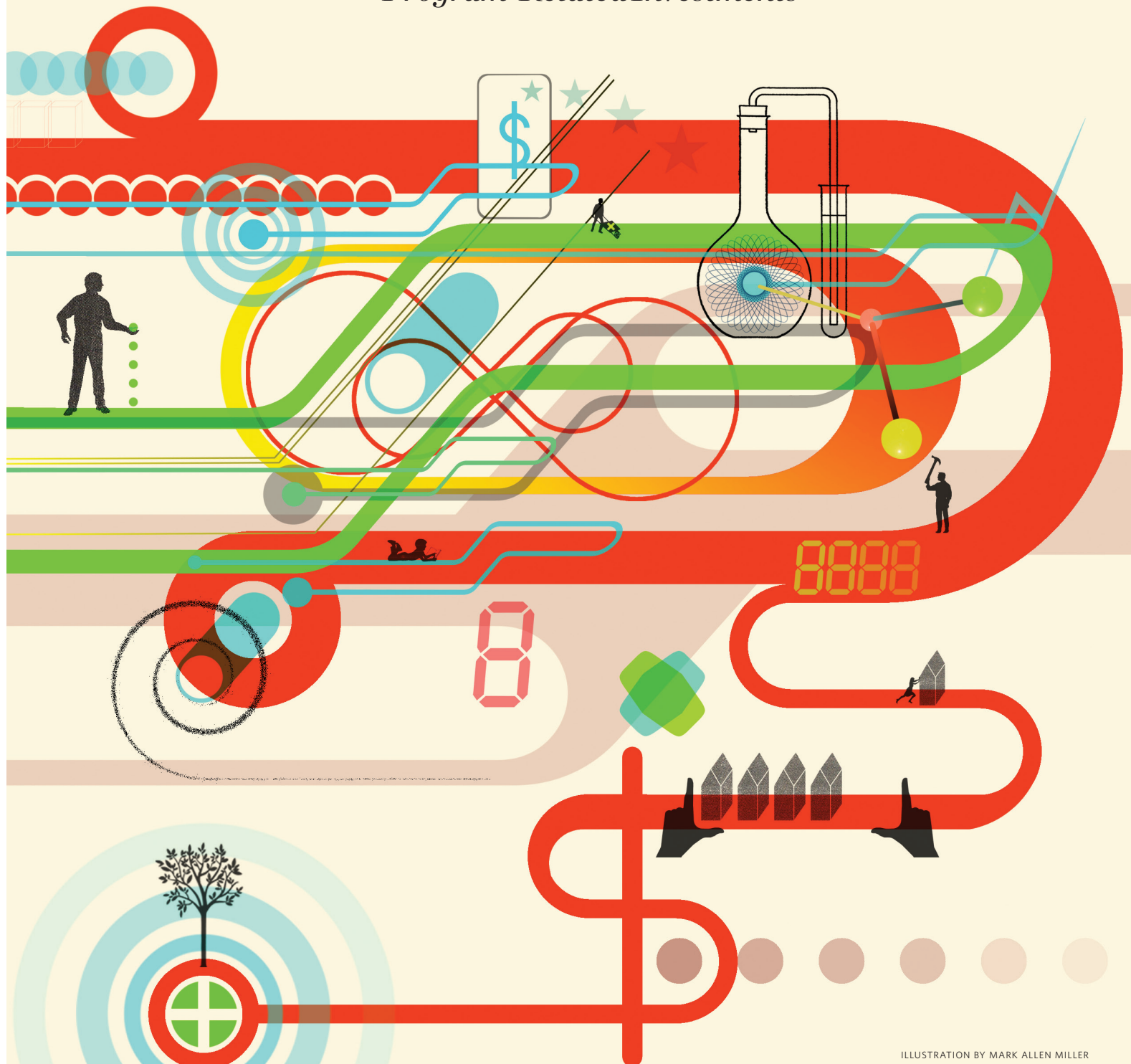


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for the Bill & Melinda Gates Foundation

Making Markets Work for the Poor

*How the Bill & Melinda Gates Foundation Uses
Program-Related Investments*



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Making Markets Work for the Poor is a collaboration between the Bill & Melinda Gates Foundation, Paul Brest of Stanford Law School, and ImpactAlpha Inc. The Gates Foundation sponsored the project to share its experiences in making program-related investments (PRIs) with others using investment tools as part of their social-impact strategies. The ImpactAlpha team interviewed dozens of stakeholders inside and outside the foundation. The Gates Foundation PRI team provided extensive access to investment memos and other documents, selected the investments for inclusion, and reviewed articles before publication.

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Philanthropy's New Tools for Innovation and Impact

INVESTING IN SMART STRATEGIES AND PASSIONATE PEOPLE.

BY SUSAN DESMOND-HELLMANN

The potential of new vaccines, hardier crops, and less expensive smart-phones and tablets led Bill and Melinda Gates to make a big bet last year: That the lives of people in poor countries will improve faster in the next 15 years than at any other time in history.

If we are to win that bet, we have to harness the talent and ingenuity found in the private sector. Progress on the ambitious global health and development challenges we have set ourselves will be driven by scientific and technological breakthroughs. And today, many of the most promising advances and innovative solutions are coming from entrepreneurs and companies.

At the Bill & Melinda Gates Foundation, we believe in the power of partnership to help us make good on our vision of a world where every person has the opportunity to lead a healthy, productive life. Our partners include NGOs, academics, governments, and international agencies and institutions. Increasingly, they also include private investors and entrepreneurs who can accelerate transformative solutions that we could neither come up with nor implement with traditional partners alone.

Some of the innovations needed are as much financial as technological. Program-related investments (PRIs) can spur entrepreneurs and corporations to pursue new breakthroughs



because we are able to reduce their risks and open new markets. They can help to overcome market failures that keep innovative companies from making transformative, low-cost products and services for poor people. They can create incentives for companies to work with us on some of the hardest problems.

Our foundation's PRI team has used loans, equity investments, volume guarantees, and credit enhancements to collaborate with the private sector to achieve our goals. In some cases, we use PRIs to help scale up innovative nonprofit business models that also help make markets work better in low- and middle-income countries.

Sometimes engaging a private-sector partner using a PRI investment mechanism will be a good option to advance our mission. Sometimes it won't. But we need all the tools at our disposal. And in the coming years, we see unparalleled opportunity to unleash the full potential of human capacity to solve our greatest challenges.

We have learned it takes even more than good ideas, revolutionary technologies, and innovative finance to solve the toughest problems. It also takes impatient optimists dedicated to the belief that all lives have equal value. In short, it takes great people—our ultimate partners in making great things happen in the world. ♦

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Leveraging the Balance Sheet

A conversation with **Julie Sunderland**, founding director of Program Related Investments at the Bill & Melinda Gates Foundation.

BY DAVID BANK

The idea came from a conversation between Bill Gates and Alex Friedman, the once and future investment banker who was then the chief financial officer at the Bill & Melinda Gates Foundation. How might the foundation leverage its huge balance sheet to help bring private-sector innovation and entrepreneurship to bear on urgent challenges in global health, agriculture, education, and other areas?

Friedman recruited Julie Sunderland, who as head of Oriane Consulting had already worked in Africa, Eastern Europe, and other challenging markets to support great entrepreneurs and big ideas. Sunderland launched the foundation's program-related investment (PRI) effort as a \$400 million "pilot" in 2009. It has since grown to a \$1.5 billion mandate, of which more than \$1 billion has been committed in 47 investments, including equity, debt, guarantees, and fund investments. As Sunderland got ready to move on to new challenges, she reflected on the lessons she has learned from seven years of PRI-making.

David Bank: What did the folks at the foundation ask you to come and do? Was it Bill's idea?

Julie Sunderland: Bill Gates had just moved over from active management at Microsoft to spending a lot of his time at the Gates Foundation. One of the things that he saw when he joined the foundation was that it was doing a lot of great work in the nonprofit and academic sectors, but—not surprisingly given his background—he wanted to think more proactively and effectively about how we partner with the private sector.

Bill was really intrigued by the possibility of using program-related investments, PRIs, to form partnerships with the private sector as well as to support some of our nonprofit partners. The original idea for the PRI program at the foundation came out of a conversation between Bill and Alex Friedman who was the CFO at the time. Alex had come from Lazard and was looking at the huge balance sheet at the Gates Foundation. We had at the time about \$35 billion in capital in the endowment—it's probably more than that now—in addition to Warren Buffett's gift.

Alex recruited me to come in and start the PRI program. We weren't sure whether it was going to work. We started it from scratch. It was me and our assistant Jill. We started with a \$400 million pilot and have grown it from there.

How would you define the problem that the investment you were going to make could solve?

Our work is grounded in trying to understand the particular strategies that the Gates Foundation is pursuing, for example, trying to bring agriculture technologies to small-holder farmers in Africa, or working with companies to develop breakthrough scientific discoveries that would translate into products for global health. So at the outset of the program, our focus was on addressing the issue: Are these instruments useful in terms of identifying private-sector partners and creating the incentive to get them to work with us on some of these really hard problems? That is what I would call phase one.

In phase two we started to think in a lot more depth and with more nuance about market failures. What are the market failures that prevent experimental, innovative biotech companies from focusing on global

health problems? How do we solve those market failures using these tools? Looking at all of the challenges that poor people face, how do we use investment tools to develop low-cost innovative products and make them accessible and affordable to poor people? We talked a lot about how we could make markets work better for the poor.

In our latest phase, we're thinking a lot about what we call "betting on believers," finding those great partners who want to work with us and using PRIs as tools to make great things happen in the world. So it's been an evolution to figure out what we can do to empower great innovators, great companies, and great entrepreneurs to focus on the problems we're trying to solve.

Is there an overarching pattern to market failures, what causes them, and what cures them?

We're not delusional about the private sector and about capitalism. We know that markets don't work well for the poor for very, very good reasons. It's not theoretical. The reality is that the poor don't have much money and therefore profit margins are slim. The only way that you can create good business models to serve the poor is to get to high volume and large scale with small margins.

We know that the transaction costs of selling to the poor are high. We know that to serve poor people, if you have to actually go out and do last-mile delivery and interact with them directly, it costs a lot. We know that the distribution channels and the infrastructure to reach these populations are underdeveloped. We know that there's not a lot of information about these markets. And we know that we're often operating in what are perceived to be very high-risk markets from a political and business environment standpoint.

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So there are a lot of constraints to overcome for good, rational companies that may want to work in these markets. Whenever we look at the sectors in which we work—health care, agriculture, education, and financial services for the poor—we’re very realistic about how challenging it is for companies to work in these markets and try to find ways to solve some of those market failures.

We believe that the way to do that must involve innovation, whether it is technology or business model innovation. We’ve seen how leapfrog innovation enables you to lower

The theory being that if you can tackle some of those obstacles then the market can work without the subsidies that you provide?

Absolutely. We’re not interested in supporting unsustainable businesses or business models. What we’re really interested in is using subsidized capital or the other tools that we have—whether it’s regulatory change or ways to de-risk upfront innovation—to try to solve some of those market failures. The expectation is that over time

market failure.” We want to think about how the underlying economics of a market evolve over time and what role we can have to address some of those market failures, and help that market evolve toward something that doesn’t need us anymore.

Let’s turn to the tools themselves. Are PRIs just grants by another name, or are they something different?

We sit within the foundation and we’re the only investment group within the Gates Foundation proper. [The endowment is outside of the foundation.] So at the outset we narrowed our scope to program-related investments and thought of ourselves as the strategic investment arm of the foundation.

We really did want to push the envelope in terms of the tools we wanted to use. Many of our colleagues in other foundations had focused on low-interest loans to address housing, or charter schools, or working capital for their NGO partners. We wanted to look as well at different types of partners such as biotech companies, multinationals, and innovative entrepreneurs.

In the first couple of years of the pilot we did everything. We worked within global health, agriculture, financial services, and US education. And we also used a full range of financial instruments. We used direct equity investments into companies. We used equity funds. We did traditional loans to nonprofits. And we used guarantees, which have turned out to be one of the most extraordinary tools that we’ve used and that are truly leveraging the foundation’s balance sheet.

I won’t discount the challenge of pushing the envelope in terms of using those instruments and developing new legal structures. The legal team at the Gates Foundation has been our partner hip to hip in terms of helping build these new investment structures.

We have to make investments for a charitable purpose and we have to define metrics within all of our investment criteria that are consistent with the charitable purpose. Those two constraints have actually been a powerful tool to hold ourselves accountable to the purpose of the investing, and to negotiate in a very straightforward way with our partners. We’ll walk away from a negotiation if we find that we can’t get alignment with our partners around the charitable purpose. We often describe this as “Global Access”: ensuring that knowledge and information gained



transaction costs and achieve high volumes with products that can change people’s lives.

One of the greatest examples of this is bKash, a company in Bangladesh that uses mobile payments and has created an incredible digital infrastructure that allows poor people to access financial services with very low transaction costs. It’s pennies for a financial transaction. In a few years, we’ve seen bKash grow from zero customers to close to 20 million, if not more than 20 million by now.

The answer to the question of how do you solve market failures is specific to the sector in which you’re working. We’re betting on innovation. We’re betting on business models that can achieve a large scale. We’re betting on partnering with companies that have the appetite to take on risk and build distribution and delivery models that work.

these markets will work for the poor. We will have low-cost, affordable products that the poor can access. That’s the theory.

We don’t want to be ahistorical here. We know that you don’t just turn a switch and solve a market failure. What we want to think about is how markets can evolve over time. Again, I go back to the bKash example. We’re pretty confident, given the economics of using digital payments to reach poor people and what we’ve seen happen in East Africa with M-Pesa, that it will be a functional market once you de-risk some of that early upfront infrastructure building and innovation.

Other sectors, like agriculture, are much more complicated and people have been trying to solve those market failures for a long time. It may be a longer path toward a market that works for the poor. So we don’t just say, “Hey, you go out, you do a PRI and you solve a

from a foundation investment is promptly and broadly disseminated and products funded by the foundation are made available and accessible at an affordable price to the poorest populations. We have very specific metrics that define how our partner reaches those global access requirements.

The second thing that's important about PRIs is that no significant purpose can be financial return. Their primary purpose has to be charitable. We've found that within that constraint there's a lot of room to structure investments. We've worked with our legal team to be careful about how we both maintain that financial discipline but also make it clear to our partners, to ourselves, and to the organization that the primary purpose of a PRI is the foundation's strategic charitable purpose.

Do you consider yourself an impact investor?

I count myself as an impact investor. I'm investing for impact. My purpose is to achieve impact. I'm very clear on that and I'm very aggressive in negotiating with companies to ensure that I get that impact.

Within the context of the impact investing community, we're very, very clear-sighted that in most cases, especially in the sectors in which we work, there are trade-offs between financial return and impact. And we're very clear about the subsidy that we provide in order to generate that impact. So we sometimes get pushback from some of our impact investing partners on two levels.

We know that if we're investing in an early-stage company, we're taking risks that purely rational financial investors wouldn't take and there is an inherent subsidy in that. If we're providing a low-interest loan to one of our partners to expand into Africa, it's a lower interest rate than market interest rates and there's a subsidy there. If we provide a guarantee and we don't charge a guarantee fee, and there's a risk of loss, there's a subsidy inherent in there.

So with every single investment we make, we want to be clear about the subsidy we are making and we want to measure and be held accountable for it. We think about how much impact we get for providing that subsidy. That's built into the DNA of this program. We're very aggressive in negotiating with our partners and our companies to deliver on the metrics to show that they've created that impact.

We've gotten pushback from some of our impact investment colleagues, "Oh, there's no trade-off." In other sectors maybe there isn't a trade-off between financial and social returns; you can have your cake and eat it too. In the markets in which we work—where we're focused on the poorest populations and we're trying to solve market failures—we're pretty conscious that we should be providing a subsidy and that the subsidy is valuable and enabling us to get toward impact.

The other pushback we get from partners is that we're too hard-nosed, that we should be softer and be more open in supporting social entrepreneurs and social entrepreneurship and not be so worried about invoking financial discipline. Our feeling is if you don't have a good company that can generate cash flows and that can be financially successful in the long term, then we're also not going to get to our impact goal.

So we get pushback from both sides that we're not hard-nosed enough in believing that you can have social and financial return, that we shouldn't provide subsidies, and that we shouldn't be distorting markets. And we also get pushback that we're too hard-nosed and that we should be more supportive of social entrepreneurs that may have more questionable business models.

If you're getting pushback from both sides, you figure you must be doing something right?

We're right where we should be. Or we're completely wrong! Could be either way.

Tell me more about how you think about subsidy.

Nobody likes the word "subsidy." It's a scary word. Economists cringe, everybody cringes. So we re-coined it as "RiskShare." Our entire investment review process is structured to look a lot like a typical private equity or venture capital due-diligence process. But instead of just focusing on whether this is a good or a bad investment, we are focused on pricing the inherent subsidy, or Risk Share: how much of the investment do we think the foundation is unlikely to ever get back, and then make sure that risk share is worth it in terms of the impact that we're trying to get.

If we had a very high-risk, early-stage \$10 million investment that other investors wouldn't go into because it's too high-risk, we

might say that 50 percent is more risk than a rational financial investor would take and are funds that the foundation is likely to never get back. Therefore, 50 percent of the total investment, or \$5 million, is subsidy, what we consider the risk share, which we account for from our program team's grant budget. We account for the other \$5 million from our PRI balance sheet allocation. All of these investments are funded fully from the foundation payout, and all of these investments have an explicit charitable purpose for all elements of the investment, but this clever way we account for them internally does a few things.

First of all, it means that whenever we do an investment, we've got skin in the game, both from the program team and from the investment team. Second, we've got deal teams that include both the investment and programmatic professionals. Third, what we're trying to achieve is to make sure that the \$5 million contribution, that Risk Share, is tied very explicitly to the impact it's going to get for the program team's grant budget. Program officers have hundreds of millions of dollars in grants that they're putting out, and by looking at that subsidy and comparing it to an equivalent grant, they can say "Yes, it's worth doing. I'm going to get as much outcome from doing that investment as I would if I were doing a grant."

That allows us to have a rational conversation with both our investment committee and our leadership around what a good investment is for the foundation. Instead of saying, "Hey, is this too risky? Is it not risky enough?" we're saying, "We know how risky it is and we know that it's worth it." The internal pricing and funding allocation mechanism allows us to have creative and productive conversations about those trade-offs between impact and financial losses and allows us to still maintain discipline around the use of the foundation's resources.

Where do your deals come from?

The foundation has world experts in education, in some fields of vaccine development, in immunology. I've got a great team of 10 investment professionals but we're primarily generalists. We do not have the expertise in these sectors but we get to work with these amazing people who deeply understand what is needed by the people that we're trying to serve. They're the ones that understand the theory of change that gets the impact and

what we need to do to make markets work for the poor, and also have the ability to validate the underlying technology.

In some cases, our program colleagues will bring us investments, bring us companies that they've identified through their strategy process and through being out in these markets. In some cases, we'll go out and find them. We've been doing this for seven years, and we now understand some of the sectors and some of the problems that we're trying to solve. We can go into the venture community and the biotech community and say, "Hey, this is what we're trying to solve. Do you have potential technologies or platforms or solutions to those problems?"

With all those scientists and experts, you have market expertise that other investors would kill for.

I don't know if they'd kill for it, because we're working in some pretty hard sectors. If I were an investor that wanted to make money, I don't know if I would focus on agriculture in Africa or financial services in Bangladesh. We're in some pretty unique sectors because we're focused on under-served populations.

That being said, we're identifying some amazing companies because of that technical expertise. Even though we're not at all focused on financial returns and it's not our objective and not any purpose of our investments, we are able to identify great entrepreneurs, great platforms, and great technologies. Our focus is getting to that impact and if we're successful, they may also be able to generate financial returns.

We have a hypothesis that because of that technical expertise, because we're investing on the back of giants, because our program colleagues have gone in and understood these markets better than anyone, because we have access to great deal flow and great ideas and the pull of our leadership, we actually may get more of our funds back than we expected. But you have to put that in context and understand that our expectations are to generate a loss. We currently only expect to generate a return of 90 cents on the dollar, which is much lower than what many of other foundation PRI colleagues expect.

In typical investment funds you are criticized if you have flops. In the impact world you can also get criticism if you have suc-

cesses. There may be such a thing as doing too well.

We're very conscious that for every single one of our investments we need to define the charitable purpose of that investment and make sure that the companies and our partners understand that it is very much an investment for a charitable purpose. But it's possible for people who don't look closely at what we do and why we do it to say that the Gates Foundation is trying to make money off the backs of the poor. That is absolutely not what we do or why we do it, so I don't know how to defend against those critiques except to go back to the extraordinary creativity and results that we do get on the impact side.

How do you tote up the impact returns?

When we think about impact, we think about it by sector. Within our financial services, our digital payments investments, it's about the population that we can reach with low-cost product. When we think about our biotech investments, we think about a pathway of innovation and moving along that innovation cycle from early-stage idea through to a product, from proof of concept to clinical trials. That's a decade-long cycle to get from a breakthrough scientific idea to a low-cost product for the poor. Within our agriculture investments we think about yield improvements and income improvements for smallholder farmers.

For every investment we do, we're thinking about the theory of change and the pathway to impact, and then defining metrics around those. We're still early, but if I look at the returns from our portfolio on the impact side I'm really pleased. For example, within our volume guarantee portfolio where we've gone out and worked with multinationals to lower the price of key health commodities, we know that we're on track to save a billion dollars of donor money. That's freeing up a billion dollars that can then be used for other life-saving products for poor people. That's a clear impact metric result from that portfolio that's easy to measure and quantify. We know we're getting results there.

How would you sum up the lessons you have learned?

First, I think this is hard work. I'm a big believer in impact investing and I'm a big be-

liever that companies and entrepreneurs and innovators can make a huge difference in the world. When I lived in Africa, the most inspiring people for me were always these entrepreneurs trying to make things happen, fighting against unbelievable odds in business environments that most Silicon Valley entrepreneurs wouldn't even remotely be able to function in. But it's not easy to do this well, so I think that one of the important lessons is to bring all the tools of good due diligence and good investment decision making and try to make the absolute best decision possible. And then once we make the investment, to be tough with our partners to ensure that they are being disciplined themselves, to ensure that their companies are successful and that they are accountable to our impact goals.

The second lesson is the concept of aligning incentives. A lot of the investors in companies we work with do have a social responsibility mindset. They want to make the world a better place while building a company. How do we create incentives and how do we enable the most overlap between our objectives and the objectives of the company? If there's not enough overlap, then we shouldn't do the deal. If there is a lot of overlap and we can de-risk or we can provide capital in creative ways to enable them to do the things that they want to do, those are our best deals.

A third lesson is the importance of understanding your markets and understanding the economics of your markets and the theory of change for how you get to a functional market. In a lot of cases, to gain that knowledge we'll also do grants alongside investments. Often, that work on regulatory issues, market research, R&D, or product development—that is supported with grants—is as important as our PRI investment.

The fourth lesson is the importance of finding great people and giving them the tools they need. We've found some fantastic people to partner with in these companies and those are the ones that we want to double down on, the great innovators and the great entrepreneurs. Within multinationals, we meet people who are committed to bringing the capabilities of those companies to these markets. All of these committed, visionary people are a joy to work with. And that's probably my most important lesson—finding great people to work with and enabling them to do great things is where we've been most effective. ♦

Neglected No More

Nudging biotech startups to tackle diseases of the developing world.

BY DENNIS PRICE

It was a game of cat and mouse—a very special mouse. The *mus musculus* in question was a transgenic laboratory mouse that researchers coveted for its human-like immune-system response. The cat was the Bill & Melinda Gates Foundation, which after several unsuccessful attempts was determined to secure a supply of the mice to advance research into vaccines for HIV, malaria, and other diseases that disproportionately affect the developing world. When the foundation spotted a company with a promising mouse technology that was in need of capital, it pounced.

In May 2014, the Gates Foundation made a \$20 million equity investment in Kymab Ltd., based in Cambridge, England. Kymab's promising technology and strong team were ideal for early-stage venture capital. The company was also being sued for patent infringement. Other investors balked at the increased risk and the prospect of spending millions on legal fees.

The Gates Foundation did its own due diligence and found the risk manageable—and balanced by the opportunity to secure reliable access to the mouse and to future drugs and vaccines that could be delivered for affordable prices in developing countries. Along with the equity investment, by the end of 2014 the foundation committed \$3.65 million in targeted research grants.

Such financial packages, along with the Gates Foundation's willingness to take on risks that many others investors would avoid, are critical components of the foundation's strategy to “nudge” private biotechnology startups to turn their techniques toward neglected diseases that wreak havoc in the developing world. Like many things,

the Gates Foundation's \$1.5 billion set-aside for program-related investments (PRIs) is the nation's largest. And the foundation has been among the most active in the ways it has used PRIs to leverage private technology for the public good.

The foundation has committed \$167 million to 14 biotech investments, many of which were accompanied by grants to fund specific projects. With many of the most promising approaches being pursued by private companies, the PRIs are intended to increase the chances of a hit on vaccines and drugs for diseases such as malaria, HIV, and typhoid.

In each case, the Gates Foundation insists on a legally binding commitment in a side letter that outlines the deal's charitable commitments, including a “global access agreement” that guarantees low prices for less-developed countries. Such commitments can raise concerns for executives and venture capitalists, who are reluctant to see young biotech companies divert resources from potential blockbusters toward diseases for which no developed-world markets exist.

Equity investments can help align the interests of the companies and the foundation in ways that grants cannot, says James Rosen, deputy director of PRIs at the Gates Foundation, who joined in 2015 after a decade as a biotech venture capitalist at Intersouth Partners.

“If, say, there's a vaccine platform technology for heart disease and cancer that is also applicable to HIV, we say, ‘Let us help you with the development of the platform,’” says Rosen. “There are incredible technologies that are housed within biotech companies.”

A \$5 million investment in 2012 by the Gates Foundation in Genocea Biosciences, Inc., for example, nudged the Cambridge,

Mass., company to focus its groundbreaking T-cell target discovery technology on malaria. Eventually the foundation's investment and grant for malaria research paid off with the identification of components that may be useful for a malaria vaccine.

“The notion of going after big, big ideas is something that in today's environment investors really like,” says Chip Clark, CEO of Genocea, which became a publicly held company in 2014. “To do so with support like the Gates Foundation's is a positive.”

The arrival of a new investor like the Gates Foundation on the startup biotech scene can have a huge impact, not only on the unmet needs of populations exposed to a high burden of infectious diseases, but on the companies themselves and their investors.

“I think a huge amount about aligning incentives,” says Julie Sunderland, the founding director of the Gates Foundation's PRI team. Sunderland says that the key is the amount of overlap between the objectives of the foundation and the company. “If there's not enough overlap, then we shouldn't do the deal. If there is a lot of overlap and we can de-risk or we can provide capital in creative ways to enable them to do the things that they want to do, those are our best deals.”

MOUSE TRAP

The Gates Foundation's investment in Kymab repeated its “nudge” approach. Historically, as much as 90 percent of the research and development investments in medical technology globally has been spent on health issues that affect only 10 percent of global morbidity and mortality. One way to overcome that disparity is to increase access to leading technologies with the potential to improve human health—technologies like a humanized mouse model.

The Gates Foundation investment team knew from their scientific colleagues that mice that make human antibodies (in scientific terms: transgenic mice with a human B-cell repertoire) would be valuable for vaccine research, in addition to their potential use in the discovery of potential drugs for asthma, rheumatoid arthritis, cholesterol, and even cancer.

“We had a clear need for mice able to generate human antibodies both as potential products and as a means for testing vaccine responses,” says Chris Karp, a director in the Gates Foundation's Global Health

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Program and its former lead on vaccine discovery. Most pressing was the need for a vaccine for malaria, which still kills roughly half a million people each year and debilitates many more.

The Gates Foundation had previously tried to gain access to these types of technologies. Not surprisingly, potential partners had not quickly embraced the research the foundation was proposing. There's a huge need for vaccines for diseases that mostly affect poor countries, but revenues from those markets are unlikely to cover the costs of the drug's research and development. In other words, there is little business incentive to take on diseases like dengue fever or typhoid.

and did ultimately commit \$3.65 million in grants to Kymab for the research on malaria and other projects.

The foundation was looking beyond the malaria project. At some point it would need access to the mice to advance research on its other priority diseases, notably HIV and typhoid. Kymab might well decide that such projects were not worth pursuing, even with additional grants or contracts.

If the Gates Foundation could get Kymab to accept an equity investment in its core platform as well, the foundation could not only secure a reliable supply of lab mice, but also lower the price of neglected-disease drugs and vaccines developed with the technology via the Global Access agreement.

the foundation's largest direct equity PRI to date. The Wellcome Trust, the founding investor in Kymab, agreed to match the Gates Foundation's investment dollar-for-dollar.

The Gates Foundation used a side letter to the equity agreement, a standard approach for clarifying investor-specific legal terms, to document the company's commitment. The agreement obligated Kymab to make any vaccines discovered with the foundation's funding available at affordable rates in developing countries. It also included a requirement that if Kymab deviated from the charitable commitment, it was obligated to buy back the foundation's shares.

That still left the company free to apply its technology to tackle diseases such as cancer and sell its products in developed markets at whatever price it chooses. "It's essentially a cross-subsidization structure," says Jenny Yip, a program investment officer at the Gates Foundation. With that agreement, the foundation granted Kymab the funds to implement the malaria research.

In May 2015, Kymab completed the Series B financing that the foundation and Wellcome Trust had launched earlier with matching \$20 million investments. Kymab raised an additional \$50 million from Woodford Patient Capital Trust and Malin Corporation.

With access to the Kymouse, the foundation and Kymab have completed the first phase of the malaria project. And, earlier than expected, the Gates Foundation and Kymab have embarked on additional grant-funded projects

to seek drugs and vaccines for typhoid, HIV, pertussis, and other infectious diseases.

Each of these global health projects provides low-cost, rapid information about the human immune response to the building blocks of future vaccines—data that previously were not available until clinical trials were performed in people. Data that used to require years to obtain are now produced within months.

The Kymab malaria project has generated data pointing to vaccine components that could be used in humans to provoke antimalarial responses. The project has gone



Lab technicians at the Ikafara Health Institute in Tanzania prepare mosquito samples for DNA extraction.

"We didn't have the opportunity to start these types of vaccine programs, because they're not as commercially viable as our therapeutic antibody projects," says Glenn Friedrich, Kymab's chief operating officer. "We need to spend our equity on programs with a clear commercial benefit."

Kymab's "Kymouse platform" could be fine-tuned for multiple immune responses that mimic a natural human response—just what the Gates Foundation's product development partners needed. The Gates Foundation team considered using a traditional grant, or even a fee-for-service contract,

In addition to money, the Gates Foundation brought an imprimatur of social purpose. With a malaria vaccine mission, Kymab could demonstrate the efficacy of its platform and invigorate its staff. Even without a commercial market, a successful vaccine project could propel the company to the forefront of vaccine innovation.

The timing was good. Kymab was in the market to raise an additional round of funds. The company wanted an equity investment to ensure broad access to the Kymouse platform. The Gates Foundation's \$20 million Series B equity investment in Kymab was

as far as identifying individual antibodies that on their own block parasite infection in preclinical test models. Using this type of data, the foundation and its global health partners are able to focus precious resources on the vaccines and immunotherapies with the highest potential. Getting it right may save millions of lives.

“We’re investing with a goal,” says David Rossow, a senior program investment officer on the Gates Foundation PRI team. “Small pushes can have big changes.”

TEST DRIVE

Meanwhile, in that other Cambridge, in Massachusetts, Genocea had pioneered a T-cell target discovery technology to develop

from malaria than from bullets.

“When the parasite is injected through the bite of an infected mosquito, it rapidly travels to the liver, where it replicates in large numbers and is released into the bloodstream, causing sickness,” Genocea says on its website. “T-cells in the liver could potentially kill the cells in which the parasite is hiding before the parasite is able to breakout into the bloodstream.”

Identifying an effective T-cell antigen for malaria, however, “is like finding a needle in a haystack. You need a massive number of samples from people who are protected from malaria,” says Rossow.

The Gates Foundation had been working with other pharmaceutical companies

you take the customer for a test drive, right? It’s easier to prove it runs if it starts,” he says. “The Gates investment made it easier for Genocea to invest and do other products.”

In October 2012, Genocea closed a \$30 million round, including \$5 million from the Gates Foundation. In addition to adding the capital, the foundation introduced Genocea to other research partners that would ensure the availability of additional T-cell samples.

In its charitable-intent side-letter agreement with the Gates Foundation, Genocea agreed to make the T-cell platform available for its other priority diseases and to make any drugs produced through the partnership available in developing countries at an affordable price. The side letter also protected the global-access rights in case of an acquisition. As required, it gave the foundation a right to withdraw its capital if the company willfully neglected the agreed programmatic goals.

The malaria research sputtered from the start. “It was challenging working with collaborators from other countries and getting everyone working on the same timelines,” says Clark. “The other collaborations weren’t so urgent.” Getting public and private partners to work together on the research, he says, “was a herding-cats problem for the Gates Foundation.” One problem was getting access to enough T-cell samples. Says Rossow, “The timeline kept getting pushed back.”

In September 2014, the foundation put up another \$1.2 million, in the form of a grant, to extend the malaria project. Then another obstacle arose over control of the intellectual property associated with the T-cell samples from other researchers. In the end, Genocea did gain access to the samples and was able to identify a cluster of antigens that may be useful in a future vaccine.

In February 2014 Genocea became a publicly held company. After a dip in the company’s stock price, the foundation subsequently exited its position in 2015 for \$4.7 million, a small loss relative to the initial \$5 million investment. Because of the side-letter agreement, the research project and Global-Access commitments survive. If the restrictions came up in discussions with investors at all, they came up in a positive way, Clark says. “The foundation is at the forefront of stimulating investment in underserved diseases,” says Clark. “I’d partner with them again in a heartbeat if it meant we can go after other diseases.” ♦

“The notion of going after big, big ideas is something that in today’s environment investors really like,” says Chip Clark, CEO of Genocea.

vaccines and immunotherapies for infectious diseases. Most vaccines have stimulated B-cells, another part of the immune system, to generate antibody responses against pathogens. But T-cells are increasingly recognized as critical to the immune response to a wide range of infectious diseases.

Such breakthroughs are still many years and dollars from commercialization. But the Gates Foundation believes that developing critical components and ensuring global access are critical steps in creating effective, low-cost products for the developing world.

Founded in 2006, Genocea is a leader in working with such T-cell technology, having started vaccine programs against three pathogens that appeared to work in animals. No T-cell vaccines, however, had achieved human proof-of-concept. At the time of the Gates Foundation investment, Genocea’s lead product was a herpes vaccine.

“A treatment for herpes was not the objective,” says Rossow, who has helped put together many of the foundation’s biotech investments. “We wanted to work on malaria. A successful application of this technology to malaria would be huge.”

Genocea, in fact, had been working with the US Navy on the early stages of a malaria vaccine discovery program. Malaria is very much a threat for the US military. In tropical zones, the military faces more morbidity

and research partners to collect such samples. Besides capital, the foundation team could bring to a partnership with Genocea access to its world-class scientists. It could also introduce the company to other entities that could provide an array of T-cells for the malaria research the foundation funded.

Genocea was preparing to raise its Series C financing after raising more than \$46 million in previous rounds. Many of its previous investors, including Johnson & Johnson Development Corporation, Polaris Partners, Skyline Ventures, Lux Capital, and SROne, the venture arm of GlaxoSmithKline, were preparing to double down on Genocea.

With a \$5 million equity investment on the table, earmarked specifically for the development of the platform technology and its application to malaria research, the Gates Foundation was expecting pushback from Genocea’s other investors. Instead, “The other investors got comfortable with the project,” says Genocea CEO Chip Clark. “For one, the foundation’s capital would be additive to the round financially. And we weren’t proposing to hose out cash at just any idea. And two, the foundation is building a reputation as smart money, so we saw it as an opportunity to get validation.”

Clark says taking the Gates Foundation’s investment to work on a malaria vaccine was like selling a car. “When you’re selling a car,

Unintended Consequences

How a strategic investment steered an educational-technology startup into trouble.

BY DAVID BANK & DENNIS PRICE

Jamie Glenn, chief executive of a once-hot social media startup, was between a rock and a hard place. Or rather, between a binding legal agreement and a faltering business model.

Uversity, formerly known as Inigral, had been first to market with an app, built on the Facebook platform, that provided a safe, professional environment for incoming college students. As a condition of a \$2 million investment from the Bill & Melinda Gates Foundation two years earlier, Uversity had agreed to focus a portion of its sales efforts on community colleges in addition to the four-year colleges that were its primary market.

Now, near the end of 2012, Glenn sat in his office, wondering how he was going to meet the year-end deadline for signing up eight community colleges as customers. The company had agreed to that goal as a condition of the Gates Foundation investment. Uversity's pipeline was thin. Even setting up initial sales calls with college administrators was challenging.

For the Gates Foundation, the binding agreement was meant to ensure that community college students, especially low-income students, had quick access to the capabilities of Uversity's app. It was based on a hypothesis that stronger social engagement would lead to increased retention and ultimately to higher graduation rates. Even now, barely one in four low-income community college students gains even a two-year degree.

Glenn and his team met the deadline. But determined not to have another near miss in 2013, the company offered deep discounts to the community colleges that pitched the best

social media strategies. Glenn put a salesperson on the project full-time, and he and his sales chief stepped in to close deals.

Ultimately, Uversity surpassed the target by signing up 31 community colleges, but at an average price of only \$3,000, compared to average annual licensing fees of \$18,000 from the company's primary targets, the four-year

on community colleges helped the company identify new customers and also make inroads into the higher-education market, where the foundation is well-connected.

But with the investment came a commitment to meet the charitable requirements of a PRI. In retrospect, both the company and the Gates Foundation now recognize that Uversity's decision to meet these special requirements diverted a portion of Uversity's efforts from its core market, just when it needed to prove it could scale up its business model quickly. The distraction also delayed the company's ability to break even in cash flow; Uversity's weaker financial performance contributed to a falling valuation and ultimately its loss of independence. Uversity was acquired by TargetX in 2015.

"That's the cost of capital," says Glenn. "You need to devote time and resources to the commitments." He adds, "As a startup pivots, as they all do, the charitable commit-



The College of DuPage, a community college in Glen Ellyn, Ill., held its graduation ceremony in 2014.

colleges for whom the product was designed.

The investment in Uversity was the Gates Foundation's first equity program-related investment (PRI) in a for-profit startup, and Uversity had been eager to land it. Beyond the capital, the investment provided the company with the perception of a high-profile validation that helped establish its credibility. The foundation's focus

ments can become out of whack with where the company needs to go."

To be sure, Uversity faced other challenges that are typical of an early-stage company, including an unproven business model, enterprise sales challenges, inexperienced management, and difficulty raising capital. Still, "The charity requirements were an extra burden that distracted the company

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from potentially more profitable institutional sales activity,” says Greg Ratliff, who led the investment from the Gates Foundation’s postsecondary education program.

Larry Mohr, a veteran Silicon Valley venture capitalist and early investor in Uversity, agrees. “Today, if you talk to anybody around the deal, targeting community colleges with the product was just a mistake,” he says. “There’s no doubt that what they were trying to do was a diversion. It was not part of the main strategy path.”

The experience taught the foundation’s investment team that the best intentions of an impact investor to steer technology innovation toward neglected markets and disadvantaged customers has the potential to harm a company’s success, if those markets are different from the company’s core market. The requirements that came with the Gates Foundation’s funding were not well aligned with the strategies needed to grow a nascent educational-technology company.

It’s a cautionary tale for entrepreneurs and commercial investors looking to tap the growing pool of mission-driven investors. Such capital carries its own kinds of costs. Although an investment from a high-profile funder like the Gates Foundation may provide the perception of validation and cachet, fulfilling the required charitable commitments may, without clear alignment of objectives, pull a company away from commercial success.

Julie Sunderland, who managed the Gates Foundation’s strategic investment team at the time, says she doesn’t regret the investment, but she wishes the foundation knew then what it knows now. “We learned a lot about the types of support community college students need as well as how to invest as a foundation,” she says. “We now are much more careful in looking for a high degree of overlap between the company’s goals and our charitable goals. We won’t do the deal if we anticipate significant potential for conflict,” she says. “Undermining the long-term viability of a company also undermines our ability to achieve our charitable goals. The first thing we think about is ‘Do No Harm.’”

SIDE LETTER

A partnership between an educational-technology social media startup and the world’s largest private foundation held a world of possibility. In 2010, the potential of social media was not widely understood.

Uversity (then Inigral) attracted name-brand venture investments from Peter Thiel’s Founders Fund and Mohr’s Retro Venture Partners.

The company’s “Schools” app was built on Facebook, combining a familiar user interface with a protected environment designed for incoming and new college students. The idea was to help students navigate the college experience together with other students, faculty, and school administrators. One school admissions counselor described it as interacting in an online student union. Other social media environments were more like meeting students at a bar.

That caught the attention of the Gates Foundation’s Postsecondary Success program team. If an online environment could replicate some of the peer support and friendship that had been shown to increase student retention at residential colleges, Ratliff thought it might help two-year community college students succeed as well.

“The first thing I got asked by investment committee: ‘What is a social media technology?’” says Ratliff, who before coming to the Gates Foundation had managed PRIs for the John D. and Catherine T. MacArthur Foundation “People were unclear about what this was at that time.”

At the time, Uversity had only a dozen customers and barely \$100,000 in revenues. The company’s founder, 25-year-old Michael Staton, was eager to get the Gates Foundation’s endorsement. He flew to Seattle with Mohr to meet the investment team.

The investment took months to negotiate, in part because of the need to document the charitable commitments required for the foundation’s first-ever equity PRI in an early-stage company. The Gates Foundation’s legal and investment teams used an approach that opened the door for all of its subsequent equity PRIs. Along with the typical financial deal terms, the teams negotiated a legally binding side letter that defined Uversity’s agreed charitable commitments. As a condition of the investment, the Gates Foundation and Uversity agreed that the company would focus a portion of its sales efforts on reaching community colleges, which disproportionately serve students from low-income households. Uversity agreed to sign up a quota of new community college customers each year.

As a legal and programmatic matter, the foundation needed the company to meet its

charitable obligations. The agreement included a right of withdrawal—requiring that Uversity repay the Gates Foundation if the company was unable to meet those objectives. Ratliff says he told Glenn to “Hold fast to the charitable goals.” Putting it bluntly, he added, “If you’re not valuable to those students, you’re not valuable to us.”

PRODUCT/MARKET FIT

With the legal framework in place, the Gates Foundation made a \$2 million PRI to acquire a 20 percent stake in the company. The investment was part of the company’s 2010 Series B financing round of \$3.4 million led by Mohr at Retro Venture Partners.

The Gates Foundation also provided a \$1 million grant to a consortium of community colleges to establish and test the feasibility and effectiveness of social media programs, which often included signing up for Uversity’s product. The grant supported researchers at the University of Arizona to partner with the company to study the effect of its products on student retention and engagement and to publish the results. “Having Gates on board gave us immediate credibility within higher education, which is a significant challenge for a startup,” says Glenn, who took over from Staton as CEO in 2011.

Most of Uversity’s early community college clients were effectively handed to it as part of the research project. The company achieved the community college target in 2013. But meeting the charitable commitments took the company six months, during which it neglected higher-paying, potentially longer-term customers—four-year private colleges. The company missed its revenue targets. Between defections and layoffs, Glenn lost most of his sales team.

In those two years, between 2011 and 2013, it became clear that the problem wasn’t just that community colleges couldn’t pay as much as others; the app, which was designed for four-year colleges, was a poor fit for two-year schools. The core value of Uversity’s social media product for four-year colleges was as a recruitment tool, to encourage college applicants who had been admitted ultimately to choose to attend. That’s of little value to community colleges, which accept all qualified students.

Although the research suggested that community college students who used Uversity’s app indeed showed increased retention and higher GPAs, not enough stu-

dents took advantage of the app, and most community colleges didn't have the time or budget to launch the product properly.

Still, the company had delivered on program and operational goals, and the Gates Foundation stood by its investee. Two subsequent investments, for which the foundation received commitments that aligned with its programmatic objectives, totaled \$1.75 million. The last infusion was in a "down" round that valued Uversity at less than the previous investment, effectively wiping out the foundation's previous equity investment.

Members of the Gates Foundation's team did make efforts to ameliorate the conflict between its charitable goals and the company's business goals. They allowed some four-year colleges with large numbers of low-income students to be counted against Uversity's charitable commitment. They made introductions to community colleges and other potential customers. They featured the company and the research at conferences and panels and pushed the notion that social media could benefit students in higher education. "We became in some ways proselytizer of the potential of this," Ratliff said.

Mohr says the new crop of mission-driven investors bears some resemblance to "strategic" corporate investors who also dabble in funding startups to identify technologies or products for acquisition. Impact investors are similarly looking for approaches that fit into broader strategies.

"The parallel is that they both have objectives that are totally unrelated to the company," Mohr says. "As a venture capitalist, I want the manager to make a lot of money on the deal. That doesn't matter to the Gates Foundation or the corporate investor."

Despite the difficulties, Mohr said he would do the deal with the Gates Foundation again. The foundation brought considerable value with its perceived endorsement of the product and access to customers and partners. "Having the Gates Foundation as an investor was quite valuable."

Glenn agrees. He says the zigs and zags were just part of the startup game. "Ultimately the product evolved and was no longer a fit for community colleges, as the company found more opportunity by focusing on the recruitment challenges faced by four-year traditional institutions," he says. "Startups move much faster than a foundation, and they need to realize this and be more fluid when things change on the ground." ♦

Banking on the Poor

Using the off-grid solar revolution to unlock credit for low-income customers in Africa.

BY DENNIS PRICE



Leah Talam, of Eldama Ravine, Kenya, uses M-KOPA solar lighting to help her child do homework at night.

The convergence of low-cost solar technology, nearly ubiquitous mobile phones, and increasingly robust systems for mobile payments has unleashed a wave of entrepreneurship and investment across Africa and Asia. Off-grid solar electric systems are leapfrogging decrepit utility grids in much the same way as mobile phones leapfrogged landlines.

And solar power is just the start of an even bigger revolution in consumer finance. Pay-as-you-go financing is making electricity accessible and affordable for low-income households where the power grid is unreliable or nonexistent. By demonstrating that low-income customers can pay for high-value

goods and services reliably, the new business model has the potential to bring products and services even to villages at "the last mile."

Indeed, it was finance, not solar, that attracted the Bill & Melinda Gates Foundation to M-KOPA, one of the hottest off-grid solar startups. The foundation turned down a chance to invest in 2011, when the Nairobi, Kenya-based M-KOPA was raising money from impact investors and venture capitalists. Worthy as it was, solar energy solutions had plenty of other sources of capital.

The Gates Foundation, however, was interested in demonstrating something perhaps even more powerful: that low-income consumers, making affordable payments for products and services that improved their lives, represented a new financial asset class safe enough to qualify for commercial bank financing. The test was whether commercial

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banks in developing countries themselves would be willing to provide regular business banking services to companies providing life-changing products, such as toilets, irrigation systems, and cookstoves, as well as electricity. Overcoming supply bottlenecks when underlying demand is strong would constitute system change on a meaningful scale.

“We don’t invest in solar at all,” says David Rossow, who helps manage the Gates Foundation’s \$1.5 billion portfolio of program-related investments (PRIs). The foundation doesn’t even have a clean energy program. But it does have a program called Financial Services for the Poor. “We care about asset-backed lending for the last mile.”

BANKABLE COLLATERAL

M-KOPA offered a useful test of a new category of such financial services. The startup had been incubated by Signal Point Partners, the mobile-services accelerator co-founded by Nick Hughes. As Vodafone’s head of global payments in 2004, Hughes helped launch M-Pesa, the wildly successful mobile payments system now used by more than 15 million Kenyans to pay bills and transfer money. Its two million daily transactions add up to more than half of the country’s gross domestic product.

For about \$200, paid in daily installments of 50 cents, M-KOPA customers can replace dirty and expensive kerosene with clean sun-fueled energy, enabling children to do their homework, shops to stay open at night, and individuals to save the cost of charging their mobile phones at the village kiosk. M-KOPA’s customers pay for the solar kits themselves, without a subsidy, by making payments digitally from their M-Pesa mobile money accounts.

By January 2016, the three-year-old company had connected more than 300,000 East African households to solar power, adding more than 150,000 households in the past year. For the average household using the solar system, savings on kerosene and cell-phone charging amount to roughly \$750 during the first four years. For the customers, 80 percent of whom live on less than \$2 a day, that’s a lot of savings.

M-KOPA’s customer accounts are essentially an asset-backed loan. With affordable payments for a valuable product, regular payment rates were high. Grouped together, the company’s collection of accounts might not be any riskier than the collateral used by

businesses targeting more affluent customers. The Gates Foundation’s team saw in M-KOPA an opportunity to demonstrate that mobile financial services could help businesses get more such valuable products into the hands of a new market of eager consumers: poor people.

In Africa, more than 600 million people still have no access to electricity. Many do not have access to a sanitary toilet. And only 4 percent of crops are irrigated. Low population densities, poor transportation, and limited communications infrastructure contribute to a shortfall in supply, not demand, across Africa.

Companies like Greenlight Planet (solar lights), EcoLoo (toilets), and Kickstart (irrigation pumps) are driving down the costs of the products that can overcome these challenges. But even affordable goods are still out of the reach of most Africans, with more than 130 million households living on less than \$2.50 each day. Purchasing a \$200 solar kit with cash is out of the question. And fewer than 35 percent of Africans have access to formal financial services and credit.

“We don’t invest in solar at all. We care about asset-backed lending for the last mile,” says David Rossow, a senior investment officer at the Gates Foundation.

If poor customers can’t pay, companies providing even high-value goods and services can’t finance their own expenses, and recent technological advancements won’t reach those most in need of financial, social, and environmental solutions. Bridging the capital gap that has kept many African businesses starved for financing could enable them to build distribution channels for affordable goods to low-income customers. “To us, M-KOPA was more of a data service company that enables poor people to acquire something valuable” via the power of mobile money, says Tamara Cook, part of the Gates Foundation’s Financial Services for the Poor team at the time.

The key was helping M-KOPA turn its customer accounts into bankable collateral. Other investors were taking equity positions in the startup. The Gates Foundation instead made a \$5 million loan, alongside the Commercial Bank of Africa. The thesis: if M-KOPA could successfully pay back the loan, local commercial banks would see the

payments from pay-as-you-go financing schemes as a reliable revenue stream. That would create a new lendable asset class.

FINANCING SOLUTIONS

M-KOPA came to market in 2012 with a nifty solar system that customers could take home for a relatively low down payment (about \$29). Designed for small rural households, the kits come with a solar panel, two LED ceiling lights, wall switches, a rechargeable flashlight, a radio, and a phone charger.

The pay-as-you-go feature is enabled by embedded machine-to-machine technology that allows M-KOPA to receive payments through the M-Pesa mobile money platform. M-KOPA can turn off the device remotely if the customer falls behind on payments. After a down payment, a customer pays roughly 50 cents for each of the next 365 days. After one year, the customer owns the system, and M-KOPA turns it on permanently.

The M-KOPA business model overcomes a number of barriers that poor people face in accessing financial services. Small, digital payments better fit the unpredictable cash

flow cycles of low-income households. The down payment encourages poor people to save for asset purchases. Repayments create a credit history for poor consumers that may give them access to other financial services.

For M-KOPA, the portfolio of customer accounts and the associated cash flow represented an additional opportunity. If the company’s consumers could establish a digital track record of repayment, the collection of customer receivables, or commitments of future payments, might be used as an asset against which M-KOPA itself could take out a loan.

If M-KOPA’s accounts receivable could qualify as high-quality collateral, local commercial banks could make loans for inventory and expand M-KOPA’s ability to extend credit to low-income customers. Asset-backed lending to the poor could emerge as a bankable proposition, unlocking capital for businesses serving low-income customers across Africa and throughout the world.

CAPITAL CYCLE

Two years after it passed on the opportunity to invest in M-KOPA, the Gates Foundation team looked again. The Gates Foundation team spotted a financing gap. It could be 15 to 18 months from when M-KOPA inventories and then sells the solar systems to when customers complete repayment. During that time M-KOPA required a significant line of credit to be able to purchase new inventory while it waited to get repaid on current accounts.

The Gates Foundation found a misalignment of risks with M-KOPA's cost of capital. The higher-risk "product in transit and inventory" stage of the cycle was largely being financed by a \$2.25 million loan from a number of social lenders. Though this stage of the cycle is shorter, the risks are higher because of potentially poor demand forecasting, excess stock, and shipping and customs delays. M-KOPA's lenders weren't interested in expanding the financing facility.

The longer, safer stage of the cycle is the yearlong "customer payback" stage, when thousands of customer payments are made into an M-Pesa account. M-KOPA was financing this stage, in part, with very high-cost equity from its investors that should instead be financing future growth.

Access to commercial bank loans would significantly reduce the company's costs. To the investors on the foundation's PRI team, M-KOPA's accounts receivable, repaid in the latter stage of the working cycle, represented predictable, transferable, and discrete cash flows that looked like attractive collateral. Lending against it would also demonstrate to commercial lenders the high quality of M-KOPA's customer receivables, paid with mobile money.

To lower M-KOPA's capital costs, the company and its investors structured a loan backed by the "pay-as-you-go" lease payment stream from M-KOPA's customers. Under its terms, M-KOPA could borrow up to 70 percent of the value of the "performing" receivables. That weeded out new customers without credit experience and customers whose loans were performing poorly. For the first time, M-KOPA's M-Pesa receivable account could be used as collateral. This was a breakthrough. M-KOPA's critical asset was its receivables, not its solar systems, which could be turned off but not repossessed.

One more piece was needed to complete the model—a local commercial co-investor. "We didn't want to finance M-KOPA for-

ever," says Vidya Vasu-Devan, the Gates Foundation program investment officer who led the M-KOPA deal and later spent a four-month temporary assignment with the firm in Nairobi. "We wanted to be catalytic and make this a proof of concept."

LOCAL BANK

Prepared to make a significant loan, the Gates Foundation sought a local commercial bank to handle the facility, to be denominated in Kenyan shillings. The best partner would be a bank that might refinance the loan on its own when the initial term was up. The foundation expected that it would have to make a guaranty, a pledge to cover the losses of the commercial co-investor if M-KOPA defaulted.

The Gates Foundation and M-KOPA approached three banks. Because of the foundation's reputation for due diligence, the Commercial Bank of Africa (CBA) was willing to make the loan without seeking a guaranty from the foundation. CBA also agreed to administer the loan.

"We're very impressed with M-KOPA Solar's technology platform, which allows them to extend credit to customers who are otherwise lacking formal collateral or credit histories," Jeremy Ngunze, CEO of CBA, said at the time of the investment. "And it is clear that there is an enormous, creditable market that wants to be empowered by cutting-edge energy, telecommunications, and financial solutions."

To test the actual market, the Gates Foundation let CBA dictate and negotiate the investment terms. The bank approached the investment conservatively—it was financing a new asset class and was preparing for an eventual refinance. CBA negotiated interest of its base rate less 0.50 percent and set the rate. CBA syndicated a \$10 million debt facility: \$5 million from the Gates Foundation, \$2 million of its own funds, and \$3 million from other social lenders. All received CBA's negotiated terms.

The Gates Foundation also made a four-year, \$4.6 million grant to support M-KOPA's operations, research and development for new products (both physical and financial), and expansion to new geographic areas, including Uganda (where M-KOPA had a pilot under way) and Tanzania. The UK's Department for International Development and the Shell Foundation made their own grants, for a total of \$10 million in grant funding.

With \$20 million, M-KOPA had work-

ing capital and operational support to fuel significant growth. CBA is now M-KOPA's banking partner in Kenya and Uganda.

"The idea of bringing in a local partner on commercial terms was wise on [the Gates Foundation's] side," says Chad Larson, co-founder and chief credit officer of M-KOPA. "We have access to working capital that we didn't have before."

DEMONSTRATION EFFECT

The success of M-KOPA and other pay-as-you-go systems has been credited with unlocking off-grid solar in Africa. That represents a new market worth an estimated \$300 million annually, according to a recent report. Sales have tripled in the past three years, providing affordable, clean lighting for 35 million rural Africans.

By taking on real and perceived risk and providing a loan at terms negotiated by its local bank partner, the Gates Foundation set out to build a viable market for products and services needed by poor and underserved customers while demonstrating that these customers can be served on a commercially sustainable basis.

The Gates Foundation sought to create a new market rather than simply see a single organization succeed. To demonstrate the success of the pay-as-you-go model, the foundation needed to provide the right type of capital. By making a PRI loan at a rate set by a local bank (along with the accompanying grant) the foundation hoped to inspire copycats and establish a new asset class able to attract new investors to markets that serve the poorest in Africa. "Debt at 1 percent wouldn't have proved the market," says Cook.

The copycat effect is under way. "Pay-as-you-go business models have emerged as the investors' darling," according to Itamar Orlandi and Nico Tyabji of Bloomberg New Energy Finance. "With them, the sector's financial toolset is progressing from the equivalent of a simple cash wallet to a first credit card."

In December 2015, M-KOPA announced a \$19 million equity round led by Al Gore's Generation Investment Management. Sir Richard Branson, Jean and Steve Case, and existing investors joined the round.

The big test will come in 2017, when M-KOPA aims to refinance the facility with a local commercial bank. Already, with receivables as bankable collateral, capital is flowing. Every day in East Africa, more people are gaining access to electricity. ♦

Guaranteed Impact

Increasing supplies and cutting prices for contraceptives without spending a dime.

BY DAVID BANK

Melinda Gates was in London four years ago to help launch a global campaign. The audacious 2020 goal: to reach more than half of the estimated 225 million women worldwide who want to avoid pregnancy, yet are not using modern contraceptives. “We must continue to help our partners provide affordable contraceptives at the necessary scale and bring new partners into the market to reduce prices further,” Gates said in her speech.

On her return from London, the family planning program and the in-house Program Related Investment (PRI) team at the Bill & Melinda Gates Foundation set out to help Melinda reach that goal. Together with donors from Norway, the United Kingdom, and the United States, the Gates Foundation negotiated agreements with two major pharmaceutical firms, Merck & Co. Inc., and Bayer AG, to roughly double the supply and halve the price of contraceptive implants, a popular and effective method of birth control. Such long-acting, reversible contraceptives have been in high demand among women, but in short supply in many developing countries.

The agreements include a guarantee by the Gates Foundation and other funders that NGOs and others will buy a specific (and large) quantity of the contraceptive implants, in return for a commitment by the drug companies to increase production and lower prices. With a long-term fixed-price contract, the consortium of funders has pledged to make up any shortfall in demand from buyers. Even with lower prices, higher volumes can drive bigger profits—a classic win-win for both consumers and producers.

If the deals work, they will demonstrate

the leverage of high-level, well-designed efforts that target both capital and know-how at persistent failures of supply and demand. By mitigating risks, driving down costs, and making markets more transparent, mechanisms such as volume guarantees can kick-start powerful market forces and increase access to goods and services for tens of millions or even hundreds of millions of people.

Spoiler alert: Three years into separate six-year deals with Bayer and Merck, demand for the contraceptives is even higher than originally forecast. From 4.7 million in 2012, the annual run rate approached 10 million last year. By 2020, the number of women who will have gained access to contraceptive implants will be well above the 40 million implant units originally estimated by the partnership and guaranteed by the Gates Foundation and its donor partners.

The price reductions have already saved more than \$240 million for global public health donors who procure products for the benefit of those most in need in developing countries. By the end of the guarantees in 2018, total savings could top \$500 million, perhaps much more in future years. Those savings can be reinvested into additional products and training for health-care workers. The results have demonstrated the high demand among women for long-acting contraceptive options, further spurring governments to step up to ensure that women have them available.

The \$400 million liability for the four volume guarantees remaining on the foundation’s balance sheet represents the largest part of the Gates Foundation’s \$1.5 billion mandate for PRIs, which also include more traditional debt and equity investments in startups and impact investment funds. If demand continues to be strong, there will be no call on the foundation’s guarantee. In

that case, the foundation’s capital outlay to reshape global supply and demand to benefit tens of millions of the poorest women will be zero, freeing the money for other projects.

“We always want to knock on wood because we’ve got significant exposure still on these investments,” says Julie Sunderland, the founder of the foundation’s PRI team. Barring a shortfall in orders, she says, “We’ll have saved a billion dollars that can go toward an additional billion dollars in vaccines and contraceptives for poor women and kids in these markets.”

BUYING POWER

The structures of the volume guarantees are instructive for a growing group of foundations and other impact investors seeking to leverage private capital for large-scale change. The agreements are particularly instructive for investors in emerging and frontier growth markets, where lower prices can be offset by high-volume sales to a rising class of consumers.

Across industries, such tools can save billions of dollars. They will be essential for hitting the deadlines on other shared global goals, such as the UN’s 2030 Sustainable Development Goals and the global climate accords reached in Paris last year. Global institutions are aiming to apply these tools to markets in energy, agriculture, education, and women’s rights, as well as health care.

In the market for childhood vaccines, for example, the Gates Foundation’s volume guarantees have helped solve the chronic shortage of supply in addition to driving down prices. Some agreements allowed procurers such as UNICEF to enter into multi-year firm purchase contracts. Others offered suppliers a guaranteed volume in return for low prices in developing countries, spurring them to add manufacturing capacity with certainty that the additional production would be sold.

A 2012 deal with Biological E. Ltd, an Indian vaccine supplier, helped the company improve yields and reduce prices for pentavalent vaccine, a five-in-one shot to prevent diphtheria, tetanus, pertussis, hepatitis B, and *Haemophilus influenzae* type B (Hib) by more than 30 percent. That saved GAVI, the global vaccine alliance, an estimated \$130 million over five years.

Even earlier, the Clinton Foundation’s health access initiative (CHAI), led by Ira Magaziner, had used a version of the volume

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guarantee mechanism to drive down prices for antiretroviral drugs that reshaped global AIDS treatment. Those price reductions generated global savings of more than \$600 million between 2008 and 2011.

Without intentional interventions, the virtuous circle of high volume and low price is often blocked by perceptions of risk. When real money has to be invested now to meet uncertain future demand, most companies balk. Volume guarantees remove the

is then creating a more functional market for companies to sell into,” Sunderland says. With a deep understanding of market dynamics, “you can do some amazing things.”

COMPLEX MARKETS

Melinda Gates returned from London with \$2.6 billion in commitments to finance contraceptive procurement and distribution. The consortium—the UN’s Family Planning Agency, the US Agency for International

counseling and the insertion and removal, but not for ongoing adherence or check-ups, making implants especially attractive in low-resource regions where women may not have regular access to health care. Over the lifespan of the product, it is by far the most cost-effective modern contraceptive method.

The implants are not without their problems and critics, which is why the London summit and the global family-planning movement stress the importance of a

woman’s ability to choose from a range of contraceptive methods. All medicines and medical devices have to go through comprehensive clinical testing, evaluating benefits and risks, before they are reviewed and approved by regulatory authorities.

Despite the popularity and advantages of contraceptive implants, the product had been in chronically short supply. The procedure was not available even to women who specifically asked for it, much less to a woman who might choose it among several options. The approximately \$18 per unit cost for the Implanon or Jadelle products made budgeting for contraceptive implants difficult for international aid donors and national health ministries.

Figuring out how to solve these market failures required a deep dive into the complexities

and economics of the contraceptive market. The Gates Foundation PRI team spent months studying the supply side of the market to understand production costs and competitive dynamics. Magaziner, CHAI’s irascible architect of the HIV/AIDS drug strategy, spearheaded the market analysis. The report indicated that lower prices and improved procurement systems could address the existing unmet need and accelerate demand for implants by women, who were using short-acting methods such as pills or injectables.

Meanwhile, the Gates Foundation family planning team delved into the demand side, interviewing women and NGOs in the field to understand whether lowering prices would be enough to overcome the problems these women faced in obtaining contraceptives.

Price did turn out to be the biggest barrier, but it wasn’t the only one. Other factors,



A mother and her six-month-old daughter meet with a nurse to learn more about family planning.

long-term financial risk of increasing capacity by promising producers predictable long-term sales.

The Gates Foundation is in a strong position to take on that demand-side risk because it often has a broader perspective on the overall market than the companies themselves. Not only is it working closely with all the donor governments that provide the bulk of funding for global health campaigns, it is often supporting, through grants, the agencies and on-the-ground organizations that procure and distribute some of the very purchases it is guaranteeing. That market knowledge means that the actual risks to the foundation are lower than the perceived risks to the drug companies.

“We are solving market-level failures and political failures via our balance sheet, which

Development, and the UK Department for International Development—together represent the vast bulk of donor funding for contraceptives. The goal: reach an additional 120 million women in countries with annual income below \$2,500 per capita.

“Our family planning team asked, ‘Can we do something about the pricing of contraceptives?’” recalls Natalie Revelle, who leads the volume guarantee effort at the Gates Foundation.

Contraceptive implants were the obvious opportunity. Once inserted, the devices provide effective contraception for three years (with Merck’s Implanon), up to five years (with Bayer’s Jadelle), or until the woman chooses to have the implant removed. Both the Merck and Bayer methods require trained health workers for on-site

such as unreliable supply chains, a shortage of trained health-care providers, and lack of knowledge among women about the product inhibited access and growth. Still, the team believed that a dramatic price decrease would be the key to unlocking the market and catalyzing solutions to these other issues.

“So we went to Bayer and Merck and said, ‘We have an idea on how to give more women access to implants without making you lose money,’” says Revelle. “But you need to think about your business differently.”

NEW RULES

For Merck and Bayer, the failure of supply to meet the underlying demand for a product with obvious advantages was a function of the structure of the market. The technology itself was mature: the product was not significantly different from the Norplant device that has been in use for more than 30 years.

Funding from the large donor buyers in the global contraceptives market, however, had historically been unpredictable and politicized. It was difficult for the pharmaceutical companies to forecast demand accurately, and global health procurement processes often proved opaque and challenging to companies.

The volume guarantee was an elegant solution to these challenges. To give Merck and Bayer confidence in planning production, the Gates Foundation offered to guarantee that over six years the sales volume of contraceptive implants in low-income countries would be roughly double current demand. This volume commitment would be secured by \$340 million in legally binding agreements by the Gates Foundation, which committed \$120 million, the governments of Norway and Sweden, and the UK-based Children’s Investment Fund Foundation.

Under these agreements, if the market did not grow at the predicted rate, the Gates Foundation and its partners would be on the hook to pay for the increased production. The contracts included provisions for other organizations to take delivery of the actual contraceptives, but the financial hit to the funders would be real. The volume-guarantee contracts are so large that a call on one of them could single-handedly wipe out the reserves for the foundation’s entire PRI portfolio.

In January 2013, Bayer made the first move. It agreed to provide its Jadelle implants at \$8.50 per unit, a 53 percent reduction, in return for a guarantee of orders

of at least 27 million units over six years—approximately 3 to 5 million units per year. The deal called for a first-year purchase of \$25.5 million worth of product.

This seemed like a reasonable goal: The top-line dollar amount was well below the \$43 million that donor buyers had put up for 2.4 million units of Bayer’s product in 2012, the year before the agreement. Paradoxically, the lower price introduced a new risk: Donor buyers would need to ensure that there was enough on-the-ground demand and trained staff to actually deliver the increased number of contraceptive implants.

To take advantage of Bayer’s current production, the donor buyers effectively took everything Bayer could produce and made arrangements for warehousing in case demand did not grow as fast as production. Merck quickly followed, agreeing to cut its prices as well. In May 2013, Merck signed a six-year deal that translated into additional savings of at least \$120 million for global health buyers.

The second agreement meant that the Gates Foundation was guaranteeing sales volume almost three times the global demand before the price cuts. That was far more than it would have guaranteed if it had done the two deals simultaneously. “We were sweating,” Revelle says. “I was worried about having suitcases of excess implants and walking around trying to distribute them.”

MARKET DYNAMICS

Results of the contraceptive agreements have surpassed expectations. One report estimated that the savings on Bayer’s Jadelle implant could avert more than 280,000 child and 30,000 maternal deaths and more than 20 million unintended pregnancies. According to the World Health Organization (WHO), waiting at least two or three years between pregnancies reduces infant and child mortality and benefits maternal health. In very young women, contraceptive use delays first pregnancies, which carry higher risks.

Some of the savings from lower prices have been reinvested by donors in other supply chain improvements and training. Demand has exceeded even best-case estimates: More than 10 million units were ordered in 2015, the third year of the six-year agreement. That has helped boost progress toward the overall 2020 goal, which is otherwise lagging. As of July 2015, the Gates Foundation reported that 24.4 million more

women and girls were using contraception than in 2012, about 10 million fewer than had been hoped for.

The increased demand for contraceptive implants again raises the prospect of supply shortages in the next few years. The new challenge: ramping up production from today’s current capacity of about 10 million units. Manufacturing capacity increases in large jumps, so again there is investment risk that forecasts that demand will go still higher are wrong.

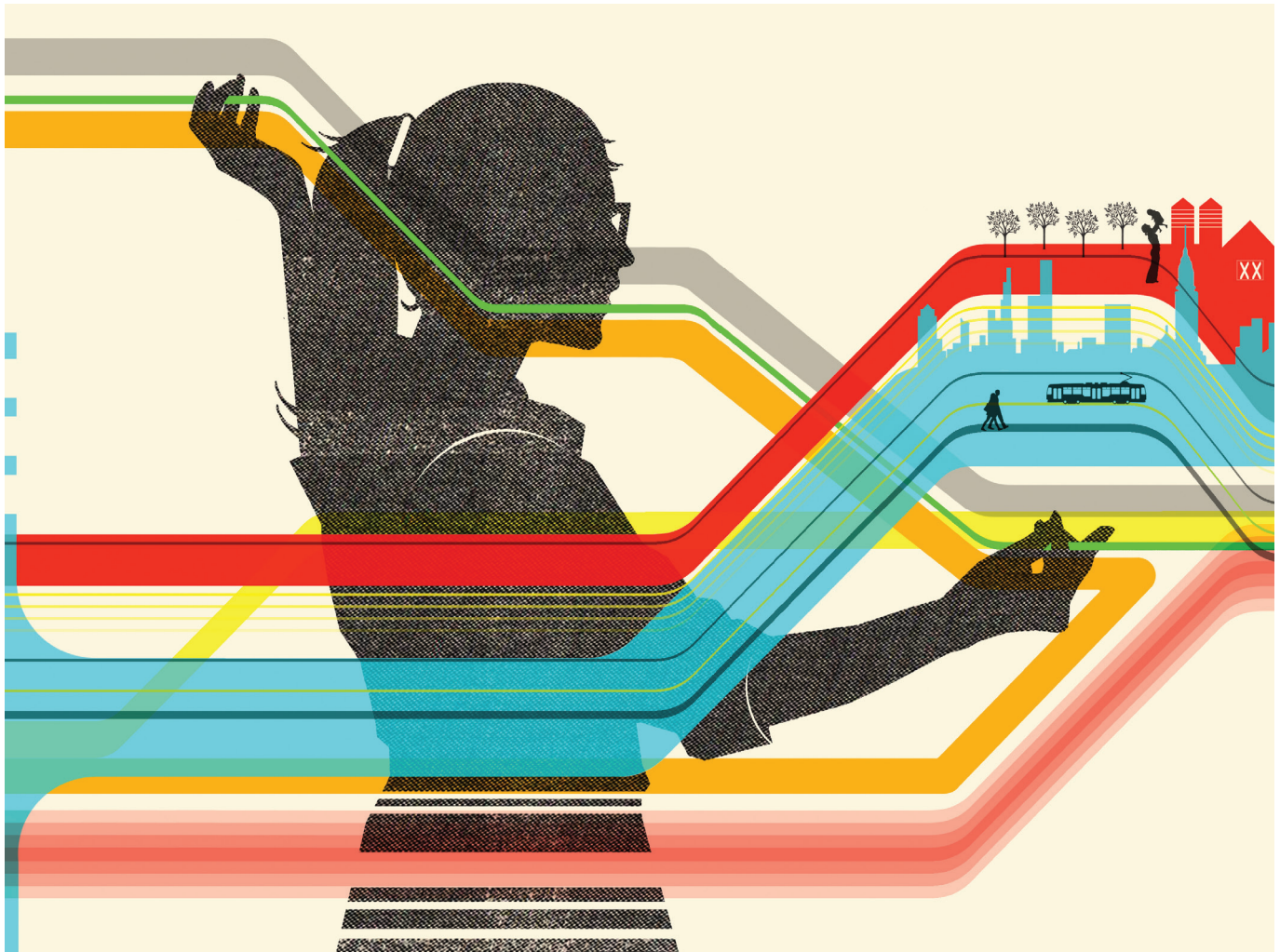
The obvious solution is another volume guarantee. But the Gates Foundation is reluctant to forge another agreement for fear of permanently distorting the market. Companies may come to depend on guarantees, even when normal market forces might work. That’s known as the “sale effect,” in which prices are marked up only to be discounted to levels they would likely have reached anyway.

The risk is that “suppliers now say, ‘I need a volume guarantee to do this or that,’ that they would have done before on their own,” says Revelle. “There’s no good way to deal with this, except to say, ‘No, I don’t think you need it for what you’re doing here.’”

Instead of a volume guarantee, the foundation and other donors are providing technical assistance to help a new supplier, the Chinese company Shanghai Dahua Pharmaceuticals Co., improve its product—a low-cost version of a similar four-year contraceptive implant—and gain WHO prequalification. That will increase supply and create a more competitive market. Dahua-Sino unsuccessfully sought its own volume guarantee.

Revelle sums up the Gates Foundation’s rough guidelines for entering into volume guarantees: Have a deep understanding of the supply and demand dynamics of the industry. Know the suppliers’ business models. Understand the cost of goods and how that might change at higher volumes. Use volume guarantees to reduce uncertainty and costs. And don’t offer guarantees in perpetuity.

Halfway through the six-year deals, the market already appears to be healthier. Late last year, Merck announced it would extend its “access pricing” for the targeted low-income countries through 2023, five years beyond the expiration of the 2013 agreement. Bayer quickly followed suit with its own announcement that the price of Jadelle would be maintained at the volume guarantee price through 2023 as well. ♦



Investing for Impact with Program-Related Investments

A report on strategic investing at the Bill & Melinda Gates Foundation.

BY PAUL BREST

The Bill & Melinda Gates Foundation, the world's largest family foundation, is also one of the world's largest impact investors. Since 2009, the foundation has complemented its grants budget with a substantial allocation for program-related investments (PRIs). In the words of Julie Sunderland, the founding director of Program Related Investments: "While the majority of the foundation's activities will still be traditional grantmaking, we believe PRIs can be a critical tool to stimulate private-sector innovation, encourage market-driven efficiencies, and attract external capital to support our charitable priorities."¹

A PRI (as described more fully on page 21) is a loan, equity investment, or guaranty, made by a foundation in pursuit of its chari-

table mission rather than to generate income. The recipient can be a nonprofit organization or a for-profit business enterprise. The US Internal Revenue Code treats PRIs similarly to grants. In contrast to ordinary investments from their endowments, foundations do not expect PRIs to produce market-rate returns.

Today, the Gates Foundation has allocated \$1.5 billion to fund PRIs, of which it has committed \$1 billion across 47 investments. Its PRIs have allowed the foundation to reach beyond the nonprofit sector to draw on the talent, expertise, and innovations offered by the private sector to advance its mission to "help all people lead healthy, productive lives."

With its PRIs, the Gates Foundation has invested to scale up enterprises that serve the poor. It has guaranteed public agencies' purchase of vaccines and contraceptive implants in order to convince large pharmaceutical manufacturers to boost their production and

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reduce prices for the benefit of those most in need. And it has made equity investments in biotech startups to induce them to focus on neglected diseases such as malaria and tuberculosis.

For example, the Gates Foundation made a PRI in M-KOPA, a Nairobi-based for-profit startup that sells solar lighting and mobile phone charging systems on a pay-as-you-go basis to East African households. To establish asset-backed lending to the poor as a bankable proposition, the foundation made a loan secured by receivables from the company's customers, who pay for their solar products over time. This 2013 loan was made in partnership with a local commercial bank, allowing M-KOPA to develop a credit history that would attract future commercial lenders. The foundation's loan was accompanied by a grant to support new product development and expansion into new geographic areas. (See the article "Banking on the Poor" on page 13 for more details on the foundation's investment in M-KOPA.)

The Gates Foundation has also made PRIs in biotech start-ups as part of its commitment to the development of new vaccines, therapeutics, and diagnostics for infectious diseases that disproportionately affect individuals living in developing countries. Some of the most promising research and new product development in biotech emerges from technology platforms in early-stage, venture capital-backed companies. However, biotech firms understandably face pressure to focus on commercially attractive markets. The Gates Foundation has coupled its equity investments in some of these young companies with "Global Access" side agreements that require the companies to make their products affordable in low-income countries. In some instances, the foundation has supplemented the investments with grants to fund the research and development of particular high-priority products. (See the article "Neglected No More" on page 8 for more details on the foundation's biotech investments.)

The accompanying case studies document the failures as well as successes of these and others of the foundation's PRIs. This essay uses the example of the Gates Foundation's grants and investments to support bKash, a mobile money service in Bangladesh, to illuminate critical elements of the foundation's PRI strategies.²

Building on global advances in mobile communications and digital payment systems, the Gates Foundation seeks to provide affordable and reliable financial tools for digital cash transfers and savings. Poor people in Bangladesh face significant barriers to accessing financial services. Because their transactions are mainly cash-based, they confront high risks and costs in storing, sending, and receiving money. Moreover, their limited access to financial services increases the costs for formal institutions, such as governments and companies, to transact with the poor, disincentivizing them to do so.

Beginning in 2009, the foundation's Financial Services for the Poor program supported bKash through a series of grants and a PRI to enable it to build and operate a mobile payment platform in Bangladesh that would reach the poor, including the many residents of rural areas who subsist on less than \$2 a day.

PRIs in companies such as M-KOPA, the biotech firms, and bKash are particularly useful where, without some external stimulus, private markets fail to meet the needs of the world's poorest inhabitants

for essential goods or services. The Gates Foundation's website explains its approach: "In the case of business, we work with companies that have experience creating and delivering innovations that can benefit people living in poverty. These businesses bring tools, knowledge, influence, and money to the table. But they don't always have an incentive to focus on inequities or to make sure their innovations reach everyone who needs them. When opportunities arise—when there is a chance to involve businesses that would not otherwise participate—we seek to create those incentives and encourage businesses to take action that does the most good for the most people."³

A REAL-TIME EXPERIMENT

PRIs are not typical investments. The Gates Foundation's PRIs, designed to accomplish the foundation's charitable mission, are driven by program teams that include some of the world's top experts in global health, global development, and education. Its depth of in-house knowledge gives the foundation a unique perspective on how market-based solutions can serve its beneficiaries' needs. The program teams work in tandem with a team of investment experts and lawyers to negotiate term sheets and agreements, address the legal complexities involved in PRIs, and support the investments post-close.

The Gates Foundation's influence—a combination of its mis-

For most PRIs, the [Gates] foundation has deep experience in the neglected disease, cause of poverty, or educational challenge that the company is working to overcome.

sion, money, reputation, and willingness to take considered risks—allows it to negotiate especially favorable terms for the benefit of the poor. Its Global Access agreements with pharmaceutical companies and other investee partners, for example, provide preferential pricing for the foundation's target beneficiaries. The foundation also reserves the right to withdraw its investment if the agreed-upon charitable purposes are not being fulfilled.

The Gates Foundation is treating its PRI process as a real-time experiment. Its hypothesis is that leveraging resources through collaboration with private investors and for-profit entrepreneurs can drive high impact. "We've been doing this for a few years and are starting to draw a few conclusions," Sunderland says. "But we still have a lot to learn."

Even at this early juncture, however, the Gates Foundation's experience and practices provide valuable lessons for other foundations considering their own approaches to PRIs, and for other strategic social investors seeking to use financial instruments to generate charitable benefits.

INVESTING FOR IMPACT

For a foundation, "impact" means achieving outcomes that *would not otherwise have occurred* in the areas of its concerns. Such additionality⁴ is a norm for the Gates Foundation, which has two fundamental criteria for every potential grant or PRI: Are we achieving the program's charitable goals? Would this happen without us?⁵

For an organization funded by a foundation to have impact means not just that a program team's intended outcome has oc-

curred (for example, fewer instances of malaria), but that the organization’s activities contributed to that outcome (for example, the reduction in the disease was the result of a vaccine supported by the foundation and not of an especially cold summer).⁶ By the same token, for a foundation’s own investment to have impact, it must provide capital that an organization would not otherwise have, thus contributing to an increase in its charitable goods or services (such as vaccine doses); or it must induce the organization to provide goods or services at prices affordable by those in need that it would not otherwise have produced and distributed.

Grants are by far the main form of foundation funding of non-profits. Aside from some PRIs in the form of low-interest loans and guaranties (to help purchase a building, for example), nonprofits have not been the recipients of investments, and certainly not of equity investments, because they cannot have owners.

In contrast, the typical recipients of the Gates Foundation’s PRIs are for-profit enterprises that strive to make a profit for their owners. When a foundation’s charitable objectives are served by for-profit organizations, it can further those objectives through a grant, contract, equity investment, loan, or guaranty. (See “Types of Foundation Support” below.)

The concept of PRIs originated in the US Tax Reform Act of 1969. Since then, foundations, including Ford, Rockefeller, MacArthur, and Packard, have used PRIs creatively to further their charitable missions. The Gates Foundation began its PRI program as a \$400 million pilot in 2009 and has dramatically expanded the use of the tool. Its current \$1.5 billion allocation is the largest commitment to PRIs in the world.

PRIs are conceptually and legally distinct from two other kinds of socially-minded investments that foundations can make: mission-related investments (MRIs) and socially responsible investments (SRIs). MRIs typically are investments in publicly-traded companies whose activities are aligned with a foundation’s charitable mission.⁷ SRIs are investments in companies that, whether or not so aligned, adhere to good environmental, social, and corporate governance (ESG) practices.⁸

MRIs and SRIs are part of a foundation’s ordinary portfolio of endowment assets and typically target risk-adjusted returns in line with those of traditional investments (so called “market-rate returns”). They are fundamentally different from PRIs, which do not have these financial objectives, but instead are designed to implement a foundation’s programmatic strategies.

The US Internal Revenue Code defines PRIs as investments that meet three criteria: the primary purpose is to accomplish one or more of the foundation’s exempt purposes; influencing legislation or taking part in political campaigns on behalf of candidates is not a purpose; and production of income or appreciation of property is not a significant purpose.⁹

The characterization of an investment as a PRI has four important consequences for a foundation.

- PRIs count toward a foundation’s qualifying distributions—the required annual payout of 5 percent of its endowment. (Any principal returned from a PRI must be regranted within a year; any income is treated in the same manner as income from regular investments.)
- PRIs are exempt from the US Internal Revenue Code’s penalty on foundations’ making “jeopardizing investments”—investments that, if only intended to increase a foundation’s balance sheet, would reflect a lack of reasonable business care and prudence (the “prudent investor standard”) in providing for the long- and short-term financial needs of the foundation for it to carry out its exempt function.
- PRIs (as well as grants) to for-profit organizations are accompanied by requirements of “expenditure responsibility” in monitoring the organization’s use of the funds—requirements that are not imposed on grants to public charities.
- A PRI commitment must “specify the purpose of the investment and must include an agreement by the organization ... to use all the funds received from the private foundation ... only for the [charitable] purposes of the investment and to repay any portion not used for such purposes.”¹⁰ The US Treasury regulations require a charitable investor to be repaid its funding by an enterprise that abandons its charitable activity.

As long as a foundation complies with the Treasury regulations, it is free to adopt its own procedures for making PRIs. The procedures designed and adopted by the Gates Foundation ensure that every one of its PRIs has the potential to improve the lives of its intended beneficiaries and that the foundation’s funds are used solely for charitable purposes.

MAKING A PRI

Private foundations making PRIs face several major internal organizational questions centering on initiating the investments, conducting due diligence on their charitable and financial prospects, and monitoring and supporting the investments after they are made. In some foundations, these matters lie mainly outside the grantmaking programs and are handled by a separate investment team. In others, a program team is primarily responsible for the entire investment process, in consultation with investment professionals or intermediaries. Lawyers play an important role in both cases, drafting agreements and ensuring compliance with US Treasury regulations, securities laws, and other legal standards.

PRIs at the Gates Foundation are handled collaboratively by two separate teams. A program team, composed of subject-matter experts, typically initiates the PRI, as it would a grant, and is responsible for specifying the conditions of the investment necessary to achieve the program’s charitable goals, as well as monitoring and evaluating charitable impact. A PRI team, with expertise in private equity and venture capital, structures the transaction and evaluates its financial risk. The PRI team brings to bear many of the same analytic skills and tools that a commercial investor would.

The process begins with a program officer who is responsible for grantmaking in the subject area of the PRI. In the case of the Gates Foundation’s investment in the Bangladesh mobile payment com-

Types of Foundation Support

	Nonprofit organization	For-profit enterprise
Grant	General or project support	Project support
PRI	Loan or guaranty	Loan, equity investment, or guaranty

pany bKash, Lynn Eisenhart, a senior program officer in the Financial Services for the Poor program of the Global Development Division, reviewed the potential investment just as she would have reviewed a potential grant. After deciding to go forward, the program officer then seeks co-sponsorship of the PRI with an investment expert from the foundation's PRI team.

Assuming support from the PRI team, the next level of programmatic review is done by the Gates Foundation's nine-person PRI Investment Committee. The committee includes representatives from program teams across the foundation as well as the chief financial officer and the general counsel. This group is responsible for reviewing each proposed deal to ensure that its potential for charitable impact justifies the investment risk as well as the significant burden that each investment places on foundation resources. On the basis of its assessment of charitable impact and investment risk, the committee makes a recommendation, which incorporates diverse technical and charitable perspectives and ensures that the scarce resources of the PRI and legal teams focus on the highest-impact opportunities.

If the committee recommends pursuing the deal, the investment is reviewed by the president of the applicable division (Global Development, in the case of bKash). If the president is confident that the investment will further the division's charitable goals, it is recommended for ultimate approval either by the foundation CEO or, if it exceeds a certain threshold, by the foundation's co-chairs, Bill and Melinda Gates. The multi-stage review process leading to a PRI at the Gates Foundation is aided by several critical tools and concepts, described in the sections that follow.

ENSURING CHARITABLE IMPACT

The Gates Foundation has systematized several practices that tend to ensure or amplify the direct charitable impact of the PRI:

- *Global Access* | Requiring that knowledge and information generated by foundation-funded projects will be promptly and broadly disseminated, and that the funded developments (such as pharmaceuticals) will be made available and accessible at an affordable price to people most in need.¹¹
- *Licensing Rights* | Requiring that in the event the PRI recipient fails to adhere to its Global Access or other charitable commitments, the foundation would obtain the intellectual property rights necessary to take the project forward with another partner.
- *Building the Field* | Ensuring that critical lessons learned by the PRI recipient and the foundation are shared with the broader research, educational, philanthropic, and business communities.

THE CONCEPT OF RISK SHARE

Unlike some impact investors who demand competitive rate-of-return along with social impact, the Gates Foundation never makes PRIs for the purpose of achieving financial returns. The foundation invests even though it is likely to lose capital. This approach is consistent with the concept of additionality as well as conditions for PRIs under the tax code.

The foundation is realistic about the types of often high-risk and low-return investments that it makes on behalf of its ben-

eficiaries. Overall, the foundation anticipates approximately a 10 percent loss on its PRI capital. In other words, for each dollar invested, 90 cents will ultimately be returned. (Of course, for a grant the "loss" is 100 percent, because none of the money is returned to the foundation.)

The Gates Foundation takes specific steps to quantify the expected loss on each investment. The process (described in detail later in the essay and in "Accounting for a PRI" on page 26) applies a financial analysis to the PRI to determine the investment's "Risk Share."

Estimating the expected loss from the foundation's investment gives the foundation an internal mechanism for allocating the total investment amount between the PRI budget and the relevant program budget. Typically, the Gates Foundation requires that an amount equal to the expected loss be paid out of the program team's

Unlike some impact investors who demand competitive rate-of-return along with social impact, the Gates Foundation never makes PRIs for the purpose of achieving financial returns.

grant budget as its Risk Share. Requiring the program to have "skin in the game" provides further assurance of the PRI's charitable impact and considered use of the foundation's resources.

Pricing the Risk Share gives the foundation flexibility to undertake a variety of types of investments that individually may have expected losses ranging from 100 percent (such as equity to support a very early-stage, high-risk technology in an uncertain market) to as little as 1 percent (for example, guaranties that result in tens of millions of dollars in savings for global health funders but have low likelihood of being called).

The Risk Share has enabled the Gates Foundation to fashion PRIs to achieve particular charitable objectives. It frees the portfolio from general mandates such as "capital preservation," which could result in a homogeneous collection of, say, low-risk loans. And sharing the financial risk ensures that a program team is appropriately engaged to pursue and assess the charitable impact.

EVALUATING A PRI'S CHARITABILITY

One of the required characteristics of a PRI is that "no significant purpose of the investment is the production of income or the appreciation of property."¹² The IRS has provided limited guidance as to what this means in a regulation that states: "In determining whether a significant purpose of an investment is the production of income or the appreciation of property, it is relevant whether investors who engage in investments only for profit would be likely to make the investment on the same terms as the private foundation."¹³

Unfortunately, this does not offer a clear standard. Rather, it leaves private foundations struggling to find a balance between investing on such unfavorable terms as to result in an impermissible private benefit to the company or other shareholders, and investing on terms that are so favorable that financial return appears to be a significant purpose of the investment.

Given this delicate balance, the Gates Foundation obtains a legal opinion from a tax attorney experienced in private foundation law in connection with each PRI. The opinion, written by internal

or external counsel, reviews the transaction, documents, and other pertinent information, states the facts, articulates the charitable purpose for supporting the PRI recipient with investment capital, identifies the critical terms documenting the PRI recipient's commitment to the charitable purpose, and concludes with a reasoned discussion of how these facts align with regulations governing private foundations.¹⁴ The legal opinion also provides a vehicle for ensuring the proportionality of the foundation's investment against the extent of the recipient's charitable commitments.

MODES OF FUNDING: A DEEPER LOOK AT BKASH

How does the Gates Foundation determine whether and how much to fund a potential partner, and whether to structure its support as a grant, a PRI, or some combination of these? bKash provides an excellent case study for considering these questions.

The origins of bKash can be traced to the Gates Foundation's interest in promoting financial inclusion in Bangladesh, Bangladesh's BRAC Bank's mission to facilitate small and medium enterprises not served by conventional banks, and two Bangladeshi-American brothers' interest in founding a mobile money company in that country.

The Gates Foundation's initial support came in the form of two grants from the Financial Services for the Poor (FSP) program team to the global consulting firm Enclude.¹⁵ A \$5.5 million grant in 2009 enabled Enclude to assist BRAC Bank in developing a business plan for a mobile money platform. The foundation believed that such a platform would allow the bank to offer greater financial inclusion for the poor, but also understood that the venture would accumulate millions of dollars in operating losses before breaking even. BRAC Bank, which was required to own a majority of bKash for the latter to receive licensure, was unlikely to support a loss-making venture that would impair its legally prescribed capital reserve.¹⁶

At about the same time, Money in Motion LLC, a US investment firm led by telecom entrepreneurs Iqbal and Kamal Quadir, was also recognizing the potential for mobile money in Bangladesh. It sought a partnership with BRAC Bank to form a for-profit mobile payment company to be known as bKash—after *bikash*, the Bengali word for “growth.” In the first quarter of 2010, Money in Motion and BRAC Bank cemented an agreement, and bKash obtained a license to operate as a subsidiary of the bank.

In November 2010, the Gates Foundation's FSP program team made a second grant to Enclude, this time \$10 million, to support the growth of the newly formed bKash. It was hoped that if bKash could replicate the scale of other mobile payment platforms, most notably M-Pesa in Kenya, the company would accelerate cash digitization and financial inclusion for the benefit of the poor in Bangladesh.

By the end of July 2013, bKash was serving more than 4.2 million registered customers and had built a network of more than 60,000 mobile money agents, many of them assisting the poor and underserved in making use of the novel technology. It had become the market leader in Bangladesh.

The 2009 and 2010 grants to Enclude had been essential to get the venture started, but all of the parties involved recognized that bKash now needed actual investments. The company had recently closed a \$10 million equity investment from the International Finance Corporation (IFC), and bKash's management estimated that it needed an additional \$15 million to fund its growth through the point of cash flow breakeven. With commercial capital scarce in

Bangladesh, especially for firms focused on financial inclusion of the poor, bKash sought the Gates Foundation's direct support.

When funding a nascent enterprise, the Gates Foundation seeks to achieve four fundamental goals:

- Further the charitable goals of the foundation's program team.
- Assure that the capital structure of the business is healthy and matched to its ability to generate returns.
- Avoid distorting the financial market for goods or services in the sector in which the investment is made.
- Encourage good governance and exert an appropriate amount of influence over the recipient enterprise's management.

For the Gates Foundation to achieve these goals when investing in a startup in a developing country almost always requires a subsidy, which is inherent in the type of support provided through grants and PRIs.

Because bKash was not ready to attract commercial investors, Gates Foundation staff had no doubt that it required a subsidy to thrive and grow. The question was how much. The underlying economic principle is self-evident: the total subsidy should be the amount of capital needed for the company to reach a market-sustainable level of risk-return that would attract commercial capital, and must be justified by the public good created by the subsidy. Less subsidy would, by hypothesis, compromise both the enterprise's chances of success and the foundation's related charitable goals. More subsidy would waste resources that could be devoted to other charitable purposes, create a risk of distorting the market, and possibly even confer an impermissible private benefit. Ultimately, application of the principle to particular cases is a subtle judgment that draws on the combined expertise of the program and PRI teams.

GRANT, INVESTMENT, OR BOTH?

In crafting its investment in bKash, the Gates Foundation's staff first faced the question of what form its funding should take. Grant funding had been the appropriate vehicle when bKash was just starting. Its millions of dollars in operating losses would have deterred BRAC Bank from participating in the initiative. As Lynn Eisenhart, FSP's senior program officer, said, bKash was “a startup organization with a little money, but a lot of promise.”

To determine whether any portion of the company \$15 million need might appropriately be met through a grant, Eisenhart evaluated the use of the funds. Eisenhart identified \$4 million of planned activities that provided significant charitable value to low-income people in Bangladesh but provided only marginal support for bKash's mobile payments business. These activities included improvements in data collection, pilot programs with nonprofit partners, and exploring interoperability with other banks with the ultimate aim of broadening access for those most in need.

But it was also time for bKash to raise additional funds in a more conventional business-like manner in order to begin to demonstrate sustainability. The FSP team considered whether to make a PRI in bKash. Eisenhart and David Rossow, the senior program-related investment officer working on the deal, hoped that the investment would support bKash's rapid growth in low-income and underserved areas and help attract commercial investors to the next round of funding to increase the likelihood of the company's sustainability.

Eisenhart and Rossow realized that a loan of any amount would

saddle the nascent enterprise with an obligation that could inhibit its growth and deter commercial investors. Moreover, a loan did not match the risk profile of an early-stage business with negative cash flow. They ultimately decided on a combination of an \$11 million equity investment and a \$4 million grant.

Besides sending a signal to commercial investors, a PRI may have other advantages over a grant. In general, a company’s management is more disciplined in meeting its obligations to an investor than a grantee is to a grantmaker. For example, the terms of the equity investment compelled bKash’s board to engage in a rigorous review of its governance, which would be unusual in most grant agreements. Indeed, a PRI may induce a foundation itself to be more disciplined in its funding. For example, the Risk Share negotiation between the Gates Foundation’s PRI team and a program team presses the staff to scrutinize every aspect of the enterprise, including country risks and the dynamics of the markets in which it operates.

Moreover, a foundation can negotiate rights that are typical for an investor but would be highly unusual in the context of a grant. Investments often come with the right to appoint board members or, as the Gates Foundation prefers, to have board observer status, and to approve certain major decisions by the investee (such as sale of the company). In addition, investments can broaden the foundation’s recourse—through put rights, consequential damages, make-whole requirements, and the like—and give the investor priority claims on assets such as intellectual property if the company abandons the charitable objectives or goes bankrupt. These are claims that a foundation could not ordinarily make when funding with a grant.

ASSIGNING RISK SHARE IN THE BKASH INVESTMENT

The Gates Foundation’s determination of how much risk to accept in each PRI begins with what it calls the “charitable investment thesis”—what the foundation hopes to accomplish with this partner through the PRI.

“The charitable objective of the investment lies at the heart of our analysis,” Sunderland explains. “By clearly defining program goals, we can differentiate the risks that make sense to accept from those that are likely to undermine our investment thesis.

“For example, it may make sense for the foundation to subsidize an unproven technology in order to test hypotheses that will inform future grantmaking and investments. If the program team’s goal is to scale up delivery of a low-cost product, the PRI team would evaluate early-stage technology risk through the lens of a traditional investor. If the risk can be mitigated,

great. If not, the investment team would likely reject the investment unless it offered a truly fantastic potential charitable reward.”

The \$4 million grant to bKash would come entirely out of the FSP program team’s budget. How much of the \$11 million PRI was an expected loss that would be reflected internally in the Risk Share and also borne by the program team’s budget?

The Gates Foundation uses a robust method, involving present value and appropriate capital costs, to calculate expected loss. The PRI team’s analysis of the rationale for a particular investment and its risk is incorporated in a summary chart prepared for the foundation’s

Assessing Risk Share

INVESTMENT SUMMARY

Organization	bKash Limited (“bKash” or the “Company”)
Transaction title	Equity investment in Bangladesh mobile payment company
Principal/instrument	\$11.0MM Series A Preferred Equity
Other past/potential funding to organization	The foundation has provided \$15.5MM in grants to Enclude to support the establishment and early-stage scaling of bKash, which will receive a \$4.0MM grant as part of this proposed investment

INVESTMENT RATIONALE

FACTOR	RATING Good Acceptable Below standards	RATIONALE
Impact: Are we achieving program goals?	●	bKash is the most viable mobile payment platform in Bangladesh with the potential to financially include tens of millions of low-income people and represents the first “quasi-bank-led” payment platform to achieve scale
But for: Would this happen without us?	●	Given geographic and governance considerations, bKash is unlikely to access traditional private equity capital in near term
Sustainability/scalability: Are we promoting rational market solutions?	●	While heavily subsidized, the foundation’s investment will catalyze the broadening of bKash’s bank relationships, promote new investor access, and increase the likelihood of a “stand-alone” bKash able to scale up sustainably
Risk: How much risk/subsidy are we absorbing?	●	The investment’s risk-reward is poor given the Company’s operating, market, and governance uncertainties and the limited history of private equity exits in Bangladesh
Leverage: Are we drawing in external capital?	●	bKash has received \$17.0MM of outside capital to date, but the proposed transaction does not include leverage
Portfolio: Is this within our exposure limits?	●	Experimental investment that will help guide FSP PRI strategy development
Oversight: How much burden is it on our portfolio management?	●	Given the importance of the bKash deployment, the Company’s difficult governance situation, and the ongoing role of foundation in the investment, oversight burden will be high

BUDGET IMPACT

Risk Rating ★★	<ul style="list-style-type: none"> ✗ Investment not made on standard market terms ✓ Existing company with compelling market position/technology ✓ Foundation’s charitable goals consistent with company achieving financial sustainability ✗ High investment risk; likelihood of financial loss exceeds potential for financial return 		
Risk Share	Loss Reserve	Capital Charge	Total
Percent	N/A	50%	50%
Dollar	N/A	\$5,500,000	\$5,500,000
PRI Fund Contribution			\$5,500,000

investment committee, as illustrated by the “Assessing Risk Share” chart on page 24.

The charitable investment rationale for the investment in bKash was mixed. It was strong for impact because bKash was the most viable mobile payment platform in Bangladesh, with the potential to serve tens of millions of low-income people. It was also strong for additionality (“but for”) because the company was not yet able to raise ordinary private equity capital.

On the negative side, the investment lacked leverage because it was not tied to bringing in any additional capital. And the PRI team would have to devote considerable effort to oversight to help the investment achieve its programmatic objectives.

In the middle, the company had a fair chance of becoming financially sustainable, and it presented reasonable risks. The PRI team gave bKash a risk rating of two stars out of a possible four. Although the company had a strong market position and close alignment of charitable goals and financial return, the PRI team believed that the proposed investment lacked validation and company-building support from a traditional investor. All things considered, the foundation expected to lose fifty cents of every dollar invested in bKash and assigned the PRI a 50 percent Risk Share.

The high Risk Share also reflected traditional investment risk. These included the complicated nature of the regulatory environment and governance structure of a mobile money company in Bangladesh, uncertainties around a new business model in a new market, and the limited history of private equity exits in Bangladesh.

Typically these high risks would be offset by a low pre-money valuation, liquidation preference, and other “last-money-in” rights. But the IFC and other investors had set a relatively high valuation. The foundation focused its negotiation on obtaining commitments from bKash related to achieving charitable goals rather than pre-money valuation.

bKash’s potential as a financial inclusion platform for tens of millions of low-income people in Bangladesh led the FSP program to contribute both the \$4 million grant and a \$5.5 million Risk Share portion of the \$11 million investment. In February 2014, the foundation closed its \$11 million Series A Preferred equity investment in bKash. (See “Gates Foundation Grants and Investments Related to bKash” above.)

SUPPORTING INVESTEES

Like a conventional venture capital or private equity investor, the Gates Foundation actively engages with a portfolio company to support its success. In addition, however, the foundation works to ensure the company’s effective use of the PRI funds to achieve their shared charitable goals. Where appropriate, the foundation provides an investee with technical assistance and helps identify and recruit needed talent for its board and senior management. Although foundation staff do not serve on an investee’s board of directors, they are often board observers.

One factor in the Gates Foundation’s decision whether to make a PRI is the ease or difficulty of supporting the investment, including

Gates Foundation Grants and Investments Related to bKash

Year	Funding vehicle	Amount (millions)	Recipient organization	Purpose
2009	Grant	\$5.5	Enclude	Help Bangladesh’s BRAC Bank develop a business plan for a mobile money platform and begin implementation of the plan
2010	Grant	\$10.0	Enclude	Provide technical assistance and start-up support for the new venture
2014	PRI equity investment	\$11.0	bKash	Finance growth, availability, and accessibility of bKash’s mobile money payment platform, specifically to low-income and rural customers
2014	Grant	\$4.0	bKash	Fund charitable activities largely unrelated to bKash’s core mobile payments business

the role that co-investors may play, for better or worse. The presence of other experienced investors with aligned interests is a significant plus. These investors can often provide the “company-building” support that the investments will require, thereby allowing the foundation to focus on helping the investee achieve its charitable objectives. The presence of investors with competing interests, or inexperienced investors who may not provide appropriate support to the company’s management, is a negative.

The first step in portfolio engagement is continuous monitoring. Monitoring a grant requires regular reports from and meetings with the grantee organization to check on progress and to make course corrections where necessary. A foundation making a PRI must also take special care to ensure that the enterprise is balancing its financial goals with the agreed charitable objectives.

In monitoring one of its loans to the nonprofit Root Capital, for example, a (reparable) breach of the terms of the agreement alerted the Gates Foundation to the organization’s weak financial systems. Because this posed a risk to both their shared charitable goals and the company’s financial viability, the foundation responded aggressively by imposing additional restrictions to induce the organization to improve its financial management capabilities. (See the article “Tough Love” on page 28 for more details on the foundation’s investment in Root Capital.)

The Gates Foundation provides its investees the types of support pertinent to a particular investment tool. For loans, this may include creative thinking about future capitalization and refinancing strategies, as well as serving as a reference for other impact investors or more traditional capital sources. With investment funds, the foundation often participates actively on limited partner advisory boards and in helping investment managers remedy human capital deficits identified in the due diligence process. Guarantees like those for vaccines and contraceptives require deep coordinating support to ensure that the NGO worlds of procurement and delivery work effectively with the for-profit manufacturers. Support for equity investments has included recruiting management teams and boards of directors for seed-funded startups and, when necessary, working with other investors to replace underperforming CEOs.

The Gates Foundation takes its responsibility to support its investment portfolio seriously, even requiring that investment staff

with burdensome portfolios of deals forgo new opportunities for a year or two until exits from existing investments free up their capacity. “We begin with the premise of ‘do no harm,’” Sunder-land says. “Providing dilutive capital without then rolling up your sleeves to help build the company does harm. Add the fact that we are asking them to take on really tough problems, and bad impact investing has the potential to destroy good companies.”

The Gates Foundation’s portfolio engagement revolves

around two sets of relationships—internally with technical ex-perts in the relevant program area and externally with company management and other investors. For most PRIs, the foundation has deep expertise in the neglected disease, cause of poverty, or educational challenge that the company is working to overcome. Ensuring that its investee partners have access to the founda-tion’s own expertise sometimes is more valuable than its invest-ment capital.

Accounting for a PRI

Unlike an ordinary investment, a PRI cannot have the primary purpose of realizing a profit. In making a PRI, a foundation expects returns below what a commercial investor would accept, including potential loss of capital. How should it be accounted for within a foundation?

To oversimplify a bit, a typical founda-tion classifies its funds in three ways:

- The foundation’s endowment or balance sheet, comprising cash and investments, and typically managed by internal professional investment staff or external managers.
- Its annual grants budget.
- Its annual administrative budget.

The grants and administrative budgets are generally funded out of the investment returns from the endowment or by drawing on the endowment itself.

A PRI is an investment that includes an expected loss. To understand how to ac-count for this funding device, one needs to think about how a foundation manages its balance sheet.

Assume that the newly formed “Steady-State Foundation” wishes to maintain the value of its investable assets over time. Also assume that over the long run, Steady-State’s investment portfolio will return approximately 8 percent per annum and that inflation will be about 3 percent per annum. Under those assumptions, spending about 5 percent of its endowment annually (for both grants and administrative costs) will main-tain the value of its assets in perpetuity.¹⁷

Now suppose that the SteadyState Foundation decides that instead of making only traditional investments, it will make a risky three-year, \$3 million equity PRI. This hypothetical PRI has both a lower return than a comparable commercial investment and the expectation of some loss of principal. The gap between the expected amount returned

on the PRI versus a portfolio investment is a subsidy from the SteadyState Foundation to the investee, which must be justified by the expected achievement of its charitable goals.

Given the lower return and higher likeli-hood of loss, the PRI clearly should not be treated as a portfolio investment, for any significant allocation of the SteadyState Foundation’s investment portfolio to PRIs would compromise its ability to maintain its charitable mission over the long term.¹⁸

If it doesn’t make sense to classify a PRI entirely as a portfolio investment, it makes no more sense to classify it purely as a grant: Unlike a grant, most PRIs don’t “cost” the full amount of the disbursed amount, because the foundation expects to recover at least some portion of the disbursement. For ex-ample, suppose that SteadyState Foundation makes a \$10 million PRI loan in furtherance of its mission. Assume also that the loan is reasonably likely to get a 100 percent return of principal but carries a low interest rate, thereby sacrificing some interest income compared to a market-rate loan. Saddling the

SteadyState Foundation’s program budget with \$10 million of cost would unnecessarily and illogically foreclose other grantmaking from that same program’s budget.

The Gates Foundation solves this problem with the Risk Share, which allocates capital contributions for each PRI between two buckets: the balance sheet, managed through a revolving PRI fund with a maximum expo-sure of \$1.5 billion at any one time, and the program team’s annual grant budget.

By blending its balance-sheet capital with the program team’s grants budget, the foundation is able to make PRIs with flex-ible levels of risk, thereby supporting enti-ties with a variety of capital and investment needs. Requiring a Risk Share contribution from the program grants budget also en-sures the program team’s accountability to the charitable objectives of the PRI by forc-ing the program team to make trade-offs between contributing to a PRI or using that funding for the alternative of grants.

To illustrate this process, let’s reconsider the \$15 million funding request from bKash:

GATES FOUNDATION PROCESS	\$15 MILLION BKASH CASE
<p>Step 1: Determine whether there were activities that had charitable value but no commercial ratio-nale. These are funded with grant capital from the program team’s budget.</p>	<p>Step 1: The program team determined that \$4 million of proposed activities should be grant funded and was prepared to make this grant from its budget. The remaining \$11 million was evaluated as a potential PRI.</p>
<p>Step 2: Determine the expected loss from the investment capital by focusing on the terms of the investment and the investee’s potential to achieve financial sustainability and scale, the uncertainty of operating in the chosen market, and the exit oppor-tunities. This expected loss is the Risk Share that is allocated to the program team’s budget.</p>	<p>Step 2: The PRI team determined that the expected loss on the investment was 50 percent of invested capital, and the Financial Services for the Poor team was allocated \$5.5 million of Risk Share.</p>
<p>Step 3: If the program team determines that its total grant budget contribution (any grant funding plus the Risk Share) is likely to result in better charitable outcomes than other opportunities, the program team recommends the investment. If not, the investment team seeks to renegotiate commer-cial terms to lower the expected loss to the point at which the PRI would be worthwhile.</p>	<p>Step 3: The FSP team determined that the oppor-tunity to scale up financial inclusion in Bangladesh through an investment in bKash was worth the \$9.5 million total contribution from its grant bud-get. This endorsement was combined with a rec-ommendation by the Investment Committee and division president as well as the legal opinion that codified and ensured the charity of the entire \$15 million total grant and PRI support to bKash.</p>

RESULTS TO DATE

The performance of a PRI must be measured with both the tools used for ordinary financial investments and an assessment of the partner's progress against the charitable purpose. The latter is far more complicated. Some charitable outcomes are hard to measure, and objectives and metrics can vary widely across investments. Quantifying the benefits of improving or saving lives through a malaria vaccine, for example, is radically different from assessing the success of a charter school or community college. For all practical purposes, these different goals are incommensurable, and any weightings placed on the outcomes are highly subjective.

The challenges of measurement become even more complex when success is defined not only by the outcomes of an individual enterprise, but by the dynamics of an entire industry or market. The Gates Foundation's PRIs are often intended to tackle systemic market failures and to open the way for multiple market-based solutions that benefit those most in need.

Also, most of the Gates Foundation's PRIs have long time horizons, and after only seven years it is premature to assess the success of its innovative program. Still, the foundation is beginning to see outcomes, especially for the shorter-term investments. Some of these are described more fully in the case studies that accompany this article.

Although the Bill & Melinda Gates Foundation is a relative newcomer to PRIs, the thoughtfulness of its processes and the breadth and enormous scale of its investments make its work groundbreaking. What lessons does the Gates Foundation's experience with PRIs provide for foundations and other philanthropists who are using investments as tools to achieve social aims?

- *Investing for impact is hard.* | Any foundation can make PRIs, but achieving real charitable impact is difficult. As in grantmaking, the riskiest investments often have the greatest potential for impact but also the greatest likelihood of failure. High-impact PRIs are not for the faint-hearted. PRIs are inevitably more complex than grants because they balance two objectives—programmatic and financial viability—and require more due diligence, legal documentation, and engagement with a foundation's partners. In addition to needing staff with investment expertise, PRIs demand vastly more legal and compliance work than most grants and require building deep relationships with investment partners to manage the inevitable challenges of their dual, and sometimes competing, objectives.
- *Program and investment teams must work together.* | The subject-matter expertise and skills of program officers are fundamentally different from those of investment professionals. It may be possible to recruit or train staff with cross-cutting expertise, but this is a practical impossibility in scientific and technical areas of rarefied knowledge. A glance at the biographies of members of the Gates Foundation's Global Health team indicates that it would be difficult to recruit MDs and PhDs with their specialized experience who are also investment experts. The Gates Foundation's PRI process is noteworthy in the close collaboration of members of the program and investment teams.
- *Financial subsidies are both essential to PRIs and potentially hazardous.* | PRIs include some expectations of loss—subsi-

dies—which are counterbalanced by the investments' ability to further a foundation's charitable mission. Although subsidies can be crucial in launching new enterprises and new sectors, a funder must be vigilant not to distort markets or encourage entrepreneurial complacency.¹⁹

- *Program staff should have skin in the game.* | Every foundation aims to hold program staff accountable for their funding decisions. Allocating PRI-contributed capital between the Gates Foundation's \$1.5 billion PRI allocation and the program team's budget through the Risk Share is an ingenious way to press the program team to justify the charitable value that the foundation is getting for its PRI dollars. Although every grant-making foundation does this implicitly, the Gates Foundation's processes demand explicit attention to the trade-offs.

PRIs are particular kinds of market-based approaches to solving the world's social problems. As these approaches have gained attention in recent years, they have sometimes given rise to extravagant claims about “the end of philanthropy as we know it.”²⁰ But rather than treating PRIs as an alternative to philanthropy, the Gates Foundation treats them as a valuable complement in situations in which markets can help achieve the foundation's ambitious charitable goals. ♦

1. <http://www.impatientoptimists.org/posts/2012/06/the-role-of-biotech-investing-in-the-fight-against-neglected-diseases?p=1>
2. The discussion of bKash borrows, with permission, from “Bill & Melinda Gates Foundation and bKash: Investing in the Future of Mobile Payments,” Cases SM-229 (A) and SM-229 (B), 10/18/15, Stanford Graduate School of Business.
3. <http://www.gatesfoundation.org/Who-We-Are/General-Information/Financials/Work-With-For-Profits>
4. Paul Brest and Kelly Born, “When Can Impact Investing Create Real Impact?” http://ssir.org/up_for_debate/article/impact_investing; Bridges Ventures, Annual Impact Report 2015, <http://bridgesventures.com/bridges-annual-impact-report-the-value-of-impact/>
5. Bill & Melinda Gates Foundation PRI summary form presented to its Investment Committee. See “Assessing Risk Share” chart on page 24 of this article.
6. Of course, when a foundation makes a grant or PRI, it can only predict whether the organization is likely to have impact. The Gates Foundation's extensive due-diligence process is designed to make the prediction as accurate as possible.
7. For example, see <http://heron.org/market>
8. For example, see <http://www.ussif.org/sribasics>
9. <http://www.irs.gov/Charities-&-Non-Profits/Private-Foundations/Program-Related-Investments>
10. Treas. Reg. §53.4945-5(b)(4).
11. <http://www.gatesfoundation.org/Global-Access>
12. Treas. Reg. §53.4944-3(a)(1)(ii).
13. Treas. Reg. §53.4944-3(a)(2)(iii).
14. The director of the PRI initiative also provides a written certification as to certain facts and the charitable intent of each PRI.
15. Enclude was formed out of a merger between Washington, D.C.-based ShoreBank International and The Netherlands' Triodos Facet.
16. The amount of capital a financial institution has to hold as required by its financial regulator.
17. The precise estimated expected return on investments and the inflation rate can be disputed, but most commentators believe they are approximately in this range. Whether or not coincidentally, the Internal Revenue Code requires a minimum spending level, including administrative expenses, of at least 5 percent of a private foundation's endowment. It should be noted that the Gates Foundation is not intended to last in perpetuity and does not manage its operations to that goal.
18. Indeed, even for a foundation that was prepared to spend down its endowment, it would be inappropriate to attribute the expected below-market or negative return of the PRI to the investment professionals, who generally are tasked with making investments with the best risk/reward trade-offs.
19. See Matt Bannick and Paula Goldman, “Do No Harm: Subsidies and Impact Investing,” *Stanford Social Innovation Review*, September 28, 2012, http://www.ssir.org/articles/entry/do_no_harm_subsidies_and_impact_investing
20. <https://www.philanthropreneurshipforum.com/forum/program/>

Tough Love

How a dose of banking discipline strengthened financing for smallholder farmers.

BY DENNIS PRICE & DAVID BANK

In more than a decade as a lender to small farmers and agricultural co-ops in Africa and Latin America, Root Capital has gained a reputation as an effective organization that has delivered genuine impact in a tough sector. In 2012, however, Root hit a speed bump. It was just a temporary breach of a technical agreement—Root probably could have not reported it, and no one would even have noticed.

But the nonprofit financing firm's minor violation of the terms of its own \$10 million debt sent a signal of possible trouble ahead. One of Root Capital's biggest lenders, the Bill & Melinda Gates Foundation, picked up the signal and moved to make sure that one of its key partners in agricultural finance began fixing any problems.

Some lenders keep hands off when such things occur in the feel-good world of nonprofit social-impact lending. But in the sometimes-tense 15-month engagement with executives at Root Capital, the in-house investment team at the Gates Foundation was decisively hands on.

That brief financial stumble in 2012 ultimately helped Root Capital grapple with the dangers of rapid growth in a field in which scaling up is considered the *sine qua non* of organizational success. The episode led to new accounting systems, a strict financial "diet," explicit milestones, and management changes that challenged the firm's identity and forced the lender to make hard choices. The organization chafed at some of the mandates and pushed back on some of the reforms urged by the foundation's Program Related Investment team.

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In the end, Root Capital's leaders say that the Gates Foundation's tough love helped Root become clearer about its role in the complex value chains of smallholder agriculture in developing countries. Subsequent investments in systems and people made Root a stronger and more sophisticated financial manager. For the foundation, the strict oversight was part of a broader strategy of making markets work for the poor by bringing social innovation and social enterprise into the major leagues.

FINANCING FARMERS

Root Capital made its first loan to a coffee cooperative in a remote corner of northwestern Guatemala in 1999. Today, it has a loan portfolio of about \$100 million. During the intervening years, Root has extended nearly \$1 billion in credit to more than 600 organized groups of small farmers, including co-ops, small businesses, and other producer groups. Through its lending, Root has reached more than 5.3 million farmers and their family members. Higher prices and better yields for millions of farmers selling coffee, cocoa, and other crops mean more money for food, health care, and school fees for millions of low-income families in Latin America and sub-Saharan Africa.

In 2015 alone, Root Capital's lending helped to unlock \$1.2 billion in sales to global and regional buyers. That's impressive scale. It has helped attract other banks and financial institutions that now see the once too-risky rural agricultural markets as a lendable opportunity.

Root, other social lenders, and local banks now meet an estimated 40 percent of the addressable demand from smallholder farmers in export-oriented value chains. But with a continuing annual financing gap of more than \$500 billion for smallholder

farmers, including those selling into local rather than export markets, Root Capital has long felt urgency to raise and lend as much money as it could.

A typical Root Capital loan works like this: Say a coffee farmer cooperative receives an order from an international buyer for Starbucks. With this contract as security, Root makes a loan to the co-op so it can buy the raw product from individual farmers at the time of harvest. When the cooperative delivers the product, Starbucks pays Root, which then deducts the loan principal and interest owed and passes the balance back to the cooperative.

For such buyers, the arrangement means that they don't have to get into the financing business and tie up their balance sheets with loans to farmers. For Root Capital, lending to cooperatives instead of individual farmers brings scale and efficiency. With one loan, the lender can help improve the livelihood of hundreds, or even thousands, of farm households.

Root Capital exists because such farmer cooperatives and other agricultural businesses are too big for microfinance but too risky, and too small, for commercial banks. Access to working capital allows cooperatives to purchase crops from farmers and pay for their products promptly with cash. As the producer groups repay Root's loans, they establish a track record that eventually enables them to borrow from local banks.

Root Capital may be improving the lives of smallholder farmers and their families in often-neglected parts of the world, but it still has to play by the rules it agreed to with its lenders. Root itself borrows money from lenders such as the US Overseas Private Investment Corporation, the International Finance Corp., Trillium Asset Management Corp., the Calvert Foundation, and the Gates Foundation.

Because the loans it makes are considered risky, Root Capital maintains a base of net assets (the nonprofit equivalent of a bank's equity) to cover the first losses on its loans. A commercial bank would build such equity from private investors. A nonprofit like Root establishes equity through grants from philanthropic donors. Those grant dollars leverage many more dollars in lending to businesses and co-ops that help small farmers. The cushion helps mitigate the risks for Root's lenders.

As part of its financial controls, Root Capital's board had initially set a debt-to-

equity limit of five to one. The limit, based on analyses of community-development financial institutions, microfinance institutions, and emerging market banks, means that for each dollar of equity, Root could borrow five dollars to lend to its clients. Some of Root's major lenders, including the Gates Foundation, formalized the debt-to-equity limit as a covenant in their loan agreements.

SCALING UP THE MODEL

Starting in Latin America, Root Capital proved its model across a range of crops, and showed a default rate on its loans of

The first two disbursements carried an interest rate of 1 percent, increasing to 2.5 percent for the latter two disbursements. The lower initial rate kept Root Capital's cost of capital down as it ramped up its Africa lending.

Fueled by the Gates Foundation's loan and other backers, Root Capital's Africa portfolio grew to \$11.5 million by 2011. In 2012 Root launched a five-year growth plan. "It called for aggressive growth," says Catherine Gill, who oversees debt and philanthropy fundraising at Root Capital. "It was our moon shot." The growth plan was also intended to strengthen Root's internal operations. With

as much debt as it could to satisfy demand.

Rapid growth strained the financial systems and controls of the young social investment fund. Root Capital's processes were established when the firm was smaller and its operations less complex. As its lending grew, Root struggled to meet the level of accountability its own lenders demanded.

In May 2012 Root drew down a tranche of a loan from one of its lenders. Root was anticipating a grant check that would have boosted its equity cushion. The debt capital came in more quickly than expected, while the grant was slightly delayed, meaning that for several days Root hit a debt-to-equity ratio of 5.2 to one, violating its limit. The arrival of the grant days later brought Root back within the five to one ratio. Only in retrospect, as the organization was preparing its quarterly report, did Root's executives realize that the breach had occurred.

In advance of a routine quarterly performance report in August 2012, Root Capital sent a note to its lenders disclosing that during the quarter Root had briefly breached its debt-to-equity ratio. It reassured them that it was back in full compliance.

"Root is not a bank. We weren't doing cash management on a daily basis," says Gill. "There was no clear way that our lenders and other partners would have found out that this had happened." But "we were having a moral transparency moment," she says. "We decided to write a letter to our investors letting them know that it happened and that the situation was remedied."

TWO PATHS

After its disclosure, Root Capital discussed the breach in depth with several of its lenders. Each approved a waiver for the event. "With the exception of one," says Gill.

David Rossow, the program investment officer at the Gates Foundation who managed the Root Capital investment, had worked as a leveraged buyout investor during the global financial crisis. He had seen what happened to banks that didn't pay attention to their leverage or tightly manage their cash flows. To Rossow, even a minor breach is like the canary in the coal mine. "When a breach happens, it might be a bigger problem," he says. "Step one in the process is to find an explanation." The foundation could have pulled its money. "We didn't want that," says Rossow. "But we said, 'Here are the new rules. We are going to force you to slow down.'"



A woman at the Dukundekawa cooperative in Musasa, Rwanda, prepares coffee beans for drying.

less than 3 percent. It began lending in Africa in 2005 and within five years had grown its portfolio there to \$6 million. By 2009, it was ready to expand.

The Gates Foundation made its first loan to Root Capital in 2009 as part of a \$10 million commitment to expand Root's lending in Africa. At the time, the Gates Foundation was the sole dedicated backer of Root's Africa portfolio. The foundation also provided a \$4 million grant to support Root's operational costs and the technical assistance it provides to loan recipients.

The Gates Foundation made its loan in the form of a program-related investment, or PRI. The below-market loan was in part intended to educate the foundation itself about strategies for financing in agricultural markets and in part to attract other lenders.

a larger loan portfolio, the economics of its model made more sense. Revenues from interest came closer to covering Root's expenses. Operational self-sufficiency was important not only to Root, a social enterprise, but to some of its grant-equity funders as well.

Root Capital's growth at the end of the last decade was propelled by an unusual bull market for coffee, the primary crop for more than half of Root's borrowers. Higher coffee prices meant larger loan sizes and higher repayment rates, which gave Root itself access to additional capital. Coffee prices rose sharply in 2012. This meant that Root Capital's borrowers required more financing per volume of crop. A coffee contract that Root thought would be worth \$100,000, for example, was suddenly worth \$130,000. Anxious not to let its clients down, Root brought on

The plan put Root Capital on a “diet.” Following the breach, the Gates Foundation invoked its right to reduce the allowable debt-to-equity ratio, from five to one, to 4.5 to one. That tightened Root’s ability to lend just when Root wanted to loosen it in order to achieve even greater scale.

To Root Capital the penalty felt onerous. The Gates Foundation was a lender without a board role. Root could have chosen to repay the foundation and was in a position to do so. But Root opted to negotiate, convinced the process would strengthen the relationship and strengthen Root as an organization.

From the Gates Foundation’s point of view, Root Capital’s initial responses only made matters worse. Willy Foote, Root’s charismatic founder and CEO, initially appeared to downplay the seriousness of the issue. He appealed to the foundation’s commitment to their shared mission. He pushed back on whether the breach was really material, given its short duration and the organization’s clear willingness to share the problem in full transparency.

The Gates Foundation didn’t budge. “This is banking 101,” says Rossow. “Their response was asking us to sign a waiver and move on as if nothing had happened.” It wasn’t the size of the overdraft that concerned the foundation, but rather the lax controls that had allowed it to happen at all.

The Gates Foundation team requested a meeting. Root Capital pushed for clarification on the rationale for the lowered debt-to-equity ratio. A lower ratio, Gill explained, could force Root to let its clients down just when prices were at historic highs, causing poor farmers to miss an opportunity to improve their livelihood. In this context, Gill asked, why reduce Root’s ability to make loans with a 4.5 to one ratio? Why not expand lending by making it six to one?

To Rossow, that was the wrong question. Root Capital had a decision to make, he insisted. Who did it want to be in the market: a small, mission-driven nonprofit or a serious financial institution driving systemic change? The answer would determine the appropriate level of risk, and therefore the right ratio. Then the organization could manage to that limit.

Even more concerning to Rossow, Root Capital didn’t have the machinery to manage to any limit with precision. Root’s investments in its systems and people hadn’t kept pace with the growth in its portfolio

and business complexity. Confirming that concern, on the day after the meeting, the Gates Foundation team discovered that Root had missed an interest payment on its loan. Root had failed to notice.

“A car essentially has four things: an accelerator, a steering wheel, windows for visibility, and a brake,” Rossow says. “Root Capital has the accelerator: the pressure to grow, the good story. They’re the industry darlings. They have the steering wheel: Willy, the team, the board. They are making good decisions for the poor, with an eye on sustainability.” What concerned Rossow was that Root had no brakes. “They had no empowered voice advocating for more rational, slower growth,” he says. “And their visibility was all rearview. They didn’t have strong enough systems to look forward and be proactive.”

As the weaknesses in Root Capital’s systems became more apparent, Rossow and the Gates Foundation went quiet. For weeks Rossow dug deeper into Root’s governance, speaking to two Root board members and a representative from its accounting firm. Then he sent what Gill calls the “iconic” email.

Rossow suggested that Root Capital faced a choice between two paths. One was to be a best-in-class nonprofit with low financial risk and a roughly three to one lending ratio. The other path was to become “an impact bank that combines higher leverage (roughly five or more times leveraged) and cross-subsidy to scale successful programs while systematically assessing new products for sustainability and inclusion in the broader portfolio.”

Rossow put the core question to Root: “Are you a nonprofit or a bank?” Root responded: “We’re both.” “Even as we said this in response to Gates, we were looking at each other here at Root, acknowledging just how hard it was to be both,” Gill recalls.

Rossow and the team at the Gates Foundation wanted to see a plan to improve Root Capital’s financial management systems, but left the details to Root. The foundation asked Root to develop a list of milestones for the next 12 to 18 months for improved financial governance and cash controls. The milestones should also distinguish between Root the nonprofit and Root the impact bank. In the meantime, Root would stay on its diet. If Root hit its own milestones, the debt-to-equity ratio would be restored to five to one. If it missed any, the ratio would be reduced further, to four to one.

The Gates Foundation and Root Capital agreed on tactical, practical steps. Fill the vice president of finance vacancy. Hire a corporate counsel. Add more banking expertise to the board. Implement new financial systems. “It was the scaffolding we needed as we worked through the larger existential questions about who Root wanted to be in the marketplace,” says Gill.

One milestone called for Root Capital to spin off its Sustainable Trade Fund, its primary lending portfolio. Separating the fund from the rest of the organization would allow Root the nonprofit to continue its philanthropic work of technical assistance, financial innovation, and industry thought leadership. Root the bank would have a structure that was much more familiar to investors. Lower expenses would enable it to become operationally self-sufficient.

As it happened, developments in the coffee market made it easier for Root Capital to stay on its diet. Coffee prices declined from their historic highs. An outbreak of coffee leaf rust diminished yields and reduced demand for loans. Rather than growing, Root’s lending business leveled year-over-year. That reduced Root’s need for additional debt; it never drew down the final \$2 million tranche of the Gates Foundation loan.

Root Capital stuck by its clients during the downturn. It remained committed to farmers and co-ops struggling with the coffee leaf rust and the plunge in commodity prices. But growth was no longer a goal in itself. The negotiations with the Gates Foundation, combined with the difficult market dynamics, caused Root to reconsider whether operational self-sufficiency, which presupposed growth, was essential to its mission after all. Not all of Root’s funders were happy with the recalculation, and some pulled out.

Over 12 months, Root Capital methodically worked its way through the milestones. In the end, Root, its board, and the Gates Foundation all agreed the timing was no longer right to spin off the Sustainable Trade Fund. The foundation waived the last milestone and restored Root’s debt-to-equity ratio to five to one.

CHANGE AGENT

Root Capital is still very much a nonprofit, functionally and in ethos. But it’s now a stronger financial manager too, better able to assess and manage the risk of lending to smallholder farmers in frontier markets.

Root's new business plan now speaks of "moderate" growth.

With Root Capital's disbursements in Africa more than \$47 million in 2015 and the firm on track to repay the Gates Foundation's loan, the investment itself has been a success. All told, in 2015 Root disbursed \$154 million to 277 businesses, which the lender claims generated \$1.2 billion in total revenue, the bulk of which was paid directly to agricultural producers

"It's no longer Root's goal to simply grow," says Gill. "There is a relationship between growth and ability to lead, but it need not be fast. In the end, you can't be all things to all people."

To Rossow, the question was never about Root Capital's dedication to the mission. Stronger financial controls, he felt, would enable the organization to be successful, to demonstrate the model, and to expand access to capital for smallholder farmers worldwide. Failure would undermine Root as a model for others.

"There's this tension between growth and good governance," says Rossow. "Organizations with a social mission must aim to be financially responsible. Without a financial success story, there's no social success."

Finding the right blend of toughness and love in its relationship with Root Capital was the Gates Foundation's biggest challenge. Sitting back and ignoring the breach would have been irresponsible, given the role the foundation seeks to play as a lender and as a partner to Root. Being too heavy-handed and directive risked overstepping its role. The key, in the end, was to be consistent with its goals from the start, build a strong relationship with Root, and let the organization drive the changes.

"Playing a catalytic role in driving internal change? That's more valuable than our capital," says Rossow. "We could have pulled our cash. We could have told them how to run their business. We were impressed with how seriously they took our pushback. It became a board issue. They put resources against a plan."

Gill, meanwhile, has come to appreciate the Gates Foundation's clarity and discipline. "The Gates Foundation's aim is to crowd in capital, demonstrate the model, and achieve a proof point," she says. "They pushed on us hard and at a very interesting time for our organization. I believe we are the better for it." ♦

Eyes Wide Open

Good reasons for a bad investment in a low-cost HIV test.

BY DENNIS PRICE

Here's a riddle: When is a bad investment a good idea?

In 2011, the Bill and Melinda Gates Foundation made a \$10 million loan to a biotech startup with a potential breakthrough product—and a high likelihood of financial failure. On the basis of promising scientific progress, it made another \$6 million loan a year later, with similarly low expectations of financial success. And even when the company was on the verge of insolvency in 2014, the foundation provided an additional \$356,000 to keep the lights on for two more weeks. All that was in addition to \$7 million in grant money.

In all, the Gates Foundation poured roughly \$23.5 million into Fremont, Calif.-based Zyomyx Inc., which went out of business before it ever delivered on its considerable potential for global health gains.

The reasons behind the willingness of the world's largest foundation to continue to invest in a declining company illuminate both the promise and the peril in using philanthropic dollars to back high-risk startups with the potential for significant social benefit. Mindful of the lessons from the failure of its investment in Zyomyx, the Gates Foundation team has since made 13 other program-related investments in biotech startups, totaling \$167 million.

Members of the Gates Foundation in-house investment team do not quite embrace the *en vogue* notion that failure is good. Rather, they say they knew at the time that Zyomyx had a high likelihood of financial failure without considerable additional investment by the foundation. They went ahead anyway, because the potential social impact outweighed the financial risks. As it happened, the company failed to deliver. Even the foundation's team of scientists and

investment professionals couldn't rescue a struggling company in a difficult market.

The prize worth the risk of failure was Zyomyx's HIV test. As a way to count CD4, or T-cells, in the blood, the test promised to cost a fraction of other methods for determining when to initiate antiretroviral treatment. Because Zyomyx's test did not rely on electricity or highly trained personnel, it was considered a critical link in a broader strategy to decentralize HIV treatment and expand access to treatment for tens of millions of poor people living with the disease.

The Gates Foundation's dogged effort to bring the game-changing product to market started with a loan to a company that commercial investors wouldn't touch. The \$10 million secured loan gave the foundation certain rights to the company's assets—including intellectual property rights—in case of a bankruptcy. That the march of science and a changing marketplace mean that Zyomyx's patents and processes are not so valuable to the achievement of the foundation's objectives after all only sharpens the investment's lessons.

BLOOD TESTS

An affordable and easy-to-use HIV test had been a Gates Foundation priority as early as 2005. That year, more than 33 million people worldwide were living with HIV, more than two-thirds of them in sub-Saharan Africa.

The "cocktail" of antiretroviral therapy, or ART, has been a lifesaver for people living with AIDS. At the time, such treatment reached fewer than half of those eligible for treatment in low- and middle-income countries. World Health Organization (WHO) guidelines targeted treatment to the sickest.

Because it was difficult to assess a patient's viral load directly, doctors instead looked at the specific white blood cells the virus targeted. The most effective way to identify the progression of the disease was

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to count the presence of CD4 cells in patients' blood. The more CD4, or T-cells, the less the disease had progressed. In 2010 WHO mandated treatment only when the CD4 count had fallen below 350.

"There was simply not enough money to fund the treatment required," says Christine Rousseau, a senior program officer on the Gates Foundation's HIV team. The difficulty of figuring out who should get the rationed cocktails made a simple, low-cost test an urgent necessity.

Existing CD4 tests were expensive and required electricity. Local clinics couldn't process blood samples. Patients were required to travel to larger facilities to take the test, then return weeks later for the results. More than half the patients never returned for the results and therefore were never enrolled for antiretroviral treatment, even if they qualified.

In 2005, the Gates Foundation and the Imperial College London launched the CD4 Initiative, a five-year, \$16 million challenge to create a CD4 diagnostic test that was easy to administer and low cost. Five organizations were awarded funds to test different approaches. By 2009, Zyomyx's test was the only one that met the initiative's specifications.

In less than 10 minutes and using no electricity, Zyomyx's test could separate and count CD4 cells in a drop of blood. Minimally trained health workers could read the tiny glass tube like a thermometer. Results could be relayed to patients as they waited. If manufactured in the millions, the cost per test would be reduced to \$6 (other available tests cost \$8 to \$15). The Clinton Health Access Initiative, a project of former president Bill Clinton's charitable foundation, estimated that there was demand for as many as 7.5 million point-of-care CD4 HIV diagnostics tests per year.

For HIV patients in poor, rural communities, the Zyomyx test could be life saving. For the global health community, it could be game changing, saving about \$130 million a year and accelerating the scaling up of critical antiretroviral therapy. "Zyomyx's new test will have a huge impact for people living with HIV across the world," Dr. Hans-Georg Batz, director and co-founder of the CD4 Initiative, said in 2009.

"Now that we have achieved this significant milestone, we are actively engaging with select global sales and distribution partners who can help us take the Zyomyx

test to market," added Zyomyx CEO Peter Wagner when the CD4 Initiative selected his firm's product as the top-performing test. At the time, the company estimated that it would take another \$25 million to bring the unproven HIV test to market across sub-Saharan Africa. Private investors weren't interested.

NEW TOOLS

Investments by philanthropic foundations in for-profit startups were novel five years ago, and they still are. To the extent they determine that the private sector holds needed know-how, foundations typically either contract for existing drugs and products or make grants to labs to get the technology into the hands of global health professionals.

The Gates Foundation, which in the 2000s became one of the world's largest funders of global health initiatives, had done all those things. By 2011, it was ready to try a new tool. Two years earlier, the foundation had set aside \$400 million on its enormous balance sheet to make program-related investments (PRIs), including loans, volume guarantees, and equity investments, to further its strategic goals in global health, education, agriculture, and other areas. The foundation later increased its PRI mandate to \$1.5 billion.

The Gates Foundation hired Julie Sunderland, formerly head of Oriane Consulting, to direct its PRI program. Sunderland's new team of former investors and bankers, tasked with making PRIs to finance market-based projects, took guidance on which projects to fund (and what rights were required to achieve the foundation's charitable objectives) from the foundation's program teams of scientists, academics, and development experts.

Few other foundations were investing actively alongside private investors in biotech startups. That scenario was only recently added to the illustrative examples of PRIs that the US Internal Revenue Service provides to foundations. Even at the foundation, few program officers wanted to work with for-profit companies.

Zyomyx was the first deal the foundation's HIV diagnostics initiative brought to the new strategic investment team. The company's underlying technology had other valuable applications for assessing total white blood cell count, CD8 counting, and blood typing.

But in the hard-nosed venture capital-

ist appraisal that the Gates Foundation PRI team was charged with making, Zyomyx's financial prospects were bleak. Zyomyx was still in the early stages of testing the CD4 test. Even if it nailed the product's development, commercializing it was going to be difficult. With any sales targeted at poor people in poor countries, the PRI team couldn't see a break-even point even if Zyomyx overcame the scientific and regulatory challenges and brought the new test to market.

"It is clear from the valuation analysis that this is not a rational investment from a financial perspective and that foundation should expect to lose all its money," Gates Foundation program investment officers wrote in their 2011 memo to the foundation's Investment Committee.

The only way the low-cost CD4 test was going to come to market was for the foundation to provide the cash. The Gates Foundation's HIV team, accustomed to providing grants, were willing to fund the development costs fully, with no expectation of a financial return.

RISK SHARING

The simplest solution would have seemed to be to fund the CD4 work with a traditional grant. But with the company so shaky, the Gates Foundation team felt that it was crucial to understand what would happen to the technology if the company went bust or, perhaps more likely, shifted its attention to more commercial products and markets. Grantees that violate their grant agreements can be made to repay the amount of the grant. The foundation wanted something more: a structure that would allow it to secure rights to the critical intellectual property.

The financing was structured as a loan, with Zyomyx's patents as collateral. If the company went bankrupt the foundation would gain control of the intellectual property ahead of other investors.

One test of whether a deal qualifies as a PRI for tax purposes is whether other investors would participate on the same terms. Making a \$10 million loan to a risky startup is certainly a risk few commercial lenders would take.

To ensure that the investment furthered the foundation's charitable goals, and to avoid excess private benefit, the Gates Foundation team structured an agreement that required the product to reach the very

poorest people affected by HIV. The agreement capped the amount of profit Zyomyx could make on tests sold in developing markets, potentially lowering the company's appeal to future investors.

The Gates Foundation's loans were structured as convertible notes that would convert to equity if Zyomyx found additional investors, was acquired, or went public in an IPO. In the unlikely upside scenario in which Zyomyx became a success, the equity stake would give the foundation lever-

that the entire amount of the investment should come from the program team. The program team was required to set aside capital in the event of a default. "I want to get program teams to say it's worth the investment. I want them to have 'skin in the game' and make trade-offs on how they use their budget dollars," Sunderland says.

WHITE KNIGHT

Peter Wagner was an internationally recognized scientist, not a businessman. He co-

was making enough forward progress that the HIV diagnostics team was optimistic that the company still had a chance to bring its CD4 test to market in the developing world.

Management of the Gates Foundation's investment fell to Yip as well as the experts on the HIV diagnostics team. Yip raised concerns about the company's financial struggles, but the team pushed back with the importance of Zyomyx's product.

Zyomyx's white knight appeared to arrive in the form of global pharmaceutical giant Mylan NV, a company with nearly \$8 billion in annual revenues globally. Mylan had first held discussions with Zyomyx in 2009 after Zyomyx's CD4 test demonstrated proof-of-concept. In 2012, after meeting again at a J.P. Morgan conference, the two firms began serious partnership discussions. Zyomyx's cash was running low. Mylan could be the global distribution partner that would finally propel the CD4 test to market.

"The technology was fantastic," says Anil Soni, Mylan's global leader for infectious diseases, who took the lead on the Zyomyx partnership. "Mylan strongly believes in the idea of doing good and doing well. While we always recognized that this wasn't going to be a blockbuster, we were willing to make the investment because we were looking at it from the perspective of enhancing pa-

tient access to treatment. We believed that an improved diagnostic closer to the point-of-care for HIV-positive patients could really advance the ability to get patients on treatment."

Leveraging its rights as a secured creditor to Zyomyx's intellectual property rights, the Gates Foundation insisted on extending its global access agreement to any deal with Mylan; should the test come to market by way of Mylan, it would remain accessible to the very poor. This agreement would limit the future price at which the Zyomyx test could be sold in countries with high rates of HIV.

Mylan's financial analysis was able to accommodate the price cap because, as a huge seller of generic antiretrovirals, the company didn't need to make money on the



Eric Tebove holds up his HIV negative test results after visiting a clinic on the outskirts of Lusaka, Zambia.

age to ensure that the company continued to pursue the charitable objective—getting an affordable HIV diagnostic test into rural clinics across sub-Saharan Africa.

The PRI team did the deal, but their financial analysis indicated little chance of repayment. Significant engagement would be required from the foundation's HIV diagnostics team to monitor the company's progress closely. The PRI program included a mechanism to allocate the investment funds, and any losses, between the PRI pool and the program team's budget.

The PRI team assigned the Zyomyx deal the maximum "Risk Share" rating—100 percent. That meant that the foundation's program investment officers were almost certain the investment would fail from a financial point of view, and therefore felt

founded Zyomyx in 1998 and became CEO in 2005, but his team had struggled to commercialize products. And he hadn't raised the capital needed to get the CD4 test into African health clinics.

"He was a great founder and extremely brilliant, but building a company was a new challenge," says Jenny Yip, a senior program investment officer who joined the Gates Foundation's PRI team in 2012 after 10 years as an investment banker at Goldman Sachs.

Even with the foundation's capital, Zyomyx struggled through a series of technical problems that delayed the product development timeline and caused the company to miss many of its milestones. Cost estimates climbed as the Zyomyx team worked through the technical difficulties. Yet the company

Zyomyx test. The company would benefit from point-of-care HIV diagnostics without the need to build out costly infrastructure by helping ensure more patients received access to its leading portfolio of HIV products. Already, approximately 50 percent of patients on antiretroviral therapy treatments around the world relied on a Mylan product. Mylan viewed the Zyomyx deal as an opportunity to further differentiate itself in this highly competitive space.

Zyomyx's technology continued to show progress and developing country demand was high. According to Soni, Wagner, Zyomyx's CEO, sold Mylan hard on the investors he had lined up should Mylan come on board. In June 2013, Mylan agreed to in-

interested never materialized, and Zyomyx raised no new money. Few investors would even consider a high-risk product solely aimed for the developing world, with requisite low prices and thin margins. In the midst of yet another cash crunch, Mylan provided more investment, this time a \$1.5 million loan. The risks were heightened when Zyomyx unexpectedly revised the costs of the manufacturing lines needed to produce at scale. Cost estimates nearly doubled from \$25 million to more than \$40 million.

Then the market shifted. Countries began to move away from using CD4 measurement to monitor drug treatment, in response to 2013 WHO guidelines that recommended they test viral load directly.

Even the [Gates] foundation's team of scientists and investment professionals couldn't rescue a struggling company in a difficult market.

vest \$6 million for a 20 percent equity stake in the company. In addition, for an exclusive distribution partnership, Mylan committed up to \$10 million in milestone payments over 10 years. Mylan saw the relatively small commitment as an opportunity to bring a game-changing product to market. The Gates Foundation capital and global health expertise made the deal easier.

The transaction triggered a partial conversion of the Gates Foundation loan to equity. Of the \$16 million total, the foundation converted \$9 million to equity, for a 48 percent stake in Zyomyx. Another \$760,000 went into Zyomyx's employee equity pool to help the company recruit and retain the talent needed to take its product across the finish line and reach people in need. The remaining \$7 million remained as senior secured debt, due in May 2023. As Zyomyx's largest equity holder and an observer on its board, the Gates Foundation had the tools to protect its charitable objectives.

COST TO MARKET

In spite of the financial rescue, it was not clear that Zyomyx had the wherewithal to bring the product to market. Almost immediately, Mylan saw warning signs. Zyomyx's December 2013 funding round was moved to January, then to the third quarter of 2014. The multiple investors who were said to be

Furthermore, it became clear that eventually the WHO would recommend treatment directly after diagnosis of the infection, eliminating the need for CD4 measurement altogether. The combination of increasing costs and declining public health impact made additional investment by both the Gates Foundation and Mylan unattractive.

"At the time, we made the argument that CD4 was still in use by millions of people, that Zyomyx's technology would still be beneficial," says Rousseau. "But in reality there's an opportunity cost. There were things we could now do that would have more impact."

Mylan's Soni downplays the impact of the market shift. "The testing was validating the product. The commercial market was smaller for sure, but there was still demand for product." For Mylan, what was untenable was the combination of Zyomyx's higher costs and failure to bring in any additional investment.

By June 2014, time was up. Zyomyx was burning through \$450,000 a month, costs were growing, and further delays loomed. After \$23 million in Gates Foundation funding (including the earlier grants), and more from Mylan, Zyomyx had no money in the bank.

Both the Gates Foundation and Mylan were losing faith. Even with low expectations, Mylan's return on investment looked

dismal, largely because of the higher than expected projected capital costs. In May 2014, Mylan decided it would not acquire the product or invest any further in Zyomyx.

The Gates Foundation also ruled out further financing. "This is a company and product that have consistently under-delivered and been significantly over budget for 3.5 years," wrote Andrew Farnum, who oversaw the investment for the PRI team, in a June 2014 email to Richard Henriques, the foundation's chief financial officer. (Farnum was recently named the foundation's new director of PRIs.)

To help the company wind down responsibly, the PRI team recommended one more \$356,000 bridge loan. That would let Zyomyx keep the lights on for two more weeks and give the program team time to decide on the project's future, as well as to document the technology in case it could be transferred to another developer in the future. The loan was made in July 2014. Zyomyx began to wind down a month later.

"We learned that no amount of even very advanced deal-making can offset an inherently flawed business model," says David Rossow, a senior program investment officer on the Gates Foundation's PRI team.

Innovation counts for little if the product or service never makes it to market. The foundation has engaged Intellectual Ventures' Global Good division to maintain the Zyomyx patents and find a commercial partner who will be able to use the Zyomyx intellectual property to bring the product to market. Probability of success is low.

"If we were presented with Zyomyx today, there's no way the foundation would do it," Yip says. "But it is by making mistakes like Zyomyx that we got to where we are today."

The outcome of the Gates Foundation's Zyomyx investment raises a simple question: if you're going to back an important project, why not bet on a more stable company? The answer is that innovation doesn't usually work that way. Large companies, like Mylan, can take an idea, commercialize it, and distribute it. But creating brilliant new technology, like Zyomyx's, entails risks that in most instances only a startup will take.

"Innovation happens at the startup level," says Yip. "But the idea is only 5 percent of the solution. Execution is the other 95 percent. We're shifting to a more balanced approach." ♦

Returns on Investment

How a broad bet on a biotech company paid off in promising drugs for neglected diseases.

BY DAVID BANK & DENNIS PRICE

In its work on sleeping sickness, malaria, tuberculosis, and other diseases, the Bill & Melinda Gates Foundation noticed that many of its global health partners were getting promising results from their work with a small biotech company in Palo Alto, Calif. Whereas most biotech companies looked for carbon molecules, Anacor Pharmaceuticals Inc. had found a novel way to develop drugs based on boron and precisely target them in the human body.

In a partnership with the neglected disease initiative of Médecins Sans Frontières, Anacor had developed a promising drug for sleeping sickness, which affects people living in three dozen African countries. All told, a half-dozen Gates Foundation-funded partners, including the Medicines for Malaria Venture, the TB Alliance, and OneWorld Health, had worked with Anacor to evaluate the potential of boron-based compounds.

That progress caught the attention of the Gates Foundation just as its global health team was shifting its drug-discovery strategy away from disease-specific initiatives. Instead, the foundation was looking for partners with the best technology platforms that could be applied broadly across a range of diseases in the hope of finding promising candidates for drug development.

To gain access to the company's unique platform for the benefit of neglected diseases, the Gates Foundation in 2013 reached an agreement with Anacor for a broad research program, ultimately funded with \$18.3 million in contracts. The agreement focused the boron platform on developing new drugs for tuberculosis, river blindness,

lymphatic filariasis (commonly known as elephantiasis), and other diseases.

Once the research project came into focus, the challenge was structuring the financing. The research funding provided Anacor with non-dilutive capital to expand its early-stage efforts in global health. But the company was also looking for a broader equity investment from the Gates Foundation. Helping seal the

two-and-a-half years after Anacor's initial public offering (IPO) of stock in 2011. The price of the company's shares hadn't risen much since the IPO. Like many development-stage biotechnology companies, Anacor needed cash to support its research and clinical development. It was still more than a year away from the US Food and Drug Administration's approval of its first product, Kerydin, a toenail antifungal treatment.

Some biotech companies, particularly young ones, are eager to take on contracts to do early-stage research that demonstrates their technology prowess. Anacor had discovered a number of molecules for the potential treatment of infectious diseases caused by bacteria, fungi, and parasites, including one with potential for treating tuberculosis under a partnership with GlaxoSmithKline.

Anacor would welcome the implicit validation that would come with a Gates Foundation partnership, which would allow it to develop its technology platform



A man is examined for tuberculosis at the Kiribati Hospital in the island nation of the Republic of Kiribati.

deal was an additional \$5 million investment in Anacor's Nasdaq-traded common stock that gave the foundation a 2 percent equity stake in the company. It was the foundation's first program-related investment (PRI) in a publicly traded company.

GLOBAL ACCESS

The Gates Foundation's investment came

further while addressing the unmet needs of neglected diseases. The partnership would also provide entry to the foundation's network of researchers.

Under the proposed three-year research agreement, Anacor would focus on developing drugs for tuberculosis, river blindness, and elephantiasis, diseases affecting millions of people in the developing world.

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The contract called for the discovery of two preclinical drug candidates for macrofilaricides, an adult worm-killing drug, and one advanced lead compound for tuberculosis. The team would later add another target disease, cryptosporidiosis, a leading cause of pediatric death due to diarrhea in the developing world.

There were opportunity costs to pursuing such research, however. The Gates Foundation's research proposal would commit Anacor to three years of research that was unlikely to yield profitable products. There are market-based reasons that tuberculosis remains a human catastrophe that has infected nearly a third of the planet and kills 1.5 million people each year.

"Anyone who is familiar with TB research and development realizes there hasn't been very much activity in the past 40 years because it's extremely difficult," says Eric Easom, head of neglected diseases at Anacor. "TB drugs are not often viewed as commercial drivers for large pharmaceutical companies." Even if a successful tuberculosis drug could achieve revenues meaningful to a biotechnology startup, he says, "It may not be worth the opportunity cost for the major players in the pharmaceutical industry."

Having the Gates Foundation on board as a shareholder would also send a positive signal to the public markets about the value of Anacor's technology. Equity would provide a fresh source of financing to the company, and gaining a \$5 million commitment from a single investor was an attractive proposition.

"I thought it was important for the Gates Foundation to make an investment. If we didn't have the equity investment, I didn't think the company would get over the threshold and do the deal," says venture capitalist Paul Klingenstein, a founder and managing director at Aberdare Ventures, who was on Anacor's board at the time of the foundation's investment. "We were very slow to embrace any of the non-commercial disease targets, without understanding the benefits to Anacor."

In the end, says Klingenstein, "The company determined that the transaction was in the best interests of Anacor and its shareholders and we did it."

From the Gates Foundation's perspective, an equity investment in Anacor's core platform would help the foundation secure

"global access" rights to any products developed for the neglected diseases. The legally binding rights were outlined in a side-letter agreement that required Anacor to sell the products produced with foundation funding at an affordable price in developing countries. Anacor would also make its expanded library of boron compounds available to the Gates Foundation as well as academic, governmental, and nonprofit researchers. Such rights are often easier to get through an equity investment than through grants, says David Rossow, a program investment officer at the foundation.

"It was our team's belief that this was a novel platform," Rossow says. "Anacor also

In the two-and-a-half years the [Gates] foundation held its stake, Anacor's market value soared from \$221 million to roughly \$4.5 billion.

had an interest in and passion for neglected diseases. And because they were a relatively small biotech company, they were willing to work with the foundation."

"Companies tend to massively overvalue their intellectual property," he explains. "If we said, 'We want to license your IP on these targets, in these countries,' they would likely demand more than the IP is worth."

WIN-WIN

Anacor's share price, which had been drifting downward, rose modestly on the news of the Gates Foundation's investment. But the subsequent run-up in Anacor's share price had little to do with the company's work in global health or with Anacor's partnership with the foundation.

Anacor made steady progress on the research effort. Six months after the Gates Foundation's investment, Anacor was designing and adding more than a compound a week to its boron-compound library, ultimately creating 900 new molecules with drug potential. The company worked with technical experts at the foundation to evaluate extremely early in vitro and in vivo data to identify compounds with promise against river blindness and elephantiasis. Last year, Anacor allowed Gates Foundation partners to evaluate much of its boron-compound library to determine whether these molecules have potential against priority target diseases.

Coincidentally, Anacor's stock market performance in the same period was driven by progress in bringing its late-stage commercial drug assets to market. First, the company got a favorable ruling in its arbitration with Valeant Pharmaceuticals and reached a settlement agreement in which Valeant paid Anacor \$142 million. Investors now believed Anacor had the cash to complete its development work and bring Kerydin, its lead product development candidate, to market; its stock rose more than 20 percent in the month following the announcement.

In July 2014, Anacor announced that it had entered into an agreement with a division of Sandoz Inc., to distribute and com-

mercialize Kerydin in the United States. And last year, Anacor announced positive phase 3 clinical results for another product candidate, crisaborole, for the treatment of atopic dermatitis. The stock soared 65 percent the week following the announcement.

The Gates Foundation had stumbled onto a significant financial return.

Since that time, progress has continued on the neglected-disease research work. Anacor has identified molecules for the potential treatment of river blindness and elephantiasis. The company also identified promising antibacterial compounds for the treatment of tuberculosis. Work continues on cryptosporidiosis.

With the charitable goals of the investment ensured, the Gates Foundation was free to sell the bulk of its equity stake, with the exception of a small position that secures access to the firm's library of boron compounds through 2018. The foundation sold all but 1 percent of its holdings in November 2015.

In selling, the Gates Foundation gained \$86.7 million, or approximately 17 times its initial investment. In the two-and-a-half years the foundation held its stake, Anacor's market value soared from \$221 million to roughly \$4.5 billion.

UNEXPECTED CHALLENGE

Traditional venture investors typically face

criticism when they lose money on a deal. Philanthropic and impact investors can face criticism when they make money. In taking an equity stake in Anacor in addition to providing funding through the contract, the Gates Foundation took a broad risk as part of a high-level partnership to deploy Anacor's capabilities on otherwise neglected diseases. And with risk comes the possibility of reward.

"If you're going to go and collaborate with these young engines of innovation seeking capital, make the broad bet," says Klingenstein.

The US Internal Revenue Service (IRS) rules for PRIs state that financial returns cannot be a significant purpose of a PRI. But tax regulations don't prohibit financial gains as an unintended consequence. The financial outcome of the Anacor investment was indeed a side effect of the foundation's charitable purpose and strategic thesis.

It happens that some of the world's best technologies for global health are held by small companies that may achieve outsize financial returns. As fulfilling as it may be, research on neglected diseases may divert resources from these companies' core mission of commercializing drug candidates that might deliver a blockbuster drug that rewards shareholders. In those cases, equity investments can help align the incentives of private companies with the goals of the foundation.

Unlike a traditional venture capitalist, of course, any returns from PRIs go back to the foundation for philanthropic purposes. Pursuant to IRS rules, the profits from the investment will go back to the foundation's overall endowment; the returned principal must be redistributed through grants, contracts, or other PRIs within one year.

"The fact that the foundation's equity investment in Anacor has generated some positive financial returns that we've then been able to turn around and use to try to eradicate polio in Pakistan, to me is icing on the cake," says Julie Sunderland, the former director of the Gates Foundation's PRI team.

"But it's not why we do it," says Sunderland. "We do it because we want to partner with great entrepreneurs and great companies and great scientists and develop low-cost products for the poor. The focus on achieving results for our beneficiaries is clear in every investment we do." ♦

Private Financing for Public Education

Investing in collaboration between public school districts and charter school networks.

BY JESSICA POTHERING

In the back of the auditorium on opening day at Blackstone Valley Prep middle school, a petite woman with closely cropped gray hair seemed an unlikely pioneer of a new model of public school financing.

In the hallways, middle-school students slammed their freshly painted blue lockers and rushed to get into their classrooms before the first bell of the first school year at the newest school in Central Falls, R.I., a down-at-the-heels factory town of fewer than 20,000 people.

Gray skies and drizzling rain didn't dampen the mood as parents, teachers, administrators, and city and state officials toasted an unprecedented collaboration between a traditional public school district and a network of charter schools. For a moment at least, it seemed that district and charter schools—public schools serving the same families and communities—could not only coexist, but support one another.

Frances Gallo, the former superintendent of Central Falls, did not speak at the opening ceremonies. Under Gallo's leadership, and against enormous pressure from the teachers' union, Central Falls became the first school district in the United States to sign a facilities investment agreement as part of a broader District-Charter Compact.

After the event, Gallo explained why she bucked the opposition to welcome charter schools. "I felt I was everyone's superintendent," says Gallo, her voice rising. Nearby districts have been attracted to Central Falls' progress, and more than 20 District-

Charter Compacts have been signed across the country, making the vitriol and even death threats she received more tolerable.

The decade-long battle over the expansion of charter schools—public schools operated outside of the supervision and requirements of traditional school districts—has been fueled by competition for scarce education funding. The District-Charter Compacts, supported with \$40 million from the Bill & Melinda Gates Foundation, aim instead to share resources and expand the availability of financing while promoting collaboration between the two sectors.

The compacts are the Gates Foundation's latest strategy in a long quest to improve access to high-quality K-12 education. At the core of the foundation's facilities strategy are new financing mechanisms to catalyze private financing for public education, strengthening not only the emerging networks of high-performing charter schools, but the resource-strapped public school districts that serve the same communities. In addition to grants, the foundation has provided capital to finance charter school construction on public property and even in former district schools. The compact also obligates charter schools to help the district with teacher training and curriculum and the district to make resources available equitably.

Blackstone Valley Prep is a nonprofit charter school network with 1,400 students that has opened an elementary school and four middle-school campuses in Rhode Island. Its two new facilities in Central Falls are the first schools to open through the new financing strategy. The Gates Foundation made a 10-year, \$10 million loan to Civic Builders, a nonprofit charter school facilities developer, to be used for the proj-

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ects. Funds were drawn from this loan to purchase and renovate an abandoned skate park and a former Catholic school to build an elementary and middle school for Blackstone Valley Prep.

Central Falls was certainly in need of a new approach. The school district serves a city with a 29 percent poverty rate and a 50 percent high school graduation rate. In 2010, the school district fired the high school's entire teaching staff in a showdown over how to restructure the "failing" school under federal guidelines, then rehired many of them after a lawsuit. In 2011, the city declared (and emerged from) bankruptcy. Then the teachers' union mounted a fero-

have strong management and the flexibility to test educational innovations.

Demand is high: In many disadvantaged communities, families compete in lotteries for precious slots in high-performing charter schools. But the facilities at more than 50 percent of today's charter schools cannot accommodate enrollment growth. Most charter schools rent private properties.

To cover cost increases, such as rent hikes or the need to relocate, many must divert funds from their core educational missions. Seven out of eight operate as nonprofit organizations dependent on state funding and charitable donations. To grow, they need more space—and more capital investment.

Because charters often receive less public funding per pupil than traditional schools . . . private capital markets are vital for financial facilities and construction.

ocious battle against the expansion of charter schools, which the union contended drained resources from traditional public schools.

TRIAL AND ERROR

If Central Falls' path to opening day was rocky, so have been the Gates Foundation's attempts to support systemic improvements in educational outcomes, particularly for disadvantaged students in resource-strapped communities.

In 1999, the foundation's K-12 education program had set a goal that by 2025, 80 percent of all US students will graduate from high school prepared to attend college. But by 2009, only 38 percent had graduated with the skills they needed for success in higher education. Since that year, the foundation has put up nearly \$100 million to scale up promising innovations in education nationwide.

Initially, the Gates Foundation embraced a strategy of "small schools" within larger public high schools. As the small school movement stalled amid mixed results, the strategy became less about the school itself and more about what was inside the classroom.

The search for more effective, scalable solutions led the foundation to public charter schools. The initial goal was to help strengthen and expand networks of charter schools, called charter management organizations (CMOs), that had proven programs and demonstrated results. The best charters

Because charters often receive less public funding per pupil than traditional public schools—\$2,247 less per student according to one recent study—private capital markets are vital for financing facilities and construction.

The Great Recession of 2008 froze charter school financing, which was strained even in better times. The bankruptcies of other borrowers caused bond insurers to tighten requirements. Credit ratings for the charter management organizations fell across the country. The financing freeze collided with growing enrollment, pushing many charter schools to their resource limits.

A Gates Foundation analysis had discovered that few loans to charter schools had gone bad. With bond insurers out of the market, the foundation stepped in with its own credit enhancements for new bond offerings. The foundation believed it could coax traditional lenders back into charter schools by demonstrating the credit-worthiness of the best-performing CMOs. Its research had shown that the academic performance of a school in the first two years of operation is a reliable signal for how the school will perform over time.

"The quality of the charter program is one of the strongest indicators as to whether it will be a good investment or not," says Noah Wepman, a senior program officer on the foundation's US K-12 team.

To test its ability to use program-related investments (PRIs) to lower the cost of capital for high-performance charter networks, the Gates Foundation in 2009 provided a \$10 million, 10-year credit enhancement to boost the credit rating of a \$68 million municipal bond offering by KIPP Houston. KIPP Houston was a reputable CMO that needed financing to build facilities for 7,000 new students. The foundation could have used grants or direct loans, but without the same effect on the marketplace and other investors.

The test worked. Credit-rating agency Fitch gave the bonds an A rating. KIPP received bond orders from 18 institutional investors totaling \$210 million—more than



three times the amount of its \$68 million issue. The credit enhancement resulted in cost savings of 50 basis points, or half of one percentage point. That saved KIPP \$300,000 per year.

A second credit-enhancement PRI in 2010 for Aspire Public Schools reassured other investors in the market and secured more attractive lending terms for charters.

As the Gates Foundation demonstrated the potential of credit enhancements to unlock the capital markets for these effective CMOs, others followed suit. Texas created its own bond guaranty program—the Texas Permanent School Fund—financed by oil and gas receipts. That fund, valued at more than \$17 billion in 2013, has opened up nearly \$1 billion in financing to Texas charter networks. That

PHOTOGRAPH BY JESSICA POTTERING

model is being adopted in Arkansas, California, Colorado, Massachusetts, Michigan, Ohio, Utah, and Washington, D.C.

To scale up the potential impact of its education investments, the Gates Foundation backed a specialized school-financing intermediary to source deals, conduct due diligence, structure deal terms and necessary protections, and manage the investment risk. “Trying to kick-start the charter lending market on a transaction-by-transaction basis was not an efficient use of our time,” says Wepman.

In 2011, the Gates Foundation made a \$4.3 million low-interest loan to the Charter School Growth Fund, as part of a \$20 mil-

devised an unconventional plan to bring the two competing spheres together. An initial \$40 million grant and PRI portfolio for the District-Charter Compact has kicked off collaborations in 20 US cities where the foundation has been able to find strong leaders able to bridge long-standing divisions.

Frances Gallo was such a leader. When she first arrived in Central Falls, the new superintendent made a point of visiting the home of every student in the incoming kindergarten class. “As I was knocking on doors, I met many parents who told me their children were in the lottery for the Learning Community,” a promising new charter school. “They felt awkward talking to me.”

Gates Foundation’s District-Charter Compact team, and against enormous pressure from the teachers’ union, Gallo signed the compact. That made Central Falls the first city with a facilities investment agreement to support charter networks’ access to new school buildings.

The agreement allowed the Gates Foundation to test all its K-12 public education work in one place. The foundation built on its investment in the Charter School Growth Fund by enlisting Civic Builders. The foundation made a \$10 million, 10-year loan to Civic Builders to serve as subordinated debt on new school construction projects for Central Falls’ charter schools. That reduced risk for commercial financiers of Civic Builders’ projects, encouraging senior lenders to finance the facilities. With 0 percent interest for the first two years and 2 percent thereafter, the foundation’s loan reduced Civic Builders’ overall capital costs. The savings were passed to the schools as lower rents.

Blackstone Valley Prep became the first beneficiary of the District-Charter Compact’s financial support. Gallo helped identify a nearby public site to build a new elementary charter school, which opened its doors in 2014. A second PRI was used to buy and renovate a second building as a Blackstone Valley Prep middle school. Civic Builders retains ownership of both buildings, leasing them back to Blackstone Valley Prep with the eventual goal of selling them to the charter management organization.

The Gates Foundation will not know the full results of its loan to Civic Builders in Central Falls for some time. But the foundation’s District-Charter Compact effort is showing early signs of having as contagious an effect as its charter municipal bond credit-enhancements. The foundation is now exploring ways to leverage philanthropic and commercial capital on a national level and deploy it through a network of regional intermediaries.

Gallo retired in June 2015, leaving questions about how well the district’s new leadership will work with charter school networks like Blackstone Valley Prep. That uncertainty suggests the next stage of the foundation’s work: encouraging crossover leaders who have worked for CMOs and are now moving into district positions and vice versa. Such leadership may be what’s needed to make the District-Charter Compacts not just a temporary truce, but the basis of a lasting peace. ♦



School officials celebrate the opening of Blackstone Valley Prep middle school, in Central Falls, R.I.

lion debt fund to finance charter facilities. The fund supports high-performing CMOs across the country by providing loans to pay for high-cost items like rental payments and facilities financing.

SOCIAL COMPACT

The Gates Foundation believed that charter schools were an important factor in improving the US educational system, but its K-12 program wasn’t a charter-school-only initiative. The foundation’s goals for the US education system also focused on improvements in district public schools.

To combat the perception that the growth of charter schools depleted school district resources, the K-12 Program team

Gallo visited the Learning Community charter school. She was so impressed with the leaders and curriculum that she sent all of the district’s principals and even the teachers’ union president to see the work the school was doing. She wanted to dispel the myth that charters did not serve children in poverty. “They could see that the students in the class were the brothers and sisters of their own students,” Gallo says. She hired the Learning Community to work with the district’s first- and second-grade teachers on reading instruction. Test scores jumped.

New approaches and partnerships became even more critical when the city of Central Falls declared bankruptcy. So when the request for proposals came from the

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