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Environmental Impact Bonds: The Very Welcome New Kid on the Municipal Finance Block

The public finance industry is not well known for breathtaking innovations nor spontaneous breakthroughs. But in the past three years a truly innovative development has occurred: Environmental Impact Bonds (EIBs).

In 2008, the World Bank issued what it called a "green bond." Before that event, the bond market and the bond buying public probably had some vague understanding that the World Bank used the proceeds of the bonds they issued for all kinds of typical public works projects mostly in developing countries. But the Bank's "green bond" was a little different. In this case, the World Bank specifically pledged to the bond purchasers that the proceeds of their investments would be invested in "green", or environmentally beneficial, projects. So, clean water, clean air, etc. These are the type of projects that the bank said it would invest "green bond" buyers' money in.

In 2019, another type of green bond was launched in Europe. The "Climate Bond Initiative" began offering investors green bonds the proceeds of which were specifically invested in projects to retard climate change. Think rapid transit and similar projects that get people out of thousands of polluting automobiles and off motorcycles, motorbikes, and those ubiquitous tuk-tuks that plague Asian cities.

Now, the rule of thumb in environmental finance is that the lower the payments, the more projects will get done. Is a farmer going to build a fence to keep his cattle from fouling a stream? If it costs $500, probably yes. If it costs $5,000, maybe. If it costs $50,000, definitely not. Are you going to put solar panels on your roof? If your payment is $20 a month, probably. If its $200 a month, maybe. If its $2,000 a month, definitely not.

So, back in 2008, everybody thought that the World Bank's green bonds would have a lower rate of interest than its traditional bonds. The bank would then pass the lower payments on to its developing country borrowers, who, in turn, would be more likely to do more environmentally beneficial projects. Socially Responsible Investors would be willing to accept a lower rate of interest in return for the satisfaction of knowing that their money was creating environmental benefits. What a neat system!

Only it didn't work. The bank's green bonds carried a market rate of interest, not a lower rate. In fact, it was the same interest rate as for the bank's other non-green bonds. So, if the interest rate wasn't going to be lower, what was the point? The point was that investors just wanted to know that their money was being used for environmentally friendly projects. Okay. But that's not how the new EIBs work.

In 2016, DC Water and its advisors, Quantified Ventures (QV) put together a unique $25 million tax-exempt municipal bond that DC Water issued. The proceeds of the new EIB were for green infrastructure projects to reduce the flow of stormwater that was coursing through the sewers of our nation's capital and into the Potomac River.

Green infrastructure involves projects such as rain gardens, bioswales, pervious pavement, constructed wetlands, etc. – as opposed to “gray infrastructure” which are basically, pipes, pumps, machinery, and equipment. DC Water and QV called the instrument an “Environmental Impact Bond.” They built into the EIB a unique and brilliant feature: if the stormwater flow reduction were to exceed 41.3 percent, DC Water would pay the investors an additional $3.3 million. But, if the flow reduction is less than 18.6 percent, then the investors will get $3.3 million less interest.

Wait a minute! This looks backwards. Didn’t we say up above that the goal was for borrowers to pay the lowest interest rate possible so that they’d be able to do more projects? So, the question now arises: why would DC Water be willing to pay more for success? The answer is because the $25 million green infrastructure project was a demonstration project. If it worked, it would mean that DC Water wouldn’t need to spend possibly hundreds of millions more on additional stormwater reduction projects. So, why would DC Water pay its EIB investors an extra $3.3 million? The answer is simple: they are happy to pay out $3.3 million because they might save millions more!

Here in a few succinct words are what B-school newbies would call the “value proposition” for these new EIBs. Let’s assume a market rate of 4 percent for high-quality municipal bonds. And let’s assume that, much like DC Water, the bond issuing agency’s choice is between a green infrastructure or a much more expensive gray infrastructure project. Then:

1. The agency issues bonds for the green infrastructure project paying 5 percent if the project succeeds and 3 percent if the project fails.
2. Investors are willing to accept less if less environmental benefit but have the satisfaction of knowing that they were part of a big green infrastructure effort to improve the environment.
3. Investors are delighted to accept more if the environmental benefit is greater than estimated. They get both the emotional satisfaction and more money.
4. If the project fails, the agency has to spend more money on a new, additional project, but has the satisfaction of saving some money on the failed attempt.
5. If the project succeeds, the agency is delighted to pay the higher interest rate because their alternative would have been far more costly.

What did the investment world think of this Environmental Impact Bond? What did the bond market think about Quantified Ventures’ new “Pay for Success” bond? Well, the venerable bible of the municipal bond industry, The Bond Buyer, named the DC Water issue the “2016 Non-Traditional Deal of The Year!”

Does this mean the end of the type of green bonds that the World Bank and other major agencies issue? No. They will still be around. There may be no financial implications to such bonds, but they do, after all, create good will. They do let investors know that the World Bank and the other major agencies are doing the right thing for the environment with the investors’ money. As a matter of fact, DC Water is planning on issuing at least $100 million of green bonds in the near future.

Since DC Water’s first EIB, Atlanta has gotten into the game with its own $14 million EIB which is the first winner of the “Environmental Impact Bond Challenge,” funded by the Rockefeller Foundation in partnership with Neighborly, a San Francisco-based public finance house. Atlanta’s is the first publicly offered EIB. The city is using their EIBs to fund innovative green infrastructure projects that will address critical flooding and water quality issues, reduce stormwater runoff, and enhance the quality of life in neighborhoods in Atlanta’s Proctor Creek watershed.

Baltimore is another city with combined sewer problems like DC. Baltimore is required by federal and state law to reduce and treat polluted runoff from more than 4,000 acres of pavement and buildings by 2019. Working with the Chesapeake Bay Foundation and Quantified Ventures, Baltimore is planning to issue some $6.2 million of EIBs later this year to finance green infrastructure for stormwater management in some three dozen neighborhoods to help pay to replace hard, paved surfaces with plants, trees, and green spaces to soak up and filter polluted runoff before it reaches streams and winds up in Baltimore Harbor.

So, Green Bonds, Climate Bonds and EIBs have been the major innovations in the municipal finance market over the last decade. Neither Green Bonds nor Climate Bonds have any new financial features; they just have their use in assuring investors that their money is being used to pay for environmentally beneficial projects. But it is the Environmental Improvement Bonds – with their "pay for success" formula – that offer true financial innovation and financial incentives for cities like Washington D.C., Atlanta and Baltimore to address their many water quality challenges. EIBs are, indeed, the very welcome new kid on the environmental finance block.

Water Finance & Management

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