

Railroads

| | | | |
|--|--------|-------------------|--------------|
| EQUITY RATE | | 12.00% | |
| CAPITAL ASSET PRICING MODEL | | | |
| CAPM Ex Ante | 8.57% | | PAGE 6 |
| DIVIDEND GROWTH MODELS (Single Stage) | | | |
| Value Line, based on Dividends Growth | 11.00% | | 7 |
| Value Line, based on Earnings Growth | 11.30% | | 8 |
| Value Line, based on Return on Equity | 12.50% | | 9 |
| FCFE GROWTH MODEL (Multi Stage) | | | |
| | 10.75% | | 10 |
| Median | 11.00% | 8.57% - 12.5% | RANGE |
| DEBT RATE | | 5.20% | 11 |
| SECURED DEBT (LEASE) RATE | | 5.00% | 11 |
| MARKET CAPITAL STRUCTURE | | | |
| Equity | 80% | x 12.00% = | 9.60% |
| Secured Debt | 2% | x 5.00% = | 0.10% |
| Debt | 18% | x 5.20% = | 0.94% |
| Marginal Tax Rate | 24% | = (1-.24) x 1.04% | <u>0.79%</u> |
| WEIGHTED AVERAGE COST OF CAPITAL | | 10.4% | |

rounded

SUPPORT FOR GUIDELINE COMPANIES

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Capital Structure at Book Value

| Company | Ticker | Beta | Fin'l Strength | Operating Margin | P/E Ratio | Div'd Yield | Common Stock | % | Preferred Stock | % | Long Term Debt | % | Total Debt & Equity |
|------------------------|--------|-------------|----------------|------------------|--------------|-----------------------|-----------------------|--------------|-----------------|-----------------------|-----------------------|--------------|------------------------|
| Union Pacific Corp. | UNP | 1.05 | A+ | 52.0% | 21.4 | 2.44% | 14,569,368,300 | 31.9% | - | 0.0% | 31,156,000,000 | 68.1% | 45,725,368,300 |
| Norfolk Southern Corp. | NSC | 1.05 | A+ | 43.0% | 17.6 | 2.37% | 12,607,082,000 | 42.3% | - | 0.0% | 17,175,000,000 | 57.7% | 29,782,082,000 |
| CSX Corp. | CSX | 1.05 | B++ | 46.5% | 18.2 | 1.38% | 13,931,723,550 | 43.7% | - | 0.0% | 17,975,000,000 | 56.3% | 31,906,723,550 |
| Canadian National | CNI | 0.90 | A | 48.5% | 21.3 | 2.07% | 16,357,220,000 | 57.5% | - | 0.0% | 12,099,750,000 | 42.5% | 28,456,970,000 |
| Canadian Pacific | CP | 1.00 | A | 50.0% | 24.3 | 0.86% | 30,749,070,000 | 67.9% | - | 0.0% | 14,513,250,000 | 32.1% | 45,262,320,000 |
| Mean | | 1.01 | | 48.0% | 20.6 | 1.83% | 17,642,892,770 | 48.7% | | 0.0% | 18,583,800,000 | 51.3% | 181,133,463,850 |
| Weighted Mean | | | | | | 88,214,463,850 | 48.7% | - | 0.00% | 92,919,000,000 | 51.3% | | |
| Median | | 1.05 | | | 21.3 | 2.07% | | | 0.0% | | 56.3% | | |
| Std Dev | | 0.07 | | | 2.72 | 0.7% | | | - | | 14.1% | | |
| Coeff Var | | 0.06 | | | 0.13 | 0.37 | | | - | | 27.5% | | |
| Harmonic Mean | | 1.01 | | | 20.28 | 0.02 | | | | | 47.9% | | |
| Max | | 1.05 | | | 24.33 | 2.44% | | | 0.0% | | 68.1% | | |
| Min | | 0.90 | | | 17.57 | 0.86% | | | 0.0% | | 32.1% | | |

Say **1.02**

**SUPPORT FOR CAPITAL STRUCTURE
MARKET VALUE**

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Capital Structure at Market Value

| Company | Ticker | Stock Price | Common Shares | Common Stock | % | Preferred Stock | % | Operating Lease | % | Long Term Debt | % | Total Debt & Equity |
|------------------------|--------|-------------|----------------------|------------------------|--------------|-----------------|-------------|-----------------------|-------------|-----------------------|--------------|------------------------|
| Union Pacific Corp. | UNP | 245.62 | 609,597,000 | 149,729,215,140 | 81.2% | - | 0.0% | 6,145,347,285 | 3.3% | 28,500,000,000 | 15.5% | 184,374,562,425 |
| Norfolk Southern Corp. | NSC | 236.38 | 226,136,000 | 53,454,027,680 | 73.4% | - | 0.0% | 2,753,046,107 | 3.8% | 16,631,000,000 | 22.8% | 72,838,073,787 |
| CSX Corp. | CSX | 34.67 | 1,976,131,000 | 68,512,461,770 | 78.4% | - | 0.0% | 1,335,235,907 | 1.5% | 17,528,000,000 | 20.1% | 87,375,697,677 |
| Canadian National | CNI | 125.63 | 655,600,000 | 82,363,028,000 | 84.0% | - | 0.0% | 2,297,762,101 | 2.3% | 13,383,000,000 | 13.7% | 98,043,790,101 |
| Canadian Pacific | CP | 79.06 | 931,790,000 | 73,667,317,400 | 81.4% | - | 0.0% | 1,444,298,231 | 1.6% | 15,412,500,000 | 17.0% | 90,524,115,631 |
| | | | Mean | | 79.7% | | 0.0% | | 2.5% | | 17.8% | |
| | | | Weighted Mean | 427,726,049,990 | 80.2% | - | 0.0% | 13,975,689,632 | 2.6% | 91,454,500,000 | 17.2% | 533,156,239,622 |
| | | | Median | | 81.2% | | 0.0% | | 2.3% | | 17.0% | |
| | | | Harmonic Mean | | 79.5% | | | | 2.2% | | 17.2% | |
| | | | Std Dev | | 4.0% | | 0.0% | | 1.0% | | 3.7% | |
| | | | Coeff Var | | 19.7% | | | | 2.5% | | 4.9% | |
| | | | Max | | 84.0% | | 0.0% | | 3.8% | | 22.8% | |
| | | | Min | | 73.4% | | 0.0% | | 1.5% | | 13.7% | |
| | | | Target | | 80% | | 0% | | 2% | | 18% | 100% |

Source:
Stock Price: Yahoo
Market Value Debt: Bond Analysis

SUPPORT FOR MARKET MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

| Company | Ticker | Stock Price | Revenues | Multiple | Cash Flow | Multiple | Earnings | Multiple | Book Value | Multiple |
|------------------------|--------|---------------------------------|----------|-------------|-----------|--------------|----------|--------------|------------|-------------|
| Union Pacific Corp. | UNP | 245.62 | 39.65 | 6.2 | 14.25 | 17.2 | 10.30 | 23.8 | 23.90 | 10.3 |
| Norfolk Southern Corp. | NSC | 236.38 | 53.80 | 4.4 | 16.90 | 14.0 | 11.80 | 20.0 | 55.75 | 4.2 |
| CSX Corp. | CSX | 34.67 | 7.30 | 4.7 | 2.55 | 13.6 | 1.80 | 19.3 | 7.05 | 4.92 |
| Canadian National | CNI | 125.63 | 18.70 | 6.7 | 7.15 | 17.6 | 5.30 | 23.7 | 24.95 | 5.04 |
| Canadian Pacific | CP | 79.06 | 9.90 | 8.0 | 4.05 | 19.5 | 2.80 | 28.2 | 33.00 | 2.40 |
| | | Mean | | 6.0 | | 16.4 | | 23.0 | | 5.4 |
| | | Median | | 6.2 | | 17.2 | | 23.7 | | 4.9 |
| | | Harmonic Mean | | 5.7 | | 16.1 | | 22.6 | | 4.3 |
| | | Max | | 8.0 | | 19.5 | | 28.2 | | 10.3 |
| | | Min | | 4.4 | | 13.6 | | 19.3 | | 2.40 |
| | | Std Dev | | 1.5 | | 2.5 | | 3.6 | | 2.9 |
| | | Coefficient of Variation | | 0.2 | | 0.2 | | 0.2 | | 0.5 |
| | | Percentile .25 | | 4.7 | | 14.0 | | 20.0 | | 4.2 |
| | | Percentile .75 | | 6.7 | | 17.6 | | 23.8 | | 5.0 |
| | | Say | | 5.75 | | 16.00 | | 22.50 | | 4.50 |

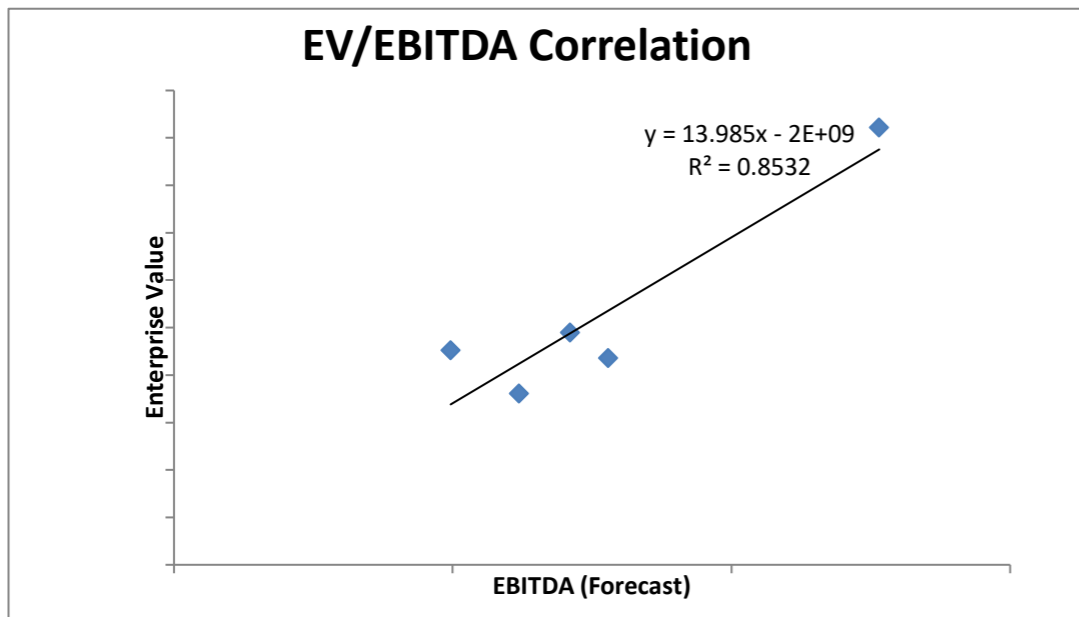
ENTERPRISE VALUE MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

| Guideline Companies | Ticker | EV+OL | EBITDA + OL | EV / EBITDA | Annual Cash Flow Rate Change VL | EBITDA | EV / EBITDA | Revenue | EV/Sales | Cash Flow | Debt Service | EV / CF |
|---------------------------|--------|--------------------|----------------|-------------|---------------------------------|----------------|------------------|----------------|----------|-------------------------|---------------|--------------|
| | | | | | | | | | | | | |
| Union Pacific Corp. | UNP | \$ 184,374,562,425 | 11,880,000,000 | 15.52 | 6.50% | 12,652,200,000 | 14.57 | 24,990,000,000 | 7.38 | 9,341,500,000 | 1,482,000,000 | 17.03 |
| Norfolk Southern Corp. | NSC | \$ 72,199,073,787 | 5,786,000,000 | 12.48 | 7.00% | 6,191,020,000 | 11.66 | 12,595,000,000 | 5.73 | 4,158,000,000 | 864,812,000 | 14.37 |
| CSX Corp. | CSX | \$ 87,215,697,677 | 7,247,000,000 | 12.03 | 7.50% | 7,790,525,000 | 11.20 | 14,949,000,000 | 5.83 | 5,346,000,000 | 911,456,000 | 13.94 |
| Canadian National | CNI | \$ 98,043,790,101 | 6,492,000,000 | 15.10 | 9.50% | 7,108,740,000 | 13.79 | 12,992,000,000 | 7.55 | 5,056,000,000 | 695,916,000 | 17.05 |
| Canadian Pacific | CP | \$ 90,524,115,631 | 4,554,000,000 | 19.88 | 9.00% | 4,963,860,000 | 18.24 | 10,438,400,000 | 8.67 | 4,287,200,000 | 801,450,000 | 17.79 |
| Mean | | | | | | | 13.89 | | | 5,637,740,000 | | 16.04 |
| Median | | | | | | | 13.79 | | | 5,056,000,000 | | 17.03 |
| Max | | | | | | | 18.24 | | | 9,341,500,000.00 | | 17.79 |
| Min | | | | | | | 11.20 | | | 4,158,000,000.00 | | 13.94 |
| Std Dev | | | | | | | 2.81 | | | 2,130,431,913.49 | | 1.75 |
| Coefficient of Var | | | | | | | 0.20 | | | 0.38 | | 0.11 |
| Harmonic Mean | | | | | | | 13.48 | | | 5,177,899,931 | | 15.88 |
| | | | | | | | Say 13.00 | | | 6.75 | | 15.75 |



10.50 put in income direct excluding IPP
13.75 put in income direct including IPP

Forecast EV/EBITDA By Rank

| Guideline Companies | EV/EBITDA forecast | | |
|------------------------|--------------------|--------------|--------------------|
| CSX Corp. | 11.20 | 11.43 | Low Average |
| Norfolk Southern Corp. | 11.66 | 11.66 | Low Median |
| | | 10.50 | Say |
| Canadian National | 13.79 | 15.53 | Average |
| Union Pacific Corp. | 14.57 | 14.57 | Median |
| Canadian Pacific | 18.24 | 13.75 | Say |

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
RAILROADS

$$\text{Ex Ante} \\ \text{Ke} = \text{Rf} + \text{B} (\text{Rp})$$

| | |
|----------------------------|--------------|
| Ke = Cost of Equity | 8.57% |
|----------------------------|--------------|

to page 1

| | | |
|------|----------------|-------|
| Rm = | rate of return | 8.48% |
| Rf = | risk free rate | 4.03% |
| Rp = | risk premium | 4.45% |
| B = | Beta | 1.02 |

| | |
|--------------------------|--------------|
| Rp = Risk Premium | 4.45% |
|--------------------------|--------------|

to above

Shannon Pratt and Roger Grabowski 3.5 - 6%
Cost of Capital, Applications and Examples, Third
Edition, 2008, Page 113

Dr. Aswath Damodaran 4.60% chart page 15
<http://pages.stern.nyu.edu/~adamodar/> 4.45% adjusted for Rf
2023 Implied Premium

| | |
|----------------------------|--------------|
| Rf = Risk Free Rate | 4.03% |
|----------------------------|--------------|

to above

Value Line Investment Survey, Selected Yields January 12, 2024, page 829
as of 12-29-23

| | | |
|--------------------------------------|--------------|-------|
| US Treasury Securities year end data | | |
| | 5 year | 3.84% |
| | 10 year | 3.88% |
| | 30 year | 4.03% |
| | 30 year Zero | 4.00% |

Federal Reserve Statistical Release (<http://www.federalreserve.gov/Releases/H15/Current/>)
As of 12-30-23

| | | |
|------------------------------|--------------|---|
| Treasury Constant Maturities | | |
| | 5 year | 3.84% |
| | 10 year | 3.88% |
| | 20 year | 4.20% |
| | 30 year | 4.03% |
| | 20 year TIPS | <u>1.82%</u> 2.38% |
| | 30 year TIPS | <u>1.90%</u> 2.13% |
| | | TIPS inflation indication |

| | |
|------------------|--------------|
| Inflation | 2.13% |
|------------------|--------------|

to appraisal template

The Livingston Survey December 15, 2023, page 2, 8
Inflation median (measured by the Consumer Price Index) over next 10 years 2.26%

| | |
|-------------------------------------|--------------|
| Gross Domestic Product (GDP) | 3.93% |
|-------------------------------------|--------------|

real GDP + inflation est

Federal Reserve Projected Long Run Real GDP Growth
Median Projection Value From Dec 13, 2023 Report 1.80%
<https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20231213.pdf>

Congressional Budget Office Real GDP Economic Projections
The Budget and Economic Outlook 2024-2034 Table 2.3, pg 55
Average Percentage Change Year To Year 2024-2028 1.80%
<https://www.cbo.gov/system/files/2024-02/59710-Outlook-> 2029-2034 1.80%

Federal Reserve Bank of Philadelphia
The Livingston Survey December 15, 2023, page 8
Average Annual Real GDP Growth Rate for Next 10 Years 2.00%
<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Based on Dividend Growth

$$K_e = (D_1 + BB_1) / P_0 + G_D$$

- Ke = Cost of Equity
- D1 = Expected Dividends
- BB1 = Expected Share Repurchase
- P0 = Current Stock Price
- GD = Sustainable Growth -- Dividend

| Company | Ticker | Stock Price (Po) | Expected FCFE1 | Expected Dividend (D1) | Expected Buyback | Dividend Yield (D1/Po) | Buyback Yield (BB1) | Total Yield | Growth | Ke |
|------------------------|--------|------------------|----------------|------------------------|------------------|------------------------|---------------------|---------------|--------|---------------|
| Union Pacific Corp. | UNP | 245.62 | 7.40 | 6.00 | 1.40 | 2.44% | 0.57% | 3.01% | 8.00% | 11.01% |
| Norfolk Southern Corp. | NSC | 236.38 | 7.93 | 5.60 | 2.33 | 2.37% | 0.99% | 3.35% | 7.00% | 10.35% |
| CSX Corp. | CSX | 34.67 | 1.17 | 0.48 | 0.69 | 1.38% | 1.99% | 3.38% | 9.50% | 12.88% |
| Canadian National | CNI | 125.63 | 2.82 | 2.60 | 0.22 | 2.07% | 0.17% | 2.24% | 9.00% | 11.24% |
| Canadian Pacific | CP | 79.06 | 2.34 | 0.68 | 1.66 | 0.86% | 2.10% | 2.96% | 7.00% | 9.96% |
| | | | | Mean | | | | 2.99% | | 11.09% |
| | | | | Median | | | | 3.01% | | 11.01% |
| | | | | Harmonic Mean | | | | 2.93% | | 11.00% |
| | | | | Std Dev | | | | 0.46% | | 1.12% |
| | | | | Coeff Var | | | | 15.34% | | 10.12% |
| | | | | Max | | | | 3.38% | | 12.88% |
| | | | | Min | | | | 2.24% | | 9.96% |

Source: Value Line Projections 23-25

Say

11.00%

to page 1

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
RAILROADS

Based on Earnings Growth

$$K_e = (D_1 + BB_1 / P_0) + G_D$$

- Ke = Cost of Equity
- D1 = Expected Dividends
- P0 = Current Stock Price
- G = Sustainable Growth -- Earnings
assumptio Sustainable growth can not exceed inflation plus real GDP

| Company | Ticker | Stock Price (Po) | Expected FCFE1 | Expected Dividend (D1) | Expected Buyback | Yield (D1/P0) | Buyback Yield (BB1/P0) | Total Yield | Growth | Ke Sustainable Growth |
|------------------------|--------|------------------|----------------|------------------------|------------------|---------------|------------------------|-------------|------------|-----------------------|
| Union Pacific Corp. | UNP | 245.62 | 7.40 | 6.00 | 1.40 | 2.44% | 0.57% | 3.01% | 7.50% | 10.51% |
| Norfolk Southern Corp. | NSC | 236.38 | 7.93 | 5.60 | 2.33 | 2.37% | 0.99% | 3.35% | 8.50% | 11.85% |
| CSX Corp. | CSX | 34.67 | 1.17 | 0.48 | 0.69 | 1.38% | 1.99% | 3.38% | 8.00% | 11.38% |
| Canadian National | CNI | 125.63 | 2.82 | 2.60 | 0.22 | 2.07% | 0.17% | 2.24% | 10.50% | 12.74% |
| Canadian Pacific | CP | 79.06 | 2.34 | 0.68 | 1.66 | 0.86% | 2.10% | 2.96% | 6.00% | 8.96% |
| Mean | | | | | | 1.83% | | | | 11.09% |
| Median | | | | | | 2.07% | | | | 11.38% |
| Harmonic Mean | | | | | | 1.56% | | | | 10.93% |
| Std Dev | | | | | | 0.68% | | | | 1.44% |
| Coeff Var | | | | | | 37.39% | | | | 12.96% |
| Max | | | | | | 2.44% | | | | 12.74% |
| Min | | | | | | 0.86% | | | | 8.96% |
| | | | | | | | | | Say | 11.30% |

Source: Value Line Projections 23-25

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Based on Return on Equity

$$K_e = (D1 / P_o) + G$$

K_e = Cost of Equity
 $D1$ = Expected Dividends
 $E1$ = Expected Earnings
 P_o = Current Price
 G = Sustainable Growth
 b = Retained Earnings % (plowback)
 ROE = Return on Equity

| Company | Ticker | Stock Price (Po) | Expected Earnings (E1) | Total Yield | \$ Payout | Payout Ratio | b (1-payout ratio) | ROE | Growth (b*ROE)=(G) | K_e |
|------------------------|--------|------------------|------------------------|-------------|-----------|--------------|--------------------|--------|----------------------|---------------|
| Union Pacific Corp. | UNP | 245.62 | 11.50 | 3.01% | 7.40 | 0.64 | 0.36 | 46.00% | 16.42% | 19.43% |
| Norfolk Southern Corp. | NSC | 236.38 | 13.45 | 3.35% | 7.93 | 0.59 | 0.41 | 22.50% | 9.24% | 12.59% |
| CSX Corp. | CSX | 34.67 | 1.90 | 3.38% | 1.17 | 0.62 | 0.38 | 23.50% | 9.01% | 12.39% |
| Canadian National | CNI | 125.63 | 5.90 | 2.24% | 2.82 | 0.48 | 0.52 | 22.00% | 11.49% | 13.73% |
| Canadian Pacific | CP | 79.06 | 3.25 | 2.96% | 2.34 | 0.72 | 0.28 | 9.00% | 2.51% | 5.48% |
| | | | | | | | | | Mean | 12.72% |
| | | | | | | | | | Median | 12.59% |
| | | | | | | | | | Harmonic Mean | 10.71% |
| | | | | | | | | | Std Dev | 4.97% |
| | | | | | | | | | Coeff Var | 39.03% |
| | | | | | | | | | Max | 19.43% |
| | | | | | | | | | Min | 5.48% |
| | | | | | | | | | Say | 12.50% |

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT MULTISTAGE FREE CASH FLOW TO EQUITY MODEL

Washington State Department of Revenue

2024 ASSESSMENT YEAR

Based on Earnings Growth and Required Reinvestment

| Company | Ticker | Ke | New Ke |
|------------------------|--------|---------------|---------------|
| Union Pacific Corp. | UNP | 9.49% | 6.97% |
| Norfolk Southern Corp. | NSC | 12.46% | 8.48% |
| CSX Corp. | CSX | 11.74% | 11.14% |
| Canadian National | CNI | 10.92% | 12.55% |
| Canadian Pacific | CP | 7.16% | 8.97% |
| Mean | | 10.35% | 9.62% |
| Harmonic Mean | | 9.96% | 9.22% |
| Median | | 10.92% | 8.97% |
| Say | | 10.75% | 11.00% |

SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

| Company | Ticker | Mergent's Ratings | S&P Ratings | WAYTM | S&P YTM (avg) | Mergent's Ratings | S&P Ratings | Mergent's | S&P | |
|---|--------------|-------------------|--------------|--------------|---------------|-------------------|-------------|-----------|------|---|
| Union Pacific Corp. | UNP | A3 | A- | 5.09% | 4.99% | 9 | 9 | Aaa1 | AAA+ | 1 |
| Norfolk Southern Corp. | NSC | Baa1 | BBB+ | 5.28% | 5.17% | 10 | 10 | Aaa2 | AAA | 2 |
| CSX Corp. | CSX | Baa1 | BBB+ | 5.18% | 4.99% | 10 | 10 | Aaa3 | AAA- | 3 |
| Canadian Pacific | CP | Baa2 | BBB+ | 5.60% | 5.13% | 11 | 10 | Aa1 | AA+ | 4 |
| Canadian National | CNI | A2 | A | 4.95% | 4.94% | 8 | 8 | Aa2 | AA | 5 |
| Overall Average Debt Rating | | Baa1 | A- | 5.22% | 5.05% | 9.6 | 9.4 | Aa3 | AA- | 6 |
| bond analysis, A-CCC bonds | | | | | | | | | | |
| All issues 20+ year maturities | | | | | | | | | | |
| Guideline Companies, All Ratings | | | 5.24% | 5.20% | | | | | | |
| bond analysis page 12 | | | | | | | | | | |
| Mergent's Bond Record January 2024, page 101 | | | | | | | | | | |
| Corporate | Aaa | Aa | A | Baa | | | | | | |
| October | 5.61% | 5.97% | 6.18% | 6.63% | | | | | | |
| November | 5.61% | 5.57% | 5.78% | 6.19% | | | | | | |
| December | 4.74% | 5.05% | 5.25% | 5.64% | | | | | | |
| 4th Qtr Average | 5.32% | 5.53% | 5.74% | 6.15% | | | | | | |
| 2023 Average | 4.81% | 5.13% | 5.48% | 5.97% | | | | | | |
| Public Utilities | Aaa | Aa | A | Baa | | | | | | |
| October | | 6.19% | 6.34% | 6.61% | | | | | | |
| November | | 5.82% | 5.96% | 6.20% | | | | | | |
| December | | 5.27% | 5.42% | 5.68% | | | | | | |
| 4th Qtr Average | | 5.76% | 5.91% | 6.16% | | | | | | |
| 2023 Average | | 5.43% | 5.64% | 5.93% | | | | | | |
| Industrials | Aaa | Aa | A | Baa | | | | | | |
| October | 5.61% | 5.76% | 6.02% | 6.64% | | | | | | |
| November | 5.20% | 5.32% | 5.59% | 6.18% | | | | | | |
| December | 4.74% | 4.82% | 5.07% | 5.60% | | | | | | |
| 4th Qtr Average | 5.18% | 5.30% | 5.56% | 6.14% | | | | | | |
| 2023 Average | 4.81% | 4.84% | 5.31% | 6.01% | | | | | | |
| Debt Yield Rate | | | | 5.20% | | | | | | |
| Cost of Secured Debt (Operating Lease) Rate | | | | 5.00% | | | | | | |

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to page 1

12/31/2023

Railroad Bond Analysis

2024.5

| Company | type | Call | coupon | maturity | Price | Issued / Book | Current yield | YTM | Weighted Ave | S&P Rating | Mkt Val | Mkt : Book | Embedded Rate | Debt Service | WAYTM | WAYTM | Finra YTM |
|-------------------|---------------|-------------|--------|------------|----------------|--------------------------|--------------------------|-------|--------------|------------|--------------------------|---------------|---------------|-----------------------|----------|---------|---------------|
| Canadian National | | | 2.750 | 2026 | 95.97 | \$ 500,000,000 | 2.87% | 5.63% | 0.03% | NR | \$ 479,850,000 | 95.97% | | 13,750,000 | 0.000304 | 0.00415 | 4.75 |
| Canadian National | Notes (frgn) | Z100 | 6.900 | 2028 | 109.45 | \$ 475,000,000 | 6.30% | 3.96% | 0.02% | NR | \$ 519,887,500 | 109.45% | | 32,775,000 | 0.000203 | 0.00277 | 4.543 |
| Canadian National | | | 7.375 | 2031 | 115.78 | \$ 200,000,000 | 6.37% | 4.52% | 0.01% | NR | \$ 231,560,000 | 115.78% | | 14,750,000 | 0.000098 | 0.00133 | 4.9 |
| Canadian National | | | 3.850 | 2032 | 92.93 | \$ 800,000,000 | 4.14% | 5.00% | 0.04% | NR | \$ 743,440,000 | 92.93% | | 30,800,000 | 0.000432 | 0.00591 | 4.87 |
| Canadian National | | | 5.850 | 2033 | 107.22 | \$ 300,000,000 | 5.46% | 4.80% | 0.02% | NR | \$ 321,660,000 | 107.22% | | 17,550,000 | 0.000155 | 0.00212 | 4.88 |
| Canadian National | | | 6.250 | 2034 | 112.01 | \$ 500,000,000 | 5.58% | 4.66% | 0.03% | NR | \$ 560,050,000 | 112.01% | | 31,250,000 | 0.000252 | 0.00344 | 4.78 |
| Canadian National | Secured (frg) | Put-able | 6.712 | 2036 | 115.35 | \$ 250,000,000 | 5.82% | 4.93% | 0.01% | NR | \$ 288,375,000 | 115.35% | | 16,780,000 | 0.000133 | 0.00182 | 5.04 |
| Canadian National | | | 6.200 | 2036 | 110.88 | \$ 450,000,000 | 5.59% | 4.94% | 0.02% | NR | \$ 498,960,000 | 110.88% | | 27,900,000 | 0.000240 | 0.00328 | 5 |
| Canadian National | SR Notes | | 6.375 | 2037 | 112.32 | \$ 300,000,000 | 5.68% | 5.02% | 0.02% | NR | \$ 336,960,000 | 112.32% | | 19,125,000 | 0.000163 | 0.00222 | 5.12 |
| Canadian National | SR Notes | | 3.500 | 2042 | 80.88 | \$ 250,000,000 | 4.33% | 5.19% | 0.01% | NR | \$ 202,200,000 | 80.88% | | 8,750,000 | 0.000140 | 0.00191 | 5.08 |
| Canadian National | SR Notes | | 4.500 | 2043 | 89.71 | \$ 250,000,000 | 5.02% | 5.39% | 0.01% | NR | \$ 224,275,000 | 89.71% | | 11,250,000 | 0.000146 | 0.00199 | 5.34 |
| Canadian National | SR Notes | | 3.200 | 2046 | 76.24 | \$ 650,000,000 | 4.20% | 5.03% | 0.04% | NR | \$ 495,560,000 | 76.24% | | 20,800,000 | 0.000353 | 0.00483 | 4.96 |
| Canadian National | SR Notes | | 3.650 | 2048 | 81.86 | \$ 600,000,000 | 4.46% | 4.98% | 0.03% | NR | \$ 491,160,000 | 81.86% | | 21,900,000 | 0.000323 | 0.00441 | 4.94 |
| Canadian National | SR Notes | | 4.450 | 2049 | 90.84 | \$ 650,000,000 | 4.90% | 5.11% | 0.04% | NR | \$ 590,460,000 | 90.84% | | 28,925,000 | 0.000359 | 0.00491 | 5.1 |
| Canadian National | SR Notes | | 2.450 | 2050 | 64.21 | \$ 600,000,000 | 3.82% | 4.95% | 0.03% | NR | \$ 385,260,000 | 64.21% | | 14,700,000 | 0.000321 | 0.00439 | 4.87 |
| Canadian National | SR Notes | | 4.400 | 2052 | 89.35 | \$ 700,000,000 | 4.92% | 5.13% | 0.04% | NR | \$ 625,450,000 | 89.35% | | 30,800,000 | 0.000388 | 0.00530 | 5.11 |
| Canadian National | SR Notes | | 6.125 | 2053 | 114.33 | \$ 300,000,000 | 5.36% | 5.15% | 0.02% | NR | \$ 342,990,000 | 114.33% | | 18,375,000 | 0.000167 | 0.00228 | 6.125 |
| 17 | | 1700 | | sum | 1659.33 | \$ 6,775,000,000 | Percent of 97.61% | | 0.36% | | \$ 6,369,657,500 | 94.02% | 4.59% | \$ 311,005,000 | | | 4.949% |
| CSX Corp | Fixed Rt | | 3.350 | 2025 | 97.39 | \$ 600,000,000 | 3.44% | 8.92% | 0.06% | BBB+ | \$ 584,340,000 | 97.39% | | 20,100,000 | 0.000578 | 0.00278 | 4.878 |
| CSX Corp | | | 2.600 | 2026 | 95.08 | \$ 700,000,000 | 2.73% | 6.13% | 0.05% | BBB+ | \$ 665,560,000 | 95.08% | | 18,200,000 | 0.000464 | 0.00223 | 4.488 |
| CSX Corp | | | 3.250 | 2027 | 96.21 | \$ 850,000,000 | 3.38% | 4.90% | 0.04% | BBB+ | \$ 817,785,000 | 96.21% | | 27,625,000 | 0.000450 | 0.00217 | 4.467 |
| CSX Corp | | | 7.250 | 2027 | 107.81 | \$ 250,000,000 | 6.72% | 3.91% | 0.01% | BBB+ | \$ 269,525,000 | 107.81% | | 18,125,000 | 0.000106 | 0.00051 | 4.668 |
| CSX Corp | | | 7.950 | 2027 | 109.70 | \$ 500,000,000 | 7.25% | 3.81% | 0.02% | BBB+ | \$ 548,500,000 | 109.70% | | 39,750,000 | 0.000206 | 0.00099 | 4.74 |
| CSX Corp | | | 3.800 | 2028 | 97.71 | \$ 800,000,000 | 3.89% | 4.52% | 0.04% | BBB+ | \$ 781,680,000 | 97.71% | | 30,400,000 | 0.000391 | 0.00188 | 4.412 |
| CSX Corp | MTN Ser C | | 6.800 | 2028 | 108.37 | \$ 200,000,000 | 6.27% | 4.18% | 0.01% | BBB+ | \$ 216,740,000 | 108.37% | | 13,600,000 | 0.000090 | 0.00044 | 4.853 |
| CSX Corp | | | 4.250 | 2029 | 99.41 | \$ 350,000,000 | 4.28% | 4.40% | 0.02% | BBB+ | \$ 347,935,000 | 99.41% | | 14,875,000 | 0.000166 | 0.00080 | 4.377 |
| CSX Corp | SR Notes | | 2.400 | 2030 | 88.48 | \$ 400,000,000 | 2.71% | 4.84% | 0.02% | BBB+ | \$ 353,920,000 | 88.48% | | 9,600,000 | 0.000209 | 0.00101 | 4.589 |
| CSX Corp | SR Notes | | 4.100 | 2032 | 96.25 | \$ 950,000,000 | 4.26% | 4.70% | 0.05% | BBB+ | \$ 914,375,000 | 96.25% | | 38,950,000 | 0.000483 | 0.00233 | 4.621 |
| CSX Corp | | | 5.200 | 2033 | 102.27 | \$ 600,000,000 | 5.08% | 4.87% | 0.03% | BBB+ | \$ 613,620,000 | 102.27% | | 31,200,000 | 0.000315 | 0.00152 | 4.898 |
| CSX Corp | NOTES | Z100 | 6.000 | 2036 | 108.97 | \$ 400,000,000 | 5.51% | 4.96% | 0.02% | BBB+ | \$ 435,880,000 | 108.97% | | 24,000,000 | 0.000214 | 0.00103 | 5.036 |
| CSX Corp | NOTES | Z100 | 6.150 | 2037 | 110.71 | \$ 700,000,000 | 5.56% | 4.98% | 0.04% | BBB+ | \$ 774,970,000 | 110.71% | | 43,050,000 | 0.000376 | 0.00181 | 5.035 |
| CSX Corp | NOTES | | 7.450 | 2038 | 117.43 | \$ 700,000,000 | 6.34% | 5.58% | 0.04% | BBB+ | \$ 822,010,000 | 117.43% | | 52,150,000 | 0.000422 | 0.00203 | 5.67 |
| CSX Corp | Fixed Rt nts | | 6.220 | 2040 | 111.51 | \$ 660,000,000 | 5.58% | 5.13% | 0.04% | BBB+ | \$ 735,966,000 | 111.51% | | 41,052,000 | 0.000365 | 0.00176 | 5.166 |
| CSX Corp | NOTES | | 5.500 | 2041 | 103.49 | \$ 550,000,000 | 5.31% | 5.18% | 0.03% | BBB+ | \$ 569,195,000 | 103.49% | | 30,250,000 | 0.000308 | 0.00148 | 5.185 |
| CSX Corp | NOTES | | 4.750 | 2042 | 94.72 | \$ 600,000,000 | 5.01% | 5.22% | 0.03% | BBB+ | \$ 568,320,000 | 94.72% | | 28,500,000 | 0.000338 | 0.00163 | 5.19 |
| CSX Corp | | | 7.875 | 2043 | 128.73 | \$ 100,000,000 | 6.12% | 5.38% | 0.01% | BBB+ | \$ 128,730,000 | 128.73% | | 7,875,000 | 0.000058 | 0.00028 | 5.45 |
| CSX Corp | | | 4.400 | 2043 | 90.58 | \$ 300,000,000 | 4.86% | 5.21% | 0.02% | BBB+ | \$ 271,740,000 | 90.58% | | 13,200,000 | 0.000169 | 0.00081 | 5.181 |
| CSX Corp | NOTES | | 4.100 | 2044 | 86.27 | \$ 800,000,000 | 4.75% | 5.24% | 0.05% | BBB+ | \$ 690,160,000 | 86.27% | | 32,800,000 | 0.000453 | 0.00218 | 5.22 |
| CSX Corp | | | 3.800 | 2046 | 81.77 | \$ 800,000,001 | 4.65% | 5.23% | 0.05% | BBB+ | \$ 654,160,001 | 81.77% | | 30,400,000 | 0.000452 | 0.00218 | 5.17 |
| CSX Corp | | | 4.750 | 2048 | 93.83 | \$ 650,000,000 | 5.06% | 5.21% | 0.04% | BBB+ | \$ 609,895,000 | 93.83% | | 30,875,000 | 0.000366 | 0.00176 | 5.19 |
| CSX Corp | | | 4.300 | 2048 | 88.08 | \$ 850,000,000 | 4.88% | 5.19% | 0.05% | BBB+ | \$ 748,680,000 | 88.08% | | 36,550,000 | 0.000477 | 0.00230 | 5.16 |
| CSX Corp | | | 3.350 | 2049 | 74.46 | \$ 600,000,000 | 4.50% | 5.22% | 0.03% | BBB+ | \$ 446,760,000 | 74.46% | | 20,100,000 | 0.000338 | 0.00163 | 5.015 |
| CSX Corp | | | 4.500 | 2049 | 89.72 | \$ 400,000,000 | 5.02% | 5.26% | 0.02% | BBB+ | \$ 358,880,000 | 89.72% | | 18,000,000 | 0.000227 | 0.00109 | 5.239 |
| CSX Corp | SR Notes | | 3.800 | 2050 | 79.78 | \$ 500,000,000 | 4.76% | 5.26% | 0.03% | BBB+ | \$ 398,900,000 | 79.78% | | 19,000,000 | 0.000284 | 0.00137 | 5.22 |
| CSX Corp | FR SR Note | | 3.950 | 2050 | 82.48 | \$ 600,000,000 | 4.79% | 5.21% | 0.03% | BBB+ | \$ 494,880,000 | 82.48% | | 23,700,000 | 0.000337 | 0.00163 | 5.176 |
| CSX Corp | SR Notes | | 2.500 | 2051 | 63.48 | \$ 500,000,000 | 3.94% | 5.02% | 0.03% | BBB+ | \$ 317,400,000 | 63.48% | | 12,500,000 | 0.000271 | 0.00131 | 4.952 |
| CSX Corp | SR Notes | | 4.500 | 2052 | 91.35 | \$ 900,000,000 | 4.93% | 5.09% | 0.05% | BBB+ | \$ 822,150,000 | 91.35% | | 40,500,000 | 0.000495 | 0.00239 | 5.074 |
| CSX Corp | SR Notes | | 4.500 | 2054 | 90.45 | \$ 450,000,000 | 4.98% | 5.14% | 0.02% | BBB+ | \$ 407,025,000 | 90.45% | | 20,250,000 | 0.000250 | 0.00120 | 5.121 |
| CSX Corp | SR Notes | | 4.250 | 2066 | 83.84 | \$ 950,000,000 | 5.07% | 5.21% | 0.05% | BBB+ | \$ 796,480,000 | 83.84% | | 40,375,000 | 0.000534 | 0.00258 | 5.194 |
| CSX Corp | SR Notes | | 4.650 | 2068 | 91.60 | \$ 1,000,000,000 | 5.08% | 5.14% | 0.06% | BBB+ | \$ 916,000,000 | 91.60% | | 46,500,000 | 0.000555 | 0.00267 | 5.132 |
| 32 | | 3200 | | sum | 3061.93 | \$ 19,210,000,001 | % of book 95.69% | | 1.07% | | \$ 18,082,161,001 | 94.13% | 4.55% | \$ 874,052,000 | | | 5.179% |
| Norfolk Southern | | | 3.650 | 2025 | 97.91 | \$ 300,000,000 | 3.73% | 8.08% | 0.03% | BBB+ | \$ 293,730,000 | 97.91% | | 10,950,000 | 0.000262 | 0.00123 | 5.060 |
| Norfolk Southern | Notes | Z100 | 5.590 | 2025 | 100.74 | \$ 251,172,000 | 5.55% | 4.07% | 0.01% | BBB+ | \$ 253,030,673 | 100.74% | | 14,040,515 | 0.000110 | 0.00052 | 5.000 |
| Norfolk Southern | | | 2.900 | 2026 | 94.76 | \$ 600,000,000 | 3.06% | 6.69% | 0.04% | BBB+ | \$ 568,560,000 | 94.76% | | 17,400,000 | 0.000433 | 0.00204 | 5.238 |
| Norfolk Southern | | | 3.150 | 2027 | 95.45 | \$ 300,000,000 | 3.30% | 5.14% | 0.02% | BBB+ | \$ 286,350,000 | 95.45% | | 9,450,000 | 0.000166 | 0.00078 | 4.610 |
| Norfolk Southern | Notes | Z100 | 7.800 | 2027 | 109.72 | \$ 800,000,000 | 7.11% | 3.66% | 0.03% | BBB+ | \$ 877,760,000 | 109.72% | | 62,400,000 | 0.000316 | 0.00149 | 4.620 |
| Norfolk Southern | | | 3.800 | 2028 | 97.02 | \$ 400,000,000 | 3.92% | 4.74% | 0.02% | BBB+ | \$ 388,080,000 | 97.02% | | 15,200,000 | 0.000205 | 0.00096 | 4.530 |
| Norfolk Southern | | | 2.550 | 2029 | 89.39 | \$ 400,000,000 | 2.85% | 5.26% | 0.02% | BBB+ | \$ 357,560,000 | 89.39% | | 10,200,000 | 0.000227 | 0.00107 | 4.650 |
| Norfolk Southern | Notes | Z100 | 5.640 | 2029 | 104.33 | \$ 350,000,000 | 5.41% | 4.55% | 0.02% | BBB+ | \$ 365,155,000 | 104.33% | | 19,740,000 | 0.000172 | 0.00081 | 4.711 |
| Norfolk Southern | SR Notes | Z100 | 7.250 | 2031 | 114.11 | \$ 700,000,000 | 6.35% | 4.68% | 0.04% | BBB+ | \$ 798,770,000 | 114.11% | | 50,750,000 | 0.000354 | 0.00166 | 4.880 |
| Norfolk Southern | SR Notes | Z100 | 2.300 | 2031 | 86.00 | \$ 500,000,000 | 2.67% | 4.86% | 0.03% | BBB+ | \$ 430,000,000 | 86.00% | | 11,500,000 | 0.000263 | 0.00123 | 4.530 |
| Norfolk Southern | SR Notes | | 3.000 | 2032 | 89.17 | \$ 600,000,000 | 3.36% | 4.75% | 0.03% | BBB+ | \$ 535,020,000 | 89.17% | | 18,000,000 | 0.000308 | 0.00145 | 4.605 |
| Norfolk Southern | SR Notes | | 4.450 | 2033 | 96.14 | \$ 750,000,000 | 4.63% | 5.02% | 0.04% | BBB+ | \$ 721,050,000 | 96.14% | | 33,375,000 | 0.000407 | 0.00191 | 4.980 |
| Norfolk Southern | SR Notes | | 5.550 | 2034 | 103.68 | \$ 400,000,000 | 5.35% | 5.05% | 0.02% | BBB+ | \$ 414,720,000 | 103.68% | | 22,200,000 | 0.000218 | 0.00103 | 5.070 |
| Norfolk Southern | Notes | Z100 | 7.050 | 2037 | 112.95 | \$ 750,000,000 | 6.24% | 5.58% | 0.05% | BBB+ | \$ 847,125,000 | 112.95% | | 52,875,000 | 0.000452 | 0.00213 | 5.650 |
| Norfolk Southern | Notes | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | |
|----------------------|----------|-------------|-------|------------|----------------|-----------|-----------------------|------------------|---------------|--------------|--|-----------|-----------------------|---------------|--------------|--------------------|----------|---------|---------------|
| Canadian Pacific | SR NOTES | | 3.125 | 2026 | 95.74 | \$ | 226,823,000 | 3.26% | 6.19% | 0.02% | | \$ | 217,160,340 | 95.74% | | 7,088,219 | 0.000152 | 0.00108 | 5.111 |
| Canadian Pacific | SR NOTES | | 4.000 | 2028 | 97.39 | \$ | 500,000,000 | 4.11% | 4.83% | 0.03% | | \$ | 486,950,000 | 97.39% | | 20,000,000 | 0.000261 | 0.00186 | 4.664 |
| Canadian Pacific | SR NOTES | | 2.875 | 2029 | 89.69 | \$ | 414,838,000 | 3.21% | 5.53% | 0.02% | | \$ | 372,068,202 | 89.69% | | 11,926,593 | 0.000248 | 0.00177 | 4.956 |
| Canadian Pacific | SR NOTES | | 2.050 | 2030 | 85.46 | \$ | 500,000,000 | 2.40% | 5.15% | 0.03% | | \$ | 427,300,000 | 85.46% | | 10,250,000 | 0.000278 | 0.00199 | 4.792 |
| Canadian Pacific | SR NOTES | | 2.450 | 2031 | 83.87 | \$ | 1,400,000,000 | 2.92% | 5.46% | 0.08% | | \$ | 1,174,180,000 | 83.87% | | 34,300,000 | 0.000826 | 0.00590 | 4.969 |
| Canadian Pacific | SR NOTES | | 7.125 | 2031 | 113.21 | \$ | 350,000,000 | 6.29% | 4.72% | 0.02% | | \$ | 396,235,000 | 113.21% | | 24,937,500 | 0.000178 | 0.00127 | 5.04 |
| Canadian Pacific | SR NOTES | | 5.750 | 2033 | 103.97 | \$ | 250,000,000 | 5.53% | 5.16% | 0.01% | | \$ | 259,925,000 | 103.97% | | 14,375,000 | 0.000139 | 0.00100 | 5.198 |
| Canadian Pacific | SR NOTES | | 4.800 | 2035 | 97.39 | \$ | 300,000,000 | 4.93% | 5.13% | 0.02% | | \$ | 292,170,000 | 97.39% | | 14,400,000 | 0.000166 | 0.00119 | 5.087 |
| Canadian Pacific | SR NOTES | | 5.950 | 2037 | 106.73 | \$ | 450,000,000 | 5.57% | 5.20% | 0.03% | | \$ | 480,285,000 | 106.73% | | 26,775,000 | 0.000253 | 0.00181 | 5.24 |
| Canadian Pacific | SR NOTES | | 3.000 | 2041 | 85.89 | \$ | 1,000,000,000 | 3.49% | 4.20% | 0.05% | | \$ | 858,900,000 | 85.89% | | 30,000,000 | 0.000454 | 0.00324 | 4.12 |
| Canadian Pacific | SR NOTES | | 4.300 | 2043 | 87.32 | \$ | 448,453,000 | 4.92% | 5.40% | 0.03% | | \$ | 391,589,160 | 87.32% | | 19,283,479 | 0.000262 | 0.00187 | 5.36 |
| Canadian Pacific | SR NOTES | | 4.950 | 2045 | 92.89 | \$ | 462,991,000 | 5.33% | 5.54% | 0.03% | | \$ | 430,072,340 | 92.89% | | 22,918,055 | 0.000277 | 0.00198 | 5.51 |
| Canadian Pacific | SR NOTES | | 4.800 | 2045 | 93.28 | \$ | 550,000,000 | 5.15% | 5.35% | 0.03% | | \$ | 513,040,000 | 93.28% | | 26,400,000 | 0.000318 | 0.00227 | 5.32 |
| Canadian Pacific | | | 4.700 | 2048 | 88.35 | \$ | 497,861,000 | 5.32% | 5.60% | 0.03% | | \$ | 439,860,194 | 88.35% | | 23,399,467 | 0.000301 | 0.00215 | 5.583 |
| Canadian Pacific | | | 3.500 | 2050 | 73.34 | \$ | 542,518,000 | 4.77% | 5.46% | 0.03% | | \$ | 397,882,701 | 73.34% | | 18,988,130 | 0.000320 | 0.00229 | 5.41 |
| Canadian Pacific | SR NOTES | | 3.100 | 2051 | 68.55 | \$ | 1,800,000,000 | 4.52% | 5.35% | 0.10% | | \$ | 1,233,900,000 | 68.55% | | 55,800,000 | 0.001040 | 0.00742 | 5.246 |
| Canadian Pacific | SR NOTES | | 4.200 | 2069 | 78.24 | \$ | 420,463,000 | 5.37% | 5.52% | 0.03% | | \$ | 328,970,251 | 78.24% | | 17,659,446 | 0.000251 | 0.00179 | 5.506 |
| Canadian Pacific | SR NOTES | | 6.125 | 2115 | 108.95 | \$ | 900,000,000 | 5.62% | 5.62% | 0.05% | | \$ | 980,550,000 | 108.95% | | 55,125,000 | 0.000546 | 0.00390 | 5.619 |
| 21 Book Value | | 2100 | | sum | 1937.56 | \$ | 12,963,947,000 | % of book | 92.26% | 0.78% | | \$ | 11,528,893,188 | 88.93% | 3.71% | 480,675,888 | | | 5.595% |

Total \$ 92,569,089,001.00

Total \$ 83,099,121,049.42 89.77%

4.13% \$ 3,820,323,135 5.236%

This includes short term. For 20+ year maturities see below

Source: Finra/Cbonds

<https://www.finra.org/finra-data/fixed-income/bond?cusip=136375DJ8&bondType=CA>

[Domestic and international bond search \(cbonds.com\)](#)

Embedded debt rate

4.13%

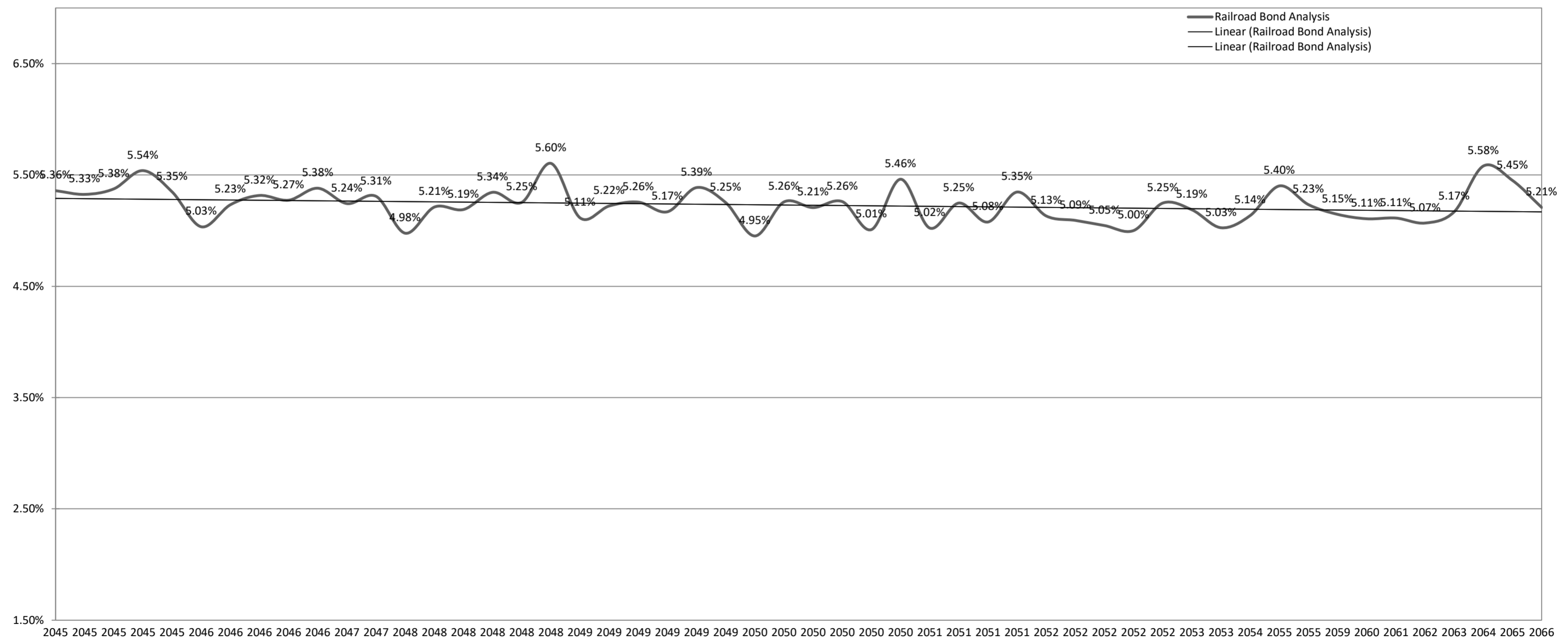
Weighted average yield to maturity

5.24%

Debt service / Market value

4.60%

20+ Year, All Ratings, Railroad Bond Analysis



Finra YTM

SAY

5.23%

5.20%

DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Instructions: Data entered on this page will flow to the applicable worksheets.

| Guideline Companies | | Current Year | | | | | | | | | |
|------------------------|--------|---------------------------|-----------------|-----------------------|------------------------|-----------------------|------------------------|---------------|------------------|-------------------|---------------------|
| | | Stock Price 12/29/2023 | Beta levered | Revenues Per Share | Cash Flow Per Share | Earnings Per Share | Dividends Per Share | Book Value | Common Shares | Long-Term Debt | Operating Margin |
| Name | Ticker | Yahoo | VL | VL | VL | VL | VL | VL | VL | VL | VL |
| Union Pacific Corp. | UNP | \$245.62 | 1.05 | \$ 39.65 | \$ 14.25 | \$ 10.30 | \$ 5.20 | \$ 23.90 | 609,597 | \$ 31,153,000,000 | 52.0% |
| Norfolk Southern Corp. | NSC | \$236.38 | 1.05 | \$ 53.80 | \$ 16.90 | \$ 11.80 | \$ 5.40 | \$ 55.75 | 226,136 | \$ 16,179,000,000 | 43.0% |
| CSX Corp. | CSX | \$34.67 | 1.05 | \$ 7.30 | \$ 2.55 | \$ 1.80 | \$ 0.44 | \$ 7.05 | 1,976,131 | \$ 17,903,000,000 | 46.5% |
| Canadian National | CNI | \$125.63 | 0.90 | \$ 18.70 | \$ 7.15 | \$ 5.30 | \$ 2.40 | \$ 24.95 | 655,600 | \$ 11,845,000,000 | 48.5% |
| Canadian Pacific | CP | \$79.06 | 1.00 | \$ 9.90 | \$ 4.05 | \$ 2.80 | \$ 0.58 | \$ 33.00 | 931,790 | \$ 16,322,000,000 | 50.0% |

Value Line Issue: November 17, 2023

The harmonic mean is the preferable method for averaging multiples, such as the price/earning ratio, in which price is in the numerator. If these ratios are averaged using an arithmetic mean (a common error), High data points are given greater weights than low data points. The harmonic mean, on the other hand, gives equal weight to each data point

Note:

Canadian Exchange Rate: **0.7500**

Value Line figures are all values in US dollars.

DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Instructions: Data entered on this page will flow to the applicable worksheets.

| Guideline Companies | | Stock Price 12/29/2023 | Next Year | | | | | | | |
|------------------------|--------|---------------------------|-----------------------|------------------------|-----------------------|------------------------|------------------|--|-----------------------------------|---------------------------------|
| | | | Revenues Per Share | Cash Flow Per Share | Earnings Per Share | Dividends Per Share | Common Shares | % Return on Shareholders' Equity | % Retained to Common Equity | All Dividends to Net Profits |
| Name | Ticker | Yahoo | VL | VL | VL | VL | VL | VL | VL | VL |
| Union Pacific Corp. | UNP | \$245.62 | \$ 42.00 | \$ 15.70 | \$ 11.50 | \$ 6.00 | 595,000 | 46.0% | 22.0% | 52.0% |
| Norfolk Southern Corp. | NSC | \$236.38 | \$ 57.25 | \$ 18.90 | \$ 13.45 | \$ 5.60 | 220,000 | 22.5% | 13.0% | 42.0% |
| CSX Corp. | CSX | \$34.67 | \$ 7.55 | \$ 2.70 | \$ 1.90 | \$ 0.48 | 1,980,000 | 23.5% | 17.5% | 25.0% |
| Canadian National | CNI | \$125.63 | \$ 20.30 | \$ 7.90 | \$ 5.90 | \$ 2.60 | 640,000 | 22.0% | 12.5% | 44.0% |
| Canadian Pacific | CP | \$79.06 | \$ 11.20 | \$ 4.60 | \$ 3.25 | \$ 0.68 | 932,000 | 9.0% | 7.5% | 21.0% |

Value Line Issue: November 17, 2023

The harmonic mean is the preferable method for averaging multiples, such as the price/earning ratio, in which price is in the numerator. If these ratios are averaged using an arithmetic mean (a common error), High data points are given greater weights than low data points. The harmonic mean, on the other hand, gives equal weight to each data point

Note:

Canadian Exchange Rate: **0.7500**

Value Line figures are all values in US dollars.

DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Instructions: Data entered on this page will flow to the applicable worksheets.

| Guideline Companies | | Stock Price 12/29/2023 | Year 5 | | | | | | | Revenues | Cash Flow | Earnings | Dividends | |
|------------------------|--------|---------------------------|-----------------------|------------------------|-----------------------|------------------------|------------------|---------------------------------------|-----------------------------------|---------------------------------|-----------|-----------|---------------|-----------|
| | | | Revenues Per Share | Cash Flow Per Share | Earnings Per Share | Dividends Per Share | Common Shares | % Return on Shareholders Equity | % Retained to Common Equity | All Dividends to Net Profits | 2024-2028 | 2024-2028 | 2024- 2028 | 2024-2028 |
| Name | Ticker | Yahoo | VL | VL | VL | VL | VL | VL | VL | VL | VL | VL | VL | VL |
| Union Pacific Corp. | UNP | \$245.62 | \$ 50.00 | \$ 19.70 | \$ 15.00 | \$ 7.00 | 560,000 | 43.5% | 23.0% | 46.0% | 6.50% | 6.50% | 7.50% | 8.00% |
| Norfolk Southern Corp. | NSC | \$236.38 | \$ 69.70 | \$ 25.70 | \$ 19.00 | \$ 6.50 | 208,000 | 23.5% | 15.5% | 34.0% | 6.50% | 7.00% | 8.50% | 7.00% |
| CSX Corp. | CSX | \$34.67 | \$ 9.05 | \$ 3.45 | \$ 2.50 | \$ 0.64 | 1,800,000 | 19.5% | 14.5% | 26.0% | 7.50% | 7.50% | 8.00% | 9.50% |
| Canadian National | CNI | \$125.63 | \$ 27.35 | \$ 11.40 | \$ 8.75 | \$ 3.30 | 570,000 | 28.5% | 18.0% | 38.0% | 8.50% | 9.50% | 10.50% | 9.00% |
| Canadian Pacific | CP | \$79.06 | \$ 14.50 | \$ 6.10 | \$ 4.35 | \$ 0.90 | 932,000 | 10.0% | 8.0% | 21.0% | 11.50% | 9.00% | 6.00% | 7.00% |

Value Line Issue: November 17, 2023

The harmonic mean is the preferable method for averaging multiples, such as the price/earning ratio, in which price is in the numerator. If these ratios are averaged using an arithmetic mean (a common error), High data points are given greater weights than low data points. The harmonic mean, on the other hand, gives equal weight to each data point

Note:

Canadian Exchange Rate: **0.7500**

Value Line figures are all values in US dollars.

DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Instructions: Data entered on this page will flow to the applicable worksheets.

| | | Income | | Balance Sheet | | | | | Cash Flow |
|------------------------|--------|---------------------------|------------------|------------------|-------------------|---------------------|-------------------|-------------------------------------|--------------------------------|
| Guideline Companies | | Stock Price 12/29/2023 | Operating Income | Current Assets | PP & E Gross | Current Liabilities | Long Term Debt | Intangibles (excluding Goodwill) | Depreciation & Amortization |
| Name | Ticker | Yahoo | M* | M* | M* | M* | M* | M* | M* |
| Union Pacific Corp. | UNP | \$245.62 | \$ 9,082,000,000 | \$ 4,148,000,000 | \$ 81,988,000,000 | \$ 5,106,000,000 | \$ 31,156,000,000 | \$ 1,388,000,000 | \$ 2,318,000,000 |
| Norfolk Southern Corp. | NSC | \$236.38 | \$ 4,274,000,000 | \$ 3,271,000,000 | \$ 46,591,000,000 | \$ 2,632,000,000 | \$ 17,175,000,000 | \$ - | \$ 1,298,000,000 |
| CSX Corp. | CSX | \$34.67 | \$ 5,527,000,000 | \$ 3,384,000,000 | \$ 50,818,000,000 | \$ 3,224,000,000 | \$ 17,975,000,000 | \$ 206,000,000 | \$ 1,611,000,000 |
| Canadian National | CNI | \$125.63 | \$ 4,947,750,000 | \$ 2,316,750,000 | \$ 46,826,250,000 | \$ 3,776,250,000 | \$ 12,099,750,000 | \$ 98,250,000 | \$ 1,362,750,000 |
| Canadian Pacific | CP | \$79.06 | \$ 3,288,750,000 | \$ 2,251,500,000 | \$ 46,599,000,000 | \$ 4,282,500,000 | \$ 14,513,250,000 | \$ 2,295,750,000 | \$ 1,157,250,000 |

Value Line Issue: November 17, 2023

The harmonic mean is the preferable method for averaging multiples, such as the price/earning ratio, in which price is in the numerator. If these ratios are averaged using an arithmetic mean (a common error), High data points are given greater weights than low data points. The harmonic mean, on the other hand, gives equal weight to each data point

Note:

Canadian Exchange Rate: **0.7500**

Value Line figures are all values in US dollars.

DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

Instructions: Data entered on this page will flow to the applicable worksheets.

| Guideline Companies | | | Stock Price 12/29/2023 | Net Share Repurchases | Fair Value Debt | Carrying Value Debt | Operating Lease Rent | ROE 5 yr | All Div'ds to Net Prof 5 yr |
|------------------------|--------|----------|---------------------------|-----------------------|--------------------|------------------------|-------------------------|-------------|-----------------------------------|
| Name | Ticker | Yahoo | 10-K | 10-k | 10-k | 10-k | 10-k | VL | VL |
| Union Pacific Corp. | UNP | \$245.62 | \$ 705,000,000 | \$ 28,500,000,000 | \$ 24,400,000,000 | \$ 480,000,000 | 43.5% | 46% | |
| Norfolk Southern Corp. | NSC | \$236.38 | \$ 622,000,000 | \$ 16,631,000,000 | \$ 17,179,000,000 | \$ 214,000,000 | 23.5% | 34% | |
| CSX Corp. | CSX | \$34.67 | \$ 3,482,000,000 | \$ 17,528,000,000 | \$ 18,533,000,000 | \$ 109,000,000 | 19.5% | 26% | |
| Canadian National | CNI | \$125.63 | \$ 3,413,250,000 | \$ 13,383,000,000 | \$ 13,826,250,000 | \$ 181,500,000 | 28.5% | 38% | |
| Canadian Pacific | CP | \$79.06 | | \$ 15,412,500,000 | \$ 16,077,750,000 | \$ 108,000,000 | 10.0% | 21% | |

Value Line Issue: November 17, 2023

The harmonic mean is the preferable method for averaging multiples, such as the price/earning ratio, in which price is in the numerator. If these ratios are averaged using an arithmetic mean (a common error), High data points are given greater weights than low data points. The harmonic mean, on the other hand, gives equal weight to each data point

Note:

Canadian Exchange Rate: 0.7500

Value Line figures are all values in US dollars.

SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

RAILROADS

| Company | Ticker | Stock Price | 2023 | | 2024 | | 2023 | | 2024 | |
|------------------------|--------|----------------|-------------------------------|---------------|-----------------------------------|---------------|------------------------|---------------|-----------------------------------|---------------|
| | | | Actual Earnings Ratio (EPS/P) | | Projected Earnings Ratio (PEPS/P) | | Cash Flow Ratio (CF/P) | | Projected Cash Flow Ratio (PCF/P) | |
| Union Pacific Corp. | UNP | 245.62 | 10.30 | 4.19% | 11.50 | 4.68% | 14.25 | 5.80% | 15.70 | 6.39% |
| Norfolk Southern Corp. | NSC | 236.38 | 11.80 | 4.99% | 13.45 | 5.69% | 16.90 | 7.15% | 18.90 | 8.00% |
| CSX Corp. | CSX | 34.67 | 1.80 | 5.19% | 1.90 | 5.48% | 2.55 | 7.36% | 2.70 | 7.79% |
| Canadian National | CNI | 125.63 | 5.30 | 4.22% | 5.90 | 4.70% | 7.15 | 5.69% | 7.90 | 6.29% |
| Canadian Pacific | CP | 79.06 | 2.80 | 3.54% | 3.25 | 4.11% | 4.05 | 5.12% | 4.60 | 5.82% |
| | | Mean | | 4.43% | | 4.93% | | 6.22% | | 6.86% |
| | | Median | | 4.22% | | 4.70% | | 5.80% | | 6.39% |
| | | Max | | 5.19% | | 5.69% | | 7.36% | | 8.00% |
| | | Min | | 3.54% | | 4.11% | | 5.12% | | 5.82% |
| | | stdev | | 0.668% | | 0.646% | | 0.976% | | 0.972% |
| | | cov | | 0.15 | | 0.13 | | 0.16 | | 0.14 |
| | | harmean | | 4.34% | | 4.86% | | 6.10% | | 6.75% |
| | | Say | | 4.30% | | 4.80% | | 6.10% | | 6.70% |

Source:

Actual earnings: Value Line / Q4 Year End stock price

Estimated Earnings: Value Line / Q4 Year End stock price

Actual Cash Flow: Value Line / Q4 Year End stock price

Estimated Cash Flow: Value Line / Q4 Year End stock price

**2023 Multistage Earnings Growth Model
Railroad Industry**

Company Ticker 3.93% GDP
21.3 Industry P/E
34.0% Target Dividend Payout Ratio (All dividends to net profit)
23.5% Target ROE

| Year | Growth Rate | Reinvestment Rate | Payout Ratio | Earnings | FCFE | Terminal Value | Cash Flow |
|------|-------------|-------------------|--------------|--------------|-------|----------------|-----------|
| 0 | | 49.58% | 50.42% | 10.30 | | stock price = | (245.62) |
| 1 | 11.65% | 35.69% | 64.31% | 11.50 | 7.40 | | 7.40 |
| 2 | 8.39% | 32.93% | 67.07% | 12.46 | 8.36 | | 8.36 |
| 3 | 7.74% | 30.56% | 69.44% | 13.43 | 9.32 | | 9.32 |
| 4 | 7.18% | 28.51% | 71.49% | 14.39 | 10.29 | | 10.29 |
| 5 | 6.70% | 26.16% | 73.84% | 15.36 | 11.34 | | 11.34 |
| 6 | 6.15% | 23.80% | 76.20% | 16.30 | 12.42 | | 12.42 |
| 7 | 5.59% | 21.44% | 78.56% | 17.21 | 13.52 | | 13.52 |
| 8 | 5.04% | 19.08% | 80.92% | 18.08 | 14.63 | | 14.63 |
| 9 | 4.48% | 16.72% | 83.28% | 18.89 | 15.73 | | 15.73 |
| 10 | 3.93% | 16.72% | 83.28% | 19.63 | 16.35 | 434.50 | 450.85 |
| 11+ | 3.93% | 16.72% | 83.28% | 20.41 | 16.99 | | |

Value Line Dividends Growth Rate **IRR = 9.49%**

| Year | Growth Rate | Reinvestment Rate | Payout Ratio | Earnings | FCFE | Terminal Value | Cash Flow |
|------|-------------|-------------------|--------------|--------------|-------|----------------|-----------|
| 0 | | 59.50% | 40.50% | 11.80 | | stock price = | (236.38) |
| 1 | 13.98% | 41.05% | 58.95% | 13.45 | 7.93 | | 7.93 |
| 2 | 9.65% | 37.44% | 62.56% | 14.75 | 9.23 | | 9.23 |
| 3 | 8.80% | 34.41% | 65.59% | 16.04 | 10.52 | | 10.52 |
| 4 | 8.09% | 31.84% | 68.16% | 17.34 | 11.82 | | 11.82 |
| 5 | 7.48% | 28.81% | 71.19% | 18.64 | 13.27 | | 13.27 |
| 6 | 6.77% | 25.79% | 74.21% | 19.90 | 14.77 | | 14.77 |
| 7 | 6.06% | 22.77% | 77.23% | 21.11 | 16.30 | | 16.30 |
| 8 | 5.35% | 19.75% | 80.25% | 22.24 | 17.85 | | 17.85 |
| 9 | 4.64% | 16.72% | 83.28% | 23.27 | 19.38 | | 19.38 |
| 10 | 3.93% | 16.72% | 83.28% | 24.18 | 20.14 | 535.19 | 555.33 |
| 11+ | 3.93% | 16.72% | 83.28% | 25.13 | 20.93 | | |

Value Line Dividends Growth Rate **IRR = 12.46%**

| Year | Growth Rate | Reinvestment Rate | Payout Ratio | Earnings | FCFE | Terminal Value | Cash Flow |
|------|-------------|-------------------|--------------|----------------|------|----------------|-----------|
| 0 | | 23.64% | 76.36% | \$ 1.80 | | stock price = | (34.67) |
| 1 | 5.56% | 38.35% | 61.65% | 1.90 | 1.17 | | 1.17 |
| 2 | 9.01% | 35.18% | 64.82% | 2.07 | 1.34 | | 1.34 |
| 3 | 8.27% | 32.49% | 67.51% | 2.24 | 1.51 | | 1.51 |
| 4 | 7.64% | 30.19% | 69.81% | 2.41 | 1.69 | | 1.69 |
| 5 | 7.09% | 27.50% | 72.50% | 2.58 | 1.87 | | 1.87 |
| 6 | 6.46% | 24.80% | 75.20% | 2.75 | 2.07 | | 2.07 |
| 7 | 5.83% | 22.11% | 77.89% | 2.91 | 2.27 | | 2.27 |
| 8 | 5.20% | 19.42% | 80.58% | 3.06 | 2.47 | | 2.47 |
| 9 | 4.56% | 16.72% | 83.28% | 3.20 | 2.67 | | 2.67 |
| 10 | 3.93% | 16.72% | 83.28% | 3.33 | 2.77 | 73.68 | 76.45 |
| 11+ | 3.93% | 16.72% | 83.28% | 3.46 | 2.88 | | |

Value Line Dividends Growth Rate **IRR = 11.74%**

| Canadian National | | CNI | | | | | | |
|---|-------------|-------------------|--------------|-------------|-------|----------------|--------------|---------------|
| Year | Growth Rate | Reinvestment Rate | Payout Ratio | Earnings | FCFE | Terminal Value | Cash Flow | |
| 0 | | 48.17% | 51.83% | 5.30 | | stock price = | (125.63) | |
| 1 | 11.32% | 52.22% | 47.78% | 5.90 | 2.82 | | 2.82 | |
| 2 | 12.27% | 46.52% | 53.48% | 6.62 | 3.54 | | 3.54 | |
| 3 | 10.93% | 41.93% | 58.07% | 7.35 | 4.27 | | 4.27 | |
| 4 | 9.85% | 38.17% | 61.83% | 8.07 | 4.99 | | 4.99 | |
| 5 | 8.97% | 33.88% | 66.12% | 8.80 | 5.82 | | 5.82 | |
| 6 | 7.96% | 29.59% | 70.41% | 9.50 | 6.69 | | 6.69 | |
| 7 | 6.95% | 25.30% | 74.70% | 10.16 | 7.59 | | 7.59 | |
| 8 | 5.95% | 21.01% | 78.99% | 10.76 | 8.50 | | 8.50 | |
| 9 | 4.94% | 16.72% | 83.28% | 11.29 | 9.40 | | 9.40 | |
| 10 | 3.93% | 16.72% | 83.28% | 11.74 | 9.77 | 259.72 | 269.50 | |
| 11+ | 3.93% | 16.72% | 83.28% | 12.20 | 10.16 | | 10.16 | |
| <i>Value Line Dividends Growth Rate</i> | | | | | | | IRR = | 10.92% |

| Canadian Pacific | | CP | | | | | | |
|---|-------------|-------------------|--------------|-------------|------|----------------|--------------|--------------|
| Year | Growth Rate | Reinvestment Rate | Payout Ratio | Earnings | FCFE | Terminal Value | Cash Flow | |
| 0 | | 68.39% | 31.61% | 2.80 | | stock price = | (79.06) | |
| 1 | 16.07% | 27.92% | 72.08% | 3.25 | 2.34 | | 2.34 | |
| 2 | 6.56% | 26.20% | 73.80% | 3.46 | 2.56 | | 2.56 | |
| 3 | 6.16% | 24.68% | 75.32% | 3.68 | 2.77 | | 2.77 | |
| 4 | 5.80% | 23.33% | 76.67% | 3.89 | 2.98 | | 2.98 | |
| 5 | 5.48% | 22.01% | 77.99% | 4.10 | 3.20 | | 3.20 | |
| 6 | 5.17% | 20.69% | 79.31% | 4.32 | 3.42 | | 3.42 | |
| 7 | 4.86% | 19.37% | 80.63% | 4.53 | 3.65 | | 3.65 | |
| 8 | 4.55% | 18.04% | 81.96% | 4.73 | 3.88 | | 3.88 | |
| 9 | 4.24% | 16.72% | 83.28% | 4.93 | 4.11 | | 4.11 | |
| 10 | 3.93% | 16.72% | 83.28% | 5.13 | 4.27 | 113.43 | 117.69 | |
| 11+ | 3.93% | 16.72% | 83.28% | 5.33 | 4.44 | | 4.44 | |
| <i>Value Line Dividends Growth Rate</i> | | | | | | | IRR = | 7.16% |

Union Pacific Corp
Implied Constant Growth - Union Pacific Corp
2023

| | | | |
|--|-----------------|----|--------|
| Share Price | | \$ | 245.62 |
| Dividend Per Share | | \$ | 5.20 |
| Share Repurchase | | \$ | 1.16 |
| Expected Long-Term Growth Rate: | | | 3.93% |
| Indexed Equity Value at Year 0: | [1] = P0 | | 100 |
| Equity Payout Yield at Year 1: | [2] = D1/P0 | | 2.59% |
| Internal Rate of Return (IRR) at Assumed Growth Rates: | [3] | | 6.97% |
| Implied Constant Long-Term Growth: | [4] = [3] - [2] | | 4.38% |

Data for Calculation of IRR

Check of Implied Constant Growth Rate

| Year | Cash Flow Expected Growth Rate | Indexed Equity Payout at Assumed Growth Rates | Period | Indexed Equity Payout at Implied Constant Growth Rate | Net Present Value @ | 6.97% |
|------|---|--|--------|--|---------------------------|-------|
| | | -100 | | | | |
| 2022 | -6.31% | 2.6 | 1 | 2.6 | 2.4 | |
| 2023 | 10.18% | 2.9 | 2 | 2.7 | 2.4 | |
| 2024 | 5.84% | 3.0 | 3 | 2.8 | 2.3 | |
| 2025 | 5.84% | 3.2 | 4 | 2.9 | 2.2 | |
| 2026 | 5.84% | 3.4 | 5 | 3.1 | 2.2 | |
| 2027 | 5.84% | 3.6 | 6 | 3.2 | 2.1 | |
| 2028 | 5.52% | 3.8 | 7 | 3.3 | 2.1 | |
| 2029 | 5.20% | 4.0 | 8 | 3.5 | 2.0 | |
| 2030 | 4.88% | 4.2 | 9 | 3.6 | 2.0 | |
| 2031 | 4.57% | 4.4 | 10 | 3.8 | 1.9 | |
| 2032 | 4.25% | 4.5 | 11 | 4.0 | 1.9 | |
| 2521 | 3.93% | 697,341,552.5 | 500 | 5,042,773,659.9 | 0.0 | |
| | | | | Total NPV | | 100.0 |

Norfolk Southern Corp.
Implied Constant Growth - Norfolk SouthernCorp
2023

| | | | |
|--|-----------------|----|--------|
| Share Price | | \$ | 236.38 |
| Dividend Per Share | | \$ | 5.40 |
| Share Repurchase | | \$ | 2.75 |
| Expected Long-Term Growth Rate: | | | 3.93% |
| Indexed Equity Value at Year 0: | [1] = P0 | | 100 |
| Equity Payout Yield at Year 1: | [2] = D1/P0 | | 3.45% |
| Internal Rate of Return (IRR) at Assumed Growth Rates: | [3] | | 8.48% |
| Implied Constant Long-Term Growth: | [4] = [3] - [2] | | 5.03% |

Data for Calculation of IRR

Check of Implied Constant Growth Rate

| Year | Cash Flow Expected Growth Rate | Indexed Equity Payout at Assumed Growth Rates | Period | Indexed Equity Payout at Implied Constant Growth Rate | Net Present Value @ 8.48% |
|------|---|--|--------|--|------------------------------------|
| | | -100 | | | |
| 2022 | -14.17% | 3.4 | 1 | 3.4 | 3.2 |
| 2023 | 11.83% | 3.9 | 2 | 3.6 | 3.1 |
| 2024 | 7.99% | 4.2 | 3 | 3.8 | 3.0 |
| 2025 | 7.99% | 4.5 | 4 | 4.0 | 2.9 |
| 2026 | 7.99% | 4.9 | 5 | 4.2 | 2.8 |
| 2027 | 7.99% | 5.2 | 6 | 4.4 | 2.7 |
| 2028 | 7.31% | 5.6 | 7 | 4.6 | 2.6 |
| 2029 | 6.63% | 6.0 | 8 | 4.9 | 2.5 |
| 2030 | 5.96% | 6.4 | 9 | 5.1 | 2.5 |
| 2031 | 5.28% | 6.7 | 10 | 5.4 | 2.4 |
| 2032 | 4.61% | 7.0 | 11 | 5.6 | 2.3 |
| 2521 | 3.93% | 1,075,270,557.6 | 500 | 148,228,285,673.0 | 0.0 |
| | | | | Total NPV | 100.0 |

CSX Corp.
Implied Constant Growth - CSX
2023

| | | |
|--|-----------------|---------|
| Share Price | | \$34.67 |
| Dividend Per Share | | \$ 0.44 |
| Share Repurchase | | \$ 1.76 |
| Expected Long-Term Growth Rate: | | 3.93% |
| Indexed Equity Value at Year 0: | [1] = P0 | 100 |
| Equity Payout Yield at Year 1: | [2] = D1/P0 | 6.35% |
| Internal Rate of Return (IRR) at Assumed Growth Rates: | [3] | 11.14% |
| Implied Constant Long-Term Growth: | [4] = [3] - [2] | 4.78% |

Data for Calculation of IRR

Check of Implied Constant Growth Rate

| Year | Cash Flow Expected Growth Rate | Indexed Equity Payout at Assumed Growth Rates | Period | Indexed Equity Payout at Implied Constant Growth Rate | Net Present Value @ 11.14% |
|------|---|--|--------|--|-------------------------------------|
| | | -100 | | | |
| 2022 | -5.90% | 6.4 | 1 | 6.4 | 5.7 |
| 2023 | 5.88% | 6.7 | 2 | 6.7 | 5.4 |
| 2024 | 6.32% | 7.2 | 3 | 7.0 | 5.1 |
| 2025 | 6.32% | 7.6 | 4 | 7.3 | 4.8 |
| 2026 | 6.32% | 8.1 | 5 | 7.7 | 4.5 |
| 2027 | 6.32% | 8.6 | 6 | 8.0 | 4.3 |
| 2028 | 5.92% | 9.1 | 7 | 8.4 | 4.0 |
| 2029 | 5.52% | 9.6 | 8 | 8.8 | 3.8 |
| 2030 | 5.12% | 10.1 | 9 | 9.2 | 3.6 |
| 2031 | 4.73% | 10.6 | 10 | 9.7 | 3.4 |
| 2032 | 4.33% | 11.0 | 11 | 10.1 | 3.2 |
| 2521 | 3.93% | 1,694,172,158.0 | 500 | 85,253,072,867.6 | 0.0 |
| | | | | Total NPV | 100.0 |

Canadian National
Implied Constant Growth - Canadian National
2023

| | | |
|--|-----------------|-----------|
| Share Price | | \$ 125.63 |
| Dividend Per Share | | \$ 2.40 |
| Share Repurchase | | \$ 5.21 |
| Expected Long-Term Growth Rate: | | 3.93% |
| Indexed Equity Value at Year 0: | [1] = P0 | 100 |
| Equity Payout Yield at Year 1: | [2] = D1/P0 | 6.05% |
| Internal Rate of Return (IRR) at Assumed Growth Rates: | [3] | 12.55% |
| Implied Constant Long-Term Growth: | [4] = [3] - [2] | 6.49% |

Data for Calculation of IRR

Check of Implied Constant Growth Rate

| Year | Cash Flow Expected Growth Rate | Indexed Equity Payout at Assumed Growth Rates | Period | Indexed Equity Payout at Implied Constant Growth Rate | Net Present Value @ 12.55% |
|------|---|--|--------|--|-------------------------------------|
| | | -100 | | | |
| 2022 | -5.05% | 6.1 | 1 | 6.1 | 5.4 |
| 2023 | 10.49% | 6.7 | 2 | 6.4 | 5.1 |
| 2024 | 9.60% | 7.3 | 3 | 6.9 | 4.8 |
| 2025 | 9.60% | 8.0 | 4 | 7.3 | 4.6 |
| 2026 | 9.60% | 8.8 | 5 | 7.8 | 4.3 |
| 2027 | 9.60% | 9.7 | 6 | 8.3 | 4.1 |
| 2028 | 9.28% | 10.5 | 7 | 8.8 | 3.9 |
| 2029 | 8.97% | 11.5 | 8 | 9.4 | 3.7 |
| 2030 | 8.65% | 12.5 | 9 | 10.0 | 3.5 |
| 2031 | 8.33% | 13.5 | 10 | 10.7 | 3.3 |
| 2032 | 8.01% | 14.6 | 11 | 11.4 | 3.1 |
| 2521 | 3.93% | 2,244,332,495.3 | 500 | ##### | 0.0 |
| | | | | Total NPV | 100.0 |

Canadian Pacific
Implied Constant Growth - Canadian Pacific
2023

| | |
|--------------------|----------|
| Share Price | \$ 79.06 |
| Dividend Per Share | \$ 0.58 |
| Share Repurchase | \$ - |

Expected Long-Term Growth Rate: 3.93%

| | | |
|--|-----------------|-------|
| Indexed Equity Value at Year 0: | [1] = P0 | 100 |
| Equity Payout Yield at Year 1: | [2] = D1/P0 | 3.91% |
| Internal Rate of Return (IRR) at Assumed Growth Rates: | [3] | 8.97% |
| Implied Constant Long-Term Growth: | [4] = [3] - [2] | 5.07% |

Data for Calculation of IRR

Check of Implied Constant Growth Rate

| Year | Cash Flow Expected Growth Rate | Indexed Equity Payout at Assumed Growth Rates | Period | Indexed Equity Payout at Implied Constant Growth Rate | Net Present Value @ 8.97% |
|------|---|--|--------|--|------------------------------------|
| | | -100 | | | |
| 2022 | 16.71% | 3.9 | 1 | 3.9 | 3.6 |
| 2023 | 13.58% | 4.4 | 2 | 4.1 | 3.5 |
| 2024 | 7.31% | 4.8 | 3 | 4.3 | 3.3 |
| 2025 | 7.31% | 5.1 | 4 | 4.5 | 3.2 |
| 2026 | 7.31% | 5.5 | 5 | 4.8 | 3.1 |
| 2027 | 7.31% | 5.9 | 6 | 5.0 | 3.0 |
| 2028 | 6.75% | 6.3 | 7 | 5.3 | 2.9 |
| 2029 | 6.18% | 6.7 | 8 | 5.5 | 2.8 |
| 2030 | 5.62% | 7.0 | 9 | 5.8 | 2.7 |
| 2031 | 5.06% | 7.4 | 10 | 6.1 | 2.6 |
| 2032 | 4.74% | 7.8 | 11 | 6.4 | 2.5 |
| 2521 | 3.93% | 1,190,585,700.7 | 500.0 | 199,504,205,013.8 | 0.0 |
| | | | | Total NPV | 100.0 |