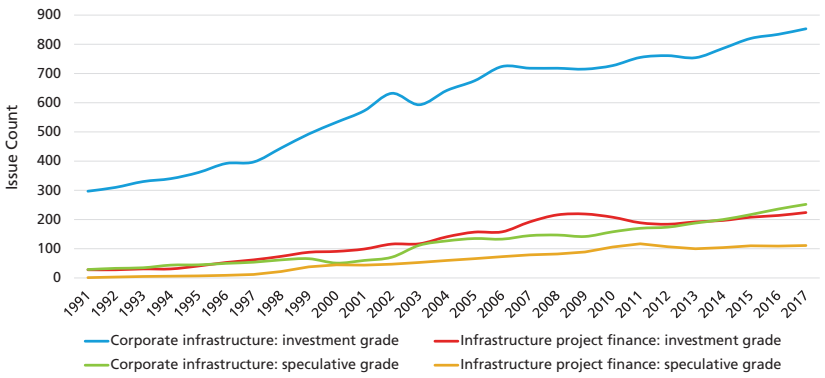
How has infrastructure really fared over time?

By Mar **Beltran**

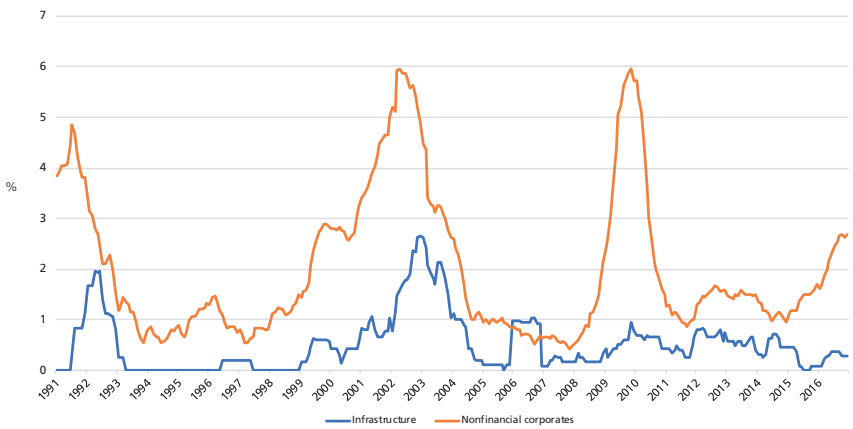
A generation of ratings data offers a fascinating glimpse of comparative default trends between listed infrastructure and other sectors.

Chart 1: Ratings growth over time



Source: S&P Global Fixed Income Research

Chart 2: Trailing 12-month default rates



"You have to know the past to understand the present," said famed astronomer Carl Sagan. He could have been talking about rated infrastructure. To assess the course of the sector's evolution, S&P Global Ratings has conducted its most far-reaching analysis of credit quality, defaults and recoveries yet of its rated infrastructure portfolio of credits – stretching back over the past quarter century.

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Chart 3: Transition rates and average change in credit quality

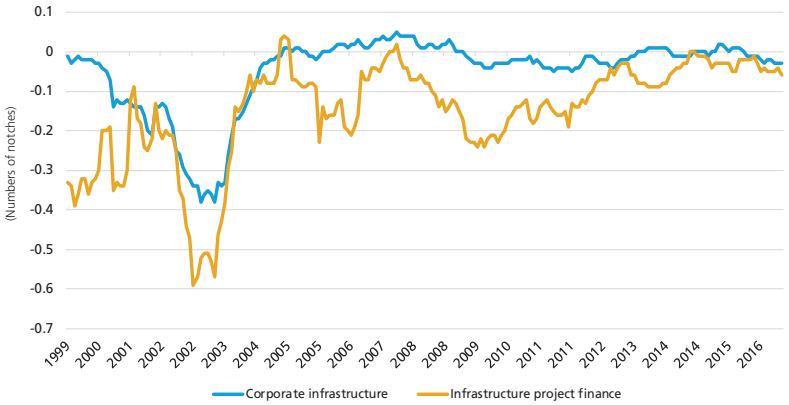
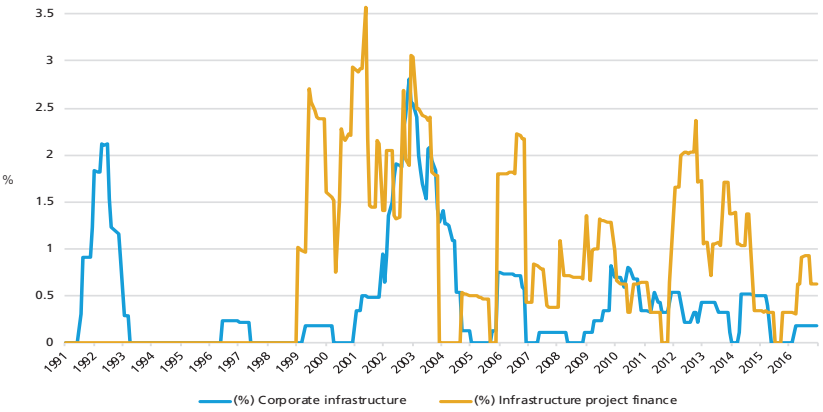


Chart 4: Infrastructure corporate and project finance trailing 12-month default rates



The study's clearest finding? Expansion. Rated infrastructure worldwide has grown, virtually uninterrupted, by a factor of three over the past two decades. Despite patches of weaker growth, both project finance and infrastructure corporates have attracted ever more lending. In 1991, the number of debt issuances in S&P's cohort of rated corporate and project finance infrastructure stood at 355; by the end of 2016, it had grown to 1,440 (see Chart 1).

Dodging the Financial Crisis

Another notable finding that emerged from the study was infrastructure's resilience. Over the past quarter century the sector has predominantly maintained lower peak default rates, greater ratings stability and lower ratings volatility than those firms chiefly engaged in the production of goods, referred to as non-financial corporates (NFCs). As is clear from Chart 2, the sole exception to this trend over the period of the study was the few months from December 2005 to November 2006 – a blip as a result of the bankruptcy of Texan generator Calpine Corporation, which covered nine defaulting instruments in our data-set.

The sector has predominantly maintained lower peak default rates, greater ratings stability and lower ratings volatility than non-financial corporates.

Infrastructure has also enjoyed generally higher recovery prospects than NFCs.

Even accounting for the worst-case scenarios, approximately 52% of infrastructure instruments have a recovery rate of 80% or higher – compared with 39% for NFCs. Among the characteristics of infrastructure assets that support this higher recovery rate are; essential assets, limited ability to raise debt or availability-based payments and long-term offtake contracts. Conversely, the projects with the lowest recoveries typically either exhibited high market risk or encountered technology issues.

Such has been infrastructure's resilience that the sector emerged from the most recent (2008) crisis relatively intact. During the crisis, not only were defaults and downgrades fewer in the infrastructure sector, but they were also lower in severity than they were for NFCs; the monthly peak default rate remained below 1%, as opposed to just under 6% for NFCs.

Credit quality fared better over the course of the crisis, too. At the end of 2006, for instance, 47% of NFCs had been rated investment grade; by the end of 2016, this share had fallen to 40%. While a decline in the proportion of investment-grade ratings on infrastructure credits was also noted over this timeframe, it was much more muted: to 75% in 2016, from 80% a decade earlier.

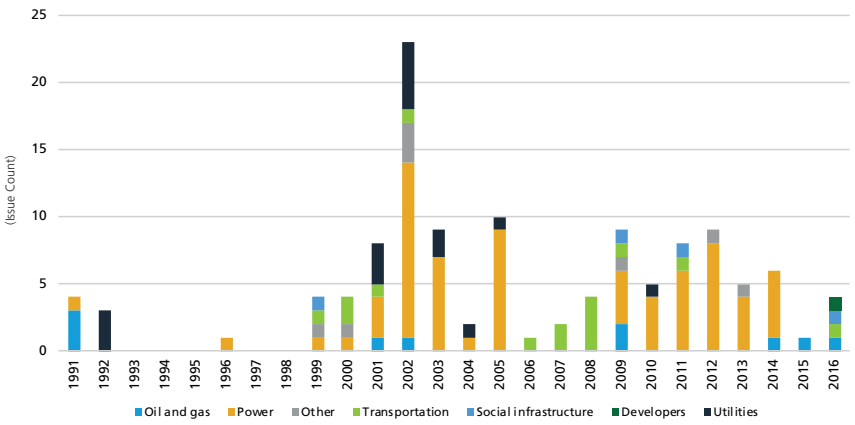
Chart 3. illustrates this relative stability in terms of net ratings changes, visualized by positive or negative notches (that is, ratings upgrades minus downgrades and defaults). As with defaults, downgrades within infrastructure were lower in number and severity during the financial crisis than they were for NFCs.

Digging deeper into the data

Infrastructure has naturally seen its share of ups and downs in 25 years, with times of widespread or sustained stress causing ratings changes. Economic challenges from 1990-1991 – a period of recession in the US and broad contraction across most industries – were reflected in some of the highest default rates seen in the study, as infrastructure took a course similar to that of NFCs. Projects again experienced serious defaults during the 2000-2003 cycle, which corresponded both with financial crisis in Argentina and a great degree of liberalization in the US energy sector. It was during this time that infrastructure saw its highest rate of credit degradation.

Of course, these periods of high ratings volatility were characterized by difficulties in the utilities, power, and oil & gas sectors. Yet, more recently, infrastructure has still seen fewer downgrades than NFCs – and that is despite the headwinds faced by the oil & gas sector since mid-2014, for example. >

Chart 5: Annual infrastructure and project finance defaults by sector



The number of speculative-grade (rated 'BB+' or lower) credits has tended to increase in such periods of economic stress, but it has also grown with increased investor acceptance of riskier assets or leverage levels.

The study shows most ratings volatility in infrastructure tends to be found in the project finance sub-sector, as opposed to among infrastructure corporates.

This trend has, in turn, helped project financing to become more prevalent since taking off in the US, UK, Canada and Australia at the turn of the century. Indeed, the study revealed that most ratings volatility in infrastructure tends to be found in the project finance sub-sector, as opposed to among infrastructure corporates – with default rates having generally reached higher levels, and remained elevated for longer stretches (see Chart 4).

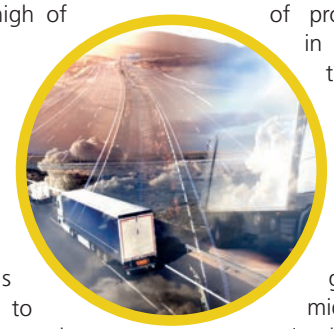
Nevertheless, default rates in both subsectors are still relatively low; over the past 15 years, in fact, they have been drifting lower. It was back in 2001 that the default rate for project finance peaked, at 3.6%. Infrastructure corporate defaults hit a high of 2.8% in 2002.

Sector-by-sector analysis

This peak default rate was driven, in large part, by high-risk sectors such as power; excluding power, this measure drops further, to just 1.5%. Having accounted for the majority of infrastructure defaults over the 1991-2016 period, at 55.7%, the power sub-sector is evidently over-represented by the purple in Chart 5. Compare this to social infrastructure which, despite its relatively high share of the rated project finance universe (33.1%), accounted for only 3.3% of all infrastructure defaults from 1991-2016.

The reason? It's because power markets are characterized by high market risks. Among them are low barriers to entry, merchant pricing risk, unregulated, aggressive leverage, and exposure to lower-than-forecast demand. Especially since 2009, merchant energy producers – above all, older baseload coal plants – have faced falling electricity prices, as gas-fired plants grew in number to take advantage of the US shale revolution. This is not to mention the role that renewable energy plays, as countries around the world spurred their uptake of green energy sources to meet emission-reduction targets.

Similar market risks (such as lower-than-forecast demand and aggressive leverage) led to an increased number of defaults within the transportation sector from 2006-2009. Then in the 2009-2012 period – following five years of non-stop positive net ratings changes – a number of project finance transactions in the Australian transportation sector heralded several downgrades, thanks in no small part to their inherent demand risk.



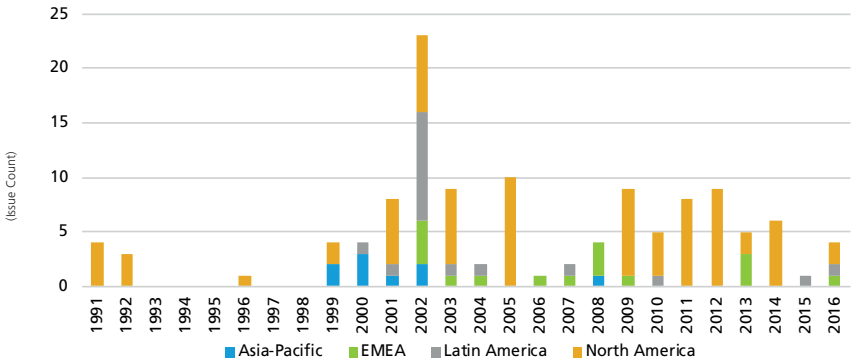
The oil & gas sector, meanwhile, has undergone significant stress since mid-2014, in the face of sustained falling commodity prices that have affected the cash-flow generation capacity of a variety of projects. All in all, the oil & gas sector accounted for about 40% of all non-financial corporate defaults in 2016. Although stress in the sector appears to have peaked, mostly thanks to the general stabilization of commodity prices, oil & gas still held a 26% share of defaults in 2017 – the largest share among the sectors.

Utilities, in contrast, have contributed much to the overall high credit quality of the infrastructure corporate sub-sector. 90.8% were rated investment grade at the end of 2016 – compare this with only 46.2% of power and 54% of oil & gas credits (see Table 1). 2016 was a year that otherwise saw infrastructure downgrades outnumber upgrades by a significant margin.

Table 1: Year-end 2016 infrastructure rating distribution by sector

(%)	Utilities	Oil and Gas	Power	Other	Transportation	Social Infrastructure
AAA	0.0%	0.0%	1.5%	6.7%	4.0%	0.0%
AA	4.4%	0.0%	0.5%	6.7%	8.0%	6.9%
A	39.8%	9.5%	7.0%	13.3%	19.4%	39.6%
BBB	46.6%	44.3%	37.2%	43.3%	46.8%	38.9%
BB	7.3%	25.8%	28.1%	23.3%	13.4%	12.5%
B	0.7%	17.0%	21.6%	6.7%	7.0%	2.1%
CCC/C	1.2%	3.4%	4.0%	0.0%	1.5%	0.0%

Chart 6: Annual infrastructure corporate and project finance defaults by region



Across the whole 1991-2016 period, utilities accounted for 13.1% of all defaults. This is, arguably, comparatively small given that the large number of utilities in the ratings universe which makes the sub-sector a disproportionate share in S&P's analysis.

The study also revealed that utilities tend to exhibit a greater rate of recovery from default, both within the infrastructure corporates segment, and within the whole infrastructure sector. Overall, 51.6% of the defaulted debt instruments from utilities recovered par or greater.

These characteristics support the very low industry risk for the regulated utilities sector – a unique assessment in the corporate sector.

Regulation appears to bring stability

There are several reasons for this – chief of which is the high proportion of regulated utilities. Providing essential services, there is often little or no practical alternative; considerable barriers to market entry effectively serve to create monopolies. The ability of issuers to increase leverage, meanwhile, is often limited by regulation or secured bond indenture. These characteristics support the very low industry risk for the regulated utilities sector – a unique assessment in the corporate sector.

Among other projects with higher recoveries, many tend to benefit from characteristics similar to those of regulated utilities. For instance, infrastructure project financings hold essential assets, have stable cash flows, and exhibit low industry risk. In many cases, such low industry risk may be supported by long-term offtake contracts, such as power purchase agreements or availability-based payments under a concession, operations and maintenance contracts, or fuel supply contracts.

Around the world in 80 defaults

Over the 25-year period, regional diversification was another noticeable development to emerge from S&P's study. Perhaps unsurprisingly, in 1991 North America held a 96% share of total credits – but this was down to 53% by the end of 2016. Rated issuance in Europe, the Middle East, and Africa, meanwhile, jumped from below 3% to 28% over the same period.

And what of defaults? The US exhibited the highest rate, with the North American region as a whole accounting for nearly 65% of the total (see Chart 6.) in the 25-year period. The region also accounted for 53% of total Infrastructure credits by end-2016 (from 96% in 1991).

Argentina was a notable outlier in this respect: while home to less than 1% of all ratings, it posted 8% of all defaults. More positively, 8% of defaults came from the UK, which held a 12% share of total ratings; Canada went further, accounting for 9% of ratings but just 2% of defaults.

Assessing the past quarter century of rated infrastructure has clearly taught us much. We will be watching closely as the universe continues to evolve over the next 25 years.

All graphs sourced by S&P Global Fixed Income Research. Published by Standard & Poor's Financial Services LLC.

S&P Global

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