U.S. Port Sector – Long-Time and Emerging Risks

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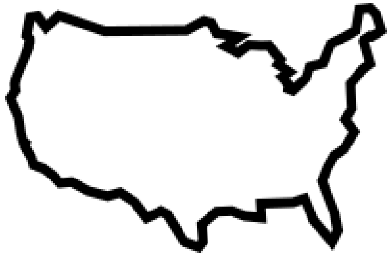
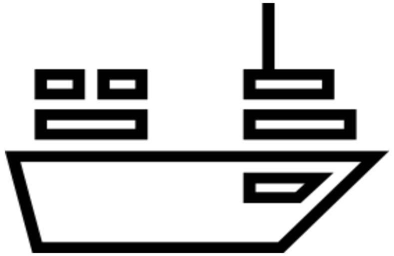




S&P Global
Ratings

October 29th, 2019

U.S. Port Sector – Long-Time and Emerging Risks
Key Takeaways

1 **We anticipate overall municipal bond market to be up slightly in 2019; 68% new money. Expect $3 billion to $4 billion**

2 **The US Port sector has historically demonstrated strong market positions and financial profiles**

3 **The sector is largely well positioned to withstand moderate declines in volume and still maintain credit quality**

4 **Top North American macro risks linked to geopolitical and trade disputes, weakening economic growth and evolving cybersecurity landscape**

5 **Port sector uniquely exposed to climate risks and have sofare been on the forefront of developing mitigation and resilience plans**

6 **Looking forward, Ports must integrate emerging risks into their long-term business strategies and capital planning**

Muni Market Overview

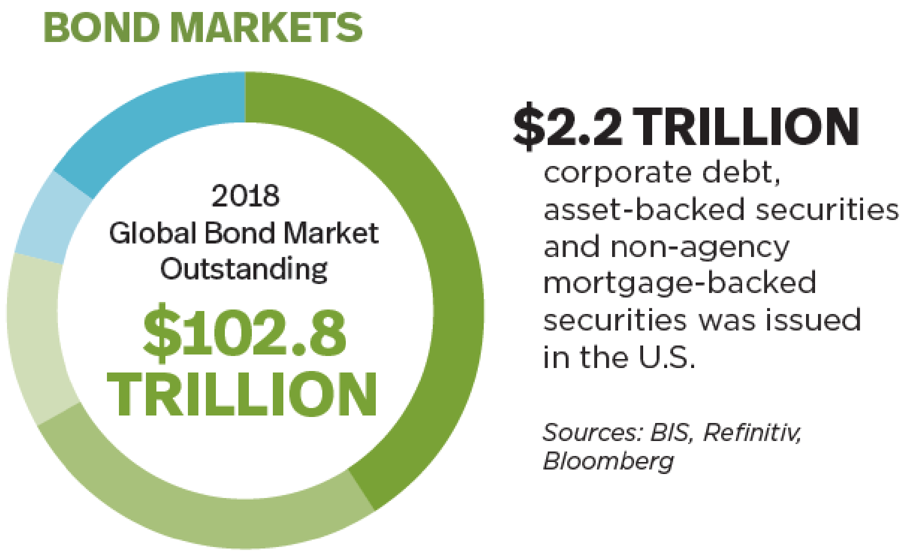
1. Muni Market Overview

2. Criteria & Port Sector Ratings

3. Emerging Risks

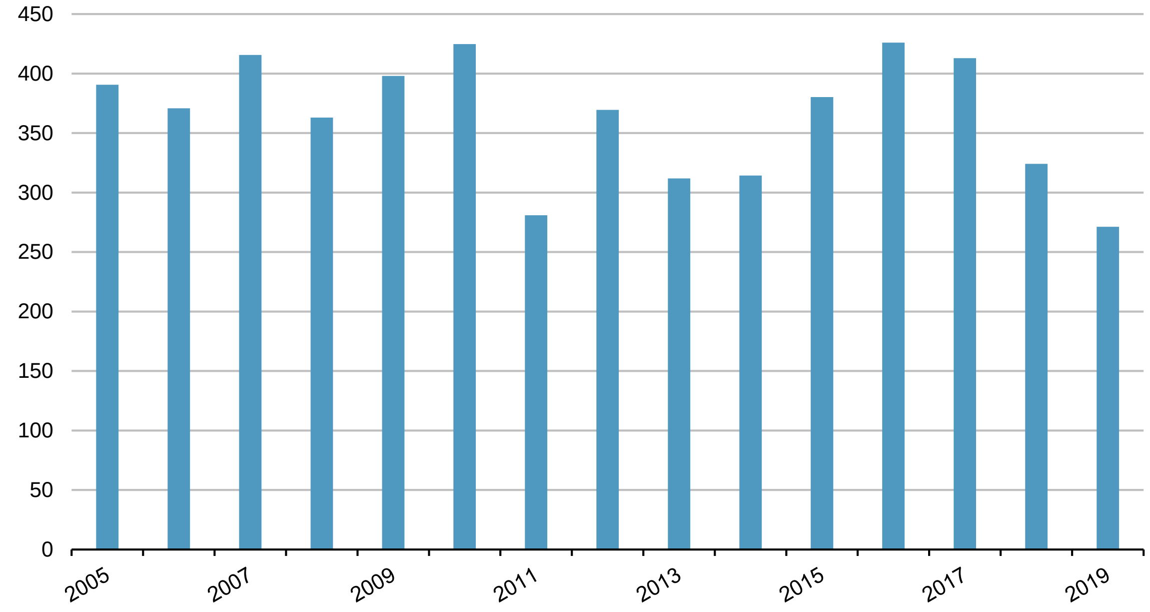
Total Muni Market Debt Issuance

- Muni market between $300-$450 billion peak 2016
- Corp debt market $1,450-$3,271 billion; peak 2006



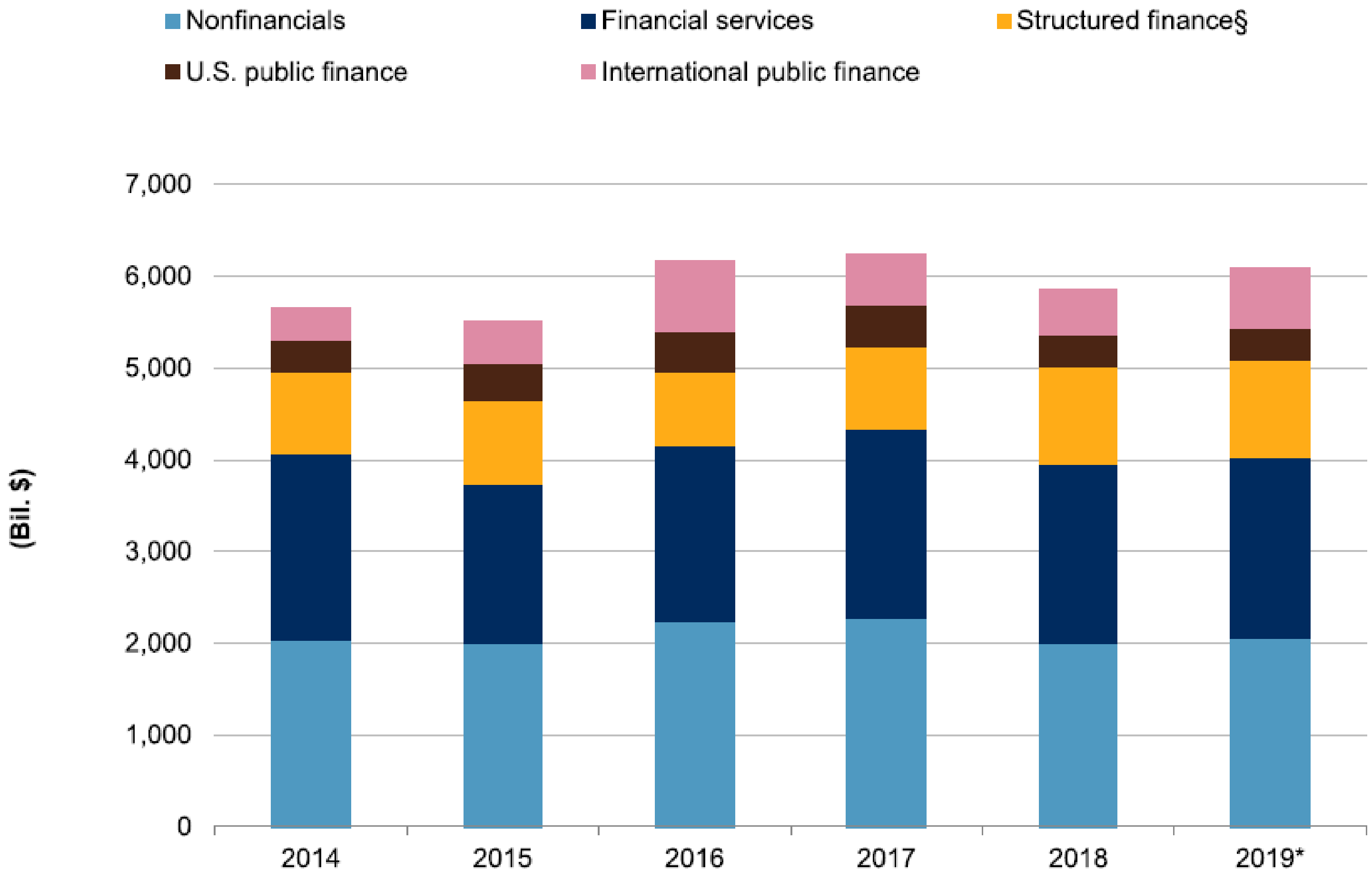
Total Municipal Market Debt Issuance (1Q15 – 3Q19)

$'s in Millions



Source: Bloomberg

Historical Global Issuance And Forecast



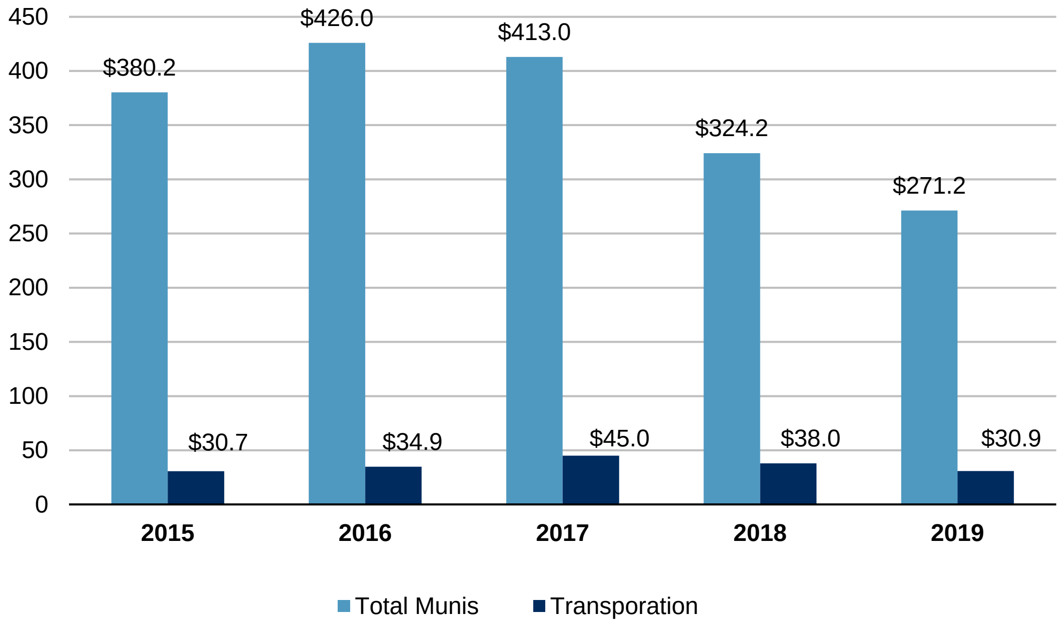
- **Global Issuance Up 11.8% - August**
  - Financing conditions remain positive on back of softer stances by Federal Reserve and European Central Bank
- **Growth Moderated by US-China Trade Dispute**
  - Yet we expect 2019 to exceed 2018
- **USPF Market Up 5.4% - August**
  - We project $345 billion for 2019, slightly higher than 2018
  - New money issuance at 67% on par with 69% in 2018 but higher than 43% average from 2011 to 2017
  - Shift is due to Tax Cuts and Jobs Act of 2018 that eliminated advance refundings

Total Muni Market vs. Transportation Sector Issuance

Year-over-year data from Jan. 2015 – Sep. 2019

Total Munis vs. Transportation Debt Issuance (1Q15 – 3Q19)

$'s in Billions

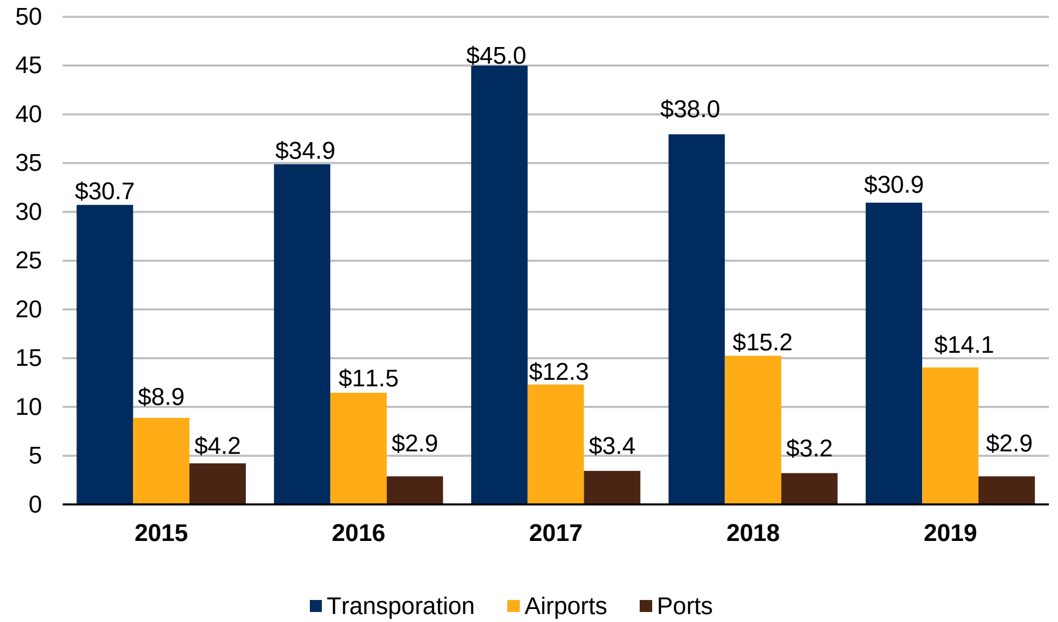


Source: Bloomberg

2019 data is YTD as of Sep. 30,2019

Transport. vs. Airports & Ports Debt Issuance (1Q15 – 3Q19)

$'s in Billions



Source: Bloomberg

2019 data is YTD as of Sep. 30,2019

S&P Global Ratings

Criteria & Port Sector Ratings Outlook

1. Muni Market Overview

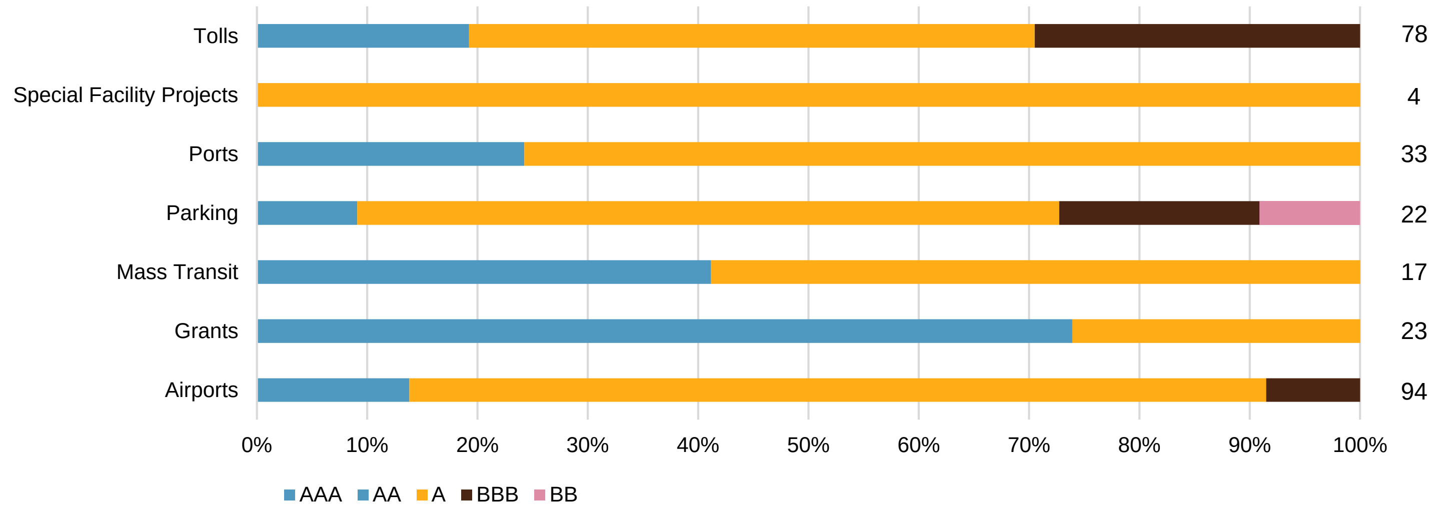
2. Criteria & Port Sector Ratings Outlook

3. Emerging Risks

Current S&P Global Ratings – Transportation Sector Distribution

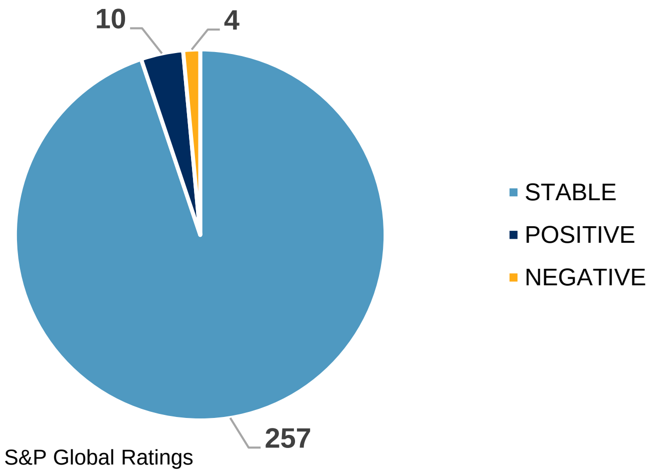
Transportation credit quality remains strong in 2019; 8 upgrades and 0 downgrades since Aug 2018

YTD-2019 Transportation Sector Ratings Distribution



Source: S&P Global Ratings

Transportation Sector Outlook



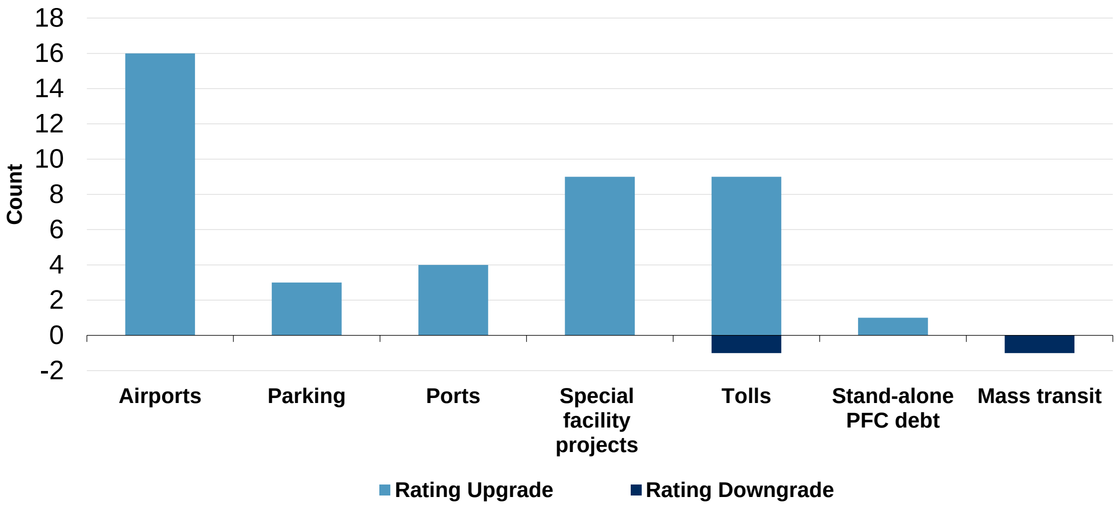
Source: S&P Global Ratings

Source: S&P Global Ratings. Data as of October 25, 2019. Rating actions reflect implementation of updated US and Canada Transportation infrastructure criteria beginning in March 2018.

2018 & 2019 (YTD) Transportation Sector Ratings

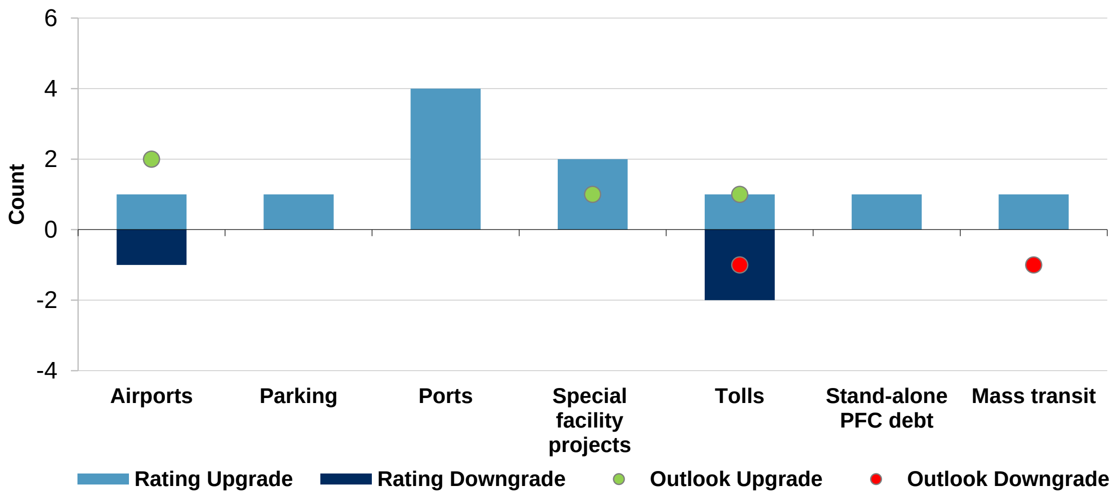
Year-over-year comparison for recent rating changes; positive and negative numbers represent upgrades and downgrades respectively

2018 Transportation Upgrades And Downgrades (As Of Jan. 1, 2019)



Source: S&P Global Ratings

2019-YTD Transportation Upgrades And Downgrades (As Of Oct. 24, 2019)

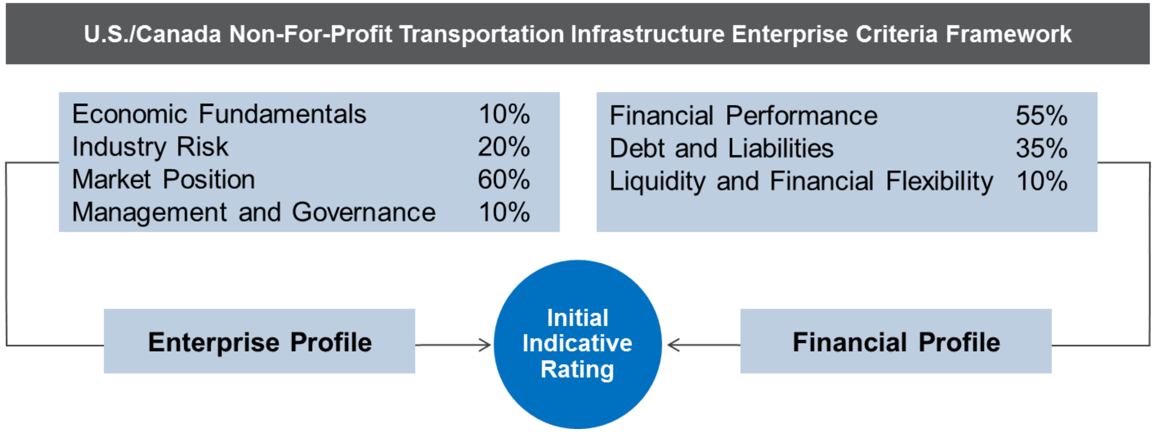


Source: S&P Global Ratings

Source: S&P Global Ratings. Data as of October 25, 2019. Rating actions reflect implementation of updated US and Canada Transportation infrastructure criteria beginning in March 2018.

S&P's Transportation Infrastructure Enterprise Criteria
Financial Performance: Key Credit Statistics (KPI's) for Scoring

Chart 1**



- **Debt-Service Coverage**
  - Median of 3.0x, which we consider in-between "Strong" and "Very Strong"
- **Debt to Net Revenues**
  - Median of 4.8x, which we consider "Extremely Strong"
- **Unrestricted Days Cash on Hand**
  - Median of 740 days, which we consider "Very Strong"
  - The average port can cover total expenses for 2 years with current unrestricted cash levels

Source: S&P Global Ratings. Data as of October 25, 2019. Rating actions reflect implementation of updated US and Canada Transportation infrastructure criteria beginning in March 2018.

Transportation Sector Outlooks For 2019

STABLE	POSITIVE	NEGATIVE
Airports	**Toll Roads**	**Mass Transit**
• Significant capital needs • Generally favorable air travel demand • Rate setting flexibility	• Higher traffic levels and revenue growth driven by continued US economic expansion & low fuel prices • Expanded use of tolling technology for congestion pricing • Inflation-adjusted toll increases, expanded toll networks, and managed lanes with time-of-day pricing.	• Continued declines in ridership levels and ongoing pressures to support rising operational costs • Despite monopolistic business positions financial profiles might face stress without additional funding sources
Ports		
• **Resilient & generally well-positioned to handle volume-fluctuations & operating revenue declines** • **Expecting lower volume in 2019 due to slower US/global economic growth & possible trade or tariff disputes**		

• Port's are inherently exposed to volatility due to traditional changes in the business cycle, shifting trade patterns and supply chains, commodity shocks, and changes in bilateral/multilateral trade policies.

*HTF = Highway Trust Fund

Current S&P Global Ratings – Maritime Shipping Industry

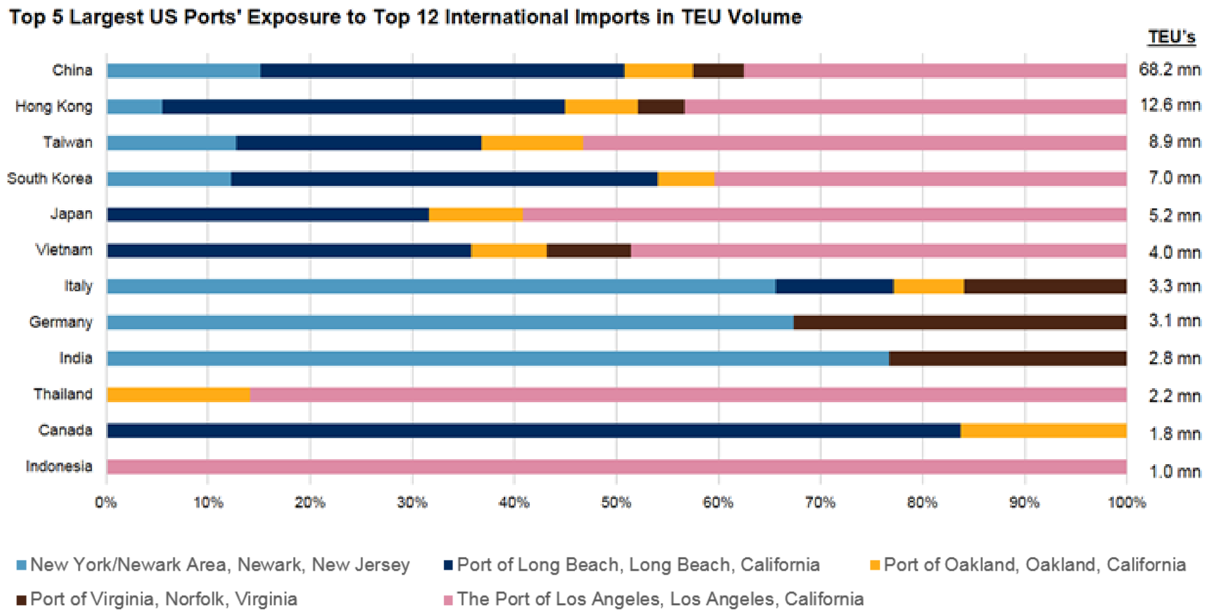
Company	Shipping segment	Rating*
Nakilat Inc.	Liquefied natural gas (LNG)	A+/Stable/--
MISC Bhd.	Oil and gas	BBB+/Stable/--
PAO Sovcomflot	Crude oil, oil products, and LNG	BB+/Stable/--
Wan Hai Lines Ltd.	Container liner	BB+/Stable/--
Bahia de las Isletas, S.L.	Ferries (pax and cargo)	B+/Positive/--
CMA CGM S.A.	Container liner	B+/Stable/--
Hapag-Lloyd AG	Container liner	B+/Stable/--
Navios Maritime Partners L.P.	Dry bulk and containers	B+/Stable/--
Global Ship Lease Inc.	Containers	B/Stable/--
Navios Maritime Holdings Inc.	Dry bulk and logistics	B/Stable/--
Navios Maritime Acquisition Corp.	Crude oil and oil products	B-/Stable/--
Navios Maritime Midstream Partners	Crude oil	B-/Stable/--
International Seaways Inc.	Crude oil and oil products	B-/Negative/--
Moby SpA	Ferries (passengers and cargo)	CCC-/Negative/--
Eletson Holdings Inc.	Crude oil and oil products	SD/--/--

- Soft new vessel deliveries pave the way for firming dry-bulk rates
- Cyclical upturn in tanker rates could be around the corner
- Containership demand/supply conditions improve – liners must exercise discipline on rates and capacity
- IMO 2020 low-sulfur regulations will shake the global shipping industry
- We believe the larger industry players, such as **A.P. Moller - Maersk A/S, CMA CGM S.A.**, and **Hapag-Lloyd AG**, will have the most success passing costs on, due to better bargaining power with customers and protective pricing mechanisms in their contracts.

International Import Exposure for the 5 Largest S&P Rated Ports

12 Largest Exporters by Overall Volume (TEU's) to Top 5 Largest S&P Ports Credits by Revenue, data since July 2007

- Port of LA most exposed to Asia
  - Port of Long Beach 2nd most exposed
- Port of NY/NJ most concentrated to major Asian ports as well as Italy and Germany
- Port of VA less exposed to these 12 countries
- Over a longer term, diversification in supply chains will likely change the current composition

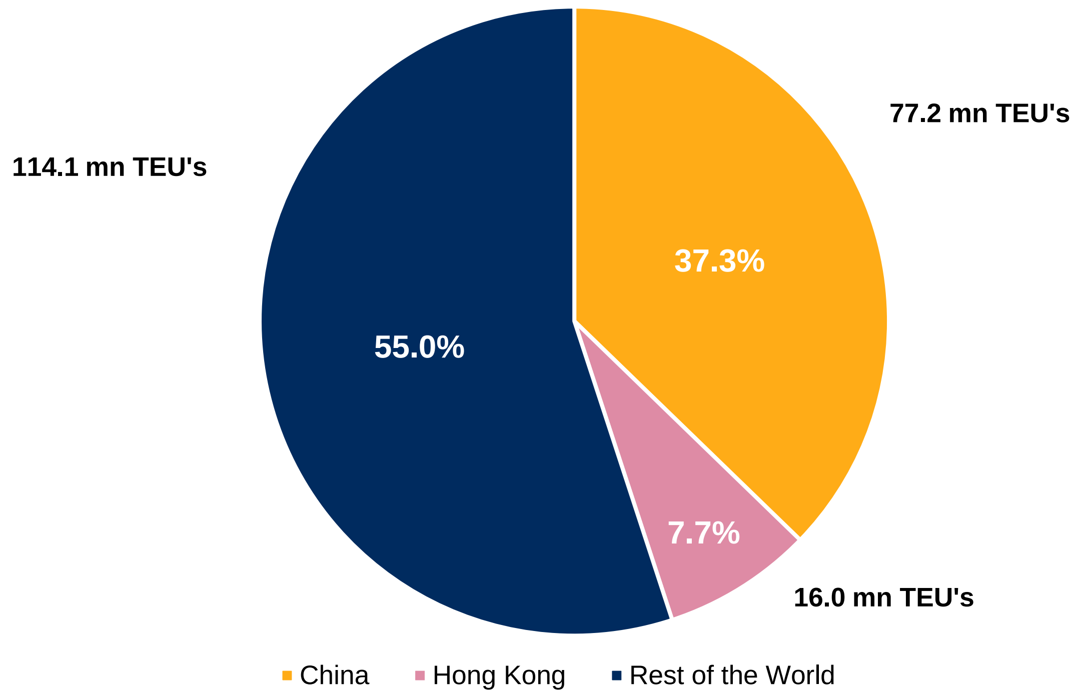


Source: Panjiva, Global Supply Chain Data – an S&P Market Intelligence product

All S&P Rated Ports' Exposure to China and Hong Kong

- S&P Ports credits' imports from both China and Hong Kong have remained relatively consistent over the past 12 years
  - China remains an important import source for the majority of the west coast ports that S&P rates
- More recently, Hong Kong's share has fallen over time compared to China and the Rest of the World

Total Volume Imported by All S&P Ports Credits from 2007-2019 (YTD)



Source: Panjiva

Source: Panjiva, Global Supply Chain Data – an S&P Market Intelligence product

S&P Global Ratings

Emerging Risks

1. Muni Market Overview

2. Criteria & Port Sector Ratings

3. Emerging Risks

Credit Issues Facing Public Finance in 2019

- PENSIONS
- INFRASTRUCTURE
- FISCAL SUSTAINABILITY
- CYBER SECURITY
- DISRUPTION
- CREDIT CYCLE PEAK
- ESG/ CLIMATE RISKS
- FEDERAL FISCAL AND POLICY

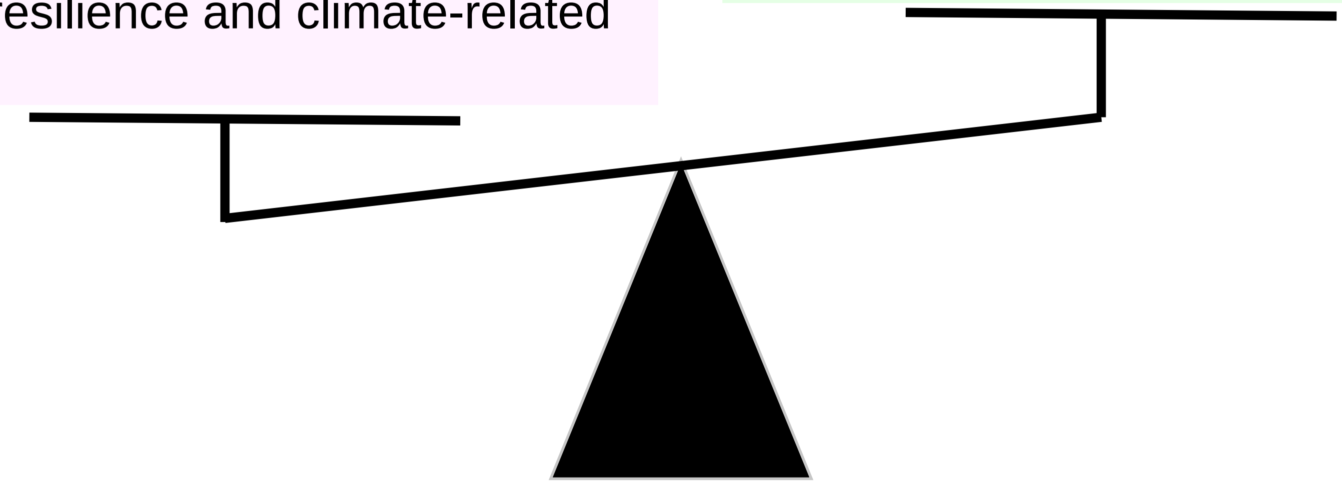
Transportation Infrastructure Credit Trends

RISKS

- Increasing capital requirements
- Shifting trade policies and disputes
- Disruption from new technologies and transportation business models
- Asset resilience and climate-related issues

OPPORTUNITIES

- Generally favorable economic conditions
- Implementation of revenue-maximizing technologies
- Continued P3 development



Top North-American Risks

Geopolitical and trade disputes cloud world growth

Risk level*	Very low	Moderate	Elevated	High	Very high	Risk trend**	Improving	Unchanged	Worsening

Trade and geopolitical tensions are leading to more frequent and intense periods of market volatility. While the trade-technology war between the U.S. and China spreads from tariffs on goods to non-tariff protectionism, the USMCA lingers as governments in the U.S. and Canada have yet to ratify the deal. Geopolitical tensions are flaring between the U.S. and Iran. The recent attack on Saudi Arabian oil refineries has exposed the vulnerabilities associated with event risk in energy markets. Trade uncertainty, concerns about a global growth slowdown, and market fears all have moved S&P Global Ratings' economists to raise the risk of a U.S. recession starting in the next 12 months to 30%-35% (an increase of five percentage points from the prior quarter).

Sources: S&P Global Ratings.

* **Risk levels** may be classified as very low, moderate, elevated, high, or very high, are evaluated by considering both the likelihood and systemic impact of such an event occurring over the next one to two years. Typically these risks are not factored into our base case rating assumptions unless the risk level is very high.

** **Risk trend** reflects our current view on whether the risk level could increase or decrease over the next 12 months.

Top North-American Risks

Mature credit cycle and volatile liquidity

Risk level*	Very low	Moderate	Elevated	High	Very high	Risk trend**	Improving	Unchanged	Worsening

Ongoing trade tensions and other risks to global growth have led the Fed to two quarter-point rate cuts this year. While lower interest rates are contributing to a drop in investment-grade issuers' cost of funding, speculative-grade companies face widening risk premiums as investors seek havens. The build-up in corporate debt over the past decade of economic expansion has led to a growing concentration of investment-grade ratings in the 'BBB' category and spec-grade ratings in the 'B' category. With debt concentrations growing, investors and regulators continue to focus on liquidity risks, especially among thinly traded instruments within the credit market.

Sources: S&P Global Ratings.

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Top North-American Risks

Cybersecurity threats to business activity

Risk level*	Very low	Moderate	Elevated	High	Very high	Risk trend**	Improving	Unchanged	Worsening

Increasing technological dependency and global interconnectedness means cyber risk poses a systemic threat and significant single-entity risk. Companies face the risk of criminal, proxy, and direct state-sponsored cyber-attacks. Governments, too, are vulnerable, and local governments appear to be the target with increasing frequency. This rapidly emerging risk has led to a fast-growing cyber-insurance market—although insured losses from cyber-attacks are still small compared with economic losses. Still, the relentlessness of cyber-attacks creates a need for heightened governance measures for all types of issuers.

Sources: S&P Global Ratings.

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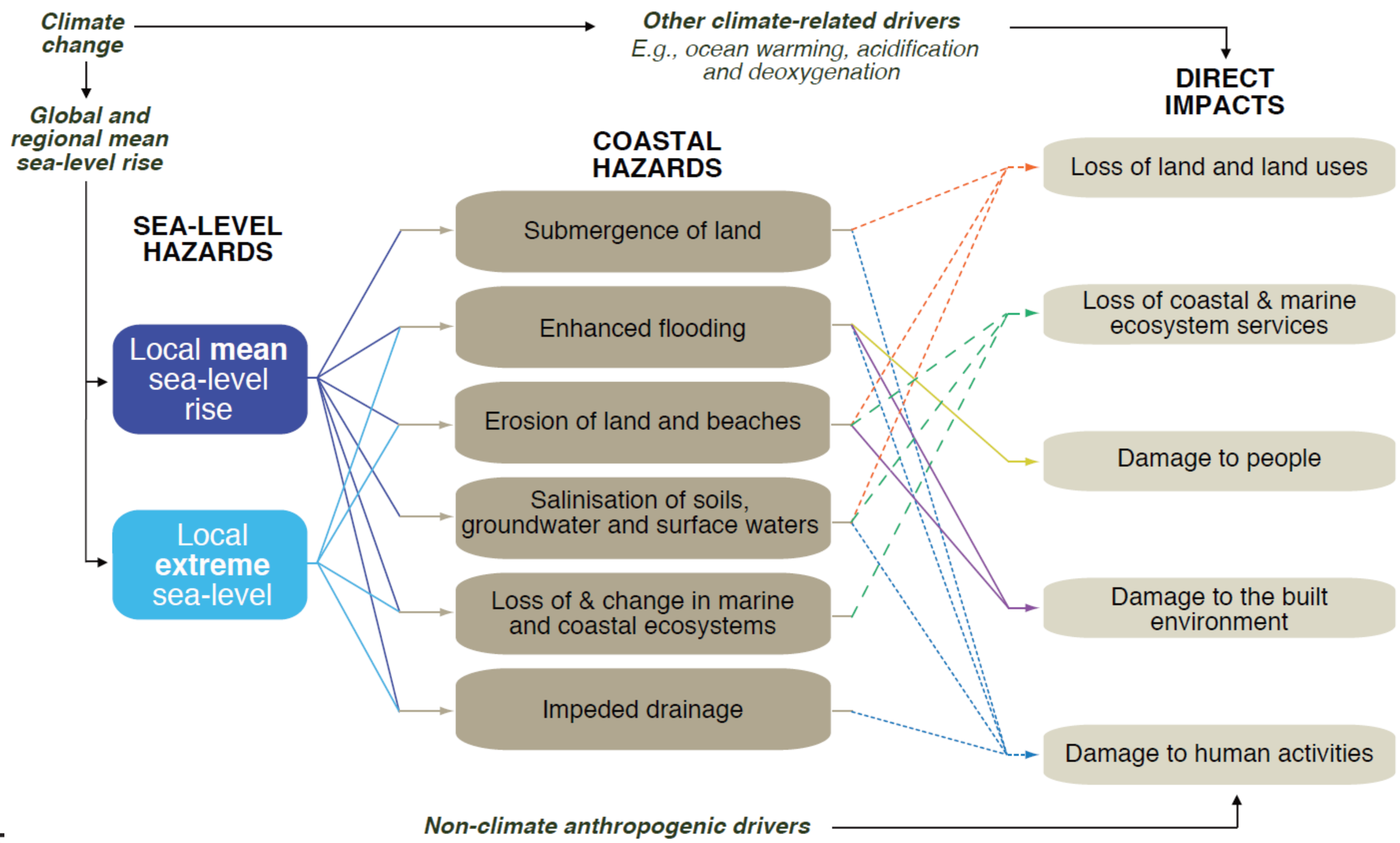
Climate Change Risks – *Intergovernmental Panel on Climate Change*



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Climate Change Risks – *What are likely impacts to Ports?*

Changes in Water Levels – need to raise level of infrastructure to prevent flooding at coast; lower levels in Great Lakes & Mississippi River Basin, navigation impacts

Rising frequency or severity of **Storm Events and Precipitation** affecting infrastructure including storm water facilities and delays in operations

Higher Temperatures affecting paved surfaces, auxiliary port infrastructure requiring more cooling, other operational effects

Indirect impacts shifting trade routes, demographic changes, higher insurance

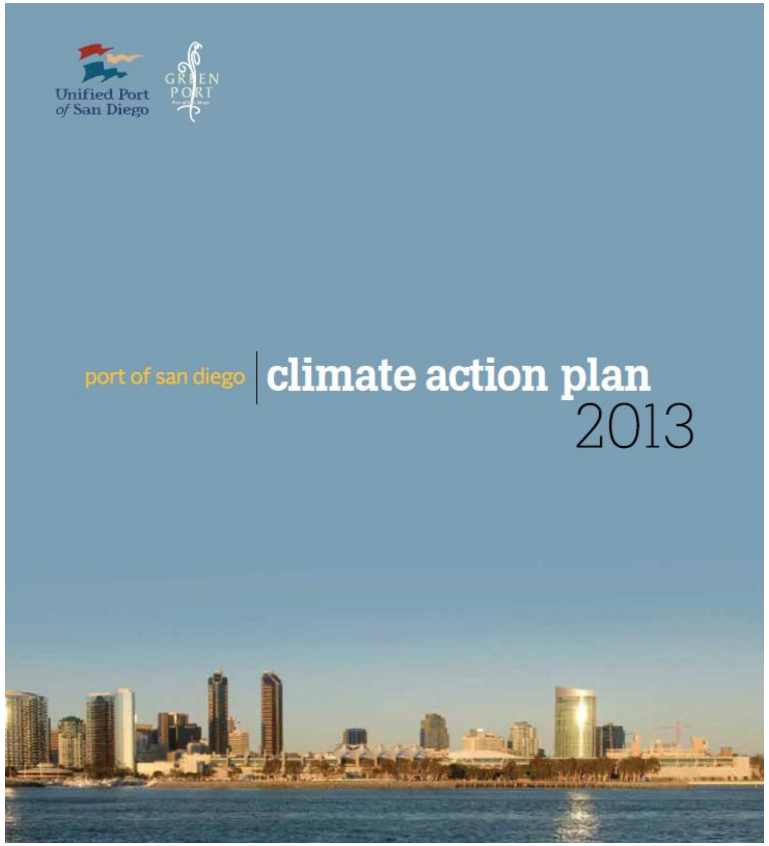

U.S. Environmental Protection Agency

Planning for Climate Change Impacts at U.S. Ports

White Paper

July 2008

Climate Change Risks – *Ports Respond*




THE PORT OF VIRGINIA.

infraction.

points, which they can exchange for merchandise from the port's online store.

port colleagues furthered their education through this program in 2017 - each receiving up to $5,000 towards their studies.

SUSTAINING OUR PORT

Expanding, investing, and improving to face whatever's on deck

The Port of Virginia continues to make both small and seismic changes to how we do business in order to better position ourselves for the future. And we continue to see the impressive results of that hard work, with a record setting year for container cargo volume at more than 2.84 million twenty-foot equivalent units, or TEUs, a 7%

TOTAL INVESTMENT IN THE FISCAL YEAR

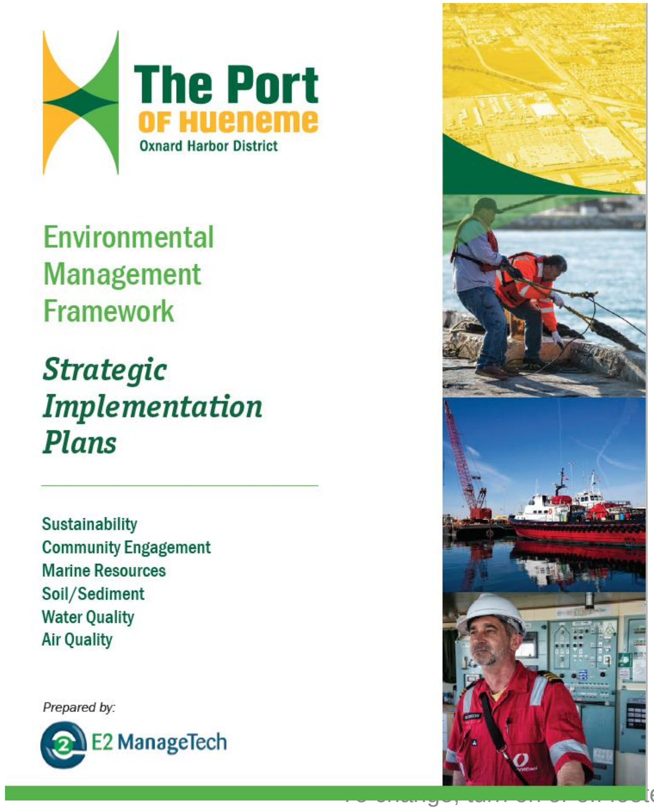
$700 MILLION

Managing risks and seizing opportunities

We're running two and a half times more volume through PMT today than when we re-opened it in 2014.

ERIC CASEY, VP, MAINTENANCE

Settling for nothing less than operational excellence



Cybersecurity and Credit Ratings

Immediate Liquidity risk – Long-term Credit risk

Prevention
- Risk Assessments
- Infrastructure Investments
- Employee Training

Response
- Transparency
- Liquidity
- Accountability

Recovery
- Costs
- Contingent Liabilities
- Constituent Trust

S&P Global Ratings

ESG Of Increased Interest to Credit Investors

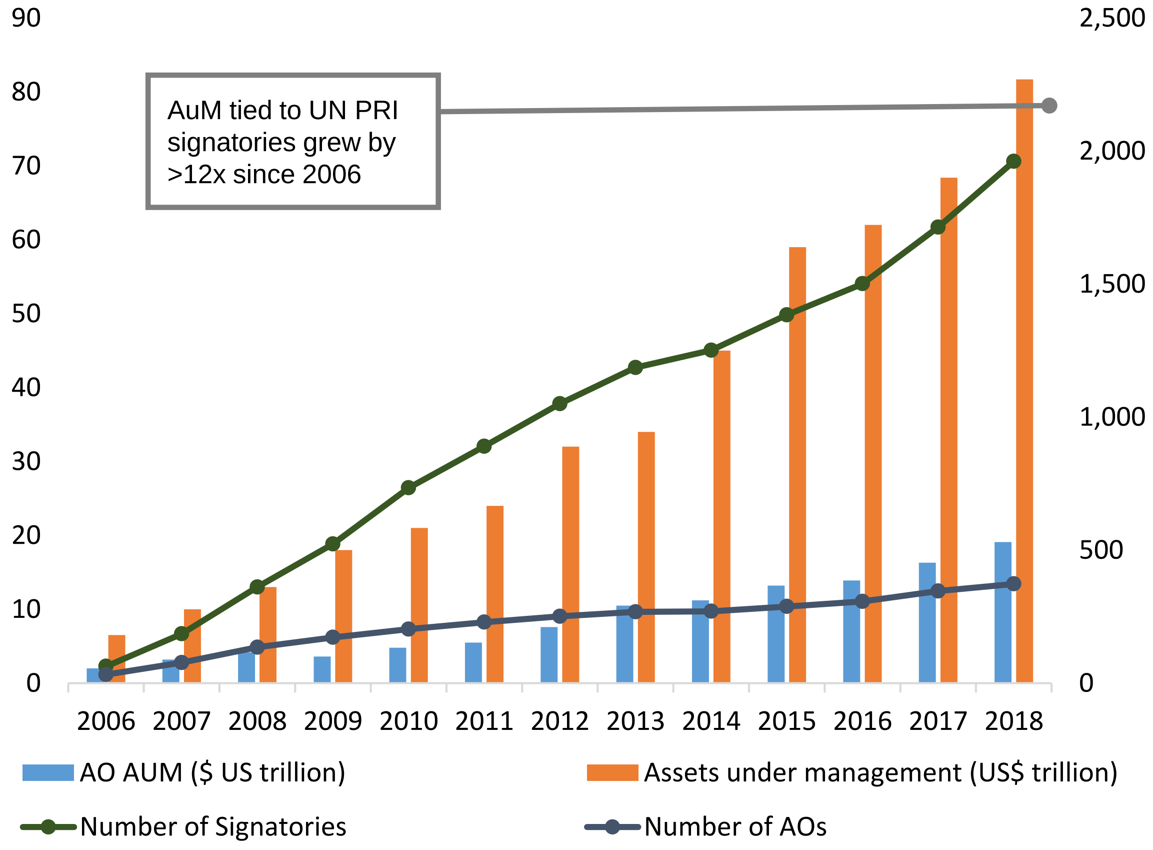
WHY is ESG of more interest?

Climate-change causing more extreme-weather events; higher **social focus impacting customer acceptance of** products and brands, **Cyber risk** challenges

Rising number of **ESG-related regulations** (GHG emissions, board diversity, labor codes, better transparency, etc.)

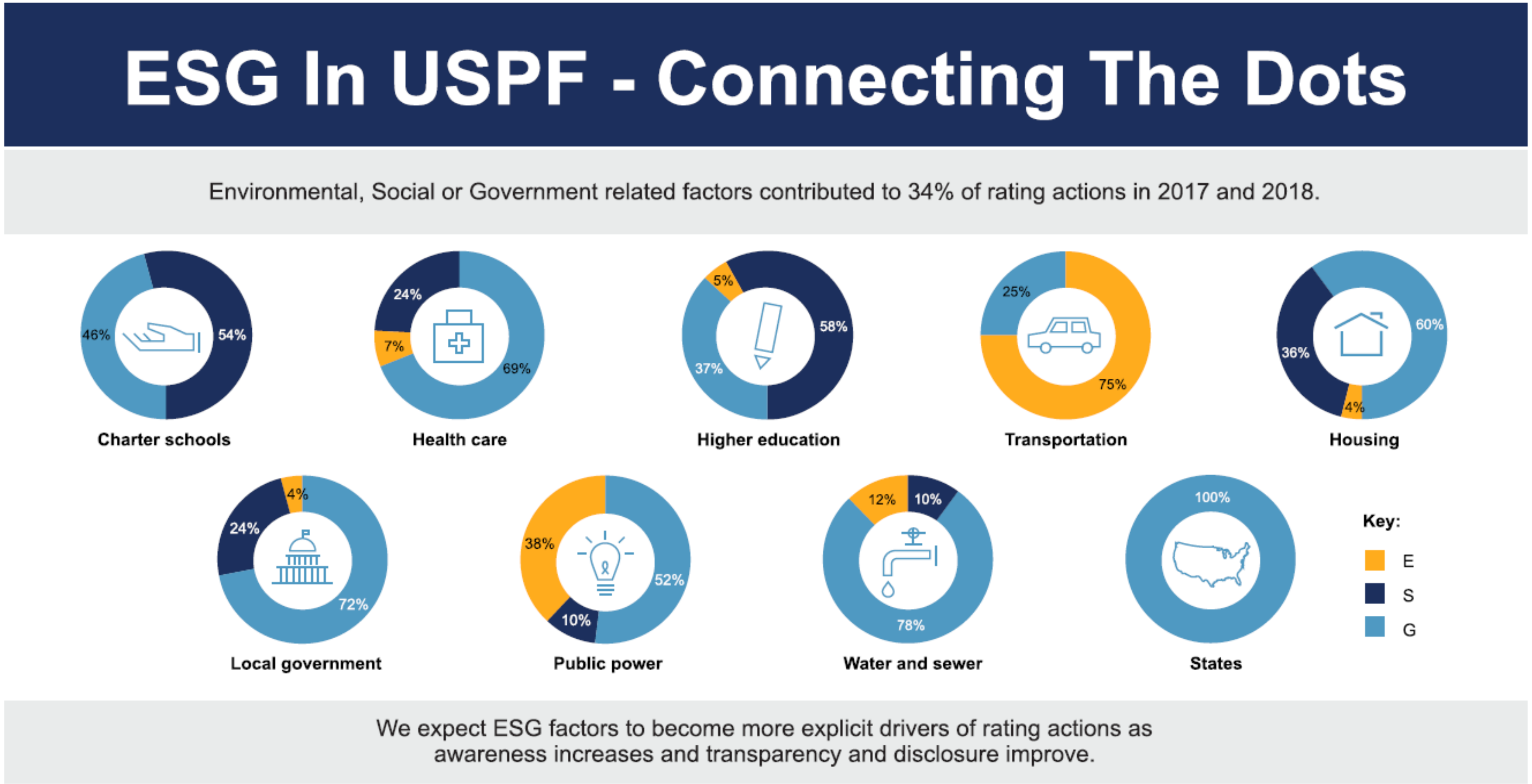
Significant financial and reputational impact in case of ESG-related controversies (VW's Dieselgate, Apple child labor, Levi's distressed jeans, Equifax, etc.)

Number of Signatories (RHS) and Associated AuM (LHS, USD $ Trillion)



Source: UN Principles for Responsible Investment 2018

ESG Affect on U.S. Public Finance



Source: S&P Global Ratings When U.S. Public Finance Ratings Change, ESG Factors Are Often The Reason, March 28, 2019

S&P Global Ratings

ESG Evaluation

ESG Evaluation is a cross-sector relative analysis of an entity's capacity to operate successfully in the future and is grounded in how ESG factors could affect stakeholders, leading to a material direct or indirect financial impact on the entity.

Green Evaluation Analytical Approach

Weighted aggregate of three:

Transparency **+** Governance **+** Mitigation **or** Adaptation **=** Green Evaluation

Transparency
- Use of proceeds reporting
- Reporting comprehensiveness

Governance
- Management of proceeds
- Impact assessment structure

Mitigation
Buildings, industrial efficiencies, energy infrastructure, transport, and water

Net benefit ranking
eKPIs:
Carbon emissions, water use, waste creation

Hierarchy applied

Environmental impact

Mitigation score

Adaptation
Resilience capex such as flood defenses, asset protection, etc.)

Cost benefit ranking
Resilience benefit ratio
Estimate of reduction in damages if event occurs

Resilience level

Adaptation score

Final Green Evaluation (E1- E4 or R1- R4)

* eKPI – Environmental Key Performance Indicator

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