

# World view



By Michael Hill

## How ‘research impact bonds’ could transform funding

**Current science funding models have high risks and low accountability. Public–private partnerships offer a better way.**

**A**s head of grant management at the Swiss National Science Foundation, I have spent a lot of time thinking about how grants are used to fund research, through processes that have changed little since the 1940s. Funders award grants to the most-promising proposals or on the basis of researchers’ or organizations’ past achievements. These approaches assume that the recipient will do great research, but have no guarantees and limited accountability. The funder bears the full risk.

I propose another approach, which I call research impact bonds (RIBs). These would be issued to support public–private partnerships that promise strong accountability, no risk to the funding organization and a direct demonstration of impact.

Although as yet untested in academia, they would follow the same model as social impact bonds (SIBs), which some governments use to achieve social-policy goals. For instance, say the Swiss government promises to pay up to one million Swiss francs (US\$1.1 million) to service providers that achieve a measurable outcome, such as reducing illiteracy in a certain population by 5%, within a specified number of years. A broker finds one or more service providers that think they can achieve this at a cost of, say, 900,000 francs, as well as investors who agree to pay these costs up front – thus taking on the risk of the project – for a potential 10% gain if successful. If the providers achieve their goals, the government pays 990,000 francs: 900,000 francs for the work and a 90,000-franc investment return. If the project does not succeed, the investors lose their money, but the government does not.

One criticism is that impact bonds represent the ‘financialization’ of the public sector, in which policymaking is subordinate to the interests of the financial sector. But they enable governments or other funders to do what other models don’t allow: separate and transfer risk.

The UK Ministry of Justice, supported by the Big Lottery Fund, commissioned the world’s first SIB from 2010 to 2015, with an initiative in a prison in Peterborough (see [go.nature.com/3phueny](http://go.nature.com/3phueny)). The initiative provided people who had received short sentences with financial or housing assistance, mental-health services and vocational training. This succeeded in reducing reoffending by 9% – exceeding its target of 7.5% – and paying its 17 investors a return of around 3% a year.

The RIB model would work in a similar way. First, a public research funder asks for RIB proposals. Researchers suggest

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projects with defined hypotheses, plans and outcomes. The outcomes must be precise and measurable (‘using methodology X, we will determine within 5 years and with 99% reliability whether approach A or B is more effective at reducing child mortality in situation Y’). The funder evaluates and selects the RIBs to be awarded. Investors analyse the proposals’ risks – supported by a broker – and the funder’s selection arguments incentivizing them to invest in the research.

RIBs will not work for some types of research – for example, projects so innovative that investors balk at the risk, or purely speculative science. But those can be funded in other ways. Perhaps the biggest challenge could be concerns over academic freedom. Scientists might be leery of committing to specific research outcomes, preferring to experiment freely and change direction to follow promising leads. But many researchers already preregister their projects, which commits them to a methodology. There is a growing body of literature on best practices for designing preregistered research that is flexible yet reliable (B. A. Nosek *et al. Proc. Natl Acad. Sci. USA* **115**, 2600–2606; 2018). I am convinced that the preregistration culture will make impact bonds easier to implement in research than they have been in social services.

I don’t consider RIBs the entire future of research funding, but they should at least be part of it. Investors are increasingly interested in opportunities to seek profit while enacting their philanthropic values. Brokers could offer a risk-balanced fund of RIBs on a topic of interest, such as cancer or climate change. They would be valuable for diversifying an investor’s risk portfolio because they would not be subject to the same market fluctuations as stocks or bonds.

For funders and scientists, RIBs would create new funding streams and incentivize impactful research. They could also enable public funders to support and improve the research agendas financed by private investors. The personal preferences of philanthropists have created many uncoordinated private foundations in research areas with little impact; informed public funders could offer to merge and channel some of that money into more promising research areas through RIBs.

I hope that one day there will be a variety of RIB-like models to suit research and funding goals. For example, researchers could receive partial payment for partial success, funders and investors could share the risk, or the return on investment could grow on the basis of agreed conditions. In some cases, they could use smart contracts, which pay out automatically once a data set is complete. RIBs could also be traded, allowing for international competition between funders who might currently hold a local monopoly.

Most importantly, I hope that RIBs will spark innovation and lead to the diversification of research finance.

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