市公司信息披露要求引导股票上市和交易活动，发展绿色债券市场；对保险业，主要通过强化企业的环境风险控制来引导绿色保险的发展。

第四，强化监管约束，培育环境风险意识。例如要求上市公司提交环境风险报告（或在年报中加入有关环境的披露内容），要求金融机构提交可持续发展报告、对环境风险进行压力测试等等。

第五，加强有效联络和信息共享。在金融监管部门之间、金融监管部门与政府行政管理部门之间建立有效的跨部门协调和信息共享机制，使绿色金融理念在政府层面被广泛认识和推行。

第六，建立发展绿色金融的基础设施。一方面，要着手解决绿色投资外部性的计量问题，如碳排放权、排污权的产权如何有效界定？环保项目投资所产生的外部效益如何收费？通过政策设计和体制安排，将绿色项目的正外部性和污染投资的负外部性显性化，为绿色金融发展提供足够的市场激励；另一方面，要发挥第三方机构（中介组织）的作用，支持绿色金融评估机构的发展，引导现有专业服务机构（信用评级、资产评估、会计师事务所、律师事务所、咨询公司、数据服务公司等）开展绿色金融相关业务。

第七，加大对地方政府政绩评估中环境因素的权重，促使地方政府以及地方性金融机构支持和推进绿色金融的发展。

第八，加大对绿色金融理念的宣传教育，培养环境风险评估、绿色金融产品创新等方面的人才，加强与境外部机构的合作。

## 第四部分 绿色金融行动框架

本章提出了中国政府为促进绿色金融的系统性发展可以采取的一系列行动。

### 4.1 推动绿色金融立法, 加大执法力度

按照十八届四中全会“依法治国”的思想, 以法律的形式确立绿色金融制度, 在投融资领域加强企业的社会责任。

1. 在对《商业银行法》、《证券法》和《保险法》等相关法律进行修改时, 加入“绿色”元素。
2. 进一步完善环境保护的法律法规和实施细则, 明确并加大环境污染者的法律责任。在国家立法为主的前提下, 鼓励各省、市、自治区人大因地制宜制定绿色发展的地方法规, 促进本地区经济的可持续发展。
3. 按照民事责任为主, 刑事、行政责任为辅的原则, 强化有关责任部门的执法权力, 加大环境保护的执法力度, 激发企业保护环境和减少污染的内在动力, 促使金融机构自发地承担环境社会责任和推行绿色金融。

### 4.2 以完善信息协调和共享为抓手, 加强政府部门之间、政府与第三方机构的协调合作

发展绿色金融涉及一行三会、发改委、财税部门、环保部门、金融机构以及社会中介机构等多方主体的职责。

1. 需要建立稳定的跨部门协调机制, 确保绿色金融政策的统一性和稳定性。同时, 要构建工业管理部门、环保部门与金融监管部门的双向信息沟通与共享平台, 及时沟通有关环境保护的技术信息、行业标准以及违法违规处置情况。
2. 中央政府和地方政府还应建立与第三方机构的协作机制, 充分借用社会监督、社会评估的力量, 及时反馈执法和政策落实情况, 提高政府工作效率。

### 4.3 完善绿色金融政策支持体系, 引导金融机构加快绿色金融产品创新、投资者调整投资行为使投资组合“绿化”

原则上, 应比照当前对农村金融和小微企业的支持力度, 建立和完善绿色金融政策支持体系, 推进财税政策、货币政策、信贷政策与产业政策的协调与配合, 强化对金融机构开展绿色金融业务的激励和约束。

#### 一. 货币政策与绿色金融目标相协调

货币政策对经济和社会整体有广泛的影响。央行关于利率水平、通胀目标和汇率所采取的行动是投资决策的关键因素。货币政策可以采取的措施:

1. 确定并消除当前货币政策中与绿色经济目标不匹配的行业区别对待。如对环境有影响的常规货币政策工具, 包括存款准备金率、利率、SLO (短期流动性调节工具)、SLF (常设借贷便利) 等。
2. 制定专门的“支绿”再贷款政策。



3. 在实施绿色量化宽松政策时，评估转变资产购置的可行性（如购买绿色债券）。

4. 在评估金融稳定性的“压力测试”模型中加入环境相关的风险。该框架可以帮助监管机构审查整个金融体系的环境风险影响，并引导宏观审慎监管进行相应的调整。

5. 未来还需要进一步探寻货币政策与绿色金融的关系，加深对现行的货币政策工具和绿色金融之间的协调性的理解，以及环境退化和资源稀缺可能对价格和金融稳定性产生的影响。

## 二. 在银行监管政策中融入绿色金融内容，并将可持续发展作为金融风险管理的的重要内容。

银行业主导中国的金融体系，也是现今最重要的领域。要将绿色金融纳入银行监管政策，可以采取的措施：

1. 对符合条件的绿色信贷不计入存贷比考核指标。

2. 引入环境压力测试制度，开发符合适用于不同类型金融资产组合的环境压力测试的标准、评测体系和方法。

3. 树立“绿色资产”在抵押担保方面的优惠地位。

4. 为绿色信贷建立更加便捷的证券化通道。需要合作型暂持融通安排发行资产支持型证券、跨银行间的资产集合，扩大证券化通道的规模

## 三. 证券市场监管政策与发展绿色金融协调，加大发展绿色债券市场的力度

除银行贷款外，其他的融资渠道也有发展绿色金融的潜力。其中一个关键领域就是绿色债券市场：

1. 应建立一个得到政府认可的定义（可以涵盖可再生能源、能效、低碳交通、水、废物管理、可持续农业和气候变化对策等领域），并通过建立政府认可体系或第三方机构为公司债券发行人以确保债券的“绿色”，为公司债券发行人提供便捷通道。

2. 相比“棕色”贷款而言，对绿色贷款提供差别价格机制（或为绿色债务性产品提供差别银行资本充足率要求）可以有效增加绿色信贷。需要大量的绿色贷款为绿色债券市场提供足够的交易量。增加绿色贷款的一种方法就是为绿色贷款创造区别于“棕色”贷款的价格差。决策者（特别是央行和其他金融监管者）可通过对绿色债券制定有区别的利率、或者对绿色负债产品制定有区别的资本充足率要求、或通过央行对绿色贷款提供低利率的专项再融资来实现。

3. 为绿色证券提供信用增级。债券发行需要达到一定规模。小型贷款和资产需要适当集中打包，资产支持证券的发行能够解决这一需求。

4. 对绿色债券投资收入给予免税。支持绿色债券投资的一种方式是对绿色债券投资收入免税。这项方案可以通过使绿色债券持有人获得利息与总量相等，或部分的税收。

5. 发行具有双重追索权的绿色债券或有政府担保的收益债券。以便为投资者提供分析绿色资产表现的经验，使投资者避免暴露于更高的风险。随着投资者对绿色资产的表现更加熟悉，市场可以发展为绿色资产担保证券。

6. 发行绿色城市建设债券。这类债券可用于资助一系列绿色项目，特别是对中国城市化发展来说非常重要的交通运输、可再生能源和清洁用水项目。绿色城市债券可以在国内市场、或以人民币结算的离岸债券市场发行，以吸引更多广泛的投资者。

另一个关键领域是改进上市公司环境表现的信息提供，促进投资者和中介机构更好地做决策。



7. 建立上市公司和发债企业环境信息强制披露机制。

8. 开发既与政策目标相连又能获得公共部门激励措施的环境友好型基准股票和债券指数。其具体实施需要更完善的数据报告和会计制度。

9. 推动建立绿色投资者网络，完善投资者社会责任体系。

#### 四. 促使保险监管政策与发展绿色金融相协调

现有绿色保险目前的定义和范围过窄，限制了保险人更好地了解、预防和减少环境风险的潜力。应采取的措施有：

1. 拓展绿色保险的定义及范围。促成对环境风险管理形成一套综合方法和各种各样的保险解决方案（如太阳能电池板和风力涡轮机的履约保险、能源和水效率建筑保险、“按里程付费”保险）。

2. 进一步改进和提升环境污染责任保险制度。包括建立健全环境污染责任保险相关的法律法规体系、优化地方政府在环责险发展中的角色定位、出台必要的财税政策支持环责险的业务发展、对环责险制度的效果进行评估等。

3. 加快建立完善环境污染损害鉴定评估机制，规范环境污染事故的责任认定和损害鉴定工作，健全环境损害赔偿制度。支持和鼓励保险经纪机构提供环境风险评估和其他有关保险的技术支持和服务。

#### 五. 财政政策在支持绿色金融方面可以发挥更大的作用

通过对实体经济和金融部门的直接激励，财政激励可以大大推进绿色金融。举措包括：

1. 伴随金融业“营改增”的税制改革，对各类金融机构开展绿色金融业务的收入实行适当的所得税和增值税优惠。

2. 会同人民银行、银监会，研究制订科学、便捷、有效的对绿色投资项目的贴息制度，甚至可以将直接发放给企业的节能奖励转化为信贷贴息。

3. 对绿色债券的投资收入减免税收，以支持绿色债券投资和绿色债券市场发展。

4. 通过政府采购，更多地支持绿色企业发展，以增强绿色金融的稳健性。

### 4.4 大力培育中介服务体系，加快绿色金融基础设施建设

绿色金融项目通常技术较为复杂，难以全面准确揭示项目的技术和环境风险，需要专业技术评估的支持。为此，要在发挥现有中介服务机构的作用的基础上，加快培育和完善独立的第三方评估机构的措施有：

1. 建立环境成本信息系统，为决策者和全社会投资者提供依据。可以参考英国 Trucost 公司提出的自然资本负债概念，将大气污染排放、水污染、垃圾生成等造成的环境成本尽可能量化。<sup>8</sup>

2. 建立绿色评级体系，研究绿色因素对主权政府、地方政府和企业评级的影响。

### 4.5 发挥政策性金融机构在绿色金融领域的引导作用

中国的政策性银行可以发挥关键作用，为绿色投资直接提供资金、开拓市场、为商业银行示范最佳

8. 该信息系统的信息既可以为政策制定者在确定价格补贴、资源税、排污费时提供决策参考，也可以为市场各类投资者在投资和授信决策时采用。

实践。为此可以采取的措施包括：

1. 建立国家级“绿色金融专项基金”，资本金部分来自政府（污染罚款、环境税和财政收入划拨等），部分来自社会资本（包括社保基金、保险公司和其他具有长期投资意愿的市场机构），通过引入激励机制，直接在股权层面撬动社会资本。

2. 要求现有政策性银行信贷进一步“绿化”，按照“赤道原则”调整业务流程和产品结构。同时政策性银行应在成为银团贷款牵头行时，对贷款用途有更清晰的导向，支持节能环保的投资项目和对被投资企业施加影响。在政策性银行内部应设立专门的绿色金融部门，主要负责对信贷对象和信贷组合进行基于绿色金融标准的评估。

3. 对现有政府系的各类基金（如社保基金、医保基金、住房公积金等）的投资活动增加社会责任要求，更好地发挥政府的投资引领作用。

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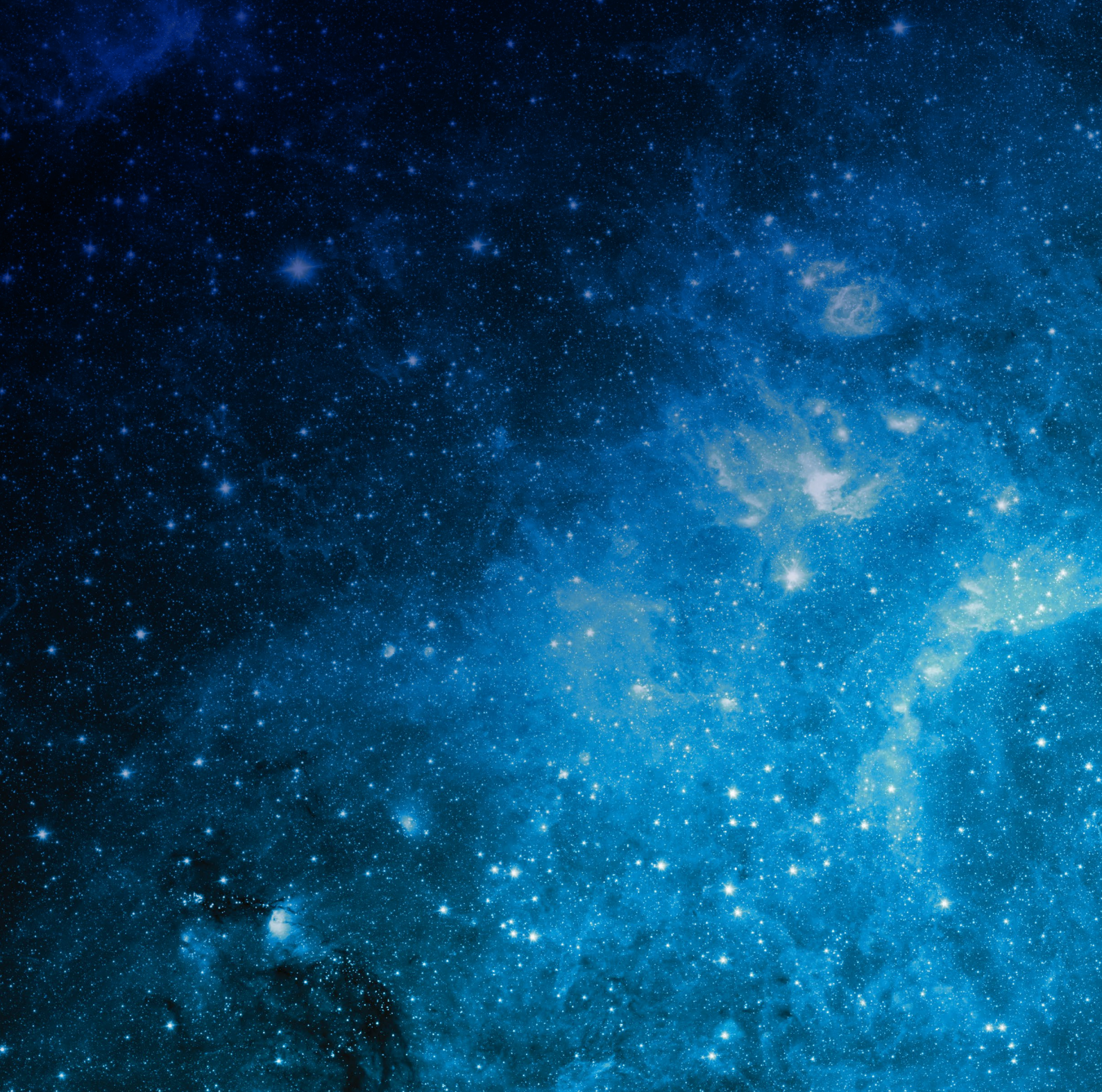
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# GREENING CHINA'S FINANCIAL SYSTEM

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