Often marketed to investors with the promise of high-yielding protection against inflation, a healthy dose of scepticism is needed when assessing infrastructure, writes **Georg Inderst**

Inflated expectations?

Stagflation with low or negative real interest rates is a problem for every investor, but for investors with inflation-linked liabilities such as insurance companies, pension funds and endowments it is a real problem. They are hungry for yield, in particular low-risk yield. No surprise then that investors are desperate to find assets that provide protection against inflation.

Investment managers have been promoting the notion of 'real asset classes', including property, infrastructure, commodities, timber, farmland and other natural resources. A related term is 'inflation-hedging' assets, also including inflation-linked bonds, inflation swaps, swaptions and other derivative structures.

Infrastructure has become popular with pension funds because of the promise of stable, long-term – possibly inflation-linked – cash flows.

According to a recent survey, investors expect a nominal average return of 11.4% from infrastructure and a yield of 6.4%, net of costs. Consultants set 'real return' benchmarks for managers in the order of consumer price index (CPI) plus 5%, 6%, or more. This sounds like another siren-song in investment.

The link between infrastructure returns and inflation can be affected by a number factors:

- **Regulated tariffs**: for example, electric, water utilities, gas pipelines. Regulatory bodies factor CPI into allowed price increases or 'returns on equity' targets;
- **Contractual terms**: for example, rates increases in concession agreements of PPP/PFI projects, social infrastructure, renewable energy, toll roads;
- **Pricing power**: monopolistic characteristics of some infrastructure sectors, such as ports, airports, networks. Low price elasticity of demand, and rising costs, can be passed to the consumer.

There are many examples of infrastructure businesses with some degree of inflation link. However, how exactly does the pricing mechanism work? What are the timing, lags, caps and other constraints on fee adjustments? How long and how certain could the inflation protection be? Finally, which inflation is exactly meant, and in what currency?

One issue with infrastructure is that inflation can be hedged out by the operating companies with the use of derivatives. Another problem is overriding economic conditions. In a recession, demand for infrastructure such as toll roads and airports declines, and there is little room for higher charges. So, is the asset 'deflation-proof'?

Other issues relate to the capital structure, the amount of leverage and the refinancing risk that can upset the projected income. And last, there is the regulatory and political risk connected to infrastructure – for example, opposition against 'unfair' fare increases or pressure for re-negotiation of contractual terms that turn out 'too favourable' for the private capital. Some investors have already had a taste of that.

Infrastructure is heterogeneous, and there is substantial differentiation across projects, sectors and even countries. Infrastructure companies operating in competitive conditions might even have margins squeezed in inflationary times when facing rising input costs. In short, 'ex ante' claims about the inflation sensitivity of infrastructure assets appear much too general.

Investors will ask questions about the exact nature of cash flows. One (bottom-up) approach is to look at the cash flows of infrastructure companies. JP Morgan Asset Management in 2008 analysed the historical EBITDA (earnings before interest, taxes, depreciation and amortisation) of 256 core US infrastructure assets between 1986 and 2008, and found a correlation coefficient of 0.33 with CPI. However, there are sector differences: utilities show much higher values than transport. Infrastructure cash flows also grow faster than the CPI in the long term; hence, they may offer some protection against inflation.

This analysis would also confirm some other beneficial characteristics, such as low volatility and low correlation with other sectors. However, it is less clear how investors can benefit, or whether publicly traded stocks, private equity funds or bonds is the best investment vehicle.

This problem is highlighted by a 2010 study by Bitsch, Buchner and Kaserer, which investigated 363 direct infrastructure deals within private equity-type investment funds. It found that the cash flow patterns of the infrastructure assets were neither as long-lived nor as uniform as commonly assumed. They looked much more like traditional private equity than bonds. Furthermore, infrastructure returns are not linked to inflation in any statistically significant way.

Another (top-down) approach is to measure the correlation of price indices and infrastructure indices, which reveals surprising results. A study in 2010 by Sawant used monthly data of listed indices and detected only low correlation values of around 0.1. Using Australian data, a 2007 study by Peng and Newell reported negative correlations of inflation with listed (-0.22) and unlisted infrastructure (-0.27).

So, some underlying infrastructure projects and companies may well have attractive cash flow profiles and the potential for inflation protection. But whether and how they can be captured when investing in infrastructure indices or funds is less certain.

Comparing the properties of different 'real asset classes', a 2010 study by Martin found that the inflation hedge of infrastructure remains uncertain, both short and long term.

What can investors do? First of all, beware the infrastructure hype. Be sceptical about promises made in relation to infrastructure investments, in particular to producing high, steady, long-term, inflation-linked income streams for investors.

Second, differentiate within infrastructure. Infrastructure as a 'new, alternative and real asset class' is great marketing, but it is less justified in terms of theory and empirical evidence.

Third, some well-resourced investors have decided they need to look deep into the details, not only of products but also of sectors and single projects. Fourth, watch the (surprisingly late) rediscovery of infrastructure bonds. Since the crisis, the focus has been shifting to the (inflation-linked) debt market. One hopes some of those bonds will be low risk.

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Some types of infrastructure suffer during economic downturns