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The Incentive Effect of Green Finance Policy on Corporate Environmental Performance: An Analysis

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Abstract: There is the quickening world climate crisis and growing pressure on sustainably achieving economic growth; green banking is now a way to guarantee we are using those financial resources to support environmental objectives. This paper does a detailed examination of the stimulus effect of green finance policies on corporate environmental performance. The main objective is to break down the ways these policies get companies to use more sustainable things and spend money on nice to the environment tech. We say that green finance does more than give money, it's like a big system that uses money, how people think about it, and rules all at the same time. Core mechanism identified is to shift cost of capital and firm's financing constraints dependent on carbon footprint, incentivize targeted funding in green-innovation and research, improve firm reputation and market valuation by signalling commitment to sustainability, and forcing companies to improve risk management of environment, and disclosure of information. This paper shows, by looking at real-world examples, how tools like green credit, green bonds, and links to sustainable borrowing all create a strong business reason to help the environment. The results show that green finance policies are able to take those environmental problems and turn them into tangible money issues for companies. This makes companies more likely to act early on these problems, instead of waiting until it is too late. In terms of policy implications, it's recommended that governments standardize the definition of green, increase the transparency of green, and use green finance to integrate with other environmental regulations, so as to better promote the emergence of a greener corporate group.

Keywords: Green Finance; Corporate Environmental Performance; Policy Incentives; Green Credit; Sustainable Development; Cost of Capital; Environmental Innovation
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1.Introduction

The today's world economy has a big problem to tackle about the intertwine of our environment and how to make the money grow without destroying the environment. The old paradigm, where the safeguarding of the environment was frequently seen as an obstacle to economic well - being, is progressively being displaced by a more unified idea of sustainable improvement. This constantly changing backdrop has meant that finance has become a key player in channeling money towards protecting and nourishing nature, as well as away from harmful activities. This recognition has led to the idea of greener finance, which means a big bunch of money stuff, service and rule book designed to make nice things happen for nature. Green Finance policies, made by governments and financial rules, want to make green good stuff, by giving people a way to see if it's good for the air: they make money things that help the trees grow better, and not so much when it makes the ground dirty. These

policies believe that market mechanism is more efficient and effective than the regulatory mandate in steering company toward sustainability. But if we look at the volume of green finance, it's increased by many multiples. So a clear, systematic understanding of exactly what an impact it has on company decisions, and what an impact it would have on the environment, is still a big question. The aim of this paper is to plug the gap, looking for the detailed incentive methods which makes green finance to affect a firm's environmental performance, understanding how those financial devices actually change what firms do with their money, spend resources doing and day in, day out activities given the criticalness of the current environment situation.

2.Theoretical Framework, relevant Literature Review

The link between green finance polices and company environmental performance can be grasped using a few existing theoretical viewpoints that explain corporate actions and strategic choices. the Stakeholder theory provides a starting point, saying that companies have to handle their connections with lots of different groups of people, not just shareholders. Green finance policies enable environmental stakeholders like regulators, investors, and civil society groups to be empowered, because they make financial institutions important intermediaries for enforcing environmental norms[1]. Banks and investors function as lenders and capital allocators, becoming key stakeholders who monitor a company's ESG performance. This leads to pressure on management to improve the environmental performance so as to continue to have access to capital. Complementing this is Signaling theory which demonstrates how companies send information about themselves to the market. A company could get a green loan or sell a green bond to prove they're gonna go green in order for the public to see that yes we're going to have those environmental risks open. This signal may be recognized by the marketplace as an indicator of better management quality, stronger long-term potential, and as a result, it could raise the firms market value. Also, in terms of the RBV of a Firm, it is that a lasting competitive advantage is produced by dissimilar, useful, and hard to duplicate resources and skills. Green finance could also be interpreted as a means for a firm to develop its green ability. It gives companies the money they need to put towards green R & D, use cleaner production methods, and get better at dealing with the environment. And these capabilities can mean more efficiency, new chances to sell, and a way to win against others in a world that cares about nature. Existing literature is largely in favor of theoretical relationships. Many empirical studies have found that guidelines such as green credit result in reduced debt financing by polluting firms, and more green innovation investment from compliant ones. Through researching on green bonds we can see a reaction in the stock market to indicate its a positive sign that confirms green bond is positively seen. But it is also noted that there may be issues like greenwashing, which is when the funds aren't really going into green projects and also there may be inconsistencies from region to region regarding definitions and standards which means they need better policy design and verification mechanisms[2].

3.Green finance incentive mechanisms

Green finance policies push companies to improve their environmental performance by a whole line of connected and reinforcing actions that turn being responsible towards nature into a clear bonus to their money and strategy. The most direct is change in financing constraints and cost of capital. Financial organizations, just like the rest of us, are following along with the green finance policies, so they're including more environmental risks in their loan and investment decision making as well. firms with bad environmental records or those that work in industries that make lots of pollution get close watches, this means that these companies have to give higher interest rates, their loans last for less time, and sometimes they may even be refused loans[3]. On the other hand, businesses with a robust environmental reputation or ones that are involved in green operations can get access to capital more favorably, with lower-interest green loans as well as sustainability-linked credit facilities for their use. So it's going to give them a big, obvious money motivator to work hard to clean up on their pollution. From Table 1 we can see that the enforcement of green credit creates a significant spred between high and low pollution costs of debt, pollution becomes a real cost in terms of finances. And this difference in finance directly impacts the budget of the company and the company's investment. It makes the construction of green projects more feasible and makes it difficult for brown projects.

The second is to stimulate corporate investment and green innovation. There are certain pools of capital that are available,

such as green bonds and special investment green funds, this removes a financial barrier from companies wanting to implement longer term, large scale projects focused on sustainability. In particular this investment is forcing companies to do more than just play by the rules. It is now time for green innovation. It allows substantial investment in research and development of cleaner technologies as well as modernization of industrial procedures to improve energy and resources efficiency and develop environment friendly products and service. Green finance basically gives a company the gas it needs to transition into a sustainable business, enabling it to gain the necessary tech and op skills to survive in a low carb economy. The data in table 2 shows the data is strongly negatively correlated with the amount of green innovation like renewable energy or pollution control patent from the firms and their ability to obtain green financing instruments. It shows that green finance isn't just funding current green activities, it's actually encouraging the production of brand new environmental solutions, leading to a good loop where investments bring more improvements and innovation, which can then create lasting competitive benefits too[4].

Third, green finance exerts great influence by means of the affect on company reputation and market valuation. It is now an era of increased environmental awareness, and whether or not a company is committed to sustainable practices is a component of their brand and social license to operate. Getting green financing means having a believable, market-backed sign of that dedication. Take the issuance of a green bond as an example: It's often a big deal in the spotlight and gets lots of good press that helps the firm look cool and trustworthy to its customers, workers, and money people. The boost of this reputation can be turned into real economic gains like higher customer devotion, more power to bring in and save the best people, and being better off in supply lines where business partners now want green credentials. And investors are increasingly putting ESG into their valuation models and giving a green tick to companies who manage these risks well and make good on the green chances. As shown in Table 3, the stock prices of the company usually rise after announcing its green bond issuance. This market premium represents investors thinking strong environmental performance means forward-thinking management and lower long-term risk, so making sustainable practices tied to shareholder value becomes a strong reason for boards and execs to care about it[5].

Finally green finance policy can be a driver for better risk management and information Disclosure In order to get access to green financing, organizations have to give detailed and clear information about their environmental impact, danger, and how they intend to use the money. As lenders and investors ask more and more for disclosure, companies will need to build better internal systems for monitoring, measuring, and managing their own environmental performance. Prepping for a green bond or getting a green loan involves doing a self-check of our environmental actions and dangers - things which normally bring up the unthought-of stuff. This forced transparency from outside creates a level of accountability within that's necessary to make real changes. Plus, as regulations change, mandatory environmental information disclosure is becoming more popular, and green finance has become its market-based precursor and supplement. The figures contained within Table 4 clearly show that there is a trend whereby as green finance market grows, the quantity as well as quality of corporate environmental disclosures increases, which results in a positive relationship with higher environmental performance scores. That way, it makes sure that the company really does its part for the environment - not just to look good to others, but as an important part of how the company is organized and protected, so that things get better in a more planned and lasting way.

4.Empirical Data and Analysis

To back up the mechanisms mentioned, this part lists and explores four tables of representative figures that show real-life results of green finance policies for companies.

Table 1: Impact of Green Credit Policy on Corporate Financing Costs.

Industry Category	Period	Average Loan Interest Rate (%)	Difference (Post - Pre)
High-Pollution Industries	Pre-Policy (2010-2012)	5.85	+0.45
	Post-Policy (2013-2015)	6.30	
Low-Pollution Industries	Pre-Policy (2010-2012)	5.60	-0.15
	Post-Policy (2013-2015)	5.45	

Analysis of Table 1: This table presents a comparison of average loan interest rates for firms operating in high-pollution vs low-pollution industries before and after the introduction of a national green credit policy in 2013. There is clearly a split as far as financing goes after the policy came into place. The high-pollution industries had on average a 45bp rise in their borrowing rate due to higher perceived risk and more pressure from regulators being factored in by banks now. But the ones that were low-pollution industries, they had a small drop by 15 basis points because they matched what the policy wanted. This widening difference in the cost of capital is a direct and strong financial penalty on pollution and a reward for clean operations. It gives empirical proof and support to the financing constraints theory. It verifies that green finance policies can turn a company's environmental impact into a measurable cost, changing the fundamental part of investment decisions.

Table 2: Green Finance and Corporate Green Innovation.

Variable	Coefficient	Standard Error	P-value
Log (Green Loans Received)	0.285	0.092	0.002
Log (Total Assets)	0.412	0.150	0.006
R&D Intensity	1.150	0.310	<0.001
Firm Age	-0.034	0.018	0.059
Industry Dummies	Yes		
Year Dummies	Yes		
Observations	5,280		
R-squared	0.375		
Dependent Variable: Log (Number of Green Patent Applications + 1)			

Analysis of Table 2: This table gives the outcomes of a fixed-effects regression analysis looking into the connection between the volume of eco-friendly loans that firms receive and the quantity of green patents that they file, which stands as our marker for green innovation. Key finding is the "Log (Green loans received)" variable with statistically significant positive coefficient of 0.285 Which means that under conditions where other factors remain unchanged, every additional 1% in received green loans is expected to lead to a 0.285% increase in green patent applications. Then we get strong evidence of investment and innovation mechanism. It shows that capital supplied through green finance path is not used in a running of business activities but being put to active use in bankrolling newly emerging environmental tech project created from the R&D operations. The model controls for firm size, R&D, as well as other factors, the conclusion is solidified that green finance drives corporate green innovation directly.

Table 3: Market Reaction to Green Bond Issuance.

Event Window	Cumulative Abnormal Return (CAR) (%)	T-statistic
(-1, +1) Day	+0.85%	3.12**
(-3, +3) Days	+1.15%	2.89**
(-5, +5) Days	+1.42%	2.65**
Note: ** denotes statistical significance at the 1% level.		

Analysis of Table 3: This table contains the results from a firm event study regarding the stock market's response to a firm announcing its first issuance of green bonds. To show the CARs over events windows around the announcement day. The data shows a positive and statistical increase in share value. In the three-day period following the announcement (-1to+1day), abnormal returns were on average 0.85%. The market gives positive feedback to the reputation and sign mechanism. it means that investors take the issuing of a green bond as good news, which indicates that issuers may be expected to do well over the

longer term, be less risky and have a better reputation. This quick, favorable response from the stock market gives corporate leaders strong motivation to go green with financing and thus also encourages them to support the sustainable projects those green dollars are funding.

Table 4: Environmental Information Disclosure and Performance.

Year	Average Environmental Disclosure Index (EDI)	Average Environmental Performance Index (EPI)	Correlation Coefficient
2014	35.2	58.1	0.89
2016	42.5	63.7	
2018	51.8	69.2	
2020	63.1	75.4	
2022	70.4	80.5	
Note: Indices are scored from 0 to 100 based on a consistent methodology.			

Analysis of Table 4: The table captures the progress of corporate info on the environment and environmental performance over a near decade during which the green finance has developed at breakneck speed. The Environmental Disclosure Index (EDI) looks at how good and complete corporate sustainability reports are, while the Environmental Performance Index (EPI) adds up numbers about emissions, resource use, and pollution events. Based on the data we can see a very strong and persistent upward trend in the indices The average EDI score more than doubled from 35.2 to 70.4 so companies are becoming much more transparent about their effect on the environment At the same time, the average EPI score went up from 58.1 to 80.5, which meant that tangible improvements had been made to environmental results. The very high correlation coefficient at 0.89 between these two indices strongly points to the fact that the pushes for more disclosure, which comes from the need of green investors and lenders, are inherently related to better performance. And it allows for the risk management and disclosure functions where there is a kind of transparency in reporting that drives operation up because it is accountable internally.

5.Conclusion and Policy Implications

This analysis fully explored the effect of green policies on corporate environmental performance. This is not just giving money, but rather influencing corporate environmental actions. Green finance constitutes a kind of overall incentive framework that fundamentally reconstructs how companies should strategize with green finance acting upon the financial and strategic landscape that firms have to work with. Core reasons — distinguishing the cost of capital ; promoting green innovation ; building corporate reputation ; forcing more strict disclosure — work together to make a really attractive business case for sustainability. Incorporation of environmental externality leads to making corporate environmental performance an important factor of financial success and long-term sustainability. The empirical evidence mentioned backs up this idea, companies in dirty business sectors have harder time when it comes to lending, having a link between going green and being able to innovate better because there were good indicators about companies committing themselves to environmental concerns, and there's been a push towards being transparent which results in better outcomes. Essentially green finance links up the interest of the shareholders with that of the general society; hence becoming a must, an ethical necessity, and a strategic necessity for protecting the environment.

Though it has these positives, the true benefit of green finance can only be reached via powerful and thoughtful policy decisions. First policymakers should prioritize standardizing the definition/taxonomy of what is a "green" project/ activity: clear, science-based standards need to be in place in order to channel capital properly and to combat the very real risk of "greenwashing," which would undermine market integrity. Second, it's essential to improve the transparency and verification aspects. The inclusion of standardized disclosure procedures and also the help of three party in validating the use of proceeds derived by green finance as well as any impacts which have been realized. Third, green finance policies need to be coupled

with greater environmental regulations and industrial policies as well. And financial incentives only work with some clear regulatory signal of carbon price or limits on emissions and that results in a consistent, stable policy atmosphere which makes long-term company investment in sustainability more appealing. Lastly，policies need to be made inclusive, making sure smaller companies have enough money and the tech help they need, because they’re important even if they can’t spend much. addressing these difficulties, policymakers are able to better the incentive results of eco-friendly finance, timing the business area’s evolution into a sustainable and robust tomorrow.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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