STAFFORD

The Stafford Diaries

Inflation protection from Infrastructure: getting under the hood

Issue #36

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Introduction

In recent months investors have once again turned their attention to inflation risks. Across most developed markets, the combined impact of loose monetary and fiscal policies through the COVID lockdowns, followed by rising demand but persistent supply chain disruptions with the easing of lockdowns produced inflationary pressures that were generally considered to be within investor expectations. However, the invasion of Ukraine by Russia has placed additional pressure and uncertainty on commodities, energy, and power markets.

Investors are now reviewing the long-held status of infrastructure as an inflation-protected asset class, and the potential impact on future portfolio returns. Similarly, over the past 10 years, the definition of "infrastructure" has broadened as new industries and sectors such as digital infrastructure have joined the available investment universe. How have the mechanics of revenue and cost recovery affected infrastructure's continued ability to provide inflation protection?

Infrastructure is generally considered a low-risk, long-term asset class. Supported by long-term, stable, and often inflation-protected cash flows, infrastructure assets have been able to use substantial leverage to enhance investor returns. However, this leverage also exposes assets to related inflation and interest rate risks.

In this Stafford Diary, we review the mechanisms that provide inflation protection to infrastructure returns. We do this in two parts. Firstly, we look at the underlying mechanisms of inflation protection across the various infrastructure sectors at the revenue, cost, and valuation level. Secondly, we review the recent analysis of data from managers in our own portfolio to test our expectations against reality.

We also review the impact of changes in interest rates. We look at this from two perspectives. Firstly, we assess their impact on the asset's cash flows and the consequences this will have on operating performance and distributions to investors. Secondly, we review the influence of changing rates on valuations via movements in the discount rate upon which valuations are struck.

In reviewing these mechanisms across various infrastructure sectors, we acknowledge that these mechanisms are complex, and often tie to factors such as each an asset's capital structure, local regulatory issues, and the competitive environment. We look at a few examples where Stafford's due diligence has applied sensitivity analysis to individual assets, arriving at a total fund level exposure to inflation. Additionally, inflation movements may also lead to changes in investors' asset allocation decisions which will potentially also have an impact on secondary market valuations for these assets.

By their very nature (large, resource intense, immoveable, intensive usage by many customers, etc.) infrastructure assets often have a substantial impact on and are impacted by the environment, the social context in which they perform, and the governance, regulatory, financial, and legal landscape that they are exposed to. Consequently, a commitment to sustainability is a fundamental tenant of our business and is reflected in our investment philosophy. It is thus of paramount importance that meticulous consideration of ESG factors is encapsulated in our due diligence, dynamic portfolio construction, and ongoing portfolio monitoring.

Why focus on inflation?

Inflation has remained benign in the last two decades but in 2022, it has shown rapid, meaningful growth, particularly in the US where the data to March 2022 showed an annual increase of 7.9%, a sharp increase to the rate of 1.4% as of 2020 year end.[1] While there has been a similar trend across developed markets, the rate of increase has not been uniform. In Europe it has been growing over the last year at 7.5%, in Australia 5.1%, while Japan it is still low at 0.3% in line with past 10-year average. These data reflect the highest point since the early 1980s.

Milton Friedman is famously quoted as saying that the cause of inflation is "always and everywhere a monetary phenomenon."[2] In a macro sense, the monetarists contend that inflation is not caused by short-term shifts in costs and demand but growth in the money supply and increased velocity or circulation rate of money. Similarly, Keynesians are concerned that inflation risks lie in the potential for a sharp economic recovery to quickly absorb excess capacity.

Today, in a post-COVID environment, both monetarists and keynesians would recognise the potential for earlier strong COVID-related fiscal stimulus for businesses and households to push demand beyond available supply, fanning inflationary pressures. Measuring the extent and duration of these pressures and arriving at a correct policy response has been made more difficult in the midst of rising geopolitical risk and its impact on commodity price and energy supply and prices.

From a micro perspective, that of investors in individual infrastructure assets, it is important to understand the mechanisms through which inflation affects the asset class returns. In turn, it is up to investors to assess how well managers protect their returns from inflation volatility.

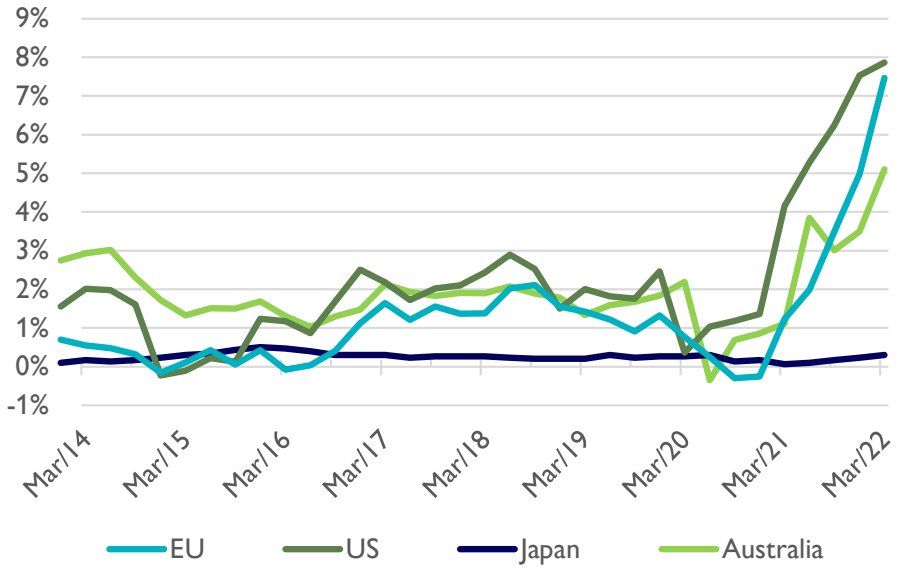
This Stafford Diary looks to provide a framework to understand these mechanisms across a diverse range of sub-sectors within the infrastructure asset class. We do this by following the course of rising prices through the cash flow statement for various types of infrastructure assets and observe that while core infrastructure assets boast the strongest claim to offering infrastructure protection, the asset class overall is a net beneficiary of rising inflation. We have tested these assumptions with a modeling of the individual assets within Stafford's SISF infrastructure secondaries portfolios and indeed find a positive inflation link to the investment lifetime returns of our portfolio asset.

Inflation has followed other macroeconomic factors trending upwards. Developed market GDP is recovering from the COVID lockdowns but also an extended period of loose monetary policies across developed markets together with more recently, massive COVID related fiscal stimulus, resulting in sustained growth above levels of the last decade, with the exception once again of Japan.

[1] Note that the data and charts used in this paper are as of March 2022 unless otherwise noted.

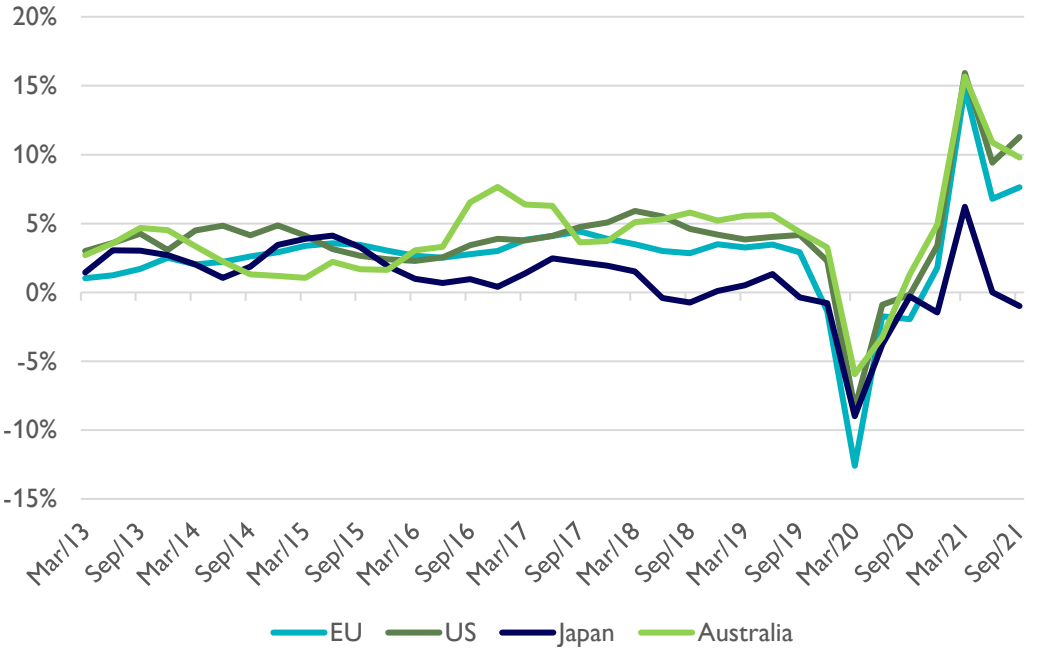
[2] https://youtu.be/6LfUyML5QVY

Figure 1: LTM Inflation



Source: Eurostat, Bank of Japan, Reserve Bank of Australia, Federal Reserve Bank of St. Louis

Figure 2: LTM GDP growth



Source: Federal Reserve Economic Data

Inflation pressures have been evidenced in both a "demand pull" and "cost push" formats for the private sector.

Demand-Pull Inflation describes a scenario where prices rise in response to excess demand relative to the existing supply of goods or services. Demand-pull inflation might be caused by an increase in money supply so that prices are "pulled" upwards by the continuous upward shift of the aggregate demand function. The spike in GDP in calendar year 2021 in the above chart illustrates the impact of both strong fiscal and monetary support despite the continuing impact of rolling Covid lock downs.

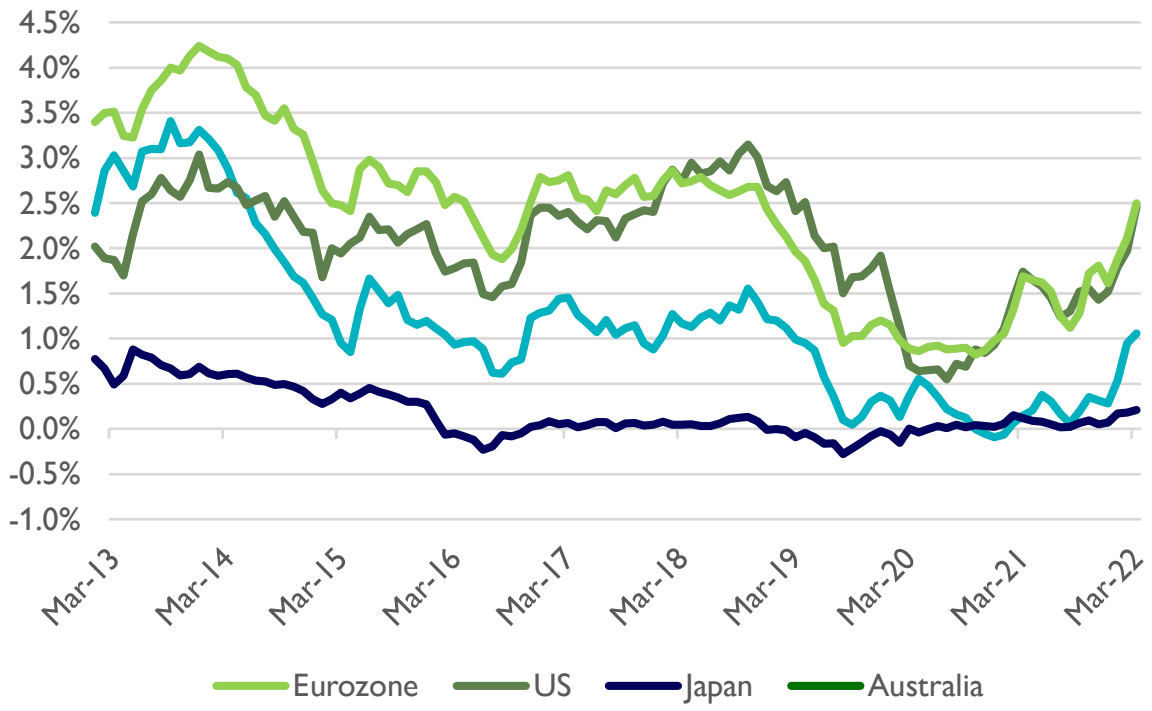
Cost-Push Inflation describes a scenario where inflation is induced by the general increase in raw materials or wage costs. Accordingly, cost-push inflation occurs when the increase in costs is passed on to buyers and not absorbed by producers. Cost-push inflation is usually discussed in the context of actual and expected inflation being built into costs. In the present context, it also includes rising commodity and energy prices which are responding to post Covid supply chain disruptions, exacerbated by more recent supply chain uncertainty related to the present geopolitical turmoil from the invasion of Ukraine.

Built-in Inflation occurs where expectations of continued future inflation, for example in wage claims leading to higher costs, helps realise the expected increase in inflation. The expectations of increased inflation that produce built-in inflation tend to increase the momentum of either persistent demand-pull or significant cost-push inflation in the past but are not, by themselves, a cause of inflation.

The above Figure 2 GDP chart shows a strong upward trend with a first peak driven by the COVID recovery, but also sustained growth above levels of the last decade, with the exception once again of Japan, showing that we are transitioning from cost-push inflation (with the initial supply chain issues of covid) to demand-pull inflation, driven by strong demand (with cost-push perhaps appearing again in the context of oil and gas supply chain issues).

Post COVID, demand is growing at a pace that has created supply chain and inventory issues leading to a strong inflation push on the cost side. Central banks had generally responded to this with talk of accelerating plans for higher interest rates after a continuous and gradual decrease over the last decade. Actual rate increases attributed to inflationary pressures only started in early 2022. Once again, the response varies per country/region with the US and Australian interest rates inching towards 2.5% whereas Eurozone is picking up and Japan is still close to rock bottom.

Figure 3: Interest rates



Source: Federal Reserve Economic Data

In our analysis we will look at the inflation mechanics, i.e. how inflation affects an asset in different ways, then we will focus on the various protection levels that infrastructure assets have against inflation in theory, while we will also provide explicit examples of inflation sensitivity based on proprietary data.

Infrastructure and inflation protection – how does it work?

Inflation can impact the performance of an asset through several channels illustrated here by the simplified cash flow statement of an infrastructure asset (Figure 4)

Figure 4: Inflation Recovery Mechanisms

Variables	Items	Pre inflation	Post inflation
• **Inflation linkage**: contracted, regulated, concession	**Revenue**	**100**	**105**
• **Opex/Capex**: Business specific	Opex/Capex	(20)	(21)
• **Debt**: rates, tenor and hedges	Debt Service	(50)	(50)
• **Valuation**: Changes in discount rates	**Free Cash**	**30**	**34**
	Inflation	5%	
	Operating Margin	**80%**	**80%**

In this above example, we apply a 5% inflation increase. For a traditional core infrastructure asset, there is a corresponding 5% increase in revenue as contracted CPI adjustments are made. As we shall discuss further, not all infrastructure assets have an inflation pass through mechanism as direct as this example.

Similarly, operating expenditures (Opex) in this model also increase at the same rate but its impact is limited, as infrastructure assets typically benefit from high operating margins. For example, the leading 65 toll road operators globally boasted an average operating margin of 85.4% in 2019.[3] As such, if labour costs, which represent 50% of the above toll road operators' average costs move +/-5%, the cash impact would be marginal, and the operating margin remain unchanged.

The generally high leverage nature of infrastructure assets implies that changes in interest rates in response to rising inflation would have a significant negative impact on returns. However, there are several potential mitigants for investors. The first would be the timing effects of hedging, loan structuring and duration meaning that in the case of short-term changes in inflation, there may be no actual impact on debt servicing. The other two factors, which we will discuss later in this diary are potential increases in regulated returns in the case of longer-term inflation and the impact of discount rates on valuation.

Of course, these various mechanisms do not flow in a similar pattern across each infrastructure asset. The following table (Figure 5) illustrates the basic categories under which most infrastructure investors group the range of infrastructure strategies; Core, Core-Plus/ Value Add, and Opportunistic. This framework provides a useful overview of the varying risk characteristics of these groups but, in terms of understanding the inflation revenue recovery mechanisms for individual asset types, there can be considerable overlap in characteristics as they apply to the traditional Core, Core-Plus/Value Add, and Opportunistic model.

[3] "Open Opportunity – a global benchmark of toll operator efficiency", KPMG International, 2019

Figure 5: Infrastructure Asset Macro Characteristics

Type	Core	Core Plus / Value add	Opportunistic
Examples	PPP, long-term concessions, utilities, toll roads	Rail, airports, renewables, towers, toll road networks	Data centers, midstream, sea ports, EfW
Revenue Protection	Regulated concessions / explicit CPI adjustments or RAB-based return	CPI-linked contracts	Short-term contracts with low churn based on high demand
Competition	Monopoly	High barriers to entry	Technology, first mover
Demand Elasticity	Low	Medium	High
Operating Risk	Low: brownfield	Low/medium: Platform or capacity expansion	Medium/high: Construction or technology risk
Other	Long-term contracts with single investment grade counterparty	Multiple medium term contracts with multiple counterparties	Multiple counterparties exposed to GDP risk

Source: Stafford Capital Partners

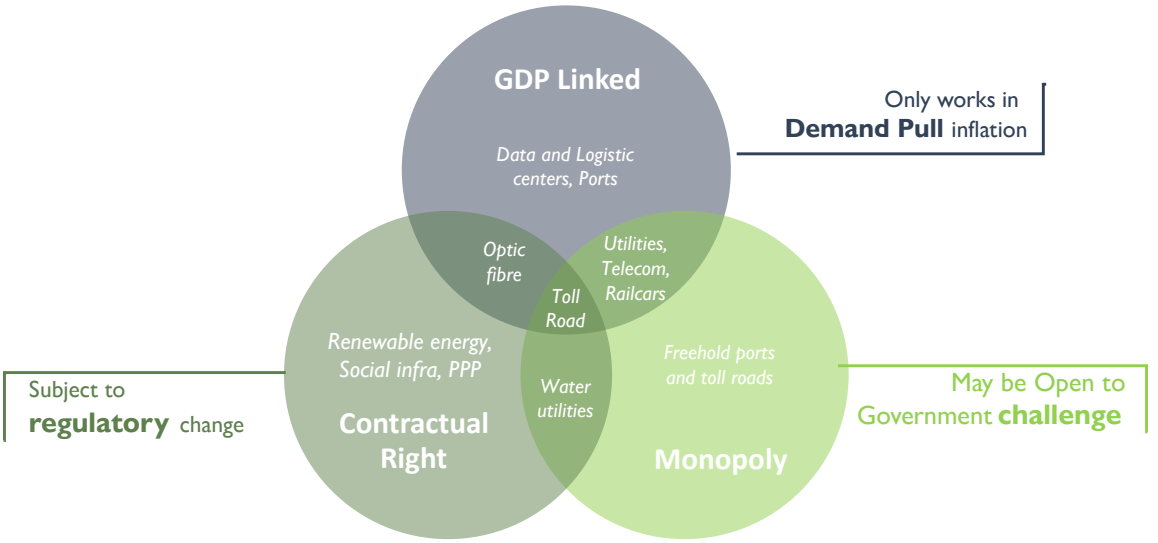
We will take an extra step to understand how each of the cash flow items react in an inflationary shock. In general terms, there are 3 inflation protection mechanisms as illustrated in Figure 6.

- Contracted adjustments, typical of regulated or concession assets where the offtake party will commit to a mechanical adjustment around CPI through a pre-agreed formula. Assets with highly contracted revenues and generally the most sought after infrastructure assets given the predictability, if not stability of their cash flows. These types of assets are also generally described as core infrastructure.

- Monopolistic positions, where an infrastructure asset has an implicit pricing power to adjust prices to inflation across shorter-term contracts of 3 – 7 years. These assets are usually core-plus, or value add assets with examples including airports, broadcast towers, or midstream transmission assets through geographic monopolies, and finally,

- GDP-linked assets, generally identified as either expanding and existing platforms exploiting new technology or industry growth. Examples would include data centers, fibre networks, or some midstream horizontal drilling assets. Contracts here are often short term (2-3 years) but with strong user demand and low substitution risk, the operator generally sees strong implicit pricing power and a low customer churn rate.

Figure 6: Revenue Inflation Protection Mechanisms



Out of the three revenue characteristics, contractual agreements of Core infrastructure are considered the strongest. For all of these protections, we also note that they do not operate like inflation linked bonds, which may adjust overnight to inflation movements. Here even contractual agreements may take a year or more to be reflected in revenues.

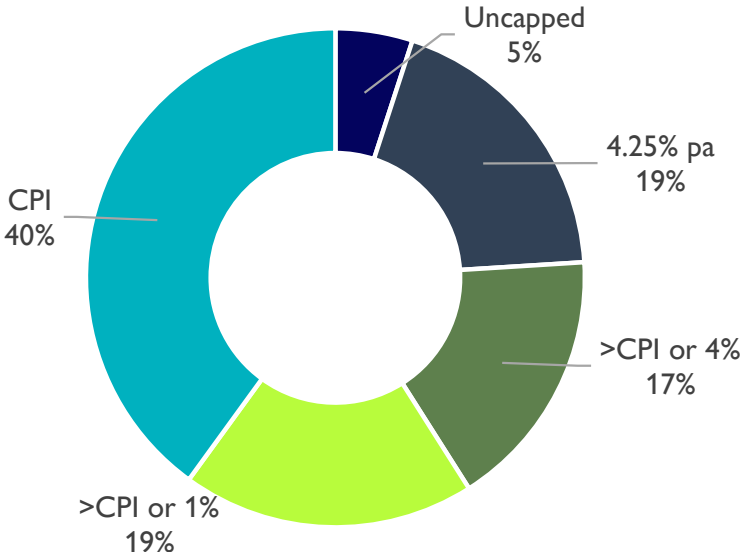
Digital Infrastructure is an interesting example of a GDP-linked opportunistic asset as it operates in both economies with a lower level of GDP per capita, as well as the higher GDP per capita, but more mature, economies. Figure 7 shows the percentage of internet users per a given GDP level. The green trend line shows the strong linear relationship between internet penetration and GDP growth which provides strong pricing power protection to telco and digital infrastructure operators. The orange trend line, mostly OECD countries, shows this this relationship becoming weaker and even asymptotic and average incomes increase. However, these modern economies live in an age of data, where digitalization is a key driver of economic growth. In these markets it is not so much the number of users, but the volume of data of these users and businesses demand that is driving GDP growth, ensuring that in a scenario where inflation surges due to increased economic activity, digital infra will be able to increase revenues commensurately, either as a cause or consequence of that GDP growth.

Figure 7: Infrastructure Asset Macro Characteristics

Source: https://chart-studio.plotly.com

Toll roads represent another interesting sector to study as they can seen at the intersection of having long term contracted, monopolistic and GDP-linked revenue structures. If we take the example of Transurban, the Australian listed toll road operator, we understand that 81% of its toll road contracts are CPI-linked or fully uncapped, with the small remainder being generously capped (Figure 8). The toll road segments are monopolistic in the contest of the travel time savings that drivers achieve relative to public roads. Finally, as we show in Figure 9, a strong GDP-linkage with a low price elasticity of demand.

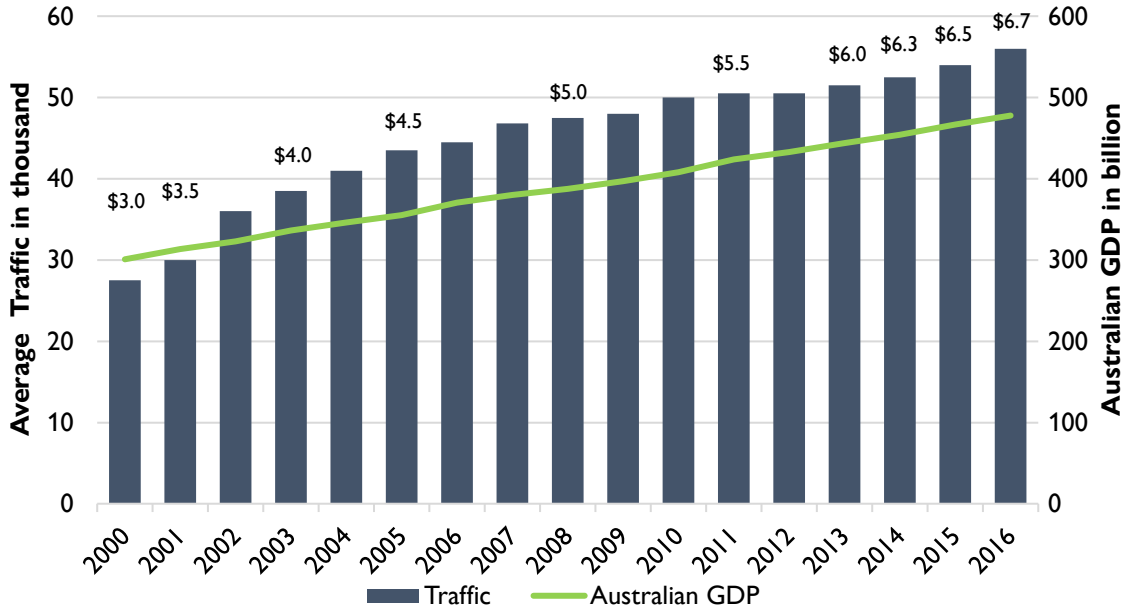
Figure 8: Transurban Toll Road Pricing Agreements



Source: First Sentier, Magellan, Transurban, Stafford Capital Partners

While toll roads carry attractive pricing agreements, the asset owner carries demand risk. Despite this, toll roads usage appears to be mostly inelastic to toll increases, due to a combination of site-specific factors, time savings that toll roads offer, and broad acceptance of e-tolls. These assets also have a strong positive correlation to GDP growth. In the case of Transurban, we see the impact of the monopolistic element that most of these roads have as the manager almost doubled the toll price from AUD3.00 to AUD6.70 in the last two decades while traffic volume has more than doubled over the same period, very much in line with GDP (Figure 9).

Figure 9: Sydney Toll Roads Economics



Source: First Sentier, Magellan, Transurban, Stafford Capital Partners

Cost Protection

A common characteristic across many infrastructure assets is high economies of scale. The cost of one more car on a toll road is extremely low and generally results in high operating margins. For example, in our earlier toll road example (which noted an average operating margin of 85.4%), a rise in labour costs of 5%, or a similar increase in crude related asphalt costs, would be unlikely to have a meaningful impact on margins and, given the nature of the mostly CPI linked concessions, would quickly be recaptured.

Similar to the way that revenue protection varies across infrastructure assets under the earlier Contractual, Monopoly and GDP-linked classifications, the Inflation Recovery Mechanisms model also differs across infrastructure types for changes in costs. In the short to medium term, the response of infrastructure assets (and real assets in general) to inflation will critically depend on the underlying contractual nature of the asset. This will dictate the degree to which asset owners are able to pass through inflation via respective higher charges, tolls or utility rates. The underlying contracts or regulatory structures will influence what items may be linked to inflation (revenues, expenses, capital) and under what constraints (timing of adjustments, caps, other limitations). The following examples look at how margins can be preserved in inflationary periods in Monopoly and GDP-linked model.

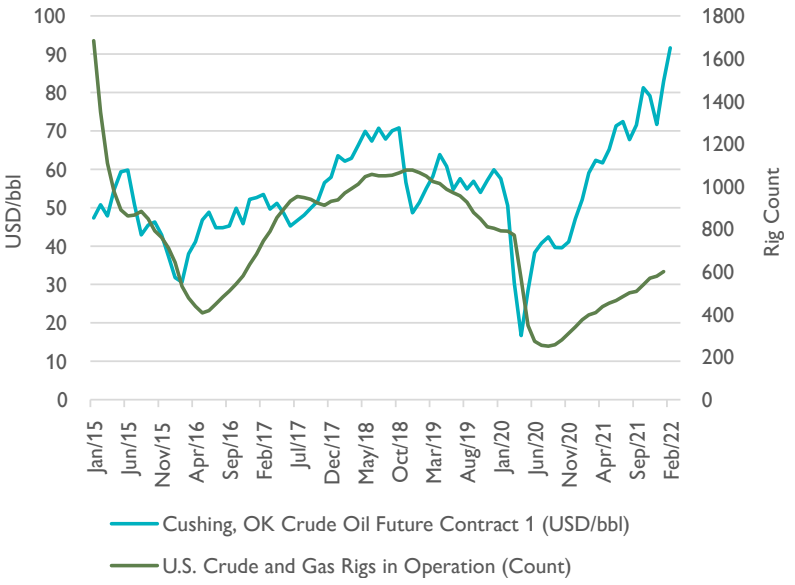
Monopoly Assets

These models cover a range of assets including PPP's and Availability /Social Infrastructure which may cover assets such as schools, hospitals, and other public buildings. A government entity enters into a long-term agreement (25-40 years) with an infrastructure manager to design, build, operate and manage facilities. Payments to the infrastructure manager are based on the infrastructure manager's availability to meet the contractual performance standards. The infrastructure manager will structure its long-term contract around various sub-contracted service providers that will seek to maximize cost pass through.

The operating cash flow profile of these assets tend to be similar to contractual and regulated utilities in that revenue payments and cost recoveries over the life of the agreement are contracted in advance and incorporate inflation pass-throughs and a correlation to changes in CPI of close to 100%. For example, cost overruns at a construction or facilities management

contractors are generally absorbed by the contractor under the terms of their contracts (and are expected to incorporate these risks in the earlier pricing for which the infrastructure manager has priced its overall bid). A recent purchase by Stafford's SISF IV of a UK fund in which availability projects and PPPs made up 91% of the portfolio showed a 68% inflation sensitivity, i.e. a 1% increase in inflation is expected to result in a 0.68% increase in net IRR for the Fund. This is before the positive addition impact that high cash balances have from an associated increase in interest rates.

Figure 10: US Rig Count and Crude Oil Price



Source: US Energy Administration (EIA.com)

In the case of cell phone towers, we recently noted industry commentary suggesting a weakening in tower operator pricing power. Telco mobile network operators (MNO's) are the customer base of the private cell tower companies. Tower access lease costs have recently run up in the face of costs involved with roll out of 5G technology. Implied leasing costs have grown from under 5% of the major MNO's wireless revenues to ~7% in 2020. In the face of flattening mobile revenues, cell phone towers operators are challenged to recover costs of the 5G transition having become a notable cost item for the MNO's.[4]

Interest Rate Impact in Infrastructure

Infrastructure assets, which use high levels of debt to support a high level of long term fixed capital, should notionally see rising interest rates as a catastrophic risk. However, from a practical perspective, there are a three mitigants to interest rate risk that an experienced infrastructure manager can use to protect returns.

1. Capital modeling and asset refinancing

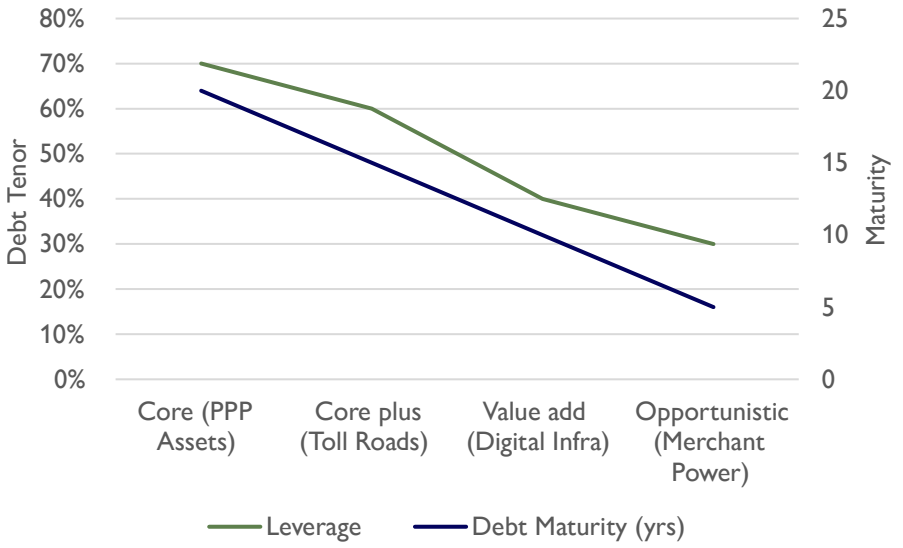
2. Changes in regulated and concession-based discount rates

3. Discount rates in valuations.

In the same way that revenue structures vary between core and opportunistic infrastructure in our earlier model, debt structures also vary across the broad spectrum of infrastructure assets in the way these assets structure the debt size, tenor and hedging to align with the underlying contract length and stability of cash flows.

[4] Confidential consultant report associated with recent transaction.

Figure 11: Infrastructure Sector Leverage Characteristics



Source: Statistica, Kroll.com

1. Capital modeling and asset refinancing

As noted in Figure 11, infrastructure managers will look to match the leverage and debt maturities against the profile of the assets revenues (such as contract length and GDP sensitivity). While Opportunistic assets would appear to be most exposed to interest rate and refinancing risk, low interest rates and strong credit availability in recent years has given most infrastructure manager the ability to structure debt with a combination of asset refinancing and interest rate hedging. As a result, in a period of short-term inflation, most of the above groups should be a net beneficiary as revenues rise faster than operating and credit costs.

2. Changes in regulated and concession-based discount rates

Across Europe, North America, the UK and Australia, regulated utility equity returns are generally determined by the regulator using a formula that applies a defined premium on the regulated asset base relative to a weighted cost of capital (WACC). For regulated assets such as water or electricity distribution, these returns are subject to a defined pricing period, usually from 3 to 5 years. This format also forms a similar basis for a number of PPP and concession contract structures with government related counterparties but with longer duration periods.

In a period of a sustained increase in inflation, a meaningful increase in the risk-free rate (the basis of the WACC calculation) will have a flow on effect too increase revenues from the regulated asset following the WACC reset within the regulatory pricing period, usually 12 months.

3. Discount rates in valuations.

Investors in infrastructure funds benefit from external valuations of the fund assets in the annual accounts. The core methodology of these valuations is a discounted cash flow (DCF)[5], again, using a discount rate which generally comprises government bond rate plus an asset specific risk premium.

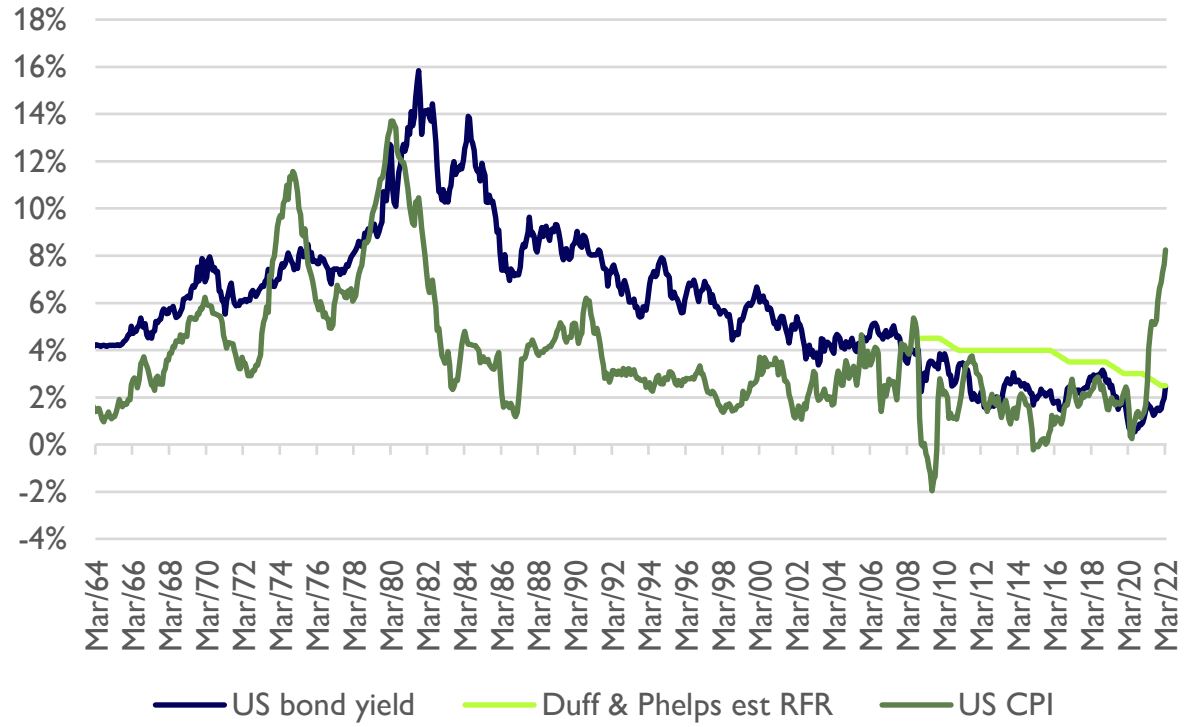
[5] Complimented with additional data such as recent comparable transactions and peer valuations

The potential negative impact of rising interest rates pushing up the discount rate is generally offset by the impact of smoothing generally adopted within the independent valuation process

The second factor is the general practice of "normalizing" of risk-free rate assumptions in independent valuations. Post financial crisis, the use of long-term averages for the risk-free rate has become the norm to both smooth out the effect of early post GFC volatility and offset the "abnormally" low government bond rates created by recent quantitate easing policies from the major central banks. This has created a substantial buffer of approximately 50-100bps[6] between the normalized and the spot risk free rate and in turn, a substantial buffer for valuations in a period of gradual increases in interest rates.

Valuation experts, Duff & Phelps (rebranded as Kroll) has published its recommended risk-free rate (RfR) along with its corresponding U.S. Equity Risk Premium since 2008. In June 2020 it lowered its normalized USD RfR estimate from 3% to 2.5% (also noting the same movement for CAD, and GBP). At the time of the adjustment through to December 2021, the normalized 2.5% represented at 100bps premium to the U.S. Treasuries at 20-year constant maturity. By March 2022, that rate had moved in line with the comparable Treasury rate. However, noting a spike in 20-year breakeven inflation rate from 1.5% in June 2020 to 2.8% in March 2022, it will be interesting to see if and additional normalization to the RfR is issued.[7]

Figure 12: Normalizing the Risk-free Rate



[6] Stafford estimate

[7] The breakeven inflation rate represents a measure of expected inflation derived from 20-Year Treasury Constant Maturity Securities and 20-Year Treasury Inflation-Indexed Constant Maturity Securities The latest value implies what market participants expect inflation to be in the next 20

Infrastructure and inflation protection - Putting theory to the test

To put our infrastructure investing experience with inflation mechanisms to the test, we recently tested our assumptions with a survey to each of the managers in our infrastructure secondaries funds, SISF II and SISF IV. Our survey ultimately represented data from 294 assets using data from the managers models that formed the base case of their investment. As a Core infrastructure manager our dataset is heavily biased to Core, relative to the broad range of infrastructure sectors. Nevertheless, the range of responses was illustrative of how sensitivities can vary even within the Core group of infra managers.

As not all assets react in the same way we decided to split our sample in three main categories outlined in Figure 5, based on the assumed inflation mechanisms that different groups of revenue offer. We anticipated that Core assets, with contractual agreements would be better positioned against an inflation increase as their revenue streams usually adjust for inflation through a pre-agreed formula. Following them, Core Plus/Value Add assets with monopolistic elements may not directly benefit from inflation, however they are typically in position to increase their prices given their strong bargaining power. Finally, the Opportunistic assets, being strongly GDP-linked, were expected to respond well to inflation only when driven from the increasing demand during higher economic activity.

Methodology

Since inception, the SISF investment strategy has focused on Core infrastructure with its strong claim to offering inflation protection. As part of our core strategy, we look to acquiring assets with strong inflation sensitivity. Therefore, more recently, we tried to analyse the trends in our portfolio to see if there are any shortcuts, such as focusing on specific sectors or specific industries.

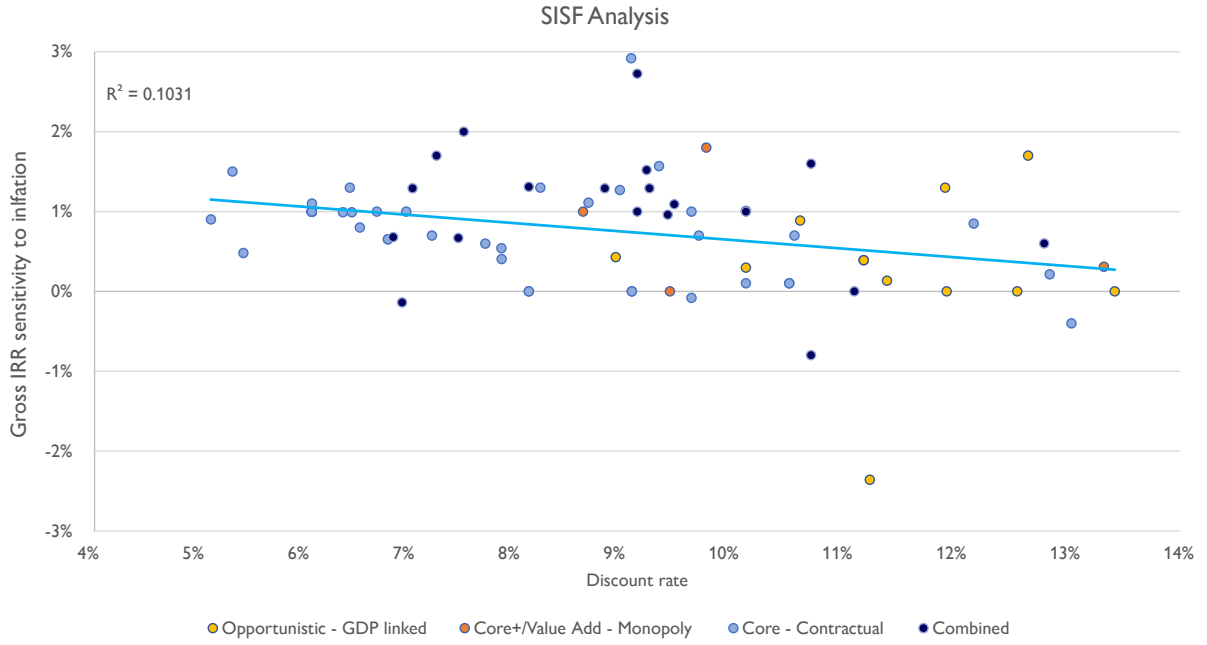
We ran sensitivities based on the asset models received from the managers of the various funds. Our dataset included a total of 294 assets across the infra universe. Our goal was to measure how much the project life IRR of an investment moved, for a 1% increase of inflation every year going forward, beyond the base case. Additionally, as part of our due diligence, we assign DCF rates to our assets based on their riskiness to proxy how “Core” an asset is. For each asset we compare the DCF rate to the inflation protection it offers.

Results

A summary of the key outputs is depicted in Figure 13 which verifies our expectation that Core assets tend to offer higher protection to inflation. This aligns to the investment targets for the SISF strategies across a well-diversified portfolio. In addition, assets with contractual agreements or multiple inflation protection mechanisms, also provide higher protection to inflation.

Our survey indicates that each asset reacts uniquely to inflation movements. Our results show a wide spectrum of sensitivities, even spanning negative territories. This idiosyncratic behaviour explains the high volatility that is translated into a low R2 of approx. 0.1. Despite that, a well-diversified portfolio of assets can effectively tackle this volatility, resulting in the formation of a portfolio that keeps track of inflation.

Figure 13: SISF Inflation sensitivity to DCF

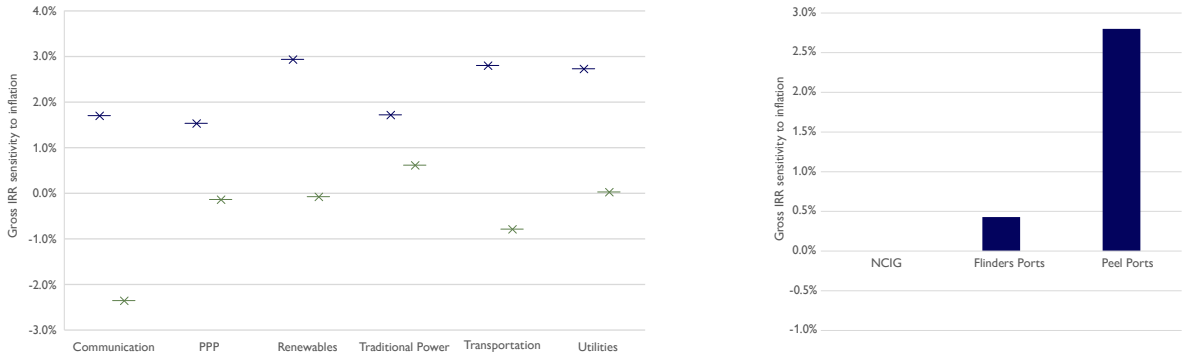


Source: Stafford Capital Partners

We performed an additional analysis at a sector level to understand if the dynamics around inflation are uniform. Once again, on average, any of the sectors offered a min. of 0.5% inflation protection, but individual results were rather scattered within each sector. For example, transportation assets (Figure 14) show the broadest range of results. This does not take us by surprise given the broad range of 18 assets in this group and is further explained through the example of three ports that SISF II has invested. The first port is NCIG, an Australian port with long term take-or-pay agreements but revenues to our investment mostly come from non-indexed subordinated debt, that offers no protection against inflation. The second one is Flinders Ports a Southern Australian port operator, with limited contractual protection and limited explicit capacity to pass through inflation, that has less than 0.5% sensitivity. Finally, Peel Ports a strategic asset in UK with strong ability to pass through inflation to clients and substantial leverage that has a 2.5x inflation sensitivity.

The survey revealed for the entire SISF series portfolio of assets a 0.98% sensitivity to inflation meaning that for a 1% increase in inflation above the base case Gross IRR is also increased by 98 bps, which illustrates that SISF infrastructure program offers a strong protection against inflation surge.

Figure 14: SISF inflation sensitivity analysis



Source: Stafford Capital Partners

Inflation protection – key issues to consider

Overall, our asset level analysis has confirmed our views on the appeal of infrastructure investment as a source of inflation protection. We also see that within the broad range of infrastructure opportunities, core assets, with long-term debt profile and clearly defined contractual agreements, offer the strongest protections. Their indexation to inflation typically tend to perform better in an inflationary environment. We also know that during periods of increasing inflation, being fully invested is critical to sustaining returns.

However, there are no shortcuts to understanding inflation sensitivity for individual assets. While we have identified some basic mechanisms across types of infrastructure assets, each asset is highly dependent on offtake contract terms, exposure to various commodities and debt structures and geographies. As ever, diversification is contributing positively to balance out the intricacies of each asset assisting in the formation of an overall well-protected portfolio.

Commitment to infrastructure secondaries

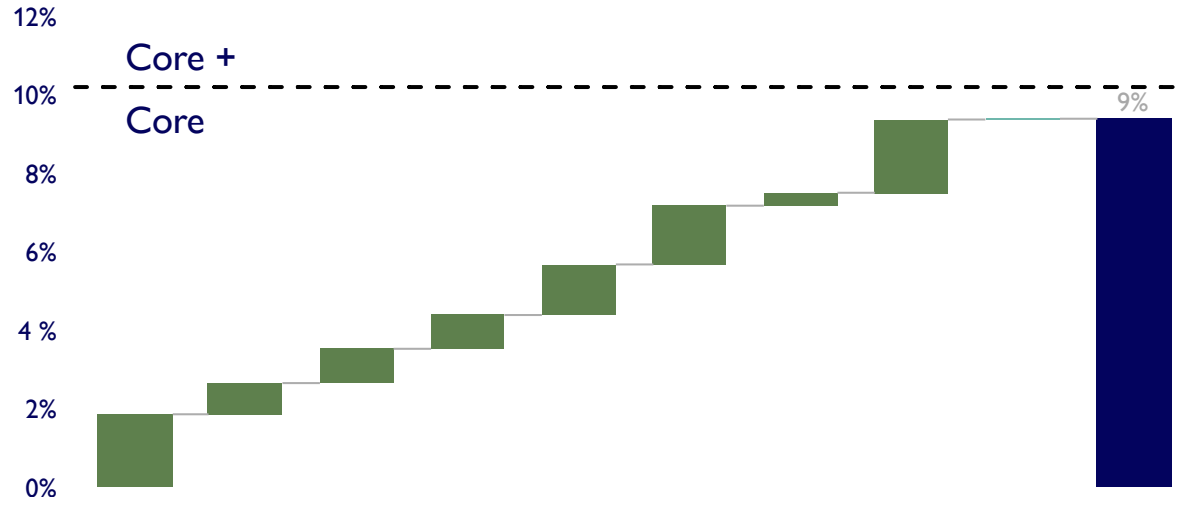
Since its first infrastructure secondaries fund was launched in 2012, Stafford has maintained a high level of conviction in core infrastructure secondaries as the preferred investment strategy in this sector. In the present investment climate where a number of asset classes face volatility from rising inflation and interest rates, we remain bullish on infrastructure and secondaries in particular.

Infrastructure secondaries have resilience to rising rates and inflation as, in most cases

- The cash flows of the underlying assets are inflation protected
- The purchase price of assets in secondaries transactions reflects current rates and inflation expectations
- Secondary markets in general see increased volumes in periods of macro market volatility as investors adjust exposures.

Stafford Infrastructure's investment process begins with an analysis of a universe of funds and their underlying assets. We apply a nine-factor risk model to assess a discount rate each asset of an infrastructure fund, through which we can determine a fund's risk sensitivities to factors such as inflation. Figure 15 illustrates an example of this process. Stafford regards a discount rate of 10% as the borderline between a core or core+/value added investment. A DCF of 9% suggests a strong core infrastructure exposure. For risks such as inflation, we look specifically at the combination of specific assessment of factors including Counterparty, Contract, Revenue and Financing risks.

Figure 15: SISF IV Current Portfolio DCF Rate



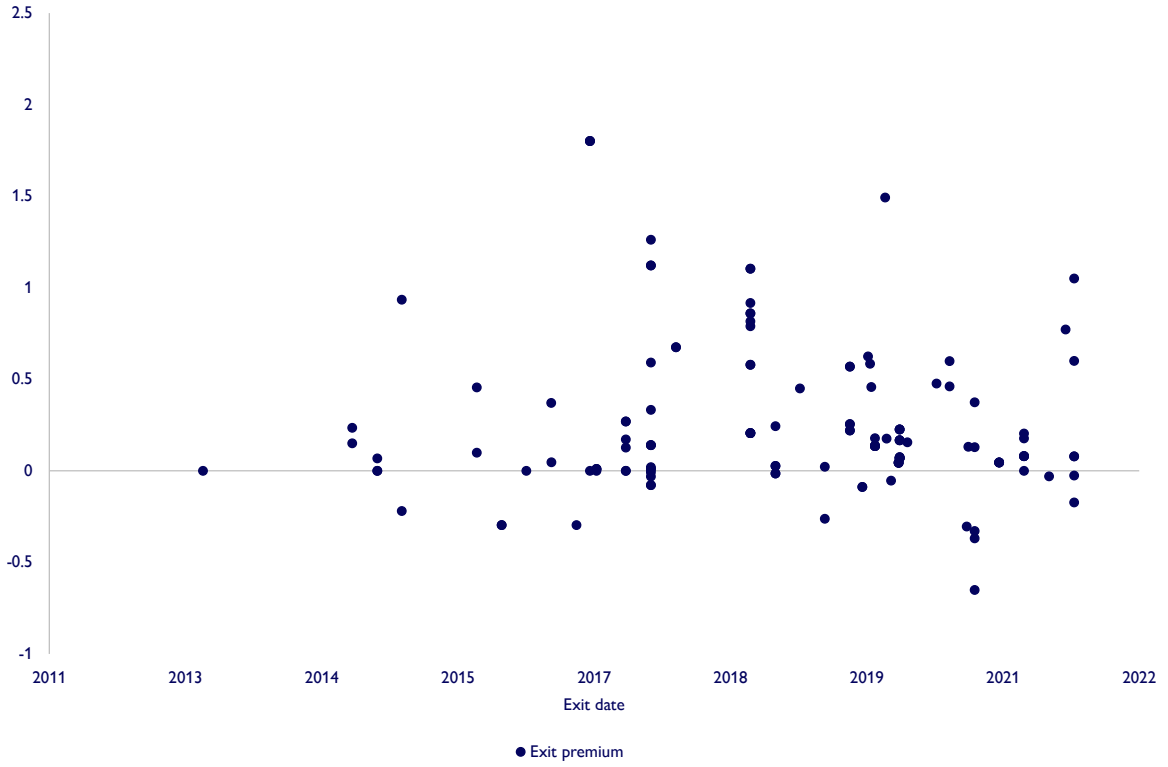
Source: Stafford Capital Partners

These risk scores form the basis of our portfolio construction models. We regularly test these scores both through peer asset comparisons and through broader surveys with our managers. The above inflation survey focused in inflation sensitivity is our most recent example and follows a prior survey of all our managers in 2020 looking at potential changes in the context of the arrival of COVID.

In addition to the inflation specific benefits as mentioned above, investors in secondaries funds enjoy additional advantages. These include the absence of J-curve, a high level of asset visibility, important both at a transaction specific and portfolio construction level, and an externally valued portfolio. However, rising inflation presents one specific downside risk to all asset classes; the potential for multiple compression as funds seek to exit assets through

either a GP-led transaction, trade sale, or IPO. We have tracked trends in asset realizations closely since the inception of the SISF strategies and have not seen evidence of multiple compression.

Figure 16: SISF Funds: Exit Premia versus last 12-month NAV



The above chart illustrates the demand for core infrastructure assets in recent years. These are the exits seen in the infrastructure funds in which Stafford has invested. Across these exits we have seen an average realized premium of 24% relative to the reported NAV 12 months prior to the sale.

While some multiple compression may be seen particularly for infrastructure assets defined as Opportunistic, our expectation is that premiums at these levels will continue in the medium term. We expect this will be driven by continued asset allocation to infrastructure's defensive characteristics including strong inflation protection. In 2021, new primary fund raising reached another record level at USD123 billion, further increasing the estimated level of dry powder to USD282 billion. [8]

[8] Data as of Feb-2022; source: Preqin, Infrastructure Investor, Stafford