Introduction to the Issue on

Climate Change: Greening the Economy by Green Finance?

Christa Hainz

Climate change is currently posing perhaps the greatest challenge to the world and is thus shifting the priorities in economic policy. In order to achieve the goal of transforming economies in an ecologically sustainable way, a massive shift of resources from climate-damaging and emission-intensive economic activity to low-emission economic activity is necessary. This transition of economic activity requires investments on a large scale. The role of the financial sector in this transition is therefore being discussed. Does it only finance the new, green investments or does its role go beyond that? The financial sector must always be considered in conjunction with the real sector and climate policy. Climate policy measures will provide important incentives in a globalized world. Investors will also have to adapt their investment strategy, and the question is what incentives they will need given the investment decision they have taken in the past. Since this transition will not always be smooth, special financing measures will be necessary. A central role in the entire process is played by information about which economic activity and thus which investment can be considered green or sustainable. This information must first be collected. Then it must be made available to investors in a suitable classification, e.g., via an ESG rating or a taxonomy. With this issue, we want to make a contribution to this broad discussion.

Claudio Borio, Stijn Claessens, and Nikola Tarashev argue that the financial sector has a key role to play in supporting the green transition. However, it seems unrealistic to expect financial markets to induce the green transition unless the right signals come from the real economy. They also see the danger of unrealistic expectations setting the financial sector up for failure and derailing the green transition. Both exposure to overvalued emission-intensive assets, but also to overvalued "green" assets or assets that purport to be green, create risks to financial stability.

Jan Krahnen, Jörg Rocholl, and Marcel Thum point out that it is difficult to establish clear links between the origin and the use of funds, which calls into question the usefulness of ESG-oriented financing. They argue that active investors may exert a formative influence on a firm's environmental and social actions, not least by accepting a personal reduction in earnings. Passive investors will only have an influence if there is a large number of green investors and if markets are characterized by frictions and inefficiencies. In contrast, in the case of the state, investors do not have this comparable opportunity, as budget planning remains the main responsibility of the legislative power. Regarding the role of the state more generally, they see the problem that the interaction with public policies may render private efforts into green finance ineffective for achieving ESG goals.

Jacob Baylon Schumacher helps clarify the terminology and the relationship between transition and green finance. While both target improvements to environmental outcomes of organizations, transition finance recognizes the importance of accounting for social issues as well as the need to rapidly transition towards more sustainable practices generally. He concludes that as societies begin to seriously speed green transition plans, the role of transition finance will continue to grow.

Information plays a crucial role in the financing process. ESG ratings and taxonomies are two tools for gathering and classifying this information. Rainer Haselmann, Sebastian Steuer, and Tobias H. Tröger describe the role of the EU-Taxonomy as an instrument for transparency and disclosure purposes, which provides a binary signal at the level of economic activities. This binary information can then be aggregated on the level of the firm and on the level of investment portfolios. However, professional investors and regulators may instead rely on more advanced and context-specific metrics. Therefore, the controversial classification of gas and nuclear power in the EU-Taxonomy will not have a major impact. They also conclude that green finance policies are no substitute for restrictive environmental regulations such as cap-and-trade schemes or outright prohibitions of certain activities

Florian Berg, Jason Jay, Julian Kölbel, and Roberto Rigobon take up the fundamental discussion of whether ESG ratings can be of any help given that they provide noisy signals about the ESG performance of firms. They argue that if something is important to society, it should be measured, but it also should be understood and recognized that the measurement is imperfect. Based on their findings that there is a positive, economically and statistically significant relationship between ESG scores and stock returns, they argue that the information that ESG raters produce is valuable; that is there is "signal in the noise." Still, assessing ESG performance is conceptually challenging because contextuality, additionality, and preferences need to be measured. They recommend that regulators should enforce transparency of measurement and aggregation practices to increase competition between ESG raters to incentivize improvement.

Two papers take a look at bank lending, albeit from different angles. *Emanuela Benincasa, Gazi Kabas, and Steven Ongena* start from the fact that there are substantial differences across countries regarding climate policy stringency. They find that banks react to a stricter climate policy in their home country by increasing their cross-border lending to countries with laxer climate policies. The evidence is consistent with the adverse effect of transitional climate risks on firms, possibly reducing banks' domestic loan portfolio performance. The authors call for a global coordination in climate policies, which is needed to prevent race-to-the-bottom behavior.

Hans Degryse, Tarik Roukny, and Joris Tielens look at the effect which new technologies have on banks, or external financiers more generally, that have loans

to traditional, brown firms in their legacy credit portfolio. The authors are interested in the incentive effect this has for the investors to grant loans to greener firms. The challenge is that new environmental technologies threaten the dirty legacy portfolios of external financiers. The authors find in the research underlying this article that investors have an incentive not to finance disruptive green firms in an attempt to protect exposed legacy positions. This incentive renders green disruptors up to 4.4 percentage points less likely to receive external finance. The positive message is that the presence of financiers with a low legacy credit portfolio triggers systemwide incentives to fund green firms. They recommend limited policy interventions to alleviate financial barriers to the green transition.

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