

Infrastructure as a hedge to inflation

Global Listed Infrastructure

October 2011

Rising inflation could threaten the medium-term growth potential of the global economy and erode the value of investments. Consequently, investors are looking to insulate their portfolio from the impacts of inflation, a number of pension and sovereign wealth funds specifically targeting long-term returns of CPI plus 5%. The failure of global equities to deliver this hurdle over long time periods is driving institutional investors to enhance portfolios and seek alternative investments, including infrastructure.

Global listed infrastructure has delivered returns well in excess of inflation over the long-term. Most infrastructure assets have an explicit link to inflation through regulation, concession agreements or contracts. Other assets without an explicit link often have the pricing power to deliver a similar (or better) outcome reflecting their strong strategic position. This relationship between inflation and pricing is explored throughout this paper in a range of examples. It highlights that more than 70% of assets owned by listed infrastructure companies have effective means to pass-through the impacts of inflation to customers, to the benefit of shareholders.

Passively investing in the asset class does not guarantee a hedge to inflation and significant qualitative assessment is still required. Key issues to consider are the transparency of regulation and the risk of political interference. Infrastructure companies should maximise the link to inflation by (1) renegotiating contracts to pass-through variable costs to customers and (2) maintaining an appropriate debt structure so price increases fall to the bottom line. While listed infrastructure can provide a practical hedge to inflation, investors need to allow an investment time frame of 3-5 years.

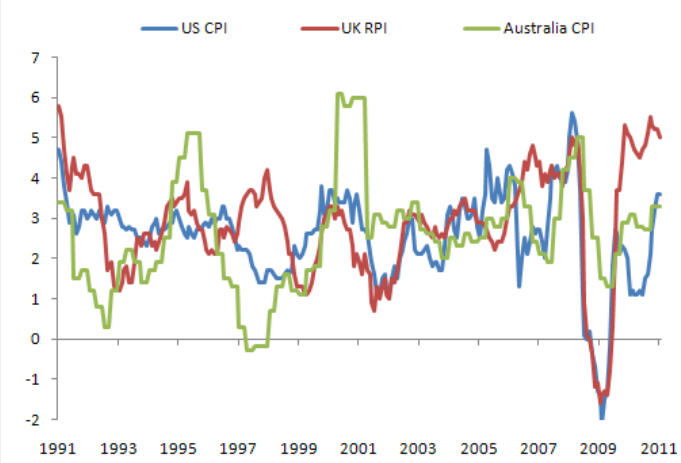
Macroeconomic context

The outlook for inflation is one of the most important factors for financial markets, currencies and economic growth. Policy makers, particularly in Asia, have been more focused on stimulating growth than controlling inflation. If this focus on growth continues, rising inflation could threaten the medium-term growth potential of the global economy. This would erode the purchasing power of wealth and the value of investments.

The rise in headline inflation rates around the world has reflected stronger commodity prices. This is most evident when looking at US inflation and comparing the headline inflation rate with the core rate (ie. ex food and energy). While commodity prices tend to exhibit significant short term volatility, the rise in food and energy prices is also a structural story, driven by strong demand growth from emerging economies from rising income and consumption levels. *For further insights into the outlook for inflation please refer to recent research from our Investment Markets Research team.*

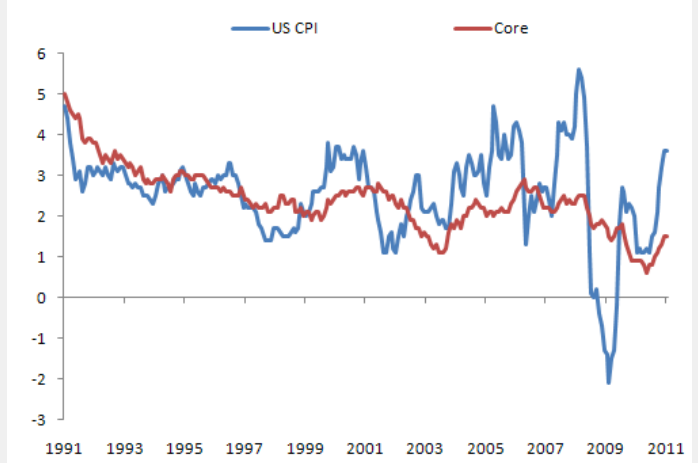
Infrastructure also plays a structural role in price stability. Well planned infrastructure can ease price pressures as it improves productivity. Infrastructure development in China, for instance, has played an important role in limiting inflation, despite periods of very strong growth in demand and economic activity.

Headline Inflation rates



US CPI Urban Consumers YoY NSA
 Australia CPI All Groups Goods Component YoY
 UK RPI YoY NSA
 Source: Bloomberg, CFSGAM

US Inflation rates



US CPI Urban Consumers YoY NSA
 US CPI Urban Consumers Less Food & Energy YoY NSA
 Source: Bloomberg, CFSGAM

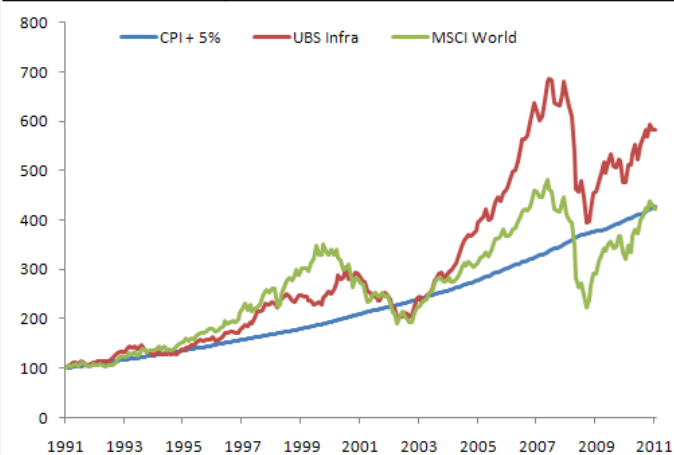
Performance of global listed infrastructure relative to inflation

Global listed infrastructure has proved capable of delivering returns well in excess of inflation. For the 20 years to July 2011, the UBS Infrastructure Index delivered total returns of 8.8% pa, equivalent to CPI plus 6.3%. In comparison the MSCI World delivered total returns of 7.1% pa, equivalent to CPI plus 4.6%.

It is important to note that a number of pension and sovereign wealth funds target long-term returns around CPI plus 5%. In reference to construction of a traditional portfolio, global equities would need to deliver more than CPI plus 5% to compensate for expected returns from cash and government bonds of say CPI plus 1-2%. The failure of global equities to deliver this required outcome over such a long time period is driving institutional investors to seek alternative investments, including infrastructure.

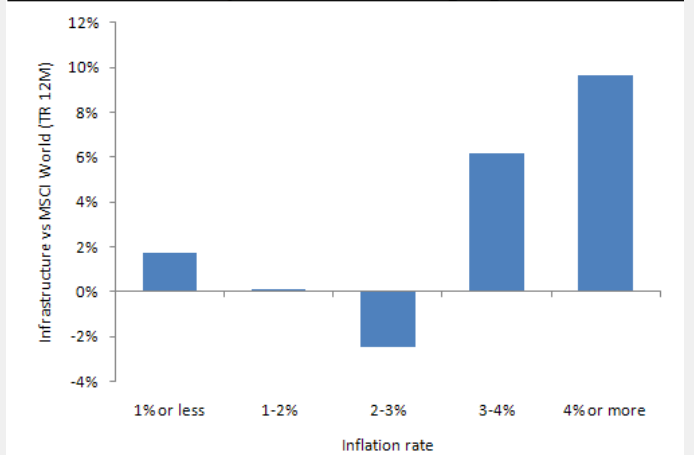
The performance of global listed infrastructure during periods of higher inflation provides further evidence of the benefits of this asset class. The chart (below, right) compares the relative performance of infrastructure to equities when inflation is in a given band. For example, when inflation is between 3% and 4% pa, global listed infrastructure has outperformed global equities by around 6% pa on average. Importantly, this outperformance increases to near 10% pa when inflation is above 4% pa.

Infrastructure outperformance vs CPI+5% benchmark



UBS Developed Infrastructure & Utilities Index (TR)
 MSCI Daily TR Gross World USD
 US CPI Urban Consumers YoY NSA
 Source: Bloomberg, CFSGAM

Infrastructure outperformance during high inflation



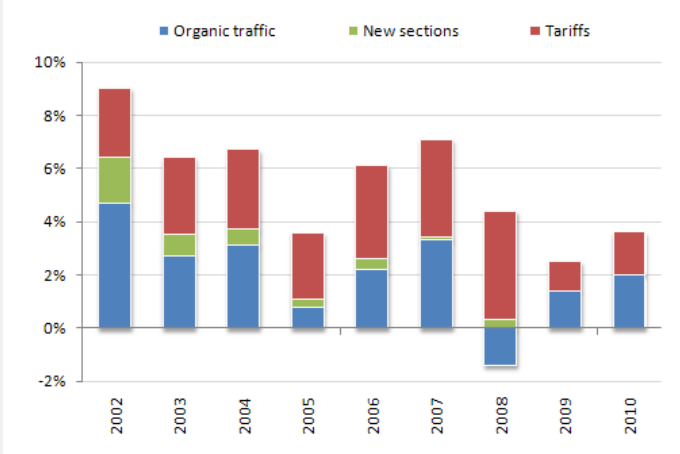
UBS Developed Infrastructure & Utilities Index (TR)
 MSCI Daily TR Gross World USD
 US CPI Urban Consumers YoY NSA
 Source: Bloomberg, CFSGAM
 Monthly data for 20 years to June 2011

Inflation protection in infrastructure assets

Infrastructure generally delivers inflation protection to investors, but the degree of protection will vary by asset. Most infrastructure assets have an explicit link to inflation through regulation, concession agreements or contracts. Other assets without an explicit link often have the pricing power to deliver a similar (or better) outcome. This reflects their strong strategic position which limits competition. The relationship between inflation and pricing is explored through a range of examples below. The analysis highlights that more than 70% of assets owned by listed infrastructure companies have effective means to pass-through the impacts of inflation to customers, to the benefit of shareholders.

Toll road pricing is often explicitly linked to inflation. French motorways have concession agreements providing for annual toll increases at a minimum of CPI x 70%. In addition they have been able to negotiate higher outcomes for pricing as compensation for growth capex, like a new section of road. Vinci subsidiary ASF is a network of more than 2,700km of motorways in south-west France and provides a good example of this explicit link to inflation. Tolls for light vehicles increased in 2011 by 2.5%, representing CPI of 1.5% plus an extra 1% to compensate for environment-related capex. Similar concession agreements where tolls are explicitly linked to inflation exist in Australia, Canada, Brazil, Italy, Portugal, Spain, UK and US.

ASF revenue growth



Source: Autoroutes du Sud de la France, CFSGAM

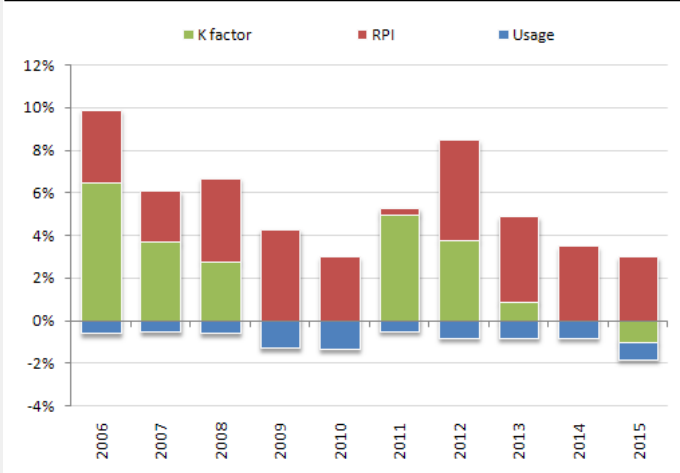
Toll Road Pricing Agreements

Company	Concession	Pricing outcome 2011	=
Abertis	Sanef (FR)	CPI x 70%	1.2%
	Acesa (SP)	CPI x 100%	1.9%
Atlantia	Autostrade (IT)	CPI x 70% +1.29%	1.9%
Brisa	Brisa (PT)	CPI x 90%	0.2%
CCR	AutoBan (BR)	IPG-M x 100%	9.7%
ConnectEast	EastLink (AU)	CPI x 100%	2.4%
Ferrovial	407ETR (CA)	Owner discretion	7.2%
Macq. Atlas	Chicago Skyway (US)	Agreed to 2017	8.0%
	M6Toll (UK)	Owner discretion	3.5%
Transurban	Dulles Greenway (US)	Regulator oversight	5.5%
	CityLink (AU)	Greater CPI or 4.5%	4.5%
Vinci	Hills M2 (AU)	Greater CPI or 1%/qt	4.1%
	ASF (FR)	CPI x 85% +1.175%	2.5%
	Cofiroute (FR)	CPI x 85% +0.78%	2.1%
Average			3.9%

Source: Company reports, CFSGAM

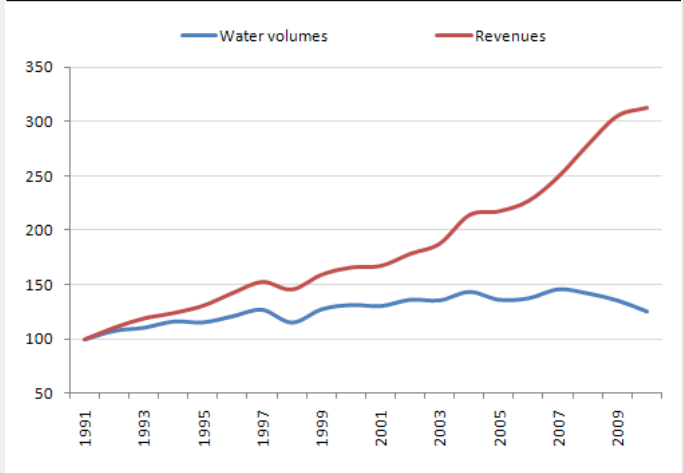
Water, electricity and gas utilities often have an explicit link to inflation through regulated pricing. UK water utilities, like Northumbrian, earn a real return on regulated assets with prices increasing by RPI (Retail Price Index). US water utilities do not have an explicit link to inflation but have shown the capacity to increase prices. California Water grew its rate base by replacing ageing pipelines. Backed by a regulated return on equity around 10%, the company earned price increases of 4.7%pa over the last 20 years.

Northumbrian Water Ltd revenue drivers



Source: Company data, CFSGAM

California Water revenue growth



Source: Company data, CFSGAM

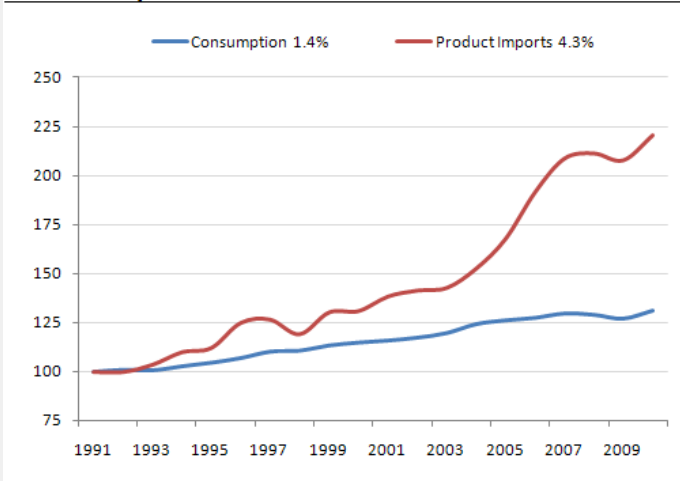
Electricity transmission companies like National Grid in the UK, Red Electrica in Spain, Terna in Italy, SP AusNet in Australia or ITC in the US have variations in the way regulated returns are calculated but all can claim to recover inflation over time.

Integrated utilities combining transmission and distribution networks with energy retailing, power generation and even gas production would not be expected to have a high degree of inflation protection. It could be argued that rising commodity prices feed through to inflation as well as the value of power generation assets, but this link is less tangible than a regulated outcome and the benefit may be offset by the squeeze on retail margins.

Energy pipeline contracts vary in the way prices are set. Generally, oil pipeline contracts in North America are linked to PPI (Producer Price Index) or allow annual resets to recover changes in costs. Most gas pipeline contracts are fixed but others have no regulation at all. High operating margins and light-handed regulation on pipelines provide comfort that rising inflation would not pose challenges to these companies.

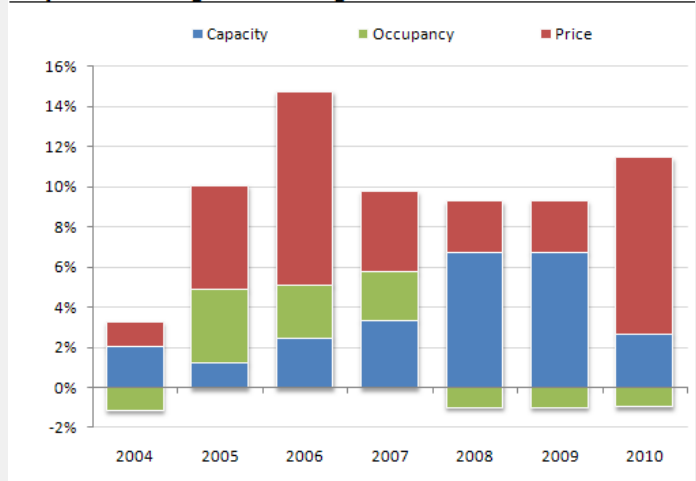
Bulk liquid storage companies typically charge capacity fees linked to local inflation rates. Contracts for the storage products like bunker fuel, gasoline, industrial chemicals, biofuels or LNG are negotiated with customers and extend for 1 to 15 years. Strong demand for refined product and the shortage of available land to unload/store hazardous liquids has given significant pricing power to industry leaders, like Vopak.

Oil consumption and trade movements



Source: BP Statistical Review, CFSGAM

Vopak oil storage revenue growth drivers



Source: Company data, CFSGAM

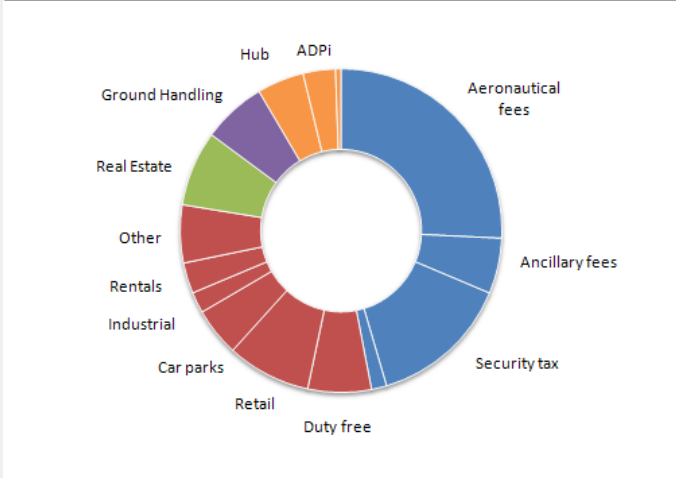
Port operators are generally not regulated and negotiate prices directly with shippers. In recent years overcapacity in some regions (Northern Range and Pearl River Delta) has seen a number of ports reduce prices to attract volumes. Consolidation in the shipping industry has also tilted the balance of power. Over the long-term port companies have delivered reasonable pricing power to investors.

Mobile towers have contracted annual price escalators in the order of 3-5% per annum. Telecom service providers lease tower capacity to deploy antennae and radios for their wireless networks. They typically lease for an initial 5-15 year term with multiple 5 year renewal options. Strict zoning requirements and community opposition impede competition and create high barriers to entry in the tower industry. This helps the tower industry realise very high contract renewal rates and attract new business on existing sites.

Airport pricing varies by country but the sector has shown a reasonable degree of inflation protection over time. UK airports are fully regulated and receive a real return on assets with prices linked to RPI. Australian airports do not have an explicit link to inflation but enjoy a light-handed regulatory environment. Aeronautical price increases are negotiated directly with airlines to recover growth capex while retail, property, car parking and other commercial activities are not price regulated. European airports have a range of regulatory structures which are tending to provide greater flexibility to recover inflation over time.

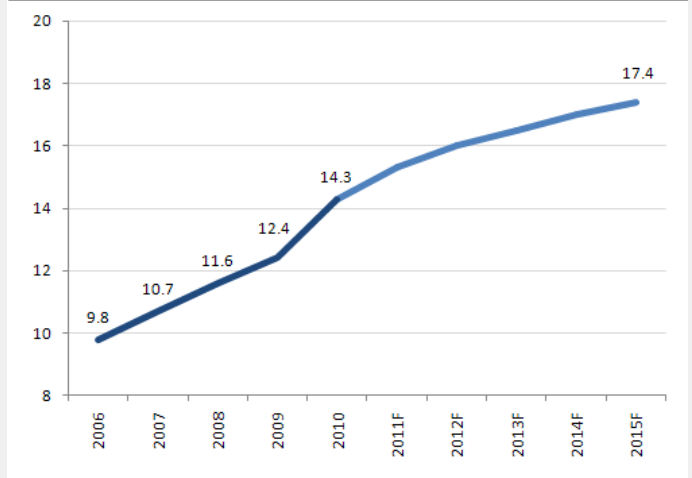
For example, Aeroports de Paris (ADP) is allowed to increase Aeronautical fees by CPI +1.4% pa, has targeted an increase in Retail & Duty free spend per passenger of 4.0% pa, while Real Estate rents are linked to the France Cost of Construction Index which has historically been higher than CPI.

Aeroports de Paris revenue mix



Source: ADP, CFSGAM

ADP retail / duty free sales per pax €

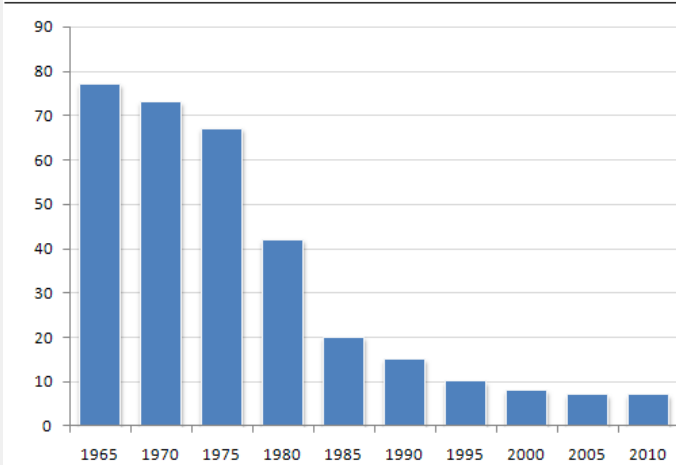


Source: Aeroports de Paris, CFSGAM

Rail companies have improved pricing power in recent years. The US railroad industry has been through a significant period of consolidation following deregulation in 1980. The number of Class I railroads has fallen from more than 70 to just seven over this period. Rates for hauling freight are largely unregulated. Approximately 80% of freight is hauled under contract and these hauls are not overseen by the industry regulator, the Surface Transportation Board. For the other freight movements where the STB does have oversight, it is incumbent upon the shippers to seek rate relief through rate cases (ie, the shipper needs to prove the railroad is charging unreasonable rates). US rail regulation relies on competition to prevent unreasonable rates, though in practice the railroads operate regional duopolies and the costs of seeking rate relief are often too high for shippers.

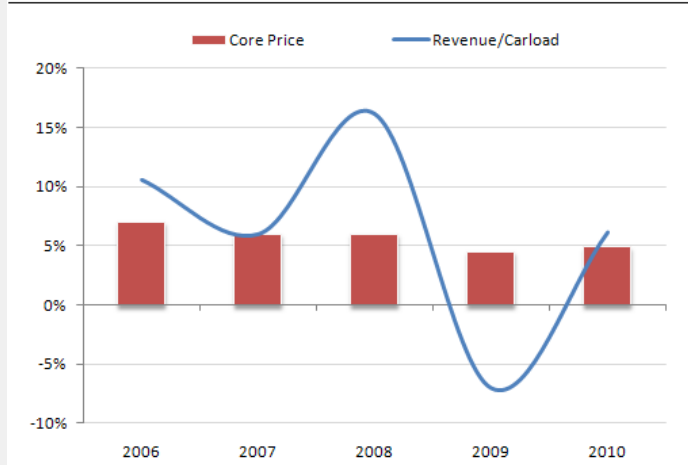
Re-pricing of legacy haulage contracts allowed Union Pacific to generate core price increases of 4-6% per annum in recent years and fully pass-through many uncontrollable costs like diesel fuel (the difference between core price and revenue/carload below). US railroads maintained price discipline during the recession and management teams at the railroads have guided for core price increases above the rate of rail cost inflation going forward.

Number of Class I Railroads



Source: AAR

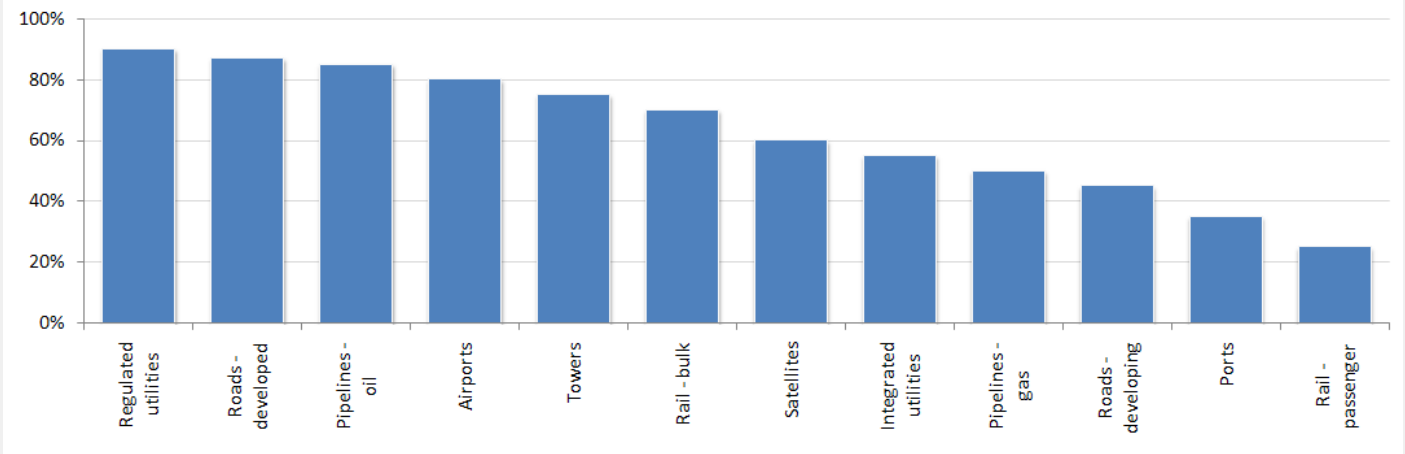
Union Pacific core and headline increases



Source: Company data, CFSGAM

In summary, the degree of inflation protection varies by sector. Taking our focus list of around 120 listed infrastructure companies, including some of the examples outlined above, we have attempted to quantify the degree of inflation protection. The measure reflects our estimate of the proportion of the valuation that could reasonably be expected to recover inflation within a 3-year investment horizon. It seeks to capture the theoretical relationships outlined above but also some of the practical risks discussed in the next section. Significant variances between outcomes in the same sector have been split, for example roads in developed vs developing countries, oil vs gas pipelines and bulk vs passenger rail.

Degree of inflation protection by sector



Source: CFSGAM

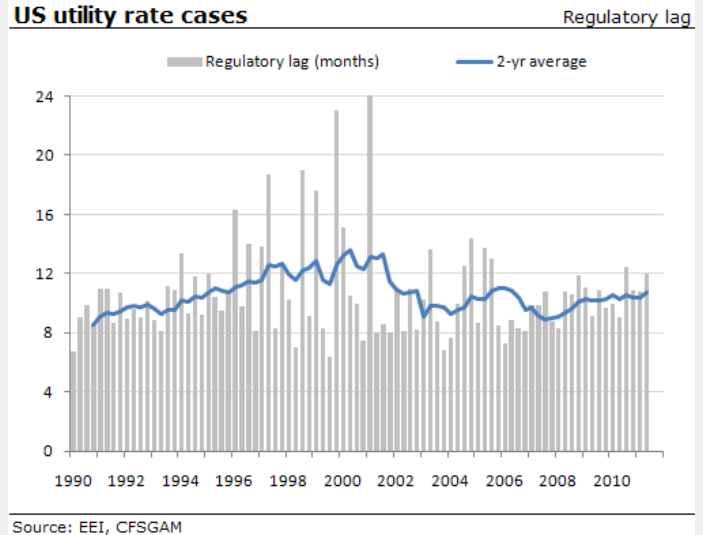
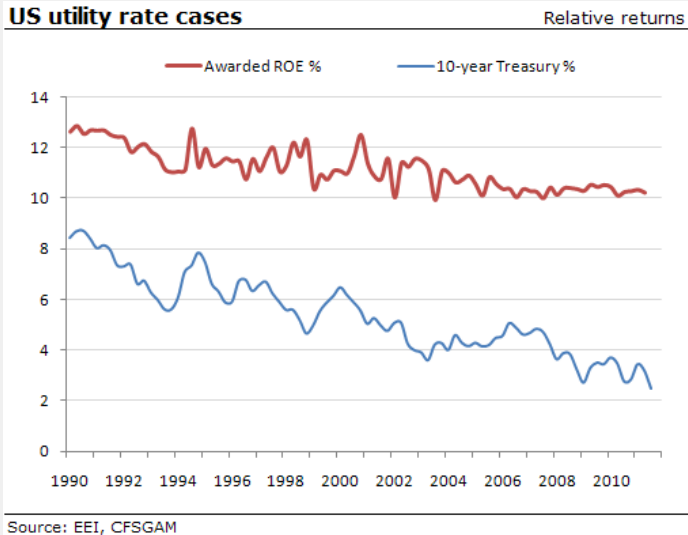
Practical risks to the theoretical hedge

The infrastructure asset class covers a range of sectors and countries. Passively investing in the asset class does not guarantee a hedge to inflation and significant qualitative assessment is still required. The degree of inflation protection will depend on a number of factors and investors should look to address the following questions:

- **Regulatory regime:** Is the link to inflation explicit? Is the regulatory decision process transparent? What is the time lag between actual and recovered inflation?

As outlined in the previous section, there are various ways that inflation is captured in price increases. Regulated utilities and toll roads probably offer the clearest inflation protection, not only reflecting the explicit links in pricing formulas but also the long history and transparency of implementation in most countries. Transparency is the key risk for investors in emerging markets infrastructure companies as recently highlighted by the proposed cut in tariffs on China expressways to assist freight traffic.

Generally US utilities do not offer explicit links to inflation but most regulators in the US have been sensible in their approach to rate cases. For example, awarded returns on equity for the industry have remained above 10% despite the collapse in risk free rates, regulators recognising that there needs to be a balance between consumer prices and utility investment. Regulatory lag (the time between rate cases being filed and awarded) has also remained below 12 months implying significant changes in cost inputs can be recovered in a reasonable time frame. This measure will be important to monitor in coming quarters as investors do not want to return to the regulatory delays of the late 1990's.



- **Political interference:** Is the regulatory regime compromised by political bias? Can other regulatory inputs be adjusted to limit price increases? Can new taxes be levied without compensation?

The risk of political interference certainly increased as leverage in the private sector shifted to the public sector via government spending on bailouts and stimulus. Decisions taken by politicians have already impacted investor returns including nuclear taxes in Belgium, nuclear closures in Germany, renewable subsidy reductions in Spain, motorway and airport concession taxes in Italy, electricity and gas tariff freezes in France, a new property tax in Greece collected via electricity bills and the proposed nuclear compensation fund in Japan.

It should not come as a surprise that the countries outlined above face the greatest challenges in reducing budget deficits and the greatest risks to investors. The safest returns should come from infrastructure assets in stable political and legal systems with customers that are corporations rather than voters.

- **Competitors and substitutes:** What is the competitor response to price increases? Does a substitute become more viable?

Consistent increases in price may trigger a competitive response in time. For most infrastructure sectors the barriers to entry provided by regulation, land availability or zoning laws make it very difficult to replicate existing assets or provide a reliable alternative. Some sectors do face a degree of competition and have to consider the response to price increases. Port of Hamburg pushed pricing to a significant premium over competitors on the Northern Range because of its advantage accessing the hinterlands of Central and Eastern Europe. But this pricing was subsequently eroded as it encouraged Rotterdam and Antwerp to execute plans to double port capacity and improve intermodal links. Freight rail operators including Union Pacific in US, Asciano in Australia or Eurotunnel in UK/France face some substitution from trucks or ferries, particularly for shorter-haul intermodal. In recent times this threat has been mitigated by rising fuel costs given the relative efficiency of rail as a mode of transport.

- **Variable costs:** Are the revenue increases eroded by increases in operating costs like labour or fuel? Are interest costs fixed or variable?

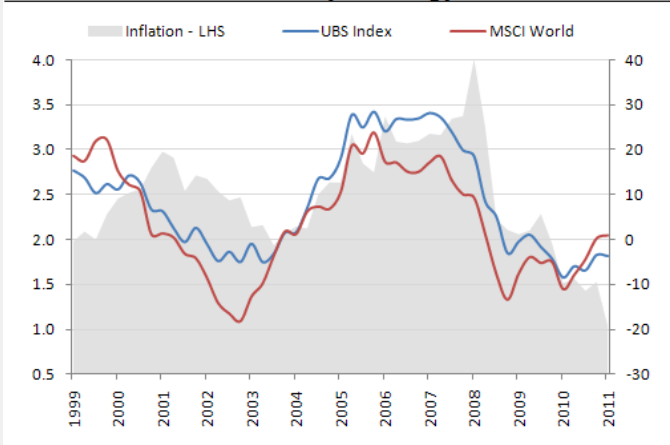
The capital intensive nature of the infrastructure sector means that depreciation and interest are usually the largest components of the cost base. EBITDA margins average 40-50% for the sector but can be as high as 80% for some roads, airports, regulated utilities and satellites. Many infrastructure companies operating on lower margins have reduced their exposure to variable costs by renegotiating contracts or introducing technology. For example, rail companies have renegotiated contracts with shippers to pass-through volatile diesel fuel costs while port companies have invested in automated gantries to lift containers, in some cases more than halving labour unit costs.

It is important for infrastructure companies to maintain an appropriate debt structure so that inflation-linked price increases flow through to the bottom-line. Recent experiences highlight that inappropriate capital structures can override underlying asset quality and lead to poor equity performance. Australian infrastructure companies, like Asciano and ConnectEast, held excessive levels of gearing at more than 5x Debt/EBITDA or less than 2x EBITDA/Interest and were forced to raise equity. European integrated utilities, like Enel and Gas Natural, held a significant proportion of “acquisition bridging finance” and were not able to refinance at attractive rates. Another issue to consider is the increasing use of inflation-linked bonds by regulated utilities. While in theory they create a natural hedge for the company as revenues and interest costs rise and fall together, in practice they can have the effect of diluting the inflation hedge for the equity investor.

- **Duration of investment:** Does the investor holding period allow enough time for the underlying qualities of the asset to be reflected in equity returns?

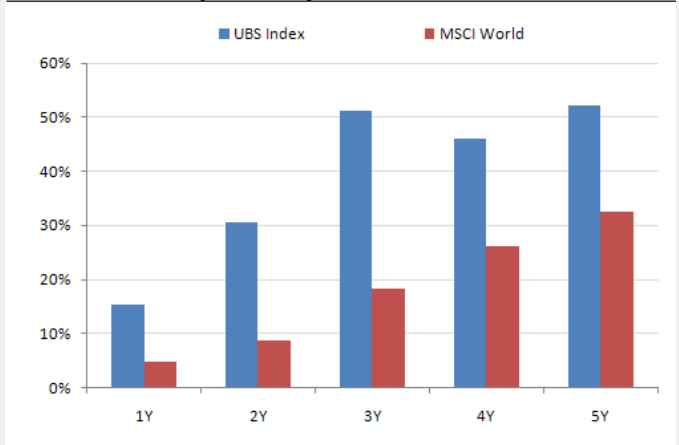
Listed markets offer liquid access to the infrastructure asset class but will not be immune to equity market volatility in the short-term. A regression of total returns against inflation highlights the importance of investing for the longer-term. That is, inflation can only explain 15% of the return on infrastructure over rolling 1 year periods but this rises to around 50% over 3 years. In contrast, inflation only explains 4% of the return for global equities over rolling 1 year periods and this rises to just 16% over 3 years.

Inflation and Total returns (3Y rolling)



UBS Developed Infrastructure & Utilities Index (TR)
 MSCI Daily TR Gross World USD
 US CPI Urban Consumers NSA
 Source: Bloomberg, CFSGAM

Total returns explained by Inflation



UBS Developed Infrastructure & Utilities Index (TR)
 MSCI Daily TR Gross World USD
 R-squared over rolling periods
 Source: Bloomberg, CFSGAM

Conclusion

Investors are increasingly looking to insulate their portfolio from the impacts of inflation. Global listed infrastructure has delivered returns equivalent to CPI plus 6.3% over 20 years and outperformed global equities by 10% pa when inflation is above 4% pa. The analysis highlights that more than 70% of assets owned by listed infrastructure companies have effective means to pass-through the impacts of inflation but significant qualitative assessment is still required.

Institutional investors looking to maximise inflation protection should consider an infrastructure portfolio with:

- Higher weights in regulated utilities, developed roads, oil pipelines, airports, mobile towers, bulk rail
- Lower weights in integrated utilities, developing roads, gas pipelines, ports, satellites, passenger rail
- Higher weights in US, UK, Australia, Canada, northern Europe
- Lower weights in southern Europe, Japan, Emerging Markets

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