Opinion **Infrastructure investment**

Thames Water debacle holds a harsh lesson about asset pricing models

Investors should stop using an approach that many have long regarded as fundamentally flawed

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The headquarters of Thames Water, centre, in Reading. It is time for investors in private companies like Thames Water to take a more scientific view of asset pricing © Hollie Adams/Bloomberg

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It is rare these days to come across a climate change denier in the world of institutional investors — especially those who choose to invest in infrastructure, an essential lever of the energy transition and decarbonisation of the economy. Investors tend to believe the latest science on climate change. But, when it comes to asset pricing, strangely enough they often do not.

At the end of 2022, a group of large pension plans, including funds from Canada, Japan and the UK, discovered that they had lost a large part of the £5bn investment in Thames Water that they had recorded on their books. This Easter, they learnt that they had probably lost all of it.

There is only one way for a water utility serving the capital of a G7 country to lose so much value so fast: it was never worth £5bn to begin with.

Yet its owners denied this reality for years. The signs that Thames Water and its parent Kemble Water Finance constituted a high-risk, low-profit business were there all along. The cost of capital in this investment should have been considered quite high (and increasing over the years) and its value much lower.

A key reason why the risks of investing in Thames Water were ignored is the continued use of invalid asset pricing approaches for reporting its “fair value”.

For instance, many investors in private assets — and in this case the water sector regulator, Ofwat, too — rely on the “capital asset pricing model” (CAPM) to estimate a cost of capital and the value of the business (and for Ofwat the allowed level of water tariffs).

This model states that the cost of equity of a company is a function of the expected return of “the market” and how much this company correlates with it or its “market beta”. Today, CAPM remains the most commonly used framework for estimating the value of private investments like infrastructure companies.

Yet the scientific community has known for more than 30 years that CAPM, while one of the foundations of the field of academic finance, is wrong. That’s right: the model used by most large valuation firms, many private asset managers and the regulators of UK network utilities has been proven not to work.

CAPM relies on a very abstract notion of “market portfolio” and does not fit the market data. It has been shown time and again that better models can be used to explain asset prices, and that these approaches have led to the creation of entire new industries from hedge funds to factor investing. What is more, the way CAPM is used to value private assets often makes a mockery of the original model by relying on inputs that seldom have any relationship with the actual investment.

The inevitable conclusion from all this is that the reported values of private investments held by institutional investors and their managers today are very likely to diverge significantly from their true market value, and do not represent the level of risk taken or the liquidation value of these assets. This is how investors in Thames Water saw their investment go from £5bn to zero in a few months — they were blindsided by bad models and bad data. In other words, they ignored the science.

Some will point out that these values are audited. This is correct but also irrelevant. Auditors validate a process, not the content of the valuation exercise. Did you use a well-known asset pricing model? Tick. Did you adjust for the asset illiquidity? Tick. It is not for the auditors to say which asset pricing model is the correct one, what the "illiquidity premium" is or if the level of interest rates used corresponds to current market levels.

Sticking to these practices amounts to denying the science and the importance of risk when it comes to the market value of private assets. As with climate change, the costs of this denial are increasingly becoming larger, as private assets represent a greater share of the portfolio of investors.

There is a better way. Applied financial research and data availability about private investments have made significant progress since CAPM was developed in the 1960s. It is time for investors in private companies like Thames Water to take a more scientific view of asset pricing. They need proper measures of risk for the private asset classes to which they now allocate large amounts, and of the value of the assets they hold.

After all, these underpin the value of everything from defined benefit pension rights to defined contribution lump sums, life insurance policies, wealth management and many other products. And for all of these there is, ultimately, a fiduciary responsibility to report the true market value of what's sitting in your clients' portfolios.
