

Krahnen, Jan Pieter; Rocholl, Jörg; Thum, Marcel

## Article

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Jan Krahnén, Jörg Rocholl and Marcel Thum

## Green Finance: From Wishful Thinking to Marginal Impact

### KEY MESSAGES

- The difficulty of establishing clear links between the origin of funds and their use calls into question the usefulness of ESG-oriented financing
- Active investors may exert a formative influence on a company's environmental and social actions, not least by accepting a personal reduction in earnings
- Passive investors will only be able to exert an influence if there are a large number of green investors and if markets are characterized by frictions and inefficiencies
- In the case of the state, there is no comparable way for investors to exert an influence, as budget planning remains the preserve of the legislature
- Combining private efforts towards green finance with public policies may render the former ineffective in achieving ESG goals

### INTRODUCTION

Climate change is one of the most significant global challenges of our time. Massive joint efforts by policy makers, business leaders, academic researchers, and society are needed to combat the acceleration of climate change. The financial sector, in particular, is under increasing pressure from the public to play a role in solving the problem. The share of asset management services directed toward sustainable activities has risen steadily over the past 10 years. According to Morningstar, the total volume jumped significantly to \$1.7 trillion in 2020 (Jessop and Howcroft 2021). Global fund managers like Blackrock, Vanguard, and Fidelity, as well as leading asset managers in Europe, such as DWS, Union Investment, and DEKA in Germany, have placed "green" portfolio strategies and

"sustainable" exchange-traded funds (ETFs) at the top of their marketing lists, offering them to institutional and retail clients.<sup>1</sup>

At first sight, this is quite a dramatic change for an industry that was traditionally single-mindedly focused on performance, for which returns and risk were the only factors that counted. However, much of the sustainability promises made by fund managers have turned out to be cheap talk, having only a minor impact on the real economy, if any at all. The main reason for our critical assessment is the difficulty of linking funding and investment in a manner that is both comprehensible and traceable.<sup>2</sup>

### GREEN FINANCE CREDULITY

In this section, we present three arguments for why green finance as we know it and as it is widely practiced today is likely to be ineffective.<sup>3</sup>

### Attributability: The Relationship between Assets and Liabilities in Corporate Balance Sheets

Think of a typical T account that represents the sources and uses of funds at firm X at the end of the year. Its balance sheet shows several asset classes: real estate, machines and equipment, accounts receivable, and cash. Among the assets are a wind power generator and a small coal-fired power plant that covers some of the firm's energy consumption. There are also several items on the right-hand side of the balance sheet: bank debt, accounts payable, and equity.

<sup>1</sup> "ESG" refers to environment, social, governance. We use the terms "ESG", "sustainable", and "green" as synonymous in the following.

<sup>2</sup> For a more comprehensive survey of the literature and a more extensive discussion of the various arguments, see Krahnén et al. (2021).

<sup>3</sup> For a similar line of argument, see Wissenschaftlicher Beirat beim Bundesministerium der Finanzen (2021).



Jan Krahnén

is Professor of Finance emeritus at Goethe University's House of Finance and the Founding Director emeritus of the Leibniz Institute for Financial Research SAFE.



Jörg Rocholl

is Deutsche Bank Professor in Sustainable Finance and President of the European School of Management and Technology, Berlin.



Marcel Thum

is Professor of Public Economics and Director of ifo Dresden.

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Now assume the firm issues a new bond as an intended substitute for the rather expensive bank loan. The prospectus advertises it as a “green bond” because it commits the proceeds to being used at all times for net-zero machinery and equipment, and in particular wind power generation. What can be said about the “green” role of the bond? Obviously, not much. First, the firm’s balance sheet contains several assets, some green and some, like the coal power unit, brown. Can we say that one particular funding source, such as the proceeds from the bond issue, is funding a particular item on the asset side, for instance the wind power engine? The answer is “no,” since there is no visible tie between the funding and the investment decision.

### **Additionality: Relationship between New Funds and Existing Assets**

According to the Modigliani-Miller theorem, the value of a firm is disconnected from the type of financial instrument used for funding purposes. A real (causal) impact of the composition of liabilities on the value of the firm exists if and only if the use of a particular funding instrument would change the composition of assets held by the firm in a predictable way. If a particular financial instrument is said to be causally related to a specific investment, there must be a difference between the actual investment and the counterfactual investment. For the link to exist between a new type of financial contract (“green”) and a new type of machine (“ESG compliant”), some detectable, enforceable relationship is needed between the funds and their use.

That said, measuring additionality in terms of the characteristics of green investments or ESG criteria is a complex, if not impossible, task.<sup>4</sup>

### **Substitutability: Pricing of Securities in Markets**

Even if the exact channel of impact cannot be identified, perhaps an aggregate effect on the firm’s cost of capital can be observed more generally. The standard argument in favor of a green premium, a “greenium,” that is, lowering firms’ cost of capital, relies on a price pressure effect in the market for corporate funds (Heinkel et al. 2001).

When “green” investors tilt their portfolios toward “green” companies, the cost of capital for the latter decreases, as does the expected portfolio return of “green” investors. The bulk of the early literature argues differently, in assuming an excess return for green investors. In a 2015 metastudy based on a sample of more than 2,000 academic papers, Friede et al. (2015) found that the large majority of studies reported positive outperformance. These findings

clearly contradict the above contention that a pro-green argument in the utility function of investors drives a greenium (a decrease in the firm’s cost of capital), resulting in an underperformance vis-à-vis conventional investments (Kapraun et al. 2021).

More recent empirical work by Pastor et al. (2021) reconciles the positive outperformance so widely found in the previous literature with the equilibrium underperformance (“greenium”) argument. The authors point to a hindsight bias in the form of a climate concern shock that would alter the economic behavior of consumers, producers, and the state in a way that would have been unpredictable in prior periods. Thus, given the recent increase in climate concerns, a climate-concern factor would explain the outperformance of portfolios comprising a set of “green” criteria.

### **PASSIVE AND ACTIVE INVESTORS**

In the following, we will differentiate more finely between passive and active/activist investors.

#### **Passive Investors**

Pursuing a passive strategy means that the securities held in a portfolio are selected on the basis of some ESG index from a universe of existing stocks in the market. No direct influence on corporate investment policy is sought.

In a well-functioning capital market, the passive portfolio strategies of individual investors do not affect the overall attainment of ESG goals. In an integrated, information-efficient market, the diversion of investment funds into a subclass of potential investments will not affect the relative prices of investment alternatives, such as equities, or at least not permanently. Liquid funds from other investors, for whom the pursuit of ESG goals is irrelevant, will offset the diversion of funds.

The neutrality of passive investments vanishes when the demand for ESG stocks exceeds the supply at prevailing prices. If many passive investors appear in a market for ESG stocks, investor influence on the attainment of ESG goals becomes possible, even if these investors do not exert any influence on the management of the companies whose shares they hold. Investors change the relative cost of the capital of ESG companies compared to that of conventional companies, thereby creating incentives for conventional companies to transform into ESG companies. This change in the relative cost of capital arises from the large number of investors who prefer ESG investments and are willing to outbid other investors by forgoing returns. Investors might forgo returns, for example, because they derive greater non-financial benefits from ESG investment. As the cost of capital for ESG investments has fallen relative to the cost of capital for conventional investments, more ESG investment

<sup>4</sup> A discussion of measurement issues relating to additionality in terms of climate goal achievement can be found in Greiner and Michaelowa (2003).

projects are becoming worthwhile, implying a positive net present value of cash flows for these projects. As a consequence, companies will transform themselves by altering their investment portfolio.

### Activist Investment Strategies

To enforce ESG goals, an active investment strategy requires intervention at the individual company level. Unlike the passive ESG-oriented strategy, where many investors take a position via their portfolio decision, the investment here is directed primarily at the ESG companies, but it is also aimed squarely at conventional companies, with the intention of inducing higher ESG values.<sup>5</sup>

On the equity side, this intervention can take the form of voting in annual general meetings or joining the company's supervisory board. This intervention can take place via all financial instruments, bonds or equities, provided that the scale of investment is large enough to be perceived as a relevant investor. Usually, only institutional investors can achieve the required scale.

If the company previously followed a profit-maximizing path, then the intervention will push the firm off this path and lower its market value. After all, if an ESG-compliant change in corporate behavior, such as the installation of additional emissions filters, increases the value of the company, then a profit-maximizing firm would carry out this investment anyway, and no active investor would be required. As a result, an active investment strategy can indeed help achieve ESG goals, albeit hand in hand with diminishing returns (Oehmke and Opp 2020).

A number of publications address the broader, active influence that investors have on a company's strategy. For example, Landier and Lovo (2020) emphasize the importance of market frictions regarding the influence that ESG funds exert on companies. The authors show that the greater the frictions present in a capital market, the more impactful are the funds. They conclude that these funds can be most effective in less-efficient markets, such as with unlisted companies or small firms. The authors also show that the funds can amplify their effect by intervening in management decisions, for example, by imposing supplier restrictions on the company.

These findings on the particular importance of active investors in attaining ESG goals suggest that legislators should pay attention to the opportunities of active influence when regulating corporate governance. Giving more power to owners and the supervisory bodies vis-à-vis firm management could make a contribution to the attainment of ESG goals.

<sup>5</sup> Note that in this case, the measurement problem regarding ESG goals is significantly smaller. First, it is not necessary to agree on a common taxonomy. Second, the different ESG goals do not have to be aggregated. All that is needed is that activist investors agree which ESG goals to pursue and how to control the management of their company in the pursuit of these goals.

Another implication of the above is that the impact via active investors may be larger for firms with ample room for improvement on an ESG scale. For instance, a coal-run power plant may earn "green" points, that is, it may reduce its emissions significantly when additional air filter systems are installed, and even exceed the regulatory requirements. Of course, the additional costs of the extra filter runs counter to the company's (short-run) profit interests. Gollier and Pouget (2014) use the catchy term "washing machine" for turning a "brown" firm into a "green" one and provide conditions when investments in non-responsible companies can generate positive abnormal returns in the long run.

### GREEN FINANCE AND GOVERNMENT POLICY

#### Interaction of Government Policies and Private Investment Strategies

If green finance goes beyond accounting tricks and really leads to a reduction in a company's CO<sub>2</sub> emissions, investors' actions constitute a private contribution to a public good (mitigation of global warming) (Cornes and Sandler 1986). It is financed by the green investor's lower return. It has been well established that in general, private contributions lead to an underprovision of the public good. A welfare-maximizing government could achieve an efficient solution, but a (tax-financed) government provision usually crowds out some, but not all, private activities. Some private contributions remain despite comprehensive government activities, as investors enjoy a warm-glow utility from their own contributions, i.e. they draw a personal benefit from doing good to society (Andreoni 1990).

Somewhat surprisingly, in the literature on green finance, the government is almost entirely absent as a crucial player.<sup>6</sup> This absence might be justified if private and government activities took place in separate spheres. Then the private provision would simply top up whatever the government had provided. However, this is certainly not the case. Unfortunately, there is no guarantee that more green investors would really make the economy greener. A formal analysis of the interaction shows that, on the one hand, an increase in the number of green investors leads to additional (warm-glow) contributions to the public good. This effect per se makes the economy greener. On the other hand, a greater number of private contributors also enhances the crowding-out effect, which induces the government to optimally provide less of the public good (Lamprecht and Thum 2022).

<sup>6</sup> In a recent paper on green finance, Hakenes and Schliephake (2021) make use of this warm-glow mechanism. They formulate the model in terms of a disutility (guilt) from investing in polluting production.

## The Case of Green Government Bonds

ESG-guided investments play an important role outside the private sector too. The issuance of so-called “green government bonds” has increased significantly in recent years. In September 2020, the Federal Republic of Germany also issued green government bonds for the first time. An issue volume of 6.5 billion euros was matched by a demand for 33 billion euros. One special aspect of these securities is that they are so-called “twin bonds,” whereby a green security with the same maturity and coupon is issued alongside a conventional federal security. The green bond is the one twin that replaces part of the auction volume of the conventional bond that is the other twin. This issue design is intended to ensure that green government bonds can be exchanged for conventional government bonds at any time and thus have comparable liquidity. Their design also ensures that green government bonds do not place higher costs on the federal government as the issuer (of course with no higher returns for investors either).

On the expenditure side, previously planned government spending that is compatible with green goals offsets the proceeds from the issue of green government bonds. This kind of spending includes energy-efficient building refurbishment, the e-car purchase premium, and public transport. In line with this policy, the German Ministry of Finance has asked all ministries to look for expenditures in their budgets that are compatible with green goals. Accordingly, the maximum volume of federal green bonds is derived from the volume of existing spending in the federal budget that is compatible with green goals. This should not imply an expectation on the part of investors that the government will specifically use their funds to do more to achieve ESG goals. Green government bonds do not per se have a higher and more attributable ESG impact than conventional government bonds. In this respect, they are no different from a conventional government bond.

There is an important difference between corporate and public financing: While companies raise both equity and debt capital, governments only act as debtors on capital markets. Equity investors, in particular, have the opportunity to exert influence on the management of these companies by strongly pursuing ESG goals or, in extreme cases, even replacing management. This possibility, however, does not exist in the case of sovereign financing. Rather, the pursuit of ESG goals is subject to political decision-making and thus to the parliamentary process. The ability of capital markets to influence the attainment of ESG goals is thus significantly lower with respect to governments than it is with respect to companies, because investors as a group of actors do not – and indeed should not – have a privileged voice in the political decision-making process. The role that active

investors can play with respect to companies falls to the electorate in the case of governments.

## POLICY CONCLUSIONS

These fundamental considerations give rise to a number of recommendations for a financial policy that is geared toward ESG criteria. The promotion of real economic goals through guidelines for expenditure financing is only conceivable under restrictive conditions. We highlight the following important arguments:

The difficulty of establishing clear links between the origin and the use of funds calls into question the usefulness of ESG-oriented financing.

1. The key yardstick for ESG-oriented financing should be the expected changes in the real economy, e.g., in environmental quality.
2. A change in the real economy may occur if private investors actively exert a formative influence on a company’s environmental and social actions, not least by accepting a personal reduction in earnings.
3. In principle, a real economic effect is also conceivable in the case of passive investment, but only if the number of passive investors is large and if the markets are characterized by specific frictions and inefficiencies.
4. There is no comparable way available to investors to exert influence on the state, as budget planning remains the sole preserve of the legislature.
5. Attempts to combine private efforts with public provision need to be taken into consideration. But before recommending more private efforts towards green finance, we have to be sure that this will really bring us closer to our ESG goals.

## REFERENCES

- Andreoni, J. (1990), “Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving”, *Economic Journal* 100 (401), 464–477.
- Cornes, R. and T. Sandler (1986), *The Theory of Externalities, Public Goods, and Club Goods*, Cambridge University Press, Cambridge, UK.
- Friede, G., T. Busch and A. Bassen (2015), “ESG and Financial Performance: Aggregated Evidence from More than 2000 Empirical Studies”, *Journal of Sustainable Finance & Investment* 5 (4), 210–233.
- Gollier, C. and S. Pouget (2014), “The ‘Washing Machine’: Investment Strategies and Corporate Behavior with Socially Responsible Investors”, Working Paper, Toulouse School of Economics.
- Greiner, S. and A. Michaelowa, (2003), “Defining Investment Additionality for CDM Projects – Practical Approaches”, *Energy Policy* 31, 1007–1015.
- Hakenes, H. and E. Schliephake (2021), “Socially Responsible Investment versus Socially Responsible Consumption”, Mimeo, University of Bonn.
- Heinkel, R., A. Kraus and J. Zechner (2001), “The Effect of Green Investment on Corporate Behavior”, *Journal of Financial and Quantitative Analysis* 36 (4), 431–449.
- Jessop, S. and E. Howcroft (2021), Sustainable Fund Assets Hit Record \$1.7 Trln in 2020: Morningstar, *Reuters*, 28 January, <https://www.reuters.com/article/us-global-funds-sustainable-idUSKBN29X2NM>.
- Kapraun, J., C. Latino, C. Scheins and C. Schlag (2021), “(In-) Credibly Green: Which Bonds Trade at a Green Bond Premium?”, Paris December 2019 Finance Meeting, <https://ssrn.com/abstract=3347337>.
- Krahnen, J., J. Rocholl and M. Thum (2021), “A Primer on Green Finance: From Wishful Thinking to Marginal Impact” *SAFE White Paper* 86.

Lamprecht, J. and M. Thum (2022), "The Missing Government in Green Finance", mimeo, TU Dresden.

Landier, A. and S. Lovo (2020), "ESG Investing: How to Optimize Impact?", Research Paper, HEC Paris.

Oehmke, M. and M. M. Opp (2020), "A Theory of Socially Responsible Investment", Research Paper, Swedish House of Finance.

Pastor, L., R. F. Stambaugh and L. A. Taylor (2021), "Dissecting Green Returns", Working Paper, University of Chicago.

Wissenschaftlicher Beirat beim Bundesministerium der Finanzen (2021), Grüne Finanzierung und Grüne Staatsanleihen – Geeignete Instrumente für eine wirksame Umweltpolitik?, Gutachten 01/2021, 29 April, [https://www.bundesfinanzministerium.de/Content/DE/Downloads/Ministerium/Wissenschaftlicher-Beirat/Gutachten/gruene-finanzierung-und-staatsanleihen.pdf?\\_\\_blob=publicationFile](https://www.bundesfinanzministerium.de/Content/DE/Downloads/Ministerium/Wissenschaftlicher-Beirat/Gutachten/gruene-finanzierung-und-staatsanleihen.pdf?__blob=publicationFile).