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'Green Bonds' May Be Our Best Bet for Environmental Damage Control.

The popularity of green bonds as a way to finance environmentally friendly projects is on the upswing, say Malcolm Baker and George Serafeim.

Municipalities have been selling bonds to pay for public works projects—fire stations, parking garages,s ewage treatment systems—for 200 years. It's only in the past decade or so, however, that they've been selling them with an extra perk: helping the environment.

In the absence of a global carbon pricing scheme, bond markets will be central to financing climate change and other environmental interventions. So-called green bonds appeal to investors who are looking for a safe place to park their money, as well as doing a little bit of good for the world.

Harvard Business School professors George Serafeim and Malcolm Baker have long been interested in investor motivations that go beyond pure financial return to include environmental, social, and governance (ESG) criteria. With the recent uptick in green bonds, they wondered how that might improve municipalities' ability to help the environment by accessing finance at better terms.

"The whole idea of ESG investing is predicated on the notion that by tilting their portfolios towards securities that have better ESG properties, investors might be able to change who has access to lower-cost capital," says Baker, Robert G. Kirby Professor of Business Administration at HBS. "In the process, they jump-start investing in areas that might be important for the environment."

They examine the phenomenon in a new paper for the National Bureau of Economic Research, Financing the Response to Climate Change: The Pricing and Ownership of U.S. Green Bonds, written with Daniel Bergstresser of Brandeis University and Jeffrey Wurgler of NYU's Stern School of Business.

While green bonds have been issued by banks and corporations as well, the researchers focused on municipal bonds, which are the most ubiquitous green bonds historically in the United States, and the easiest to track thanks to the availability of government data.

For starters, determining what bonds truly qualify as green—as opposed to just greenwashing—wasn't straightforward.

"There isn't a crisp definition about what is a green bond and what isn't," says Serafeim, a professor in the Accounting and Management Unit. "The test we used was to look at how the money from the bond flows into actual projects, and whether those projects are going to deliver environmental benefits."

The projects include efforts to create alternative energy by building solar panels and wind turbines, as well as projects to improve water efficiency, control pollution, create sustainable agriculture and forestry, or provide infrastructure for electric vehicles.

While not all projects have a climate-change benefit, many help reduce future carbon emissions or even remove carbon emissions from the atmosphere. In addition to looking at bonds self-labeled as green by municipalities, the researchers also considered certification by the nonprofit Climate Change Initiative, which provides a Climate Bond Standard (CBS) rating.

Green bonds priced at a premium

In the past eight or nine years, they found, the green bond market has gone from nonexistent to $160 billion. (The first green bond was issued in 2007 by the European Investment Bank.) When the researchers compared green bonds with other bonds issued by the same municipality, they found a slightly lower yield of 6 basis points (.06 percent) for self-identified green bonds, and up to 20 basis points (.2 percent) for certified green bonds.

That means that investors are placing a premium on green bonds and are willing to accept a lower rate of return in exchange for the environmental benefits. Given the typical duration of municipal bonds, this yield difference amounts to a green bond price that is in the range of 0.6 percent to 2 percent higher than a comparable brown bond.

“The story is supply and demand,” says Baker. “If there is an element of a security that the investor desires for nonfinancial reasons, it will trade at a higher price than other securities.”

In addition, the researchers found that green bonds were more concentrated in their ownership in a small group of investors—reflecting the smaller subset of investors who place value on environmental benefits, such as funds that have some green or social investing orientation.

While the difference in return is admittedly small, it could be a factor in tipping the scales for municipalities favoring green bonds.

“One way to make them more appealing to issuers is to offer them at more favorable terms,” Baker says. “If I’m an entrepreneur or state government and I have to choose between a project that is green and one that isn’t, one factor in that decision will be the terms at which I can finance it. That is the sense in which green bonds can theoretically push firms and municipalities in the direction of doing something environmentally friendly.”

That would make green bonds attractive as part of the solution to improving the environment and combatting climate change. “It’s one of the many different actions in a larger menu of potential solutions, that would include investor engagement with corporate management and more powerful political interventions such as regulation and taxation,” Serafeim says.

As green bonds continue to gain in popularity, the researchers are interested to see if they continue to command a premium price. As more green bonds are issued, especially by government entities in Europe and China, their price could fall due to an increase in supply. On the other hand, as they continue to gain in popularity, more investors could value green bonds, pushing up price due to increased demand.

“It is a bit of a battle between the number of investors who place extra value on green bonds versus the total supply of these types of bonds,” Baker says. Either way, the positive trend towards seeing more interest in green bonds from both municipalities and investors can only help in the battle to address climate change.

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