Markit iBoxx infrastructure bond indices - measuring an emerging asset class

Investment Grade USD, EUR, GBP and USD High Yield

February 2017

The evolving infrastructure debt market

Infrastructure is an important and growing asset class unto itself. Indispensable to modern living there is a global need for greater spending on infrastructure to meet the demands of the world's population.

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$1 trillion of global infrastructure is needed. Estimates differ, though by any account the sums needed are immense. The World Bank's Global Infrastructure Facility estimated that roughly $1 trillion of global infrastructure spending is needed each year for the foreseeable future. The latest 2013 Report Card for America's Infrastructure, published by the American Society of Civil Engineers, projects that approximately $3.6 trillion in infrastructure investment will be needed by 2020 just in the United States.

Infrastructure assets offer essential services to society and provide the network by which such services are rendered. Such networks include telecommunication towers that enable rapid communication, railroads, airports, highways and ports that connect us all and facilitate transportation, fuel pipelines, gas distributors and electrical firms that feed energy to where it's required, as well as the means by which we receive clean water and safely dispose of hazardous waste.

With constrained government budgets facing challenges on spending requirements, more and more infrastructure funding is coming from the private sector and more will be required to meet spending needs. Governments are increasingly willing to offer long-term contracts and grant monopolistic privileges to those private firms willing to support this space. New state initiatives, such as the Global Infrastructure Hub that was initiated by world leaders from the G20, are working to connect public and private market participants to encourage this.

Private market infrastructure investments have traditionally been funded by banks, however with increasing capital regulations forcing banks to de-lever their balance sheets, other types of private market investors have begun to fill the void. The large increase in Assets Under Management ("AUM") invested in infrastructure funds over the last few years marks this growing trend.

Infrastructure debt - the safer choice

Investment in infrastructure comes in many forms, allowing for infrastructure investors to access the market via the most appropriate instrument for their investor type. Governments and municipalities invest in infrastructure, either directly or through partnership with the private sector.

In the US, the government issues public and private debt to raise financing. Such debt usually serves to bridge their deficit gap and goes towards financing specific infrastructure projects (e.g. a new highway) or to finance a public agency that is responsible for operating certain infrastructure (e.g. a transportation authority such as New York Port Authority). In Europe, governments tend to invest in infrastructure through Public-Private Partnerships ("PPPs"), where the government looks to partner with the private sector in financing infrastructure projects.

Private companies also invest in and operate infrastructure. These firms raise capital through both equity and debt issuance with financing occurring at the company level rather than being project specific.

On the debt side, these firms can issue public or private debt, as well as issue debt tied to specific projects or for general company financing. In reviewing infrastructure debt our focus is on debt that is issued by infrastructure companies in the public debt market.

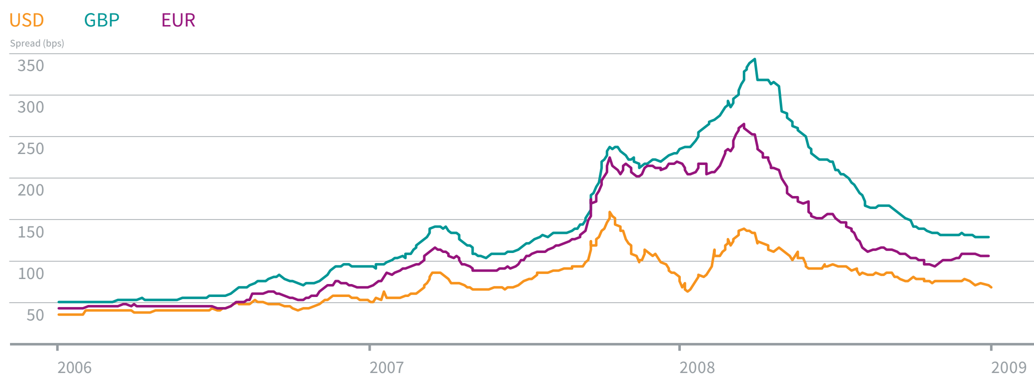
Infrastructure debt offers investors a degree of safety versus the broader corporate market. Investors in infrastructure debt securities have found that the debt offers features which are known to be the most advantageous aspects of fixed income. When deciding between debt and equity investments in general, debt is viewed to better preserve capital, yield more regular cash flows and offer less volatility in returns. Infrastructure firms typically have hard-backed assets that give debt investors something physical to claim against in the event of firm failure, and therefore tend to have higher recovery rates along with lower default rates than the broader corporate market. In this sense infrastructure debt has a secured-like quality regardless of subordination type.

Contracts on infrastructure assets/investments typically stretch longer-term horizons., Infrastructure firms tend to be monopolistic with high barriers to entry, and therefore maintain good pricing power. Since infrastructure firms provide for society's essential needs, the sector is less susceptible to the business cycle as their services are consistently required in both good times and bad, maintaining inelastic demand. Therefore the income these firms generate is supported by particularly steady, predictable cash flows.

This could be observed during the financial crisis, where the benchmark spread of infrastructure debt remained tighter than the corporate market (Chart 1). This was especially the case in European markets where the difference between the corporate and infrastructure benchmark spreads for GBP and EUR-denominated debt grew to roughly 350 and 250 basis points, respectively.

Infrastructure debt offers investors a degree of safety versus the broader corporate market.

Chart 1: Excess Corporate Index Spread over Infrastructure Index – Financial Crisis



Source: IHS Markit

Due to the regularity of revenues and the secured-like nature of infrastructure debt, volatility of returns as well as spreads at origination tends to be lower than for other corporate debt. The predictable cash flows are well-suited for liability-matching investors, and have therefore been sought out by pension funds and life insurance companies.

The need for infrastructure debt benchmarking

Traditionally, investors in infrastructure-related assets would use utilities benchmarks to measure their performance and investment universe.

Over time, infrastructure emerged as a unique asset class largely from within the utilities sector, though also including firms from other sectors that followed the 'distribution of life's essentials' theme of this new investment type. At first, infrastructure investors made use of the familiar utilities benchmarks as a proxy for the market, even though there were some important differences. However, as infrastructure investment grew, the shortcomings of this approach began to weigh.

In recent years there have been an increasing number of funds and indices specifically tracking infrastructure equity assets. While infrastructure debt investment has also grown in size and popularity, the lack of knowledge and information on the debt side presents a challenge, and is a contributing factor to why debt investment hasn't exploded in the same manner seen in the infrastructure equity market.

Bond indices tracking infrastructure debt investments help bridge the information gap in the market. Specifically, infrastructure debt indices will enable the market to (i) research and track performance of this asset class (ii) use this to compare performance and behavior against other asset classes (iii) perform asset allocation analysis to determine strategic allocations and risk-return analyses on sub-sets of the market. In general, well-defined benchmarks need to exist before institutional investors are sufficiently comfortable to investment in a given asset class. The potential resulting inflows would thereby allow a new market to truly grow.

The iBoxx Infrastructure Indices are a natural progression along the evolution of the infrastructure debt market.

The indices bridging the gap

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To fill this gap in knowledge, Markit has created infrastructure debt benchmarks that track the investment grade USD, EUR and GBP markets as well as the high yield USD market. The history for the investment grade indices is available from 2006, while history for the USD high yield index starts at the beginning of 2010.

The indices were created as sub-sets from existing Markit iBoxx corporate indices and use a targeted infrastructure classification system based on sector criteria to determine bond eligibility. We use our current iBoxx Sector classifications to either classify bonds as infrastructure or to flag bonds for additional review in order to determine their infrastructure status. For this classification, we rely on the most granular iBoxx Sector classification.

Generally, bonds with an iBoxx Sector equal to Electricity, Gas Distribution, Pipelines or Water are considered to be infrastructure. Bonds with an iBoxx Sector of Integrated Oil & Gas, Mobile Telecommunications, Multi-utilities, Railroads, Specialty REITs, Transportation Services, and Waste & Disposal Services are reviewed for material infrastructure exposure and may be classified as infrastructure based on the profile of the issuer.

The below table lists and defines the sectors included in the Markit iBoxx infrastructure indices. For those sectors that require additional screening, the definition describes infrastructure firms within those sectors.

Table 1: Infrastructure Sectors

iBoxx Sector Classification	Infrastructure Definition
Specialty REITs	The business behind the REIT owns and operates telecommunications towers and contracted fiber optic networks.
Railroads	Railroad companies that own the land or rights of way, track and terminals over which they operate, plus motive power and most rolling stock. Also any project bond related to long-term concessions in Light Rail Transit.
Transportation Services	Firms that own or operate airports, public or private highways and toll roads, and/or ports.
Waste & Disposal Services	Providers of pollution control and environmental services for the management, recovery and disposal of solid and hazardous waste materials. These firms typically own waste facilities, such as landfills and recycling centers, and have long-term contracts in place or are natural monopolies.
Integrated Oil & Gas	Companies that transmit, store, and/or distribute oil and gas. For firms involved with oil and gas, significant E&P activity would disqualify the firm from infrastructure consideration.
Pipelines	Firms that operate pipelines for the transport of fuel, such as oil and gas.
Mobile Telecommunications	The business owns and operates telecommunications towers and contracted fiber optic networks (would exclude mobile carrier firms).
Electricity	Companies that generate and/or distribute electricity.
Gas Distribution	Firms that operate distribution of gas to end users.
Multi-utilities	Firms with substantial ownership and operations in more than one infrastructure utility business.
Water	Firms that deliver water to end users or that treat water via water treatment plants.

Source: IHS Markit

The sector breakdown of the Markit iBoxx infrastructure indices as of June 30th, 2016 can be seen in Table 2 below. Unsurprisingly, the greatest exposure across these indices is to the Electricity sector, which is near 40% across markets. Within the US, Pipelines comprise roughly a third of the market, while being virtually non-existent in Europe.

Table 2: Sector breakdown (as of September 30th, 2016)

Sector	EUR	GBP	USD	USD HY
Electricity	45.66%	36.49%	42.16%	38.93%
Multi-utilities	17.57%	18.27%	4.55%	0.00%
Transportation Services	16.36%	13.05%	3.39%	0.00%
Gas Distribution	12.89%	10.94%	4.94%	0.00%
Water	4.68%	20.23%	0.56%	0.00%
Pipelines	1.05%	1.02%	27.01%	36.27%
Mobile Telecommunications	1.26%	0.00%	4.15%	2.42%
Integrated Oil & Gas	0.52%	0.00%	2.20%	19.62%
Railroads	0.00%	0.00%	9.14%	1.16%
Waste & Disposal Services	0.00%	0.00%	1.89%	1.60%

Source: IHS Markit

In order to examine credit risk versus the broader corporate market, we can look at spread volatility of the infrastructure indices versus the corporate indices of which they are a subset. Looking at daily spread volatility since the infrastructure indices' inception, infrastructure debt has registered significantly less volatility versus the broader corporate market. The exception to this was in the USD HY market, where USD HY infrastructure debt registered greater volatility than the USD HY corporate market due to greater exposure to Oil and Gas firms.

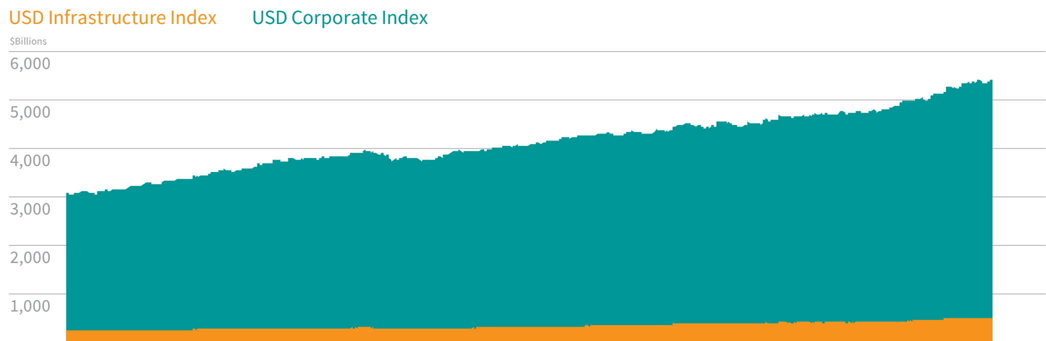
Table 3: Daily Spread Volatility (as of September 30th, 2016)

Market	Infrastructure Index	Corporate Index	Difference
USD	73.39	91.08	-17.69
GBP	45.46	98.89	-53.43
EUR	52.98	91.07	-38.09
USD HY	153.72	114.01	39.71

Source: IHS Markit

While the market for infrastructure debt is set to grow, significant growth has already been underway, most notably in the GBP and USD IG markets. Over the five year period ending September 30th 2016, the market value of index-qualifying GBP-denominated infrastructure debt grew by 109.29% to £104.09 billion, far outpacing the 33.66% market value growth for the debt in the Markit iBoxx GBP Corporate Index.

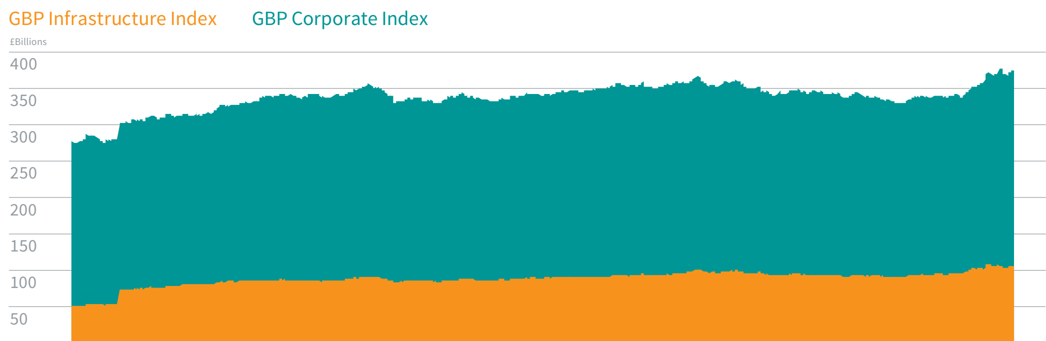
Chart 2: GBP infrastructure market value



Source: IHS Markit

Over this period USD-denominated infrastructure debt grew by 110.28% to $501.11 billion, just over 34% more than the USD Corporate Index's market value increased.

Chart 3: USD infrastructure market value



Source: IHS Markit

During the same period the market value of EUR-denominated infrastructure grew in lockstep with the EUR corporate market (35.89% versus 35.24%, respectively) to €252.618 billion. In the USD-denominated high yield market, infrastructure debt also grew significantly, however the 101.35% increase in market value was dwarfed by an overall USD HY market that grew by 144.23%. Part of this shortfall is explained by the large Oil and Gas concentration within the USD HY Infrastructure Index, particularly from exposure to Pipelines, which has averaged a weight of 33.82% over the period.
Over the five year period ending September 30th 2016, investing in infrastructure debt returned more than investment in the broader corporate market, most notably in the USD HY and EUR markets.

Table 4: Annualized five year total returns (as of September 30th, 2016)

Market	Infrastructure Index	Corporate Index	Annualized Return Advantage
USD	5.42%	5.18%	0.24%
USD HY	8.40%	7.57%	0.83%
GBP	9.64%	9.50%	0.14%
EUR	6.69%	6.05%	0.63%

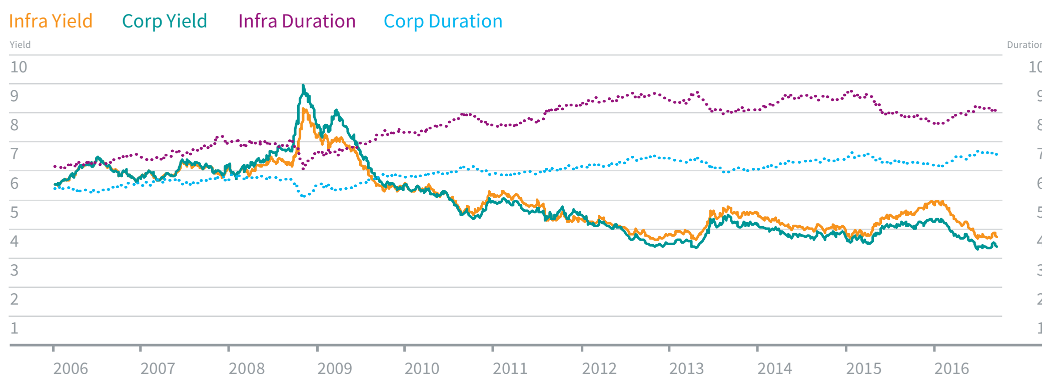
Some of this outperformance is likely explained by the higher duration of the infrastructure indices versus the overall corporate market during a period of decreasing rates. Infrastructure firms favour longer duration issuance given the long-term nature of their business contracts (Table 5). This long duration exposure coupled with low credit cycle risk matches well with the long-term liabilities of life insurers and pension funds.

Table 5: Portfolio Duration (as of September 30th, 2016)

Market	Infrastructure Index	Corporate Index	Difference
USD	8.36	6.79	1.58
USD HY	4.27	3.71	0.56
GBP	10.26	8.57	1.69
EUR	5.47	5.28	0.19

This duration advantage is increasing in the US market while yields have been moving in lockstep with the broader corporate market (Chart 4).

Chart 4: USD Annual Yield and Modified Duration



However, infrastructure denominated in GBP has seen this advantage narrow while the duration of EUR-denominated infrastructure debt has converged with the EUR corporate market (Charts 5 and 6).

Chart 5: GBP Annual Yield and Modified Duration

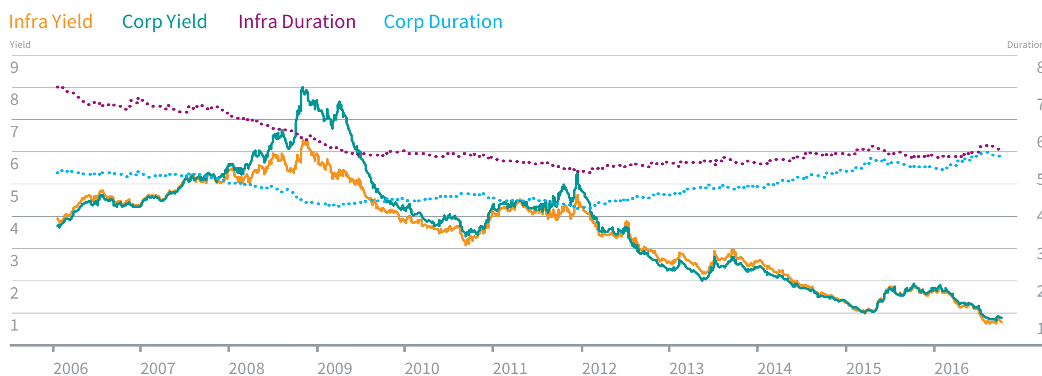
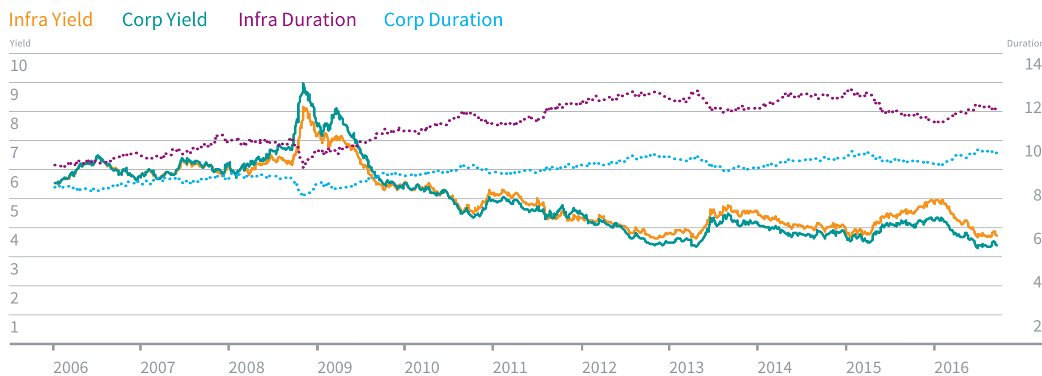


Chart 6: EUR Annual Yield and Modified Duration



Conclusion

Infrastructure as an asset class is likely to continue growing quickly. In the US alone, both major political parties promise fiscal measures to ramp up spending in the space. Though governments acknowledge the need for cooperation with the private market to finance and operate the critical infrastructure of the global economy to meet the considerable spending need.

Infrastructure debt offers investors a degree of safety versus the broader corporate market. Infrastructure firms have real assets behind their businesses and have stable cash flows stemming from the typically long-term nature of their contractual agreements. Their long-term contracts lead to infrastructure firms favouring longer-term financing, which makes infrastructure debt a good choice for asset liability managers looking for a margin of safety as well as longer term exposure to match their liability schedules.

With the Markit iBoxx Infrastructure Indices, the market for infrastructure debt has a new tool that lends to the transparency and measurement of the market. The targeted classification system used to define infrastructure offers a sector definition relevant to infrastructure investors. With a dedicated benchmark, it will be easier for infrastructure debt managers to more accurately benchmark their performance, perform market research and gauge market risk. Broad market investors will also benefit from a more specific tool with which to examine this segment of the market as it grows and becomes more important to distinguish as its own asset class.

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