



MONTANA
DEPARTMENT OF
REVENUE

**2023 Capitalization Rate Study
Railroads**

Completed: March 24, 2023

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Railroads

2023 Assessment Year

Capital Structure ^[1]

Equity	80.00%
Debt	20.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	11.67%	56%
Capital Asset Pricing Model - Ex Ante ^[2]	10.10%	14%
3 Stage Dividend Discount Model - Dividends ^[3]	7.27%	15%
3 Stage Dividend Discount Model - Earnings ^[3]	10.16%	<u>15%</u>
Weighted Average	<u>10.56%</u>	100%
Selected Cost of Equity	<u>10.56%</u>	

Debt Cost of Capital

		Weighting
Aa - Mergent's - Avg. YTM of Aa Rated Corporate Bonds ^[4]	4.77%	33%
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	5.12%	33%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	5.59%	33%
Ba - MTDOR High Yield Debt Study ^[5]	6.97%	0%
B - MTDOR High Yield Debt Study ^[5]	7.71%	<u>0%</u>
Weighted Average	<u>5.16%</u>	100%
Selected Cost of Debt	<u>5.16%</u>	

Weighted Average Cost of Capital (WACC)

Source of Capital	Capital Structure	Cost of Capital	Marginal Tax Rate	After-tax Cost of Capital	Weighted Cost
Equity	80.00%	10.56%		10.56%	8.45%
Debt	20.00%	5.16%	24.00%	3.92%	0.78%
WACC	100.00%				9.23%
WACC (Rounded)					9.25%

Notes

- [1] From worksheet: Capital Structure
- [2] From worksheet: Capital Asset Pricing Model Summary
- [3] From worksheet: Yield Equity Summary
- [4] January 2023, Mergent Bond Record
- [5] Montana Department of Revenue High Yield Debt Study

MONTANA DEPARTMENT OF REVENUE

Direct Capitalization Rate Conclusion

Industry: Railroads

2023 Assessment Year

Capital Structure ^[1]

Equity	80.00%
Debt	20.00%

Equity Capitalization Rate ^[2]

NOI After-tax	5.44%
GCF	7.59%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.27%
--------------------------	--------------

NOI After-tax Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	80.00%	5.44%		5.44%	4.35%
Debt	20.00%	4.27%	24.00%	3.25%	0.65%
Total	100.00%				5.00%
Total (Rounded)					5.05%

GCF Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	80.00%	7.59%		7.59%	6.07%
Debt	20.00%	4.27%	24.00%	3.25%	0.65%
WACC	100.00%				6.72%
Total (Rounded)					6.75%

Notes:

[1] From worksheet: Capital Structure

[2] From worksheet: Direct Equity Summary

[3] From worksheet: Calculated Current Yield

MONTANA DEPARTMENT OF REVENUE

Selection of Guideline Companies

Industry: Railroads

2023 Assessment Year

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Railroad industry.

Companies were then selected using the following screening criteria:

1. Primarily provides rail, intermodal transportation, and rail-to-truck transload services.
2. Actively traded on an American exchange.
3. Headquartered / incorporated in the United States
4. No significant merger & acquisition activity during the year.

Company Ticker	Primarily provide rail services	Actively Traded on an American Exchange	Headquartered/ Incorporated in the U.S.	Consider as Potential Guideline Company	Not Engaged in Material M&A Activity	Use as Guideline Company	Note
CNI			No				
CP			No				
CSX	Yes	Yes	Yes	Yes	Yes	Yes	
GATX	No						
GBX	No						
NSC	Yes	Yes	Yes	Yes	Yes	Yes	
RAIL	No						
TRN	No						
UNP	Yes	Yes	Yes	Yes	Yes	Yes	
USDP	No						
WAB	No						

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure

Industry: Railroads

2023 Assessment Year

(\$ and Shares Outstanding In Millions, Except Per Share Amounts)

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Industry Group	Financial Strength	Shares Outstanding	End of Year Closing Stock Price	MV Common Stock	MV Preferred Stock	MV Long Term Debt	PV of Operating Leases	Total Common, Preferred, LT Debt, & Op Leases	% Common	% Preferred	% Debt & Op Leases
		<i>Value Line</i>	<i>Value Line</i>	<i>10-K</i>	<i>Yahoo</i>	<i>ExF</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>G+H+I+J</i>	<i>G/K</i>	<i>H/K</i>	<i>(I+J)/K</i>
							<i>[Note 1]</i>	<i>[Note 2]</i>					
CSX	CSX Corp.	RAILROAD	B++	2,063	30.98	63,900	0	16,135	557	80,592	79%	0%	21%
NSC	Norfolk Southern	RAILROAD	A+	228	246.42	56,203	0	13,846	410	70,459	80%	0%	20%
UNP	Union Pacific	RAILROAD	A++	612	207.07	126,808	0	28,126	1,631	156,565	81%	0%	19%
All Companies						246,910	0	58,107	2,598	307,615	80%	0%	20%
Average											80%	0%	20%
Median											80%	0%	20%
High											81%	0%	21%
Low											79%	0%	19%
Selected											80%		20%

Notes

[1] Market value of preferred stock assumed to equal book value

[2] Market value of debt is fair value of long term debt from 10-K notes

MCA 15-1-210, rationale for changes to guideline companies:

2023 - No changes to guideline companies

		<u>Median</u>	
Current Year	80%	0%	20%
Prior Year	81%	0%	19%
2 Years Prior	79%	0%	21%
3 Year Average	80%	0%	20%

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Railroads

2023 Assessment Year

$$k_e = R_f + \beta \times ERP$$

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	11.67%	10.10%
$R_f =$	Risk Free Rate	4.14%	4.14%
$\beta =$	Beta	1.05	1.05
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.17%	5.68%
$R_m =$	Market Rate of Return	11.31%	9.82%

Risk Free Rate Measures (R_f):

The Value Line Investment Survey: Selection & Opinion^[1]

January 6, 2023 Page 1465

Selected Yields on Taxable U.S. Treasury Securities as of 12/27/22

10-year	3.84%
30-year	3.93%

Federal Reserve Statistical Release^[2]

U.S. government securities, Treasury constant maturities, Nominal, December 30, 2022

10-year	3.88%
20-year	4.14%
30-year	3.97%

Risk Free Rate Selected 4.14%

Notes

[1] "Value Line Selection & Opinion", Value Line (January 6, 2023)

[2] <https://www.federalreserve.gov/datadownload/Choose.aspx?rel=H.15>

Ex Post - Equity Risk Premium Measures ($ERP = R_m - R_f$)

Kroll, 2023 Cost of Capital Navigator

		<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Historical" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	11.31%	4.14%	7.17%
ERP "Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	10.49%	4.14%	6.35%
Ex Post Equity Risk Premium Selected		<u><u>11.31%</u></u>	<u><u>4.14%</u></u>	<u><u>7.17%</u></u>

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)

Industry: Railroads

2023 Assessment Year

$$k_e = R_f + \beta \times ERP$$

Ex Ante - Equity Risk Premium Measures (ERP = Rm - Rf)

DOR 3 Stage Dividend Growth Model, S & P 500, See Exhibit

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP - <i>Ex Ante</i>	8.81%	4.14%	4.67%

Kroll, 2023 Cost of Capital Navigator

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Conditional" - <i>Ex Ante</i>	9.50%	3.50%	6.00%

Damodaran Implied ERP (Jan 1, 2023)

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium - <i>Ex Ante</i> - Trailing 12 month, with adjusted payout	8.99%	3.88%	5.11%
Implied Premium - <i>Ex Ante</i> - Trailing 12 month cash yields	9.82%	3.88%	5.94%
Implied Premium - <i>Ex Ante</i> - Average CF yield last 10 years	9.73%	3.88%	5.85%
Implied Premium - <i>Ex Ante</i> - Net cash yield	9.56%	3.88%	5.68%
Implied Premium - <i>Ex Ante</i> - Normalized earnings and payout	8.71%	3.88%	4.83%

	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>	9.30%		5.44%
<u>Median</u>	9.50%		5.68%
<u>High</u>	9.82%		6.00%
<u>Low</u>	8.71%		4.67%

Ex Ante Equity Risk Premium Selected

9.82%	4.14%	5.68%
--------------	--------------	--------------

MONTANA DEPARTMENT OF REVENUE

Support for Beta Selection in CAPM**Industry: Railroads****2023 Assessment Year**

A	B	C	D	E
Ticker	Company	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
CSX	CSX Corp.	RAILROAD	B++	1.05
NSC	Norfolk Southern	RAILROAD	A+	1.05
UNP	Union Pacific	RAILROAD	A++	1.05
Average				1.05
Median				1.05
High				1.05
Low				1.05
Selected				1.05

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth

Industry: Railroads

2023 Assessment Year

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.55%	1.97%	4.52%		
Survey of Professional Forecasters ^[2]	2.44%	1.96%	4.40%		
Congressional Budget Office ^[3]	2.30%	1.80%	4.10%		
Average	2.43%	1.91%	4.34%		
Median	2.44%	1.96%	4.40%		
High	2.55%	1.97%	4.52%		
Low	2.30%	1.80%	4.10%		
Selected	2.45%	2.00%	4.45%	4.10%	4.52%

Inflationary Trend Factors						
Year	Dec. CPI-U Index	Percent Change From Previous	Dec. to Dec. Conversion Factor	Annual Avg. CPI-U Index	Percent Change From Previous	Annual Conversion Factor
	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>	<i>Note [5]</i>	<i>Note [6]</i>	<i>Note [7]</i>
2011	225.672	2.9%	1.3152	224.939	3.1%	1.3010
2012	229.601	1.7%	1.2927	229.594	2.0%	1.2747
2013	233.049	1.5%	1.2735	232.957	1.4%	1.2563
2014	234.812	0.8%	1.2640	236.736	1.6%	1.2362
2015	236.525	0.7%	1.2548	237.017	0.1%	1.2347
2016	241.432	2.0%	1.2293	240.007	1.2%	1.2194
2017	246.524	2.1%	1.2039	245.120	2.1%	1.1939
2018	251.233	1.9%	1.1814	251.107	2.4%	1.1655
2019	256.974	2.2%	1.1550	255.657	1.8%	1.1447
2020	260.474	1.3%	1.1394	258.811	1.2%	1.1308
2021	278.802	6.6%	1.0645	270.970	4.5%	1.0800
2022	296.797	6.1%	1.0000	292.655	7.4%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 16, 2023 Table 3 Inflation Rate and Real GDP mean

<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

[2] Federal Reserve Bank of Philadelphia Survey of Professional Forecasters February 10, 2023 Table 8 and Table 9 Average over next 10-Year mean

<https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters>

[3] The Budget and Economic Outlook: 2023 To 2033, Table B-1

<https://www.cbo.gov/about/products/budget-economic-data#4>

[5] Historical Consumer Price Index for All Urban Consumers (CPI-U): U.S. city average, all items, index averages (1982-84=100, unless otherwise noted)

<https://www.bls.gov/cpi/tables/supplemental-files/historical-cpi-u-202212.pdf>

[6] (Row year - Previous Year) / Row Year

[7] Most current year / Row year

MONTANA DEPARTMENT OF REVENUE

3 Stage Dividend Discount Model (DDM)

Industry: Railroads

2023 Assessment Year

$$k_e = (D_1 / P_0) + g$$

k_e = Cost of Equity

D_1 = Expected Dividend

P_0 = Current Price Per Share

g = Sustainable Long-Term Growth

A	B	C	D	E	F	G	H	I
Ticker	Company	2022 Year End Stock Price	2023 Est Div'ds Decl'd per sh	Expected Equity Payout Yield	Sustainable Long-Term Growth Rate ^[1]	Sustainable Long-Term Growth Rate ^[1]	Cost of Equity Dividend Growth	Cost of Equity Earnings Growth
		<i>Yahoo</i>	<i>Value Line</i>	<i>D/C</i>	<i>Dividends</i>	<i>Earnings</i>	<i>E+F</i>	<i>E+G</i>
		P_0	D_1	D_1/P_0	g	g	k_e	k_e
CSX	CSX Corp.	30.98	0.44	1.42%	6.39%	7.10%	7.81%	8.52%
NSC	Norfolk Southern	246.42	5.40	2.19%	4.62%	8.25%	6.81%	10.44%
UNP	Union Pacific	207.07	5.60	2.70%	4.49%	8.82%	7.19%	11.52%
Average							7.27%	10.16%
Median							7.19%	10.44%
High							7.81%	11.52%
Low							6.81%	8.52%
Selected							7.27%	10.16%

Notes

[1] From worksheet: DDM Sustainable Long-Term Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Short Term Growth Rate Calculations

Industry: Railroads

2023 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2023 Est	Expected Dividend Yield	Div'ds Decl'd per sh 2025-2027 Est	Short-Term Growth Rate
		<i>Yahoo</i>	<i>Value Line</i>	<i>D / C</i>	<i>Value Line</i>	<i>Note [1]</i>
CSX	CSX Corp.	30.98	0.44	1.42%	0.60	10.89%
NSC	Norfolk Southern	246.42	5.40	2.19%	6.25	4.99%
UNP	Union Pacific	207.07	5.60	2.70%	6.40	4.55%

A	B	C	D	E
Ticker	Company	Earnings per share 2023 Est	Earnings per share 2025-2027 Est	Short-Term Growth Rate
		<i>Value Line</i>	<i>Value Line</i>	<i>Note [1]</i>
CSX	CSX Corp.	1.75	2.50	12.62%
NSC	Norfolk Southern	13.10	19.00	13.20%
UNP	Union Pacific	10.30	15.00	13.35%

Notes

[1] 4 year compound annual growth rate (CAGR) - 3 periods

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Railroads

2023 Assessment Year

Dividend Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Dividend Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. \text{ Yield}$						
CSX	CSX Corp.	30.98	10.89%	4.45%	1.42%	7.81%	6.39%	(30.98)	0.44	0.49	0.54	0.60	0.67
NSC	Norfolk Southern	246.42	4.99%	4.45%	2.19%	6.81%	4.62%	(246.42)	5.40	5.67	5.95	6.25	6.56
UNP	Union Pacific	207.07	4.55%	4.45%	2.70%	7.19%	4.49%	(207.07)	5.60	5.85	6.12	6.40	6.69

Earnings Growth Rate									Stage 1				
Ticker	Company	Year End Stock Price	Expected Short-Term Earnings Growth Rate	Expected Long-Term Growth Rate	Expected Dividend Yield	Internal Rate of Return	Implied Sustainable Long-Term Growth Rate (g)	Initial Investment	D ₁	D ₂	D ₃	D ₄	D ₅
		Yahoo	Note [1]	Note [2]	D_1/P_0	$K_e = IRR \text{ of } D_1:D_{500}$	$g = IRR - Div. \text{ Yield}$						
CSX	CSX Corp.	30.98	12.62%	4.45%	1.42%	8.52%	7.10%	(30.98)	0.44	0.50	0.56	0.63	0.71
NSC	Norfolk Southern	246.42	13.20%	4.45%	2.19%	10.44%	8.25%	(246.42)	5.40	6.11	6.92	7.83	8.87
UNP	Union Pacific	207.07	13.35%	4.45%	2.70%	11.52%	8.82%	(207.07)	5.60	6.35	7.19	8.16	9.24

Notes

[1] From worksheet: DDM Short Term Growth Rate Calculations

[2] From worksheet: Inflation & Real Growth

MONTANA DEPARTMENT OF REVENUE

Support for DDM - Sustainable Long Term Growth

Industry: Railroads

2023 Assessment Year

Dividend	Stage 2															Stage 3		
	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
CSX	0.73	0.81	0.90	0.99	1.09	1.21	1.34	1.47	1.63	1.80	1.99	2.20	2.43	2.68	2.96	3.09	3.23	3,526,300,444
NSC	6.89	7.23	7.59	7.96	8.36	8.77	9.21	9.66	10.14	10.65	11.17	11.73	12.31	12.92	13.56	14.16	14.79	16,153,940,184
UNP	7.00	7.31	7.65	7.99	8.36	8.74	9.13	9.55	9.98	10.44	10.91	11.41	11.92	12.47	13.03	13.61	14.22	15,527,502,810

Earnings	Stage 2															Stage 3		
	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D ₁₆	D ₁₇	D ₁₈	D ₁₉	D ₂₀	D ₂₁	D ₂₂	D ₅₀₀
CSX	0.79	0.89	1.00	1.12	1.25	1.40	1.57	1.76	1.98	2.21	2.48	2.78	3.12	3.49	3.92	4.09	4.27	4,666,080,542
NSC	9.98	11.24	12.66	14.26	16.06	18.08	20.36	22.93	25.82	29.08	32.74	36.87	41.52	46.76	52.66	55.00	57.45	62,737,836,600
UNP	10.42	11.75	13.25	14.94	16.85	19.00	21.42	24.15	27.23	30.71	34.62	39.04	44.02	49.64	55.97	58.46	61.06	66,680,267,610

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Railroads

2023 Assessment Year

A	B	C	D	E	F
Ticker	Company	Industry Group	Financial Strength	Moody's Long Term Rating	Yield to Maturity
		<i>Value Line</i>	<i>Value Line</i>	<i>Moodys.com</i>	
CSX	CSX Corp.	RAILROAD	B++	Baa1	5.59%
NSC	Norfolk Southern	RAILROAD	A+	A3	5.12%
UNP	Union Pacific	RAILROAD	A++	Aa3	4.77%
Average					5.16%
Median					5.12%
High					5.59%
Low					4.77%
Selected					5.16%

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Equity Capitalization Rates

Industry: Railroads

2023 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Ticker	Company	End of Year Closing Stock Price	VL Historic EPS	VL Est EPS	VL Historic P/E Ratio	VL Est P/E Ratio	Ke Estimate - Earnings (Hist. P/E)	Ke Estimate - Earnings (Est. P/E)	VL Historic Cash Flow Per Share	VL Est Cash Flow Per Share	VL Historic P/CF Ratio	VL Est P/CF Ratio	Ke Estimate - Cash Flow (Hist. P/CF)	Ke Estimate - Cash Flow (Est. P/CF)	Market Value of Equity	Book Value of Equity	MTBR
		Yahoo	Value Line	Value Line	C/D	C/E	1/F	1/G	Value Line	Value Line	C/J	C/K	1/L	1/M	Price x Shrs	Value Line	P/Q
CSX	CSX Corp.	30.98	1.91	1.70	16.22	18.22	6.17%	5.49%	2.24	2.70	13.83	11.47	7.23%	8.72%	63,900	13,490	4.74
NSC	Norfolk Southern	246.42	13.90	12.85	17.73	19.18	5.64%	5.21%	17.43	19.50	14.14	12.64	7.07%	7.91%	56,203	13,641	4.12
UNP	Union Pacific	207.07	11.36	10.30	18.23	20.10	5.49%	4.97%	13.67	15.30	15.15	13.53	6.60%	7.39%	126,808	14,161	8.95
Average					17.39	19.17	5.76%	5.23%			14.37	12.55	6.97%	8.01%			5.94
Median					17.73	19.18	5.64%	5.21%			14.14	12.64	7.07%	7.91%			4.74
High					18.23	20.10	6.17%	5.49%			15.15	13.53	7.23%	8.72%			8.95
Low					16.22	18.22	5.49%	4.97%			13.83	11.47	6.60%	7.39%			4.12
Selected					18.38		5.44%				13.18		7.59%				7.21

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Debt Capitalization Rate

Industry: Railroads

2023 Assessment Year

(\$ in Millions)

A	B	C	D	E	F	G	H	I	J
Ticker	Company	Current Year Interest Exp.	Previous Year MV LT Debt	Previous Year BV LT Debt	Current Year MV LT Debt	Current Year BV LT Debt	Average MV LT Debt	Current Yield	MTBR
	<i>Source</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>10-K</i>	<i>(D+F)/2</i>	<i>(C/H)</i>	<i>(F/G)</i>
CSX	CSX Corp.	742	19,439	16,366	16,135	18,047	17,787	4.17%	0.89
NSC	Norfolk Southern	692	17,033	13,840	13,846	15,082	15,440	4.48%	0.92
UNP	Union Pacific	1,271	32,929	29,729	28,126	33,326	30,528	4.16%	0.84
All Companies		2,705			58,107	66,455	63,754	4.24%	0.87
	Average							4.27%	0.89
	Median							4.17%	0.89
	High							4.48%	0.92
	Low							4.16%	0.84
Selected								4.27%	0.89

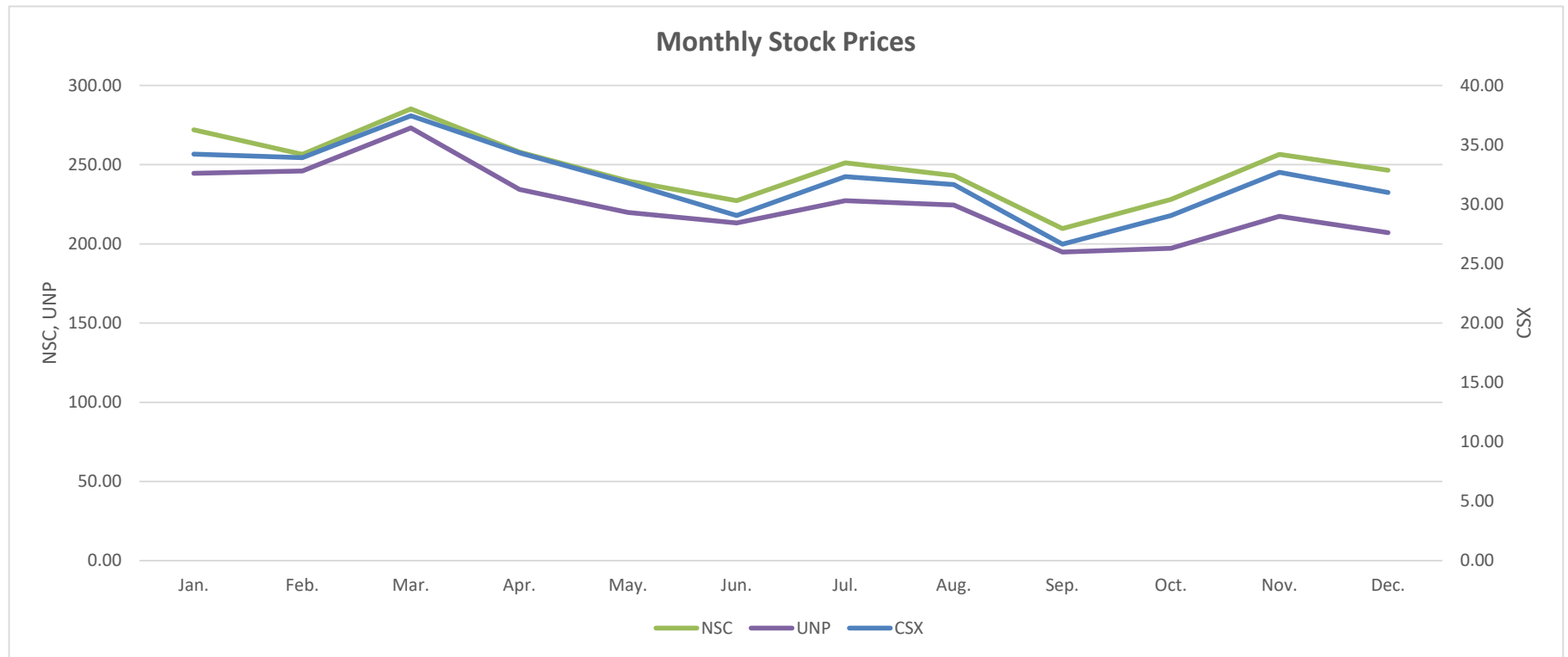
MONTANA DEPARTMENT OF REVENUE

Support of Stock Price - From YAHOO Finance

Industry: Railroads

2023 Assessment Year

		End of Period Closing Stock Price											
1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	B	C	D	E	F	G	H	I	J	K	L	M	N
Ticker	Company	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
CSX	CSX Corp.	34.22	33.91	37.45	34.34	31.79	29.06	32.33	31.65	26.64	29.06	32.69	30.98
NSC	Norfolk Southern	271.99	256.52	285.22	257.88	239.66	227.29	251.17	243.13	209.65	228.07	256.50	246.42
UNP	Union Pacific	244.55	245.95	273.21	234.29	219.78	213.28	227.30	224.51	194.82	197.14	217.43	207.07



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies

Industry: Railroads

2023 Assessment Year

(\$ In Millions)

1	2		3	4	5	6	7	8	9	10	11				
A	B	C	D	E	F	G	H	I	J	K	L				
Ticker	Company	Inflation	PP&E, Gross		Average PP&E	Depreciation Expense	Average Life of Assets			Replacement Cost (RC)	RC as % of Depreciation				
			Current Year	Previous Year								Current Year	Note [1]	Note [1]	Note [1]
			MTDOR (CPI)	10-K, Notes								10-K, Notes	(D+E)/2	10-K	F/G
CSX	CSX Corp.	2.45%	48,105	46,505	47,305	1,500	32	0.77	0.47	2,171	144.72%				
NSC	Norfolk Southern	2.45%	44,748	43,684	44,216	1,221	36	0.89	0.42	1,856	151.98%				
UNP	Union Pacific	2.45%	79,255	77,275	78,265	2,246	35	0.85	0.43	3,365	149.84%				
Average											148.85%				
Median											149.84%				
High											151.98%				
Low											144.72%				
Selected											148.85%				

Notes:

[1] Cornell, B. & Gerger, R. (2017). Estimating Terminal Values with Inflation: The Inputs Matter-It Is Not a Formulaic Exercise. *Business Valuation Review*, Volume 36, Number 4, 117-123.