MOODY'S ANALYTICS

SURVEY SUMMARY
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Author
Kevin Kelhoffer
+1.212.553.7252
Director, Risk and Finance Solutions
kevin.kelhoffer@moodys.com

About Moody's Analytics Data Alliance

The Moody's Analytics Data Alliance is one of the world's largest and most comprehensive data consortia covering Commercial & Industrial, Commercial Real Estate, Project & Infrastructure Finance, and Asset Finance. Built in partnership with over 120 leading global financial institutions, the Data Alliance database contains private firm financial statement, loan, default, and other key financial metrics.

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How Will COVID-19 Affect Transportation Projects?

Summary

Infrastructure plays a major role in our daily lives and COVID-19 is affecting our infrastructure, specifically transportation usage. With global recommendations for social distancing, fewer people are traveling for business or commuting to/from work and school. Airports, trains, subways, buses, and roads—which include bridges and tunnels—are less crowded. This is Part 1 of a two-part article tracking the credit performance of transportation project finance loans before and during COVID-19.

Moody's Analytics Data Alliance leads a Project Finance loan default and recovery data consortium that contains data from 1983 through 2019. The data was used to analyze the credit performance of the subindustries of Project Finance.

For the analysis we calculated historical cumulative default rates, using the Basel definition of default, for project finance bank loans from the data consortium to compare to Moody's Investors Service (MIS) corporate rated debt (see the Glossary for definitions). We also calculated recovery performance from the data consortium to compare to MIS Ultimate Recovery Database. Here are some key findings from this analysis:

» The cumulative default rates for infrastructure and transportation loans are consistent with low investment-grade corporate loans.

» Marginal default rates for infrastructure loans perform like A-rated debt by year 7 and transportation loans perform like A-rated debt by year 9.

» Ultimate recovery rates for infrastructure loans averaged 76.6% compared to 79.1% for the consortium dataset. The transportation loans averaged 83.0%, which are similar to the recoveries for senior secured corporate loans.

» Infrastructure loans default on average 5.1 years after origination compared to the data pool with an average of 4.2 years. Transportation defaulted on average 5.9 years after origination

Table of Contents

Overview

Our 2019 consortium data pool contains 9,332 projects with 2,706 infrastructure projects that include 1,222 transportation projects. 653 out of the 1,222 projects have loans that are outstanding with maturities after 2019. Those 653 outstanding loans will be the focus of Part 2 of these articles after we receive the 2020 data from our consortium members, which may contain project defaults caused by COVID-19.

Project finance is a low-default industry and even more so with infrastructure. However, recently, transportation experienced periods of higher defaults following the 2008 economic crisis and again in 2013 to 2015 with several underutilized Western European and North American toll roads and port defaults. 2019 was the first year since 2005 with no transportation defaults.

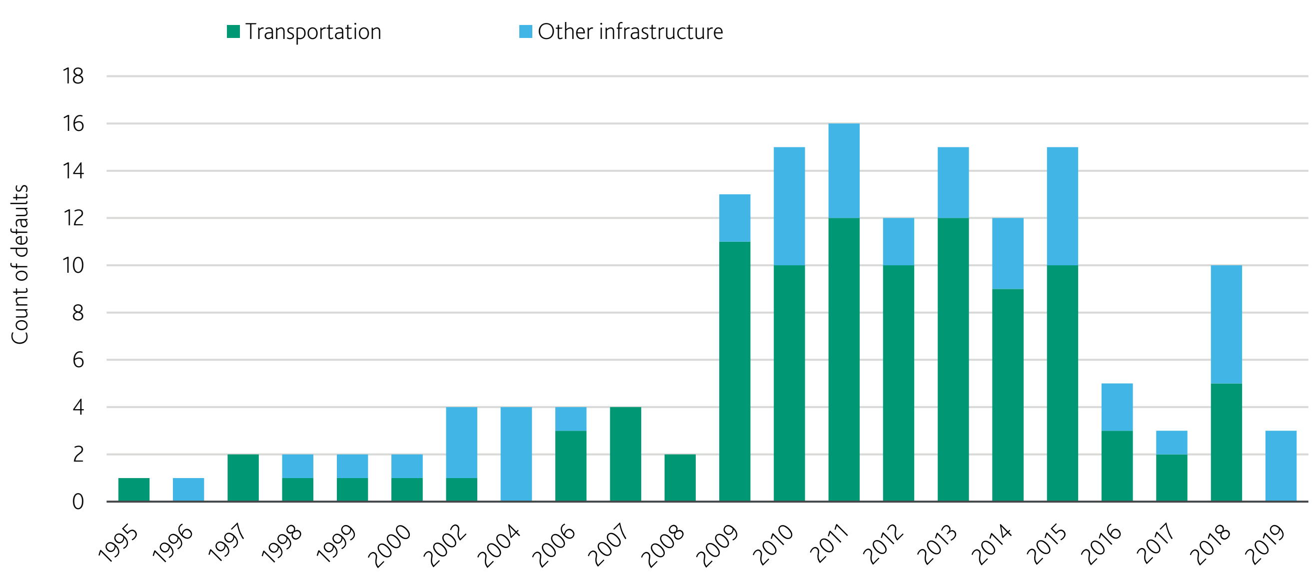
While people are working/schooling from home, transportation usage is down since the COVID-19 pandemic began. We would like to determine if the decreased usage from COVID-19 restrictions is directly correlated to potential new defaults during 2020. We also want to see how this affects the cumulative and marginal default rates. At the end of 2019, the 653 outstanding loans have an average of 6.7 years since origination. Approximately 15% of the projects are under construction, where usage is not measurable yet.

Project finance defaults are idiosyncratic but there are some periods of defaults that follow industry trends. We found more evidence of that in the power and oil & gas industries than with infrastructure. Also, infrastructure defaults have not been correlated to major pandemics such as SARS in 2002, the H1N1 swine flu in 2009–2010, and the Zika Virus epidemic from 2015 to the present day.

Infrastructure and transportation debt performance

Figure 1 compares the contribution of transportation defaults and other infrastructure defaults, by project count. Project loan defaults do not occur immediately after origination. Infrastructure loans default on average 5.1 years after origination, which is almost a full year longer than the overall data pool average of 4.2 years. Transportation loans defaulted on average 5.9 years after origination, which is more than 1.7 years longer than the 4.2 years after origination for infrastructure projects. This is significant because longer time to default translates into higher cumulative default rates and as mentioned, the weighted average time outstanding since origination on the 653 loans is 6.7 years. This suggests that most transportation defaults occur during operations and approximately 80% of the defaults were on operational projects.

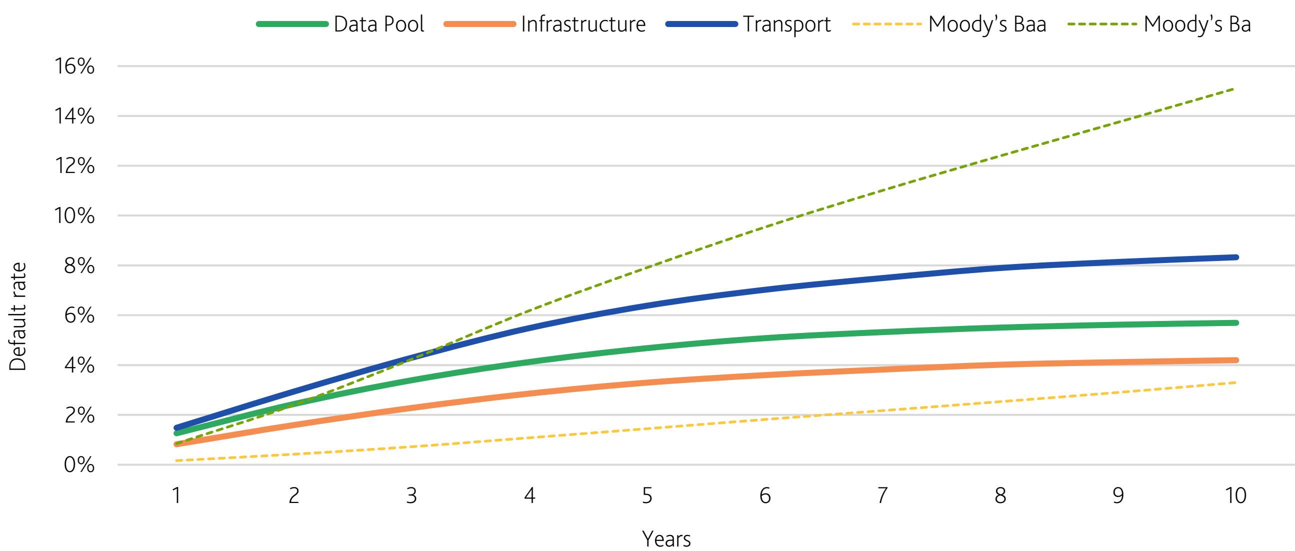
Figure 1 Count of transportation out of total defaults



Source: Moody's Analytics Data Alliance Project Finance Consortium

The 10-year cumulative default rate for the data pool of 9,332 loans with 611 defaults was 5.7% and for the 2,706 infrastructure loans with 147 defaults was 4.2%. The 1,222 transportation projects with 100 defaults have a 10-year cumulative default rate of 8.33%, which is higher than both the data pool and infrastructure. Figure 2 displays the cumulative default rates for the data pool, infrastructure, and transportation compared to MIS corporate rated debt.

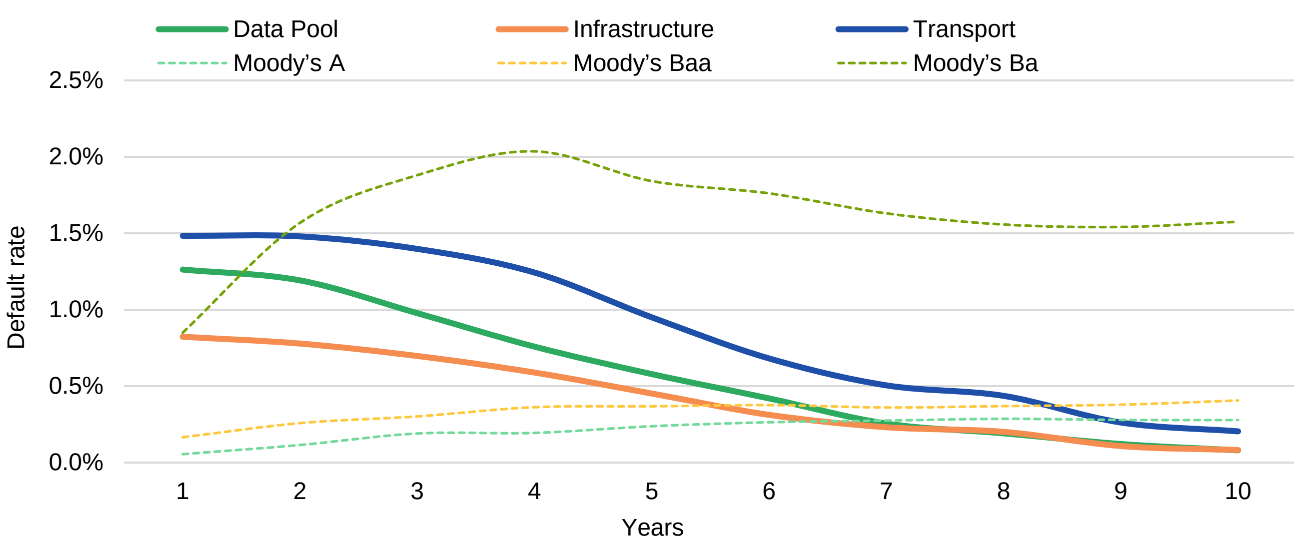
Figure 2 **Cumulative default rates of the data pool, infrastructure, and transportation compared to MIS rated corporates**



Source: Moody's Analytics Data Alliance Project Finance Consortium, Moody's Investors Service "Annual default study: Defaults will edge higher in 2020"

The cumulative default rates for the data pool, infrastructure, and transportation lie squarely between MIS corporate rated Ba and Baa-rated debt. Figure 2 illustrates how the project finance loan curves began to flatten out by year 7. The marginal annual default rates in Figure 3 show that the data pool and infrastructure loans perform similarly to mis A-rated debt by year 7, which is consistent with Figure 3, and transportation projects perform similarly to MIS A-rated debt by year 9. This figure also shows how the risk of default decreases over time for project finance loans, which is different than for corporate debt where risk continues to increase over time, although at decreasing rates.

Figure 3 **Marginal annual default rates**



Source: Moody's Analytics Data Alliance Project Finance Consortium, Moody's Investors Service "Annual default study: Defaults will edge higher in 2020"

Default severity is determined by the loan recovery. The overall average recovery for 306 project finance loans in the data pool that emerged from default is 79.1%, and the average recovery for 53 infrastructure projects was 76.6%. The 32 transportation loans had an average recovery of 78.8%, which is 0.3% lower than the data pool and 2.1% higher than overall infrastructure recoveries. The corporate loan data for all loans have an average recovery of 80.0% and senior secured loans average recovery was 85.2%. Interestingly, project finance loan recoveries have been increasing for the past three years with an average recovery of 100% in 2019; however, corporate loan recoveries were lower in 2019 at 70.2%[1]

Expected loss is the product of the probability of default (PD) and the loss given default (LGD). The overall data pool has a 10-year cumulative default rate of 5.70% with an average recovery of 79.1%, and the 10-year expected loss is 1.2%. For infrastructure, the 10-year cumulative default rate is 4.20% with an average recovery of 78.8%, and the 10-year expected loss was 1.0%. For transportation the 10-year cumulative default rate was 8.33% with an average recovery of 78.8%, and the 10-year expected loss was 1.8%. By comparison, the expected loss for all Baa loans was 0.7% and 3.0% for all Ba loans.

This shows us that notwithstanding the increases in infrastructure defaults between 2009 and 2015 shown in Figure 1, infrastructure loans perform better than the data pool of project finance loans. Transportation performance has a higher default rate than the data pool, and average recoveries are the same as the data pool. Expected loss for transportation projects is between the expected loss for MIS rated Ba and Baa-rated loans.

Project finance is a well-managed asset class. It is possible that although usage was down during 2020, the projects can withstand periods of reduced cash flow with enough cash available to service their debt. Project finance deals are highly structured and protected by financial covenants and offtake contracts offering protection to the lenders. Part 2 of this article will address our observations of the 2020 consortium data.

1 Moody's Investors Service "Annual default study: Defaults will edge higher in 2020."

Appendix: Glossary

Cumulative Default Rates (CDR)	Cumulative default rates are calculated from the weighted average marginal default rates (hazard rates) for all cohorts.
Default (Basel)	A default based on the Basel definition of default. We include below relevant extracts from the Basel Framework (paragraph 36.69 and 36.70): "A default is considered to have occurred, with regard to a particular obligor when either or both of the two following events have taken place. The bank considers that the obligor is unlikely to pay its credit obligations to the banking group in full, without recourse by the bank to actions such as realising security (if held). The obligor is past due more than 90 days on any material credit obligation to the banking group. Overdrafts will be considered as being past due once the customer has breached an advised limit or been advised of a limit smaller than current outstandings."
	"The elements to be taken as indications of unlikeliness to pay include: The bank puts the credit obligation on non-accrued status. The bank makes a charge-off or account-specific provision resulting from a significant perceived decline in credit quality subsequent to the bank taking on the exposure. The bank sells the credit obligation at a material credit-related economic loss. The bank consents to a distressed restructuring of the credit obligation. This is likely to result in a diminished financial obligation caused by the material forgiveness, or postponement, of principal, interest, or (where relevant) fees. The bank has filed for the obligor's bankruptcy or a similar order in respect of the obligor's credit obligation to the banking group. The obligor has sought or has been placed in bankruptcy or similar protection where this would avoid or delay repayment of the credit obligation to the banking group." This definition of default is the same as the one published by the Basel Committee on Banking Supervision in its previous Basel III and Basel II Frameworks.
Emergence from Default	For a loan that has defaulted, emergence from default is deemed to occur following any of the events set out below: » Repayment of overdue interest » Restructuring with no subsequent default » Restructuring with lender being taken out of the deal—for example, by repayment of the defaulted loan with no participation in a restructured debt facility » Material restructuring » Liquidation
Infrastructure	These comprise selected subindustries within Water, Waste, Transportation (Roads, Bridges, Tunnels, Rail, and Ports & Terminals); Media & Telecom (Media Distribution and Telecom); and Oil & Gas Refining and Power (Transmission and Distribution, Renewable and Non-Renewable Electricity Generation).
Marginal Default Rates	The marginal default rate (hazard rate) is the ratio of the number of project defaults in a specific time period divided by the number of projects exposed to the risk of default at the beginning of that time period. For the purposes of this study, marginal default rates have been calculated on a monthly basis.
Moody's Analytics Data Alliance – Project Finance Consortium	The project finance data consortium is composed of leading project finance lenders and investors that provide historical portfolio and credit loss data to Moody's Analytics, for the purpose of creating an aggregate data set.
Moody's Investors Service Annual Corporate Default Study	Annual default study: Defaults will edge higher in 2020 https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_1206734
Moody's Investors Service Annual Project Finance Default and Recovery Study	Default and recovery rates for project finance bank loans, 1983–2019 https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_1216692

Moody's Investors Service Default & Recovery Analytics Database	Moody's Investors Service proprietary database, which contains information on nearly 5,700 defaulted loans and bonds taken from nearly 1,200 non-financial US corporations that initially defaulted since 1987. Please see Moody's Default & Recovery Analytics.
Project Finance	The following is the Basel definition of project finance: **Definition of corporate exposure** 30.07 In general, a corporate exposure is defined as a debt obligation of a corporation, partnership, or proprietorship. Banks are permitted to distinguish separately exposures to small or medium-sized entities (SMEs), as defined in CRE31.9. 30.08 Within the corporate asset class, five sub-classes of specialized lending (SL) are identified. Such lending possesses all the following characteristics, either in legal form or economic substance: 1. The exposure is typically to an entity (often a special purpose entity, or SPE) which was created specifically to finance and/or operate physical assets; 2. The borrowing entity has little or no other material assets or activities, and therefore little or no independent capacity to repay the obligation, apart from the income that it receives from the asset(s) being financed; 3. The terms of the obligation give the lender a substantial degree of control over the asset(s) and the income that it generates; and 4. As a result of the preceding factors, the primary source of repayment of the obligation is the income generated by the asset(s), rather than the independent capacity of a broader commercial enterprise. The five sub-classes of SL are project finance (PF), object finance (OF), commodities finance (CF), income-producing real estate (IPRE), and high-volatility commercial real estate (HVCRE). Each of the sub-classes is defined in the following section. **Project finance** 30.10 PF is a method of funding in which the lender looks primarily to the revenues generated by a single project, both as the source of repayment and as security for the exposure. This type of financing is usually for large, complex, and expensive installations. This might include, for example, power plants, chemical processing plants, mines, transportation infrastructure, environment, and telecommunications infrastructure. Project finance may take the form of financing of the construction of a new capital installation, or refinancing of an existing installation, with or without improvements. 30.11 In such transactions, the lender is usually paid solely or almost exclusively out of the money generated by the contracts for the facility's output. This includes the electricity sold by a power plant. The borrower is usually an SPE that is not permitted to perform any function other than developing, owning, and operating the installation. The consequence is that repayment depends primarily on the project's cash flow and on the collateral value of the project's assets. In contrast, if repayment of the exposure depends primarily on a well-established, diversified, credit-worthy, contractually obligated end user for repayment, it is considered a secured exposure to that end user. The Basel definition of project finance is the same one that the Basel Committee on Banking Supervision previously published.
Transportation	Transportation project loans for the construction and maintenance of roads, bridges, tunnels, rail services, and ports & terminals.
Ultimate Recovery	A default (Basel) for which recoveries have been realized following emergence from default, as defined in the preceding section.