

PRESENTED TO:
J.P. MORGAN CENTER FOR COMMODITIES,
UNIVERSITY OF COLORADO DENVER
3RD RESEARCH COUNCIL MEETING

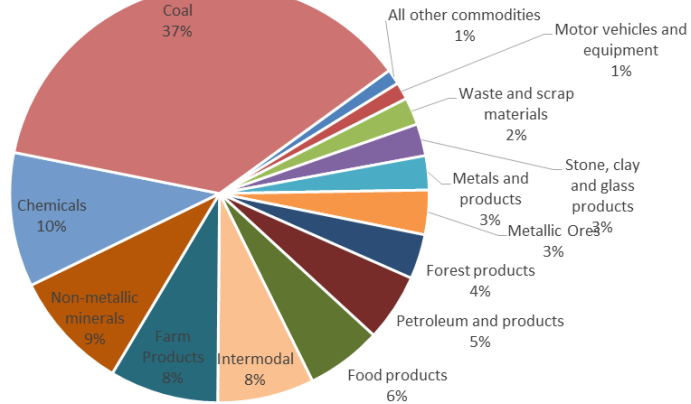
EMERGING RISKS AND
CHALLENGES IN COMMODITY
SUPPLY CHAINS
*RAIL TRANSPORTATION CAPACITY
IN NORTH AMERICA*

SEPTEMBER 30, 2016

JOHN SCHMITTER
PRESIDENT

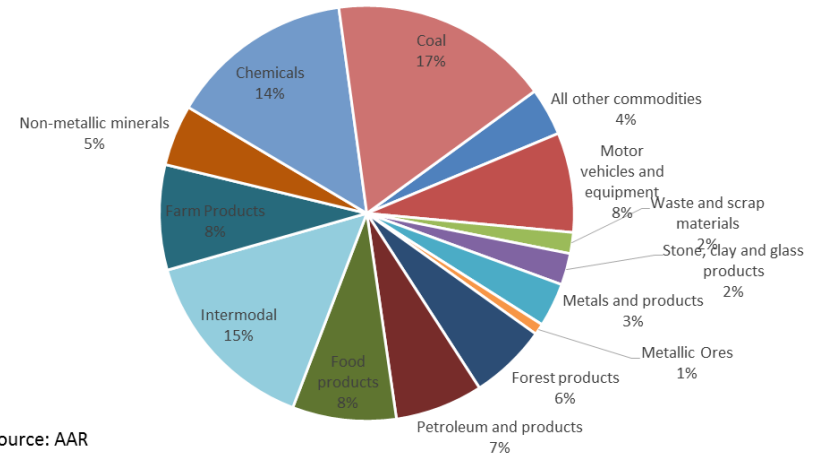
US RAILROADS HANDLE MOSTLY COMMODITIES AND INTERMODAL

US Class I Railroad Tons Originated
2015



Source: AAR

US Class I Railroad Revenue
2015



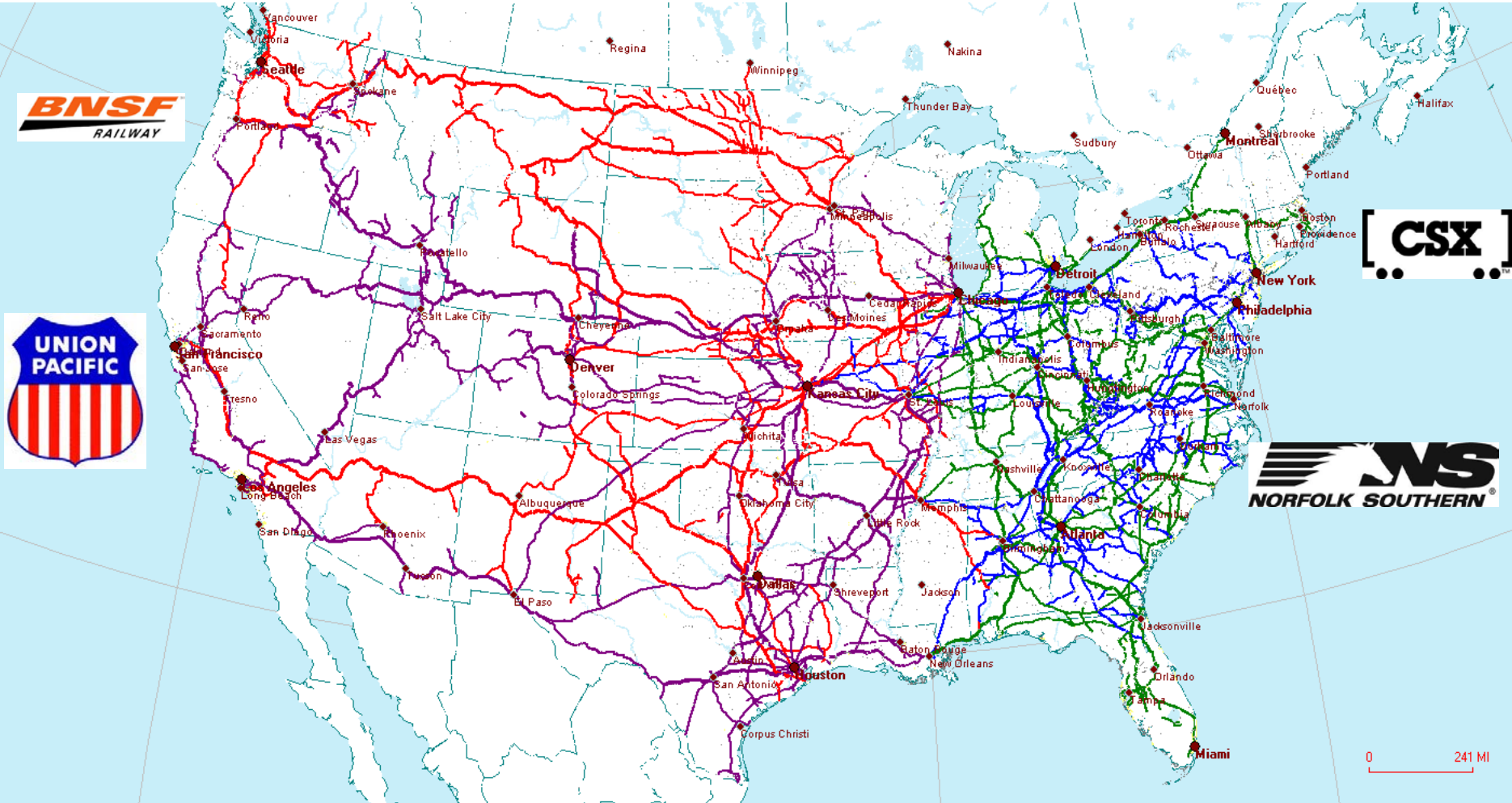
Source: AAR

US AND CANADIAN RAILROADS

- Owned by shareholders
- Railroad companies own track, locomotives and other infrastructure
- Rail customers own/lease about 50% of railcars
- Labor are railroad employees
- Light economic regulation by:
 - Surface Transportation Board in US
 - Canadian Transportation Agency in Canada
- Companies are profitable
- Little government involvement in infrastructure or operations

RAIL SERVICE TO MOST LOCATIONS IS PROVIDED BY ONE CARRIER

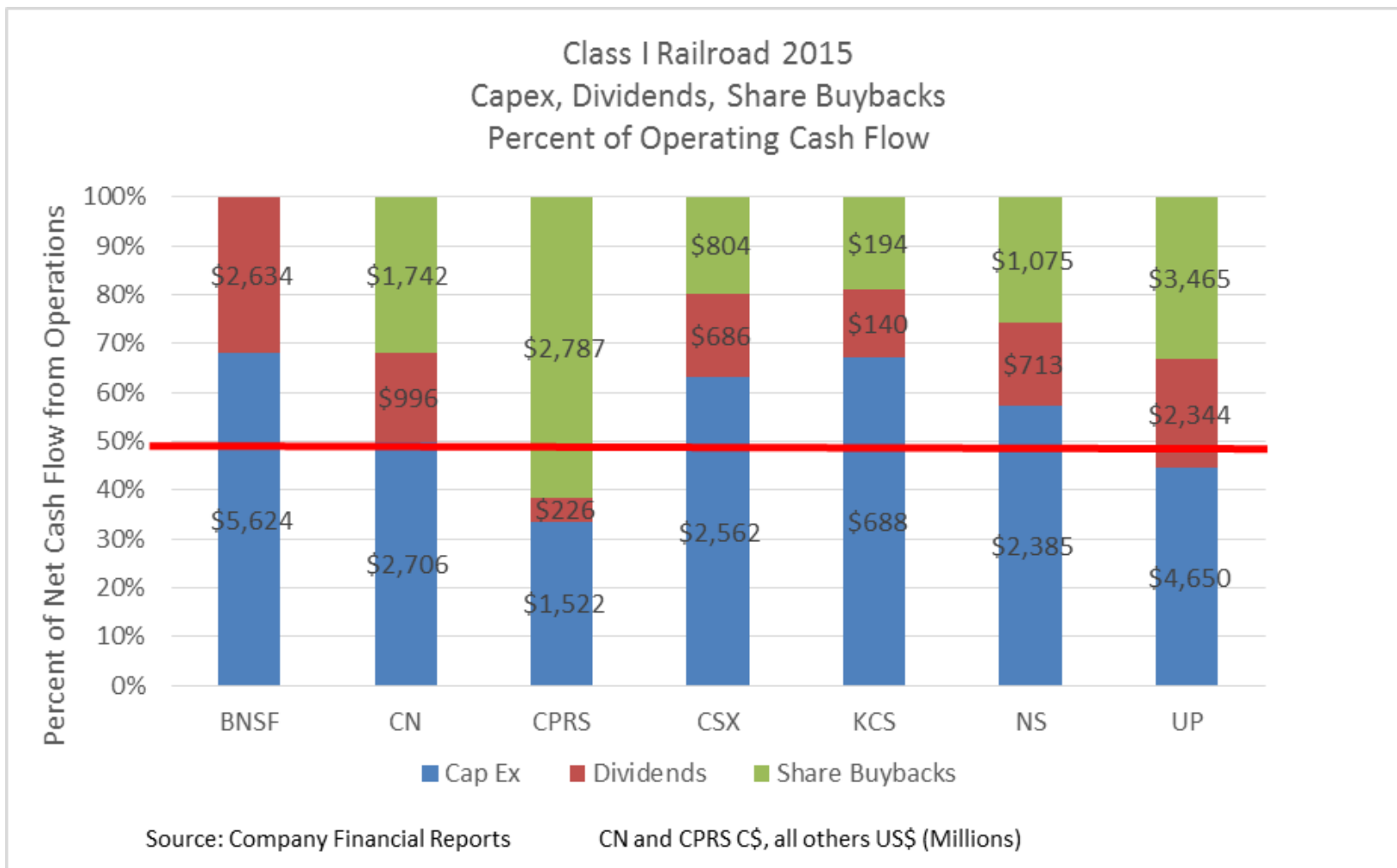
4 MAIN US CLASS I RAILROADS PLUS OVER 500 REGIONAL AND SHORTLINES



CANADA HAS 2 CLASS I RAILROADS

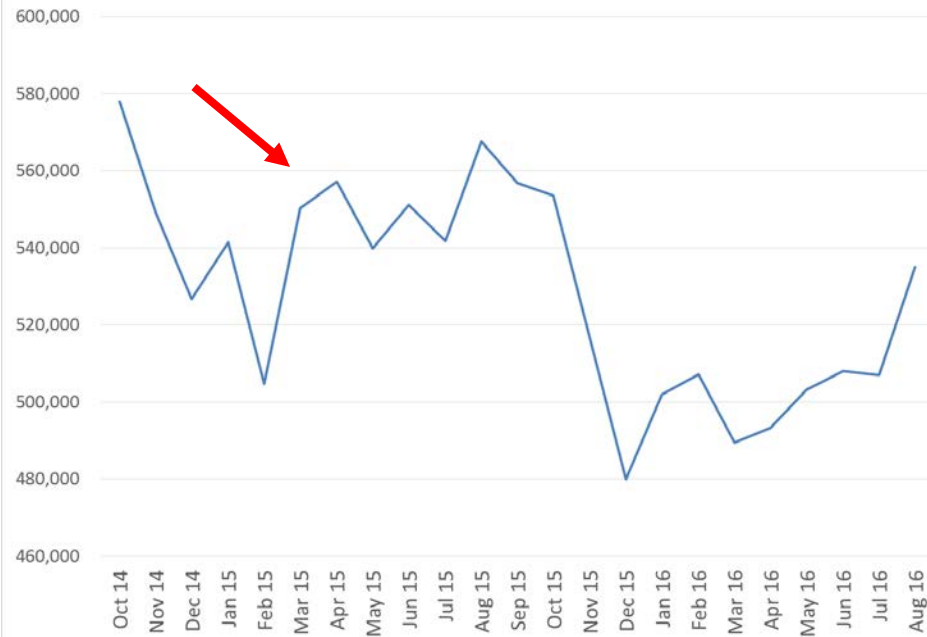


CAPEX INVESTMENT DECISIONS IN NORTH AMERICAN RAILROADS ARE MADE BY PRIVATE COMPANIES NOT GOVERNMENT



AS VOLUMES DECLINED SERVICE IMPROVED - TEMPORARILY

Average Weekly US Carloads



Industry Average Train Speed (MPH)



Service got better as volume declined but some customers are seeing service issues as railroads store locomotives and reduce train crews and other employees to match declining volumes

THERE WILL BE PERIODIC CAPACITY CONSTRAINTS WHEN VOLUME INCREASES QUICKLY

- Severe congestion and service issues occurred
 - 1999/2000
 - 2005/2006
 - 2013/2014

IT WILL HAPPEN AGAIN

- Capacity expansion is a “Just In Time” process
- It is difficult for railroads to cope with rapid volume increases
- A rapid, unexpected 5-6% increase in volume is all it will take to stress most of the NA railroads

COMMODITY INDUSTRY TAKEAWAYS

Capacity

- Railroads do have the capacity to handle commodities and will in the future
- Commodities provide good margins for the railroads so the industry can afford the investment in capacity

Railroads will:

- Adjust capacity up and down to meet projected demand
- Have periods of congestion and relatively good service in response to rapid, unexpected volume changes
- Increase rates as market conditions allow

Commodity supply chain managers should:

- Recognize that sufficient capacity may not be immediately available when required
- Develop maximum flexibility in supply
- Modify inventory policies to incorporate inconsistent rail service
- Manage railroad relationships and rail transportation effectively