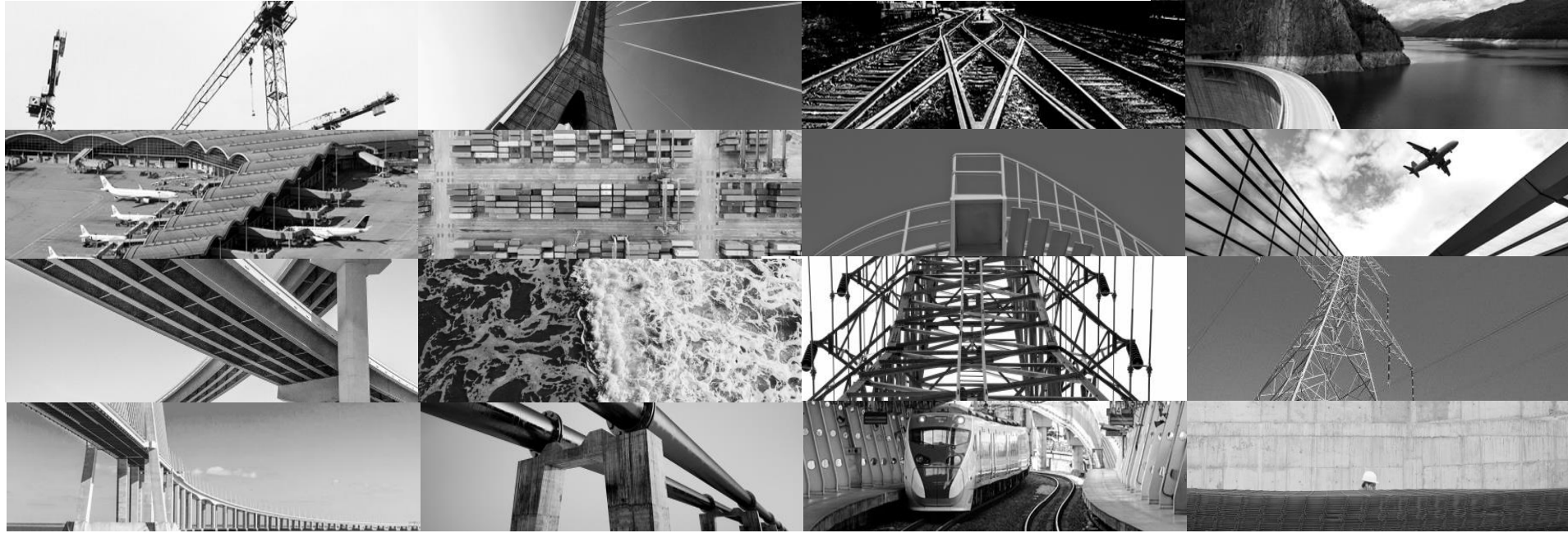


# Infrastructure as an Asset Class



## S&P TRIS Infrastructure Seminar

20 November 2018, Bangkok

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# Agenda

**1** Infrastructure as an Asset Class

**2** Default Performance

**3** Recovery Performance



1





## Infrastructure as an Asset Class

# S&P Global Infrastructure Practice



# Project Finance Industry and Sub-Sector Coverage

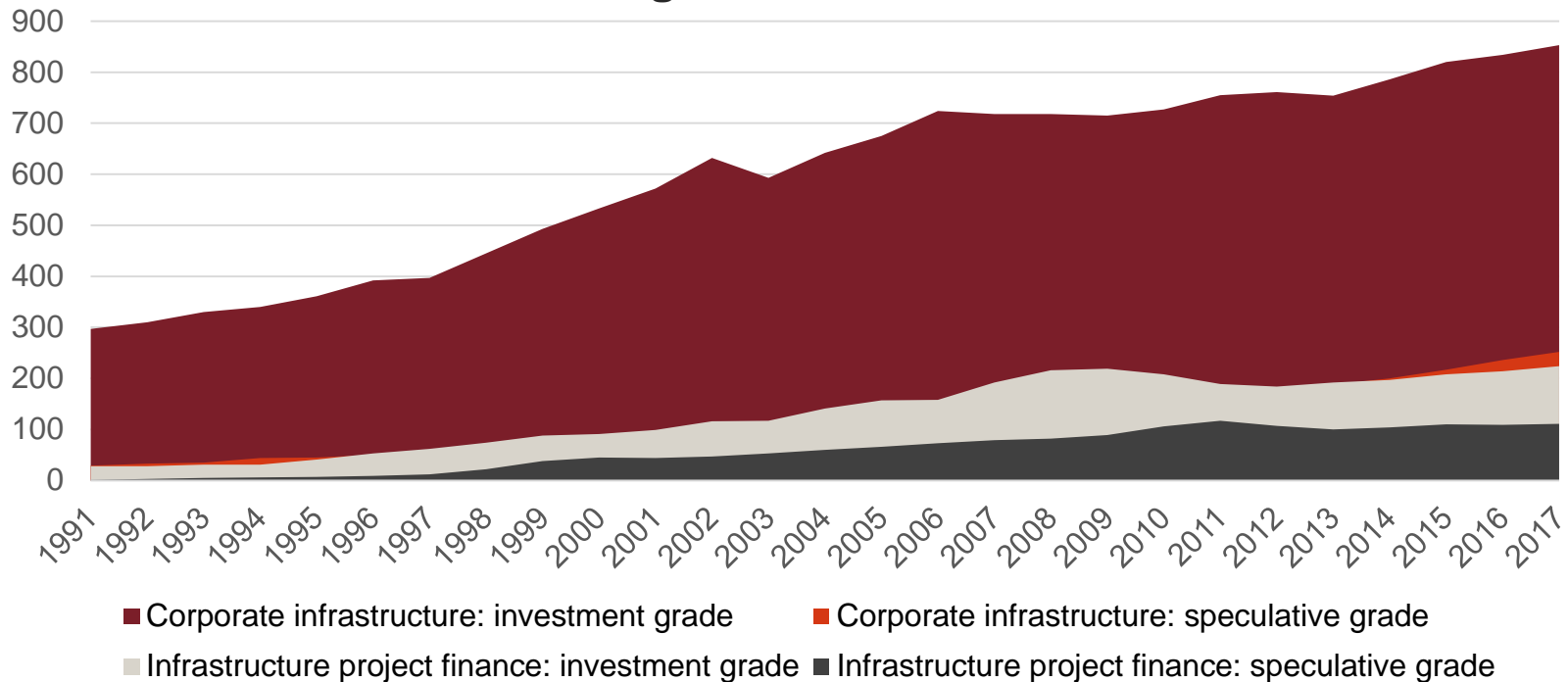
S&P Global Ratings has been rating infrastructure projects for over 25 years across all infrastructure sectors

 ENERGY	 POWER	 TRANSPORT	 SOCIAL	 RENEWABLES
Midstream	Merchant Generation	Road Tolls & Roads Managed	Education	Energy Efficiency
Pipeline	Yieldcos	Roads Availability	Sports Facilities , Hotels, & other Venues	Diversified Renewables
Storage/ Vessel	Transmission	Roads Managed Volume & Managed Lanes	Healthcare	Solar
LNG Export Facilities	Contracted Generation	Rail	Housing/Barracks	Wind
Refinery		Airports	Judicial (Courthouse/ Prison)	Biomass
		Ports	Other	Hydroelectric

# Rated Infrastructure Deals Has Steadily Increased

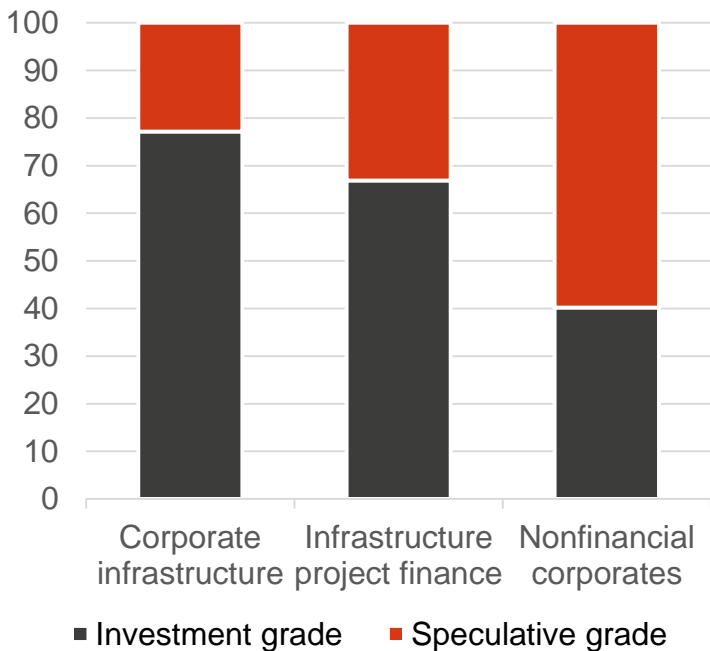
- Between 1991 and 2016, S&P Global Ratings' rated Corporate and Project Finance infrastructure population grew threefold – from 355 issues to 1,440
- About 75% of active 2016 infrastructure credits were rated investment grade, down from 80% 10 years earlier

## Ratings Growth Over Time



# The Infrastructure Sector is Overwhelmingly Investment Grade

At the end of 2016, approximately two-thirds of active credits were rated Investment Grade (68% of Infrastructure Corporate ratings and 60% of Project Finance ratings)



**Year-End 2016 Infrastructure Rating Distributions By Sector**

%	Utilities	Oil and gas	Power	Other	Transportation	Social Infra
<b>AAA</b>	0	0	1.5	6.7	4	0
<b>AA</b>	4.4	0	0.5	6.7	8	6.9
<b>A</b>	39.8	9.5	7	13.3	19.4	39.6
<b>BBB</b>	46.6	44.3	37.2	43.3	46.8	38.9
<b>BB</b>	7.3	25.8	28.1	23.3	13.4	12.5
<b>B</b>	0.7	17	21.6	6.7	7	2.1
<b>CCC/CC</b>	1.2	3.4	4	0	1,5	0



2

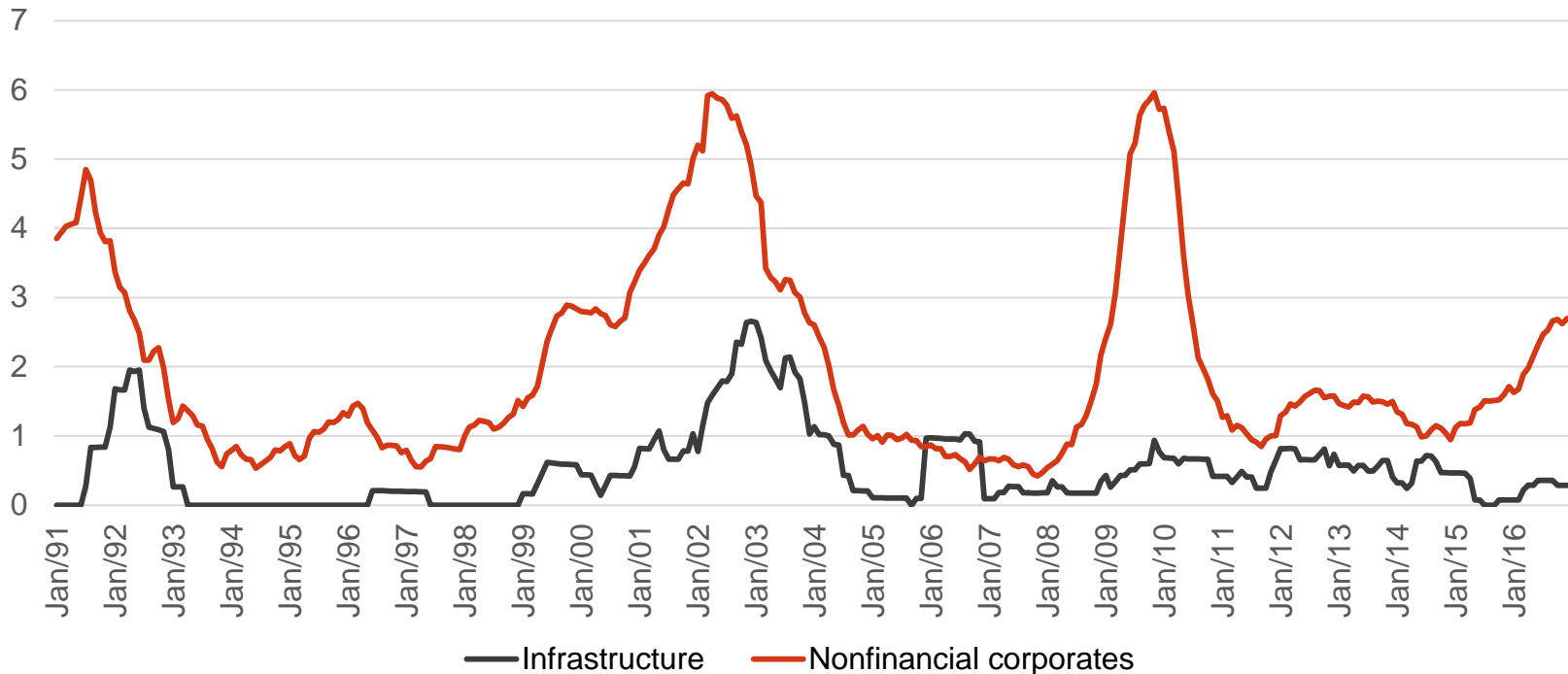
## Default Performance



# Infrastructure Navigated the Global Financial Crisis Relatively Unscathed

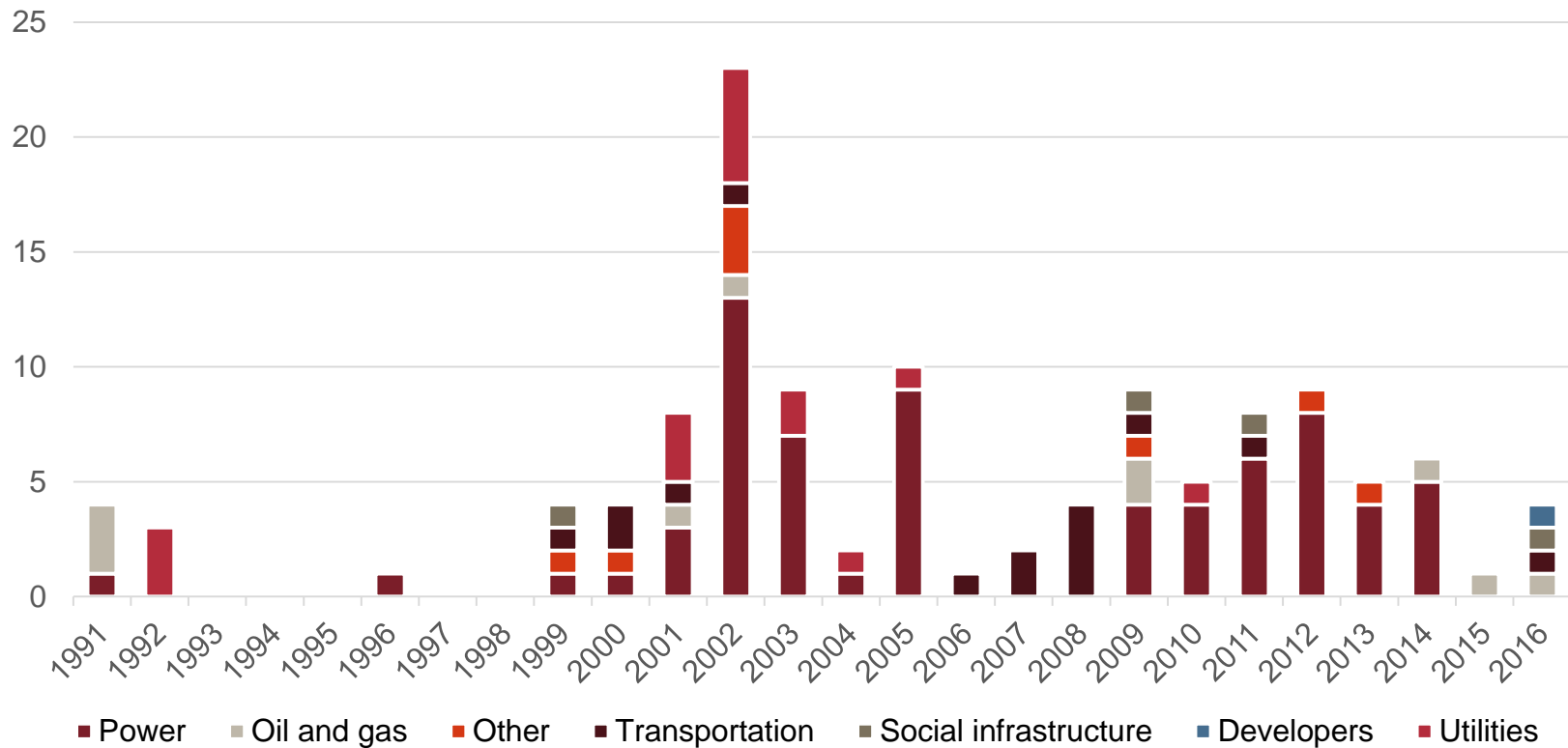
- The Infrastructure default rate was under 1% compared to under 6% for nonfinancial corporates
- Average time to default for infrastructure project finance was 6.2 years

## Trailing 12-Month Default Rates (%)



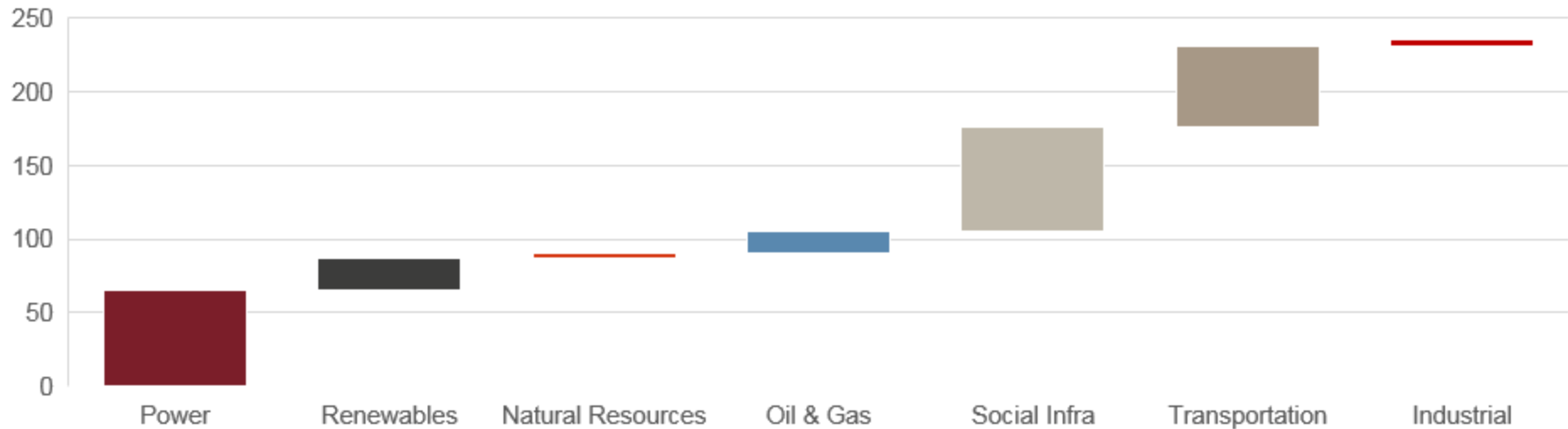
# Default Rates Differ Per Sector in Infrastructure

- By subsector, power accounted for the majority of infrastructure defaults
- Power is characterized by high market risks (low barriers to entry; merchant pricing risk; unregulated, aggressive leverage; and lower-than-forecast demand). Similar market risks led to the increased number of defaults within transportation in 2006-09



# Project Finance – Sector Distribution

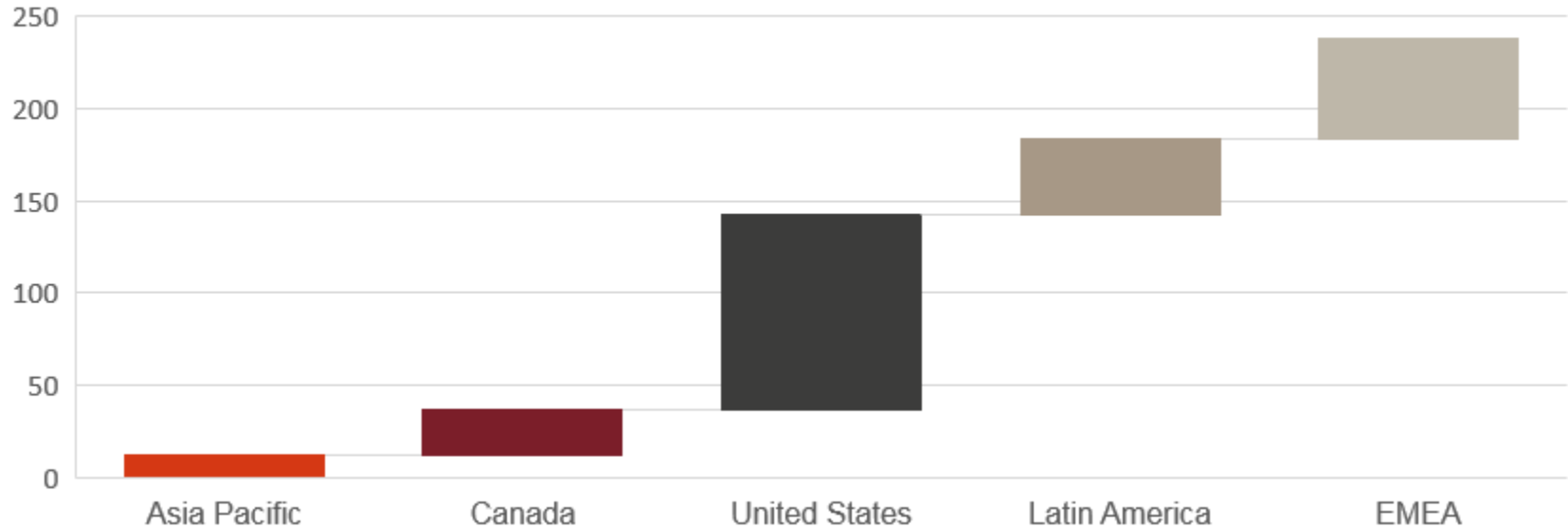
## Project Finance Sector Breakdown



Power and renewables	• 1/3
Social infrastructure (incl. hospitals, stadiums, jails)	• 1/3
Transportation (roads, bridges, rail, airports)	• 1/4
Industrial, mining, and oil and gas projects	• The rest

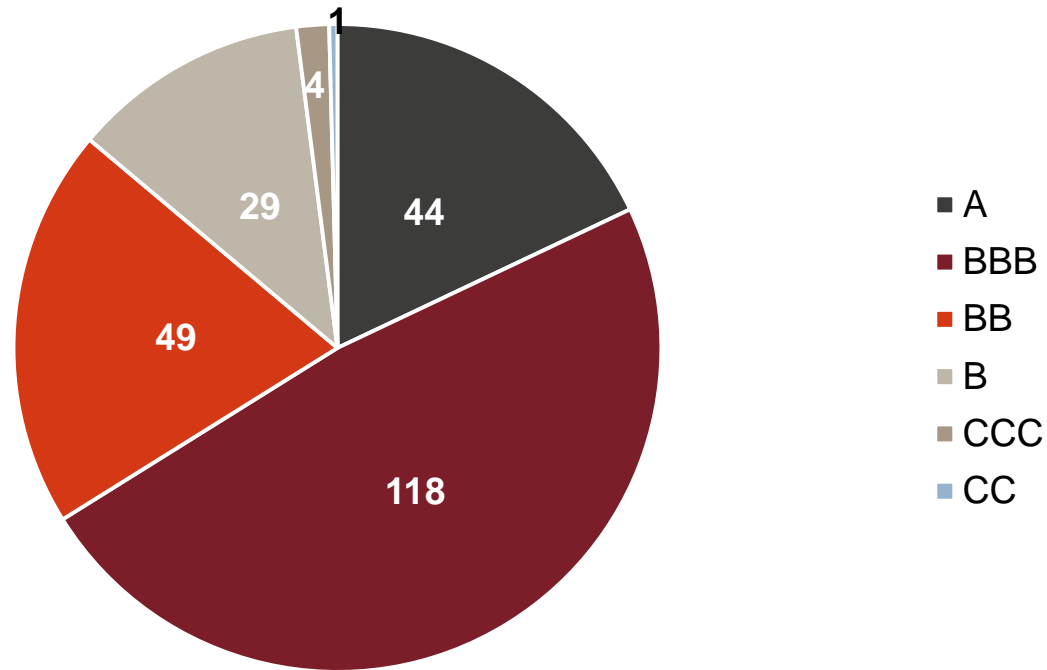
# Project Finance – Geographic Spread

## Project Finance Geographical Distribution



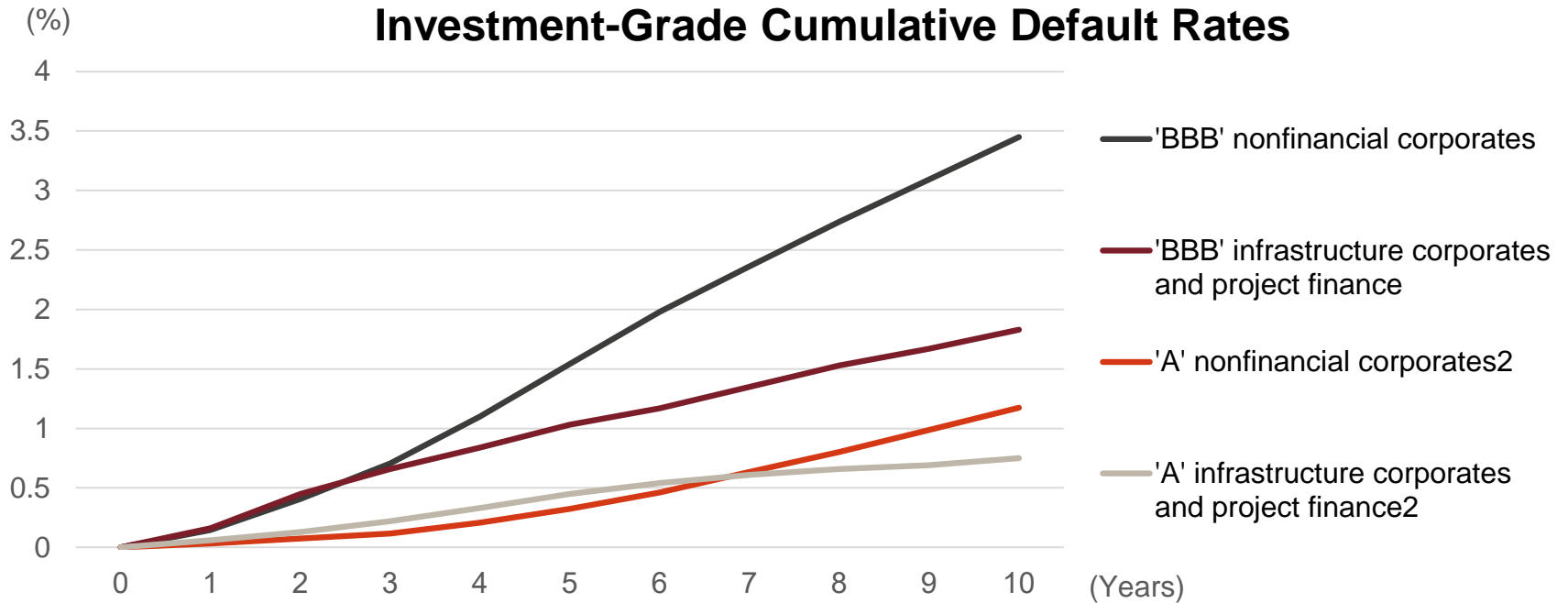
North America	• ~50%; US: 40%, Canada: 11%
EMEA	• 28%
Latin America	• 17% - growing faster
Asia Pacific	• 5%, limited largely to Australia

# Project Finance Rating Distribution



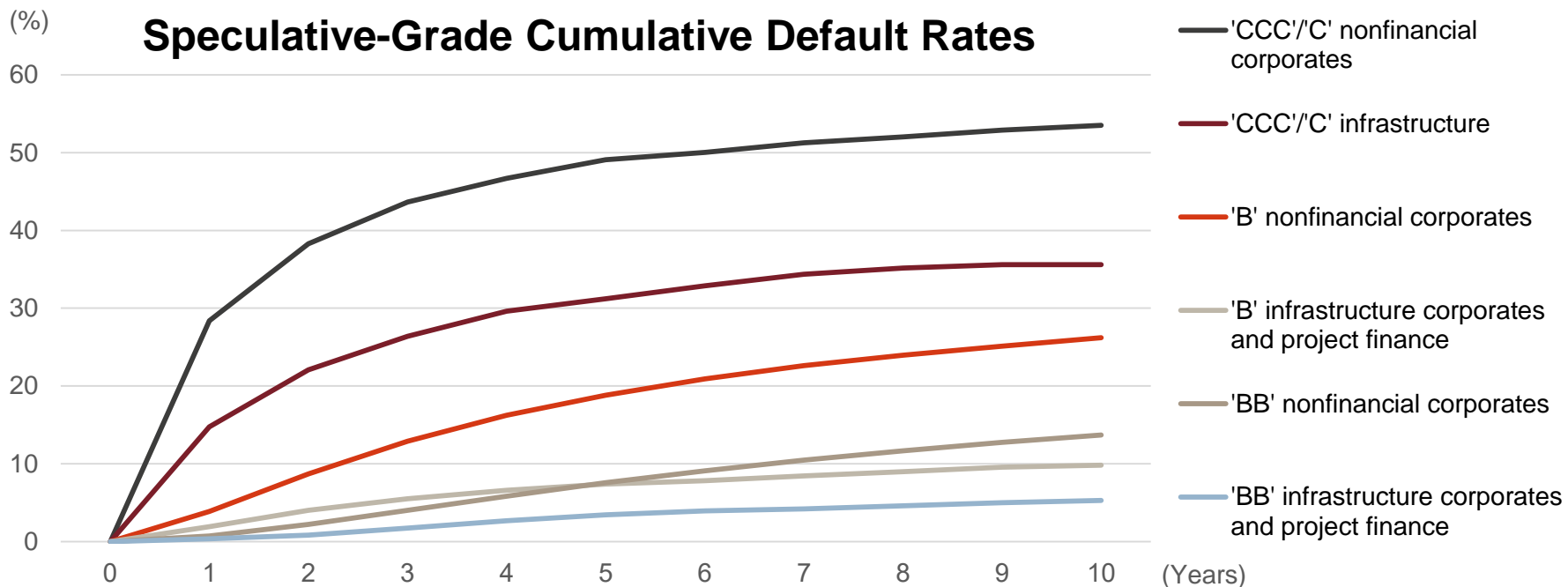
Low investment grade area	• Sweet spot ~50%
Canada	• More structured for 'A'
U.S. power	• 'BB' and 'B'

# Investment Grade Default Rates

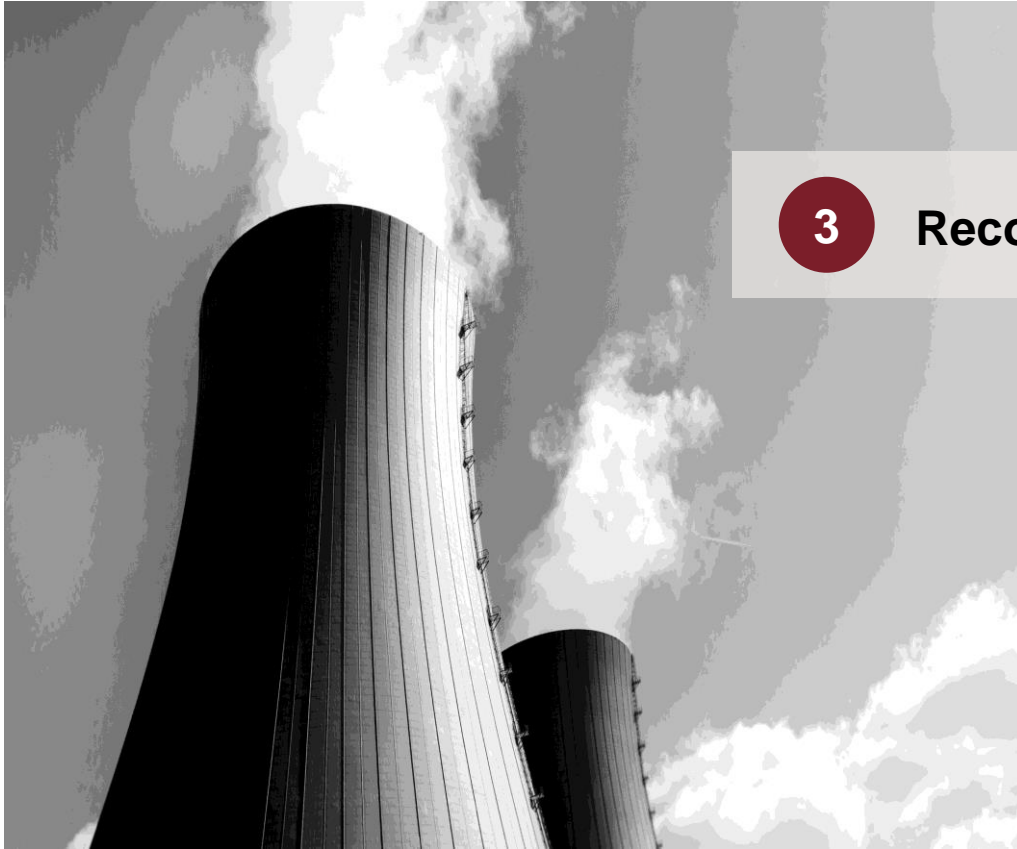


Infra Defaults	• Lower but across Rating Level
Overall Cumulative Default-Corp Infra	• 2.5%
Overall Cumulative Default-PF Infra	• 9.4%
Time to Default	• Positive Correlation: Rating and Time to Default

# Speculative Grade Default Rates



Overall Cumulative Default-Corp Infra	• 7.1%
Overall Cumulative Default-PF Infra	• 20.4%
Time to Default	• Non Financial Corporates, longer time to default, Infra ~6 yrs
Recovery	• Stronger; Infra: 41% par or better; Non Financial Corp: 29%



3

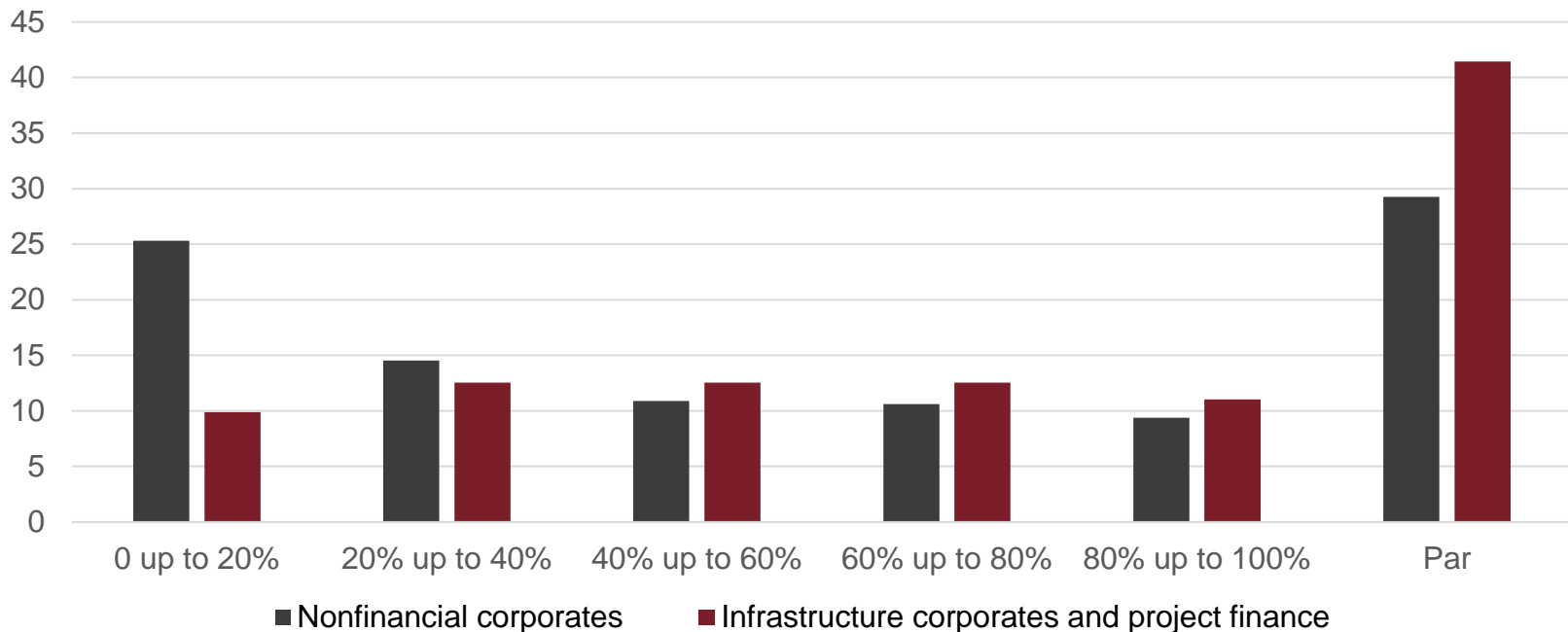
## Recovery Performance



# Recovery Performance has been Stronger for Infrastructure than for NFCs

- Overall, 41% of defaulted debt instruments recovered par, compared with 29.3% of NFCs
- The projects with the lowest recoveries typically exhibited high market risk or encountered technology issues

## Distribution of Recovery Rates by Instrument





**Richard Langberg**

*Senior Director and Analytical Manager  
Head APAC Infrastructure Ratings*

Richard Langberg is a Senior Director and Analytical Manager in S&P Global Ratings team, based in Hong Kong. He leads the team covering infrastructure ratings in the Asia Pacific region.

Before relocating to Hong Kong, Richard was a Director in S&P Global's Energy Infrastructure Ratings team based in New York. The practice covers a broad scope of the energy infrastructure industry including the midstream sector (including most master limited partnerships), oil refineries, pipeline companies, power projects and other project financings.

Before joining S&P Global in November 2016, Richard was an Executive Director in the North American Project Finance team at BBVA from 2010 to 2016, based in New York. Prior to BBVA, Richard was the head of the North America Infrastructure Finance team at the National Australia Bank, also in New York, from 2008-2009. Richard also previously spent 14 years with MBIA in the Global Infrastructure and Public Finance team as well as the Structured Finance practice during postings in New York, Sydney and Singapore.

Richard has an M.A. from the University of Michigan and a bachelor degree from the University of Wisconsin-Stout.