



**2021 Capitalization Rate Study
Telecommunications - Large**

FINAL

Completed: April 16, 2021

MONTANA DEPARTMENT OF REVENUE

Yield Capitalization Rate Conclusion

Industry: Telecommunications - Large

2021 Assessment Year

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Cost of Capital

		Weighting
Capital Asset Pricing Model - Ex Post ^[2]	7.25%	25%
Capital Asset Pricing Model - Ex Ante ^[2]	5.97%	25%
3 Stage Dividend Discount Model - Dividends ^[3]	8.95%	25%
3 Stage Dividend Discount Model - Earnings ^[3]	10.85%	<u>25%</u>
Weighted Average	<u>8.26%</u>	100%
Selected Cost of Equity	<u>8.26%</u>	

Debt Cost of Capital

		Weighting
A - Mergent's - Avg. YTM of A Rated Corporate Bonds ^[4]	2.72%	0%
Baa - Mergent's - Avg. YTM of Baa Rated Corporate Bonds ^[4]	3.16%	100%
Ba - MTDOR - Avg. YTM of Ba Rated Corporate Bonds ^[5]	6.54%	<u>0%</u>
Weighted Average	<u>3.16%</u>	100%
Selected Cost of Debt	<u>3.16%</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	60.00%	8.26%		8.26%	4.96%
Debt	40.00%	3.16%	24.00%	2.40%	0.96%
WACC	100.00%				5.92%
WACC (Rounded)					5.95%

Notes

- [1] From worksheet: Capital Structure
- [2] From worksheet: Capital Asset Pricing Model Summary
- [3] From worksheet: Yield Equity Summary
- [4] January 2021, Mergent Bond Record
- [5] Montana Department of Revenue High Yield Debt Study

MONTANA DEPARTMENT OF REVENUE

**Direct Capitalization Rate Conclusion
Industry: Telecommunications - Large
2021 Assessment Year**

Capital Structure ^[1]

Equity	60.00%
Debt	40.00%

Equity Capitalization Rate ^[2]

NOI After-tax	5.60%
GCF	12.95%

Debt Capitalization Rate ^[3]

Calculated Current Yield	4.10%
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NOI After-tax Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	5.60%		5.60%	3.36%
Debt	40.00%	4.10%	24.00%	3.12%	1.25%
Total	100.00%				4.61%
Total (Rounded)					4.65%

GCF Direct Capitalization Rate

Source of Capital	Capital Structure	Capitalization Rate	Marginal Tax Rate	After-tax Capitalization Rate	Weighted Capitalization Rate
Equity	60.00%	12.95%		12.95%	7.77%
Debt	40.00%	4.10%	24.00%	3.12%	1.25%
WACC	100.00%				9.02%
Total (Rounded)					9.05%

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: Telecommunications - Large

2021 Assessment Year

Screening Requirements:

The universe of companies is all companies listed in Value Line under the Cable TV, Telecom Services, and Telecom Utilities industries.

Companies were then selected using the following screening criteria:

1. Market value of equity above 100 billion USD.
2. Incorporated in the United States of America.
3. Primarily provides two-way transmission of voice, image, data, or other information over wire, cable, fiber optics, microwave, radio, satellite, or similar facilities.
4. No significant merger & acquisition activity during the year.

The Value Line industry groups listed above were analyzed to determine which companies had a market capitalization over 100 billion U.S. dollars at December 31, 2020. Initial analysis revealed six companies that met this criteria: Charter Communications (CHTR), Comcast Corp. (CMCSA), AT&T Inc. (T), T-Mobile US, Inc. (TMUS), Verizon Communications (VZ), and Zoom Video Communications, Inc. (ZM). All six companies were then verified as incorporated in the United States. (ZM) was removed because their primary business is not consistent with other guideline public companies in this study. Lastly, the remaining five companies were analyzed for significant merger and acquisition activity during the previous year. Finding none, the remaining five companies were selected for use as guideline public companies in estimating the cost of capital in this study (CHTR, CMCSA, T, TMUS, VZ).

MONTANA DEPARTMENT OF REVENUE

Support for Capital Structure

Industry: Telecommunications - Large

2021 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 Symbol	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>					
CHTR	Charter Communic.	CABLETV	B++	194	661.55	128,163	0	94,226	1,345	223,734	57%	0%	43%
CMCSA	Comcast Corp.	CABLETV	A+	4,581	52.16	238,933	0	125,600	4,458	368,991	65%	0%	35%
T	AT&T Inc.	TELESERV	A++	7,126	28.26	201,379	0	189,260	25,739	416,378	48%	0%	52%
TMUS	T-Mobile US	TELESERV	B+	1,242	134.85	167,458	0	75,064	30,587	273,109	61%	0%	39%
VZ	Verizon Communic.	TELESERV	A++	4,291	58.13	249,451	0	158,036	21,485	428,972	58%	0%	42%
All Companies						985,383	0	642,186	83,614	1,711,183	58%	0%	42%
Average											58%	0%	42%
Median											58%	0%	42%
High											65%	0%	52%
Low											48%	0%	35%
Selected											60%		40%

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:

2021 - T-Mobile added due to M&A activity being completed compared to the prior year

		<u>Median</u>	
Current Year	58%	0%	42%
Prior Year	60%	0%	40%
2 Years Prior	54%	0%	46%
3 Year Average	58%	0%	42%

MONTANA DEPARTMENT OF REVENUE

**Capital Asset Pricing Model (CAPM)
Industry: Telecommunications - Large
2021 Assessment Year**

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

		<i>Ex Post</i>	<i>Ex Ante</i>
$k_e =$	Cost of Equity	7.25%	5.97%
$R_f =$	Risk Free Rate	1.45%	1.45%
$\beta =$	Beta	0.80	0.80
$ERP =$	Equity Risk Premium ($R_m - R_f$)	7.25%	5.65%
$R_m =$	Market Rate of Return	8.70%	7.10%

Risk Free Rate Measures (R_f):

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

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Selected Yields on Taxable U.S. Treasury Securities as of 12/21/20

10-year	0.95%
30-year	1.68%

Federal Reserve Statistical Release^[2] and U.S. Department of the Treasury, Daily Treasury Yield Curve Rates^[3]

U.S. government securities, Treasury constant maturities, Nominal, December 31, 2020

10-year	0.93%
20-year	1.45%
30-year	1.65%
Risk Free Rate Selected	<u>1.45%</u>

Notes

[1] "Value Line Selection & Opinion", Value Line (January 3, 2020)

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

[3] <https://www.treasury.gov/resource-center/data-chart-center/interest-rates/>

MONTANA DEPARTMENT OF REVENUE

Capital Asset Pricing Model (CAPM)
Industry: Telecommunications - Large
2021 Assessment Year

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

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

Duff & Phelps, 2021 Cost of Capital Navigator

		<u>R_m^[4]</u>	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Historical" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	8.70%	8.70%	1.45%	7.25%
ERP "Supply-side" - <i>Ex Post</i>	<i>Arithmetic Avg.</i>	7.45%	7.45%	1.45%	6.00%
Ex Post Equity Risk Premium Selected		8.70%		1.45%	7.25%

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

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

		<u>R_m^[4]</u>	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP - <i>Ex Ante</i>		7.44%	7.44%	1.45%	5.99%

Duff & Phelps, 2021 Cost of Capital Navigator

		<u>R_m^[4]</u>	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
ERP "Conditional" - <i>Ex Ante</i>			8.00%	2.50%	5.50%

Damodaran Implied ERP (Jan 5, 2021)

		<u>R_m^[4]</u>	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
Implied Premium (FCFE) - <i>Ex Ante</i>		6.17%	5.65%	0.93%	4.72%
Implied Premium (FCFE with sustainable payout) - <i>Ex Ante</i>		6.39%	5.87%	0.93%	4.94%

		<u>R_m^[4]</u>	<u>R_m</u>	<u>R_f</u>	<u>ERP</u>
<u>Average</u>		6.67%	6.74%		5.29%
<u>Median</u>		6.39%	6.66%		5.22%
<u>High</u>		7.44%	8.00%		5.99%
<u>Low</u>		6.17%	5.65%		4.72%

Equity Risk Premium Selected

		7.10%		1.45%	5.65%
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Notes

[4] R_m estimated using selected Risk Free Rate (R_f)

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Support for Beta Selection in CAPM
 Industry: Telecommunications - Large
 2021 Assessment Year

A	B	C	D	E
Ticker Symbol	Company	Industry Group	Financial Strength	Beta
		<i>Value Line</i>	<i>Value Line</i>	<i>Value Line</i>
CHTR	Charter Communic.	CABLETV	B++	0.90
CMCSA	Comcast Corp.	CABLETV	A+	0.80
T	AT&T Inc.	TELESERV	A++	0.85
TMUS	T-Mobile US	TELESERV	B+	0.80
VZ	Verizon Communic.	TELESERV	A++	0.65
Average				0.80
Median				0.80
High				0.90
Low				0.65
Selected				0.80

MONTANA DEPARTMENT OF REVENUE

Inflation & Real Growth

**Industry: Telecommunications - Large
2021 Assessment Year**

A	B	C	D	Nominal Growth	
				E	F
Source Description	Inflation (CPI)	Real Growth (GDP)	Nominal Growth	Low	High
Livingston Survey ^[1]	2.19%	2.21%	4.40%		
Survey of Professional Forecasters ^[2]	2.24%	2.27%	4.51%		
Congressional Budget Office ^[3]	1.90%	3.70%	5.60%		
Average	2.11%	2.73%	4.84%		
Median	2.19%	2.27%	4.46%		
High	2.24%	3.70%	5.94%		
Low	1.90%	2.21%	4.11%		
Selected	2.00%	2.50%	4.50%	4.11%	5.94%

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>
2008	210.228		1.2390	215.303		1.2021
2009	215.949	2.6%	1.2062	214.537	-0.4%	1.2064
2010	219.179	1.5%	1.1884	218.056	1.6%	1.1869
2011	225.672	2.9%	1.1542	224.939	3.1%	1.1506
2012	229.601	1.7%	1.1345	229.594	2.0%	1.1273
2013	233.049	1.5%	1.1177	232.957	1.4%	1.1110
2014	234.812	0.8%	1.1093	236.736	1.6%	1.0932
2015	236.525	0.7%	1.1013	237.017	0.1%	1.0920
2016	241.432	2.0%	1.0789	240.007	1.2%	1.0783
2017	246.524	2.1%	1.0566	245.120	2.1%	1.0559
2018	251.233	1.9%	1.0368	251.107	2.4%	1.0307
2019	256.974	2.2%	1.0136	255.657	1.8%	1.0123
2020	260.474	1.3%	1.0000	258.811	1.2%	1.0000

Notes

[1] Federal Reserve Bank of Philadelphia The Livingston Survey December 18, 2020 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 12, 2021 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] Congressional Budget Office, The Budget and Economic Outlook: 2021 to 2031, Table 2-1

<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-202001.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: Telecommunications - Large

2021 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	2020 Year End Stock Price	2021 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
CHTR	Charter Communic.	661.55	0.00	0.00%	0.00%	0.00%		
CMCSA	Comcast Corp.	52.16	0.98	1.88%	6.15%	10.03%	8.03%	11.91%
T	AT&T Inc.	28.26	2.08	7.36%	3.91%	5.37%	11.27%	12.73%
TMUS	T-Mobile US	134.85	0.00	0.00%	0.00%	0.00%		
VZ	Verizon Communic.	58.13	2.52	4.34%	3.21%	3.58%	7.54%	7.92%
Average							8.95%	10.85%
Median							8.03%	11.91%
High							11.27%	12.73%
Low							7.54%	7.92%
Selected							8.95%	10.85%

Notes

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

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Support for DDM - Short Term Growth Rate Calculations

Industry: Telecommunications - Large

2021 Assessment Year

A	B	C	D	E	F	G
Ticker	Company	End of Year Closing Stock Price	Div'ds Decl'd per sh 2021 Est^[1]	Expected Dividend Yield	Div'ds Decl'd per sh 2024-2026 Est^[1]	Short Term Growth Rate
		<i>Yahoo</i>	<i>Value Line</i>	<i>D / C</i>	<i>Value Line</i>	<i>Note [2]</i>
CHTR	Charter Communic.	661.55	0.00	0.00%		
CMCSA	Comcast Corp.	52.16	0.98	1.88%	1.40	9.33%
T	AT&T Inc.	28.26	2.08	7.36%	2.40	3.64%
TMUS	T-Mobile US	134.85	0.00	0.00%		
VZ	Verizon Communic.	58.13	2.52	4.34%	2.70	1.74%

A	B	C	D	E
Ticker	Company	Earnings per share 2021 Est^[1]	Earnings per share 2024-2026 Est^[1]	Short Term Growth Rate
		<i>Value Line</i>	<i>Value Line</i>	<i>Note [2]</i>
CHTR	Charter Communic.	20.50	37.90	16.61%
CMCSA	Comcast Corp.	2.80	5.25	17.02%
T	AT&T Inc.	3.20	4.00	5.74%
TMUS	T-Mobile US	3.95	6.05	11.25%
VZ	Verizon Communic.	5.10	5.65	2.59%

Notes

[1] From Value Line Tissue

[2] 5 year compound annual growth rate (CAGR) - 4 periods

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Support for DDM - Sustainable Long Term Growth

Industry: Telecommunications - Large

2021 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	$K_e = IRR \text{ of } D_1 : D_{500}$	$g = IRR - Div. \text{ Yield}$						
CHTR	Charter Communic.	661.55	0.00%	4.50%				(661.55)	0.00	0.00	0.00	0.00	0.00
CMCSA	Comcast Corp.	52.16	9.33%	4.50%	1.88%	8.03%	6.15%	(52.16)	0.98	1.07	1.17	1.28	1.40
T	AT&T Inc.	28.26	3.64%	4.50%	7.36%	11.27%	3.91%	(28.26)	2.08	2.16	2.23	2.32	2.40
TMUS	T-Mobile US	134.85	0.00%	4.50%				(134.85)	0.00	0.00	0.00	0.00	0.00
VZ	Verizon Communic.	58.13	1.74%	4.50%	4.34%	7.54%	3.21%	(58.13)	2.52	2.56	2.61	2.65	2.70

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	$K_e = IRR \text{ of } D_1 : D_{500}$	$g = IRR - Div. \text{ Yield}$						
CHTR	Charter Communic.	661.55	16.61%	4.50%				(661.55)	0.00	0.00	0.00	0.00	0.00
CMCSA	Comcast Corp.	52.16	17.02%	4.50%	1.88%	11.91%	10.03%	(52.16)	0.98	1.15	1.34	1.57	1.84
T	AT&T Inc.	28.26	5.74%	4.50%	7.36%	12.73%	5.37%	(28.26)	2.08	2.20	2.33	2.46	2.60
TMUS	T-Mobile US	134.85	11.25%	4.50%				(134.85)	0.00	0.00	0.00	0.00	0.00
VZ	Verizon Communic.	58.13	2.59%	4.50%	4.34%	7.92%	3.58%	(58.13)	2.52	2.59	2.65	2.72	2.79

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: Telecommunications - Large

2021 Assessment Year

Dividend	Stage 2															Stage 3		
Ticker	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
CHTR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
CMCSA	1.53	1.66	1.81	1.98	2.15	2.35	2.56	2.79	3.04	3.32	3.61	3.94	4.29	4.68	5.10	5.33	5.57	7,649,418,781
T	2.49	2.58	2.68	2.78	2.88	2.98	3.09	3.21	3.33	3.45	3.58	3.71	3.85	3.99	4.14	4.32	4.52	6,204,094,719
TMUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
VZ	2.75	2.80	2.86	2.91	2.97	3.03	3.09	3.14	3.21	3.27	3.33	3.39	3.46	3.53	3.59	3.76	3.92	5,386,629,505

Earnings	Stage 2															Stage 3		
Ticker	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
CHTR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
CMCSA	2.13	2.48	2.88	3.35	3.89	4.52	5.25	6.10	7.09	8.23	9.57	11.12	12.91	15.00	17.43	18.22	19.04	26,132,354,636
T	2.75	2.90	3.07	3.24	3.42	3.62	3.82	4.04	4.27	4.51	4.76	5.03	5.32	5.62	5.93	6.20	6.48	8,894,510,970
TMUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
VZ	2.87	2.95	3.03	3.11	3.19	3.28	3.37	3.46	3.55	3.65	3.75	3.85	3.96	4.07	4.18	4.36	4.56	6,259,758,081

MONTANA DEPARTMENT OF REVENUE

Support for Yield Capitalization Rate - Debt Rating

Industry: Telecommunications - Large

2021 Assessment Year

A	B	C	D	E	F
Ticker Symbol	Company	Industry Group	Financial Strength	Moody's Long Term Rating	Numeric Rating
		<i>Value Line</i>	<i>Value Line</i>	<i>Moodys.com</i>	
CHTR	Charter Communic.	CABLETV	B++	Ba2	12
CMCSA	Comcast Corp.	CABLETV	A+	A3	7
T	AT&T Inc.	TELESERV	A++	Baa2	9
TMUS	T-Mobile US	TELESERV	B+		
VZ	Verizon Communic.	TELESERV	A++	Baa1	8
All Companies					
Average					9
Median					9
High					12
Low					7
Selected				Baa2	9

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization - Equity Capitalization Rates

Industry: Telecommunications - Large

2021 Assessment Year

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Ticker Symbol	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	10-K	P/Q
CHTR	Charter Communic.	661.55	15.44	20.50	42.85	32.27	2.33%	3.10%	66.72	73.35	9.92	9.02	10.09%	11.09%	128,163	23,805	5.38
CMCSA	Comcast Corp.	52.16	2.61	2.80	19.99	18.63	5.00%	5.37%	5.09	5.35	10.25	9.75	9.76%	10.26%	238,933	90,323	2.65
T	AT&T Inc.	28.26	3.18	3.20	8.89	8.83	11.25%	11.32%	7.52	7.25	3.76	3.90	26.61%	25.65%	201,379	184,221	1.09
TMUS	T-Mobile US	134.85	3.72	3.95	36.25	34.14	2.76%	2.93%	14.80	18.75	9.11	7.19	10.98%	13.90%	167,458	65,344	2.56
VZ	Verizon Communic.	58.13	4.90	5.10	11.86	11.40	8.43%	8.77%	8.85	9.00	6.57	6.46	15.23%	15.48%	249,451	61,395	4.06
Average					23.97	21.05	5.96%	6.30%			7.92	7.26	14.53%	15.28%			3.15
Median					19.99	18.63	5.00%	5.37%			9.11	7.19	10.98%	13.90%			2.65
Trimmed Average					22.70	20.77	5.40%	5.75%			8.53	7.56	12.10%	13.49%			2.07
High					42.85	34.14	11.25%	11.32%			10.25	9.75	26.61%	25.65%			5.38
Low					8.89	8.83	2.33%	2.93%			3.76	3.90	9.76%	10.26%			1.09
Selected							5.60%						12.95%				2.10

MONTANA DEPARTMENT OF REVENUE

Support for Direct Capitalization Cost of Debt Component - Calculated Current Yield

Industry: Telecommunications - Large

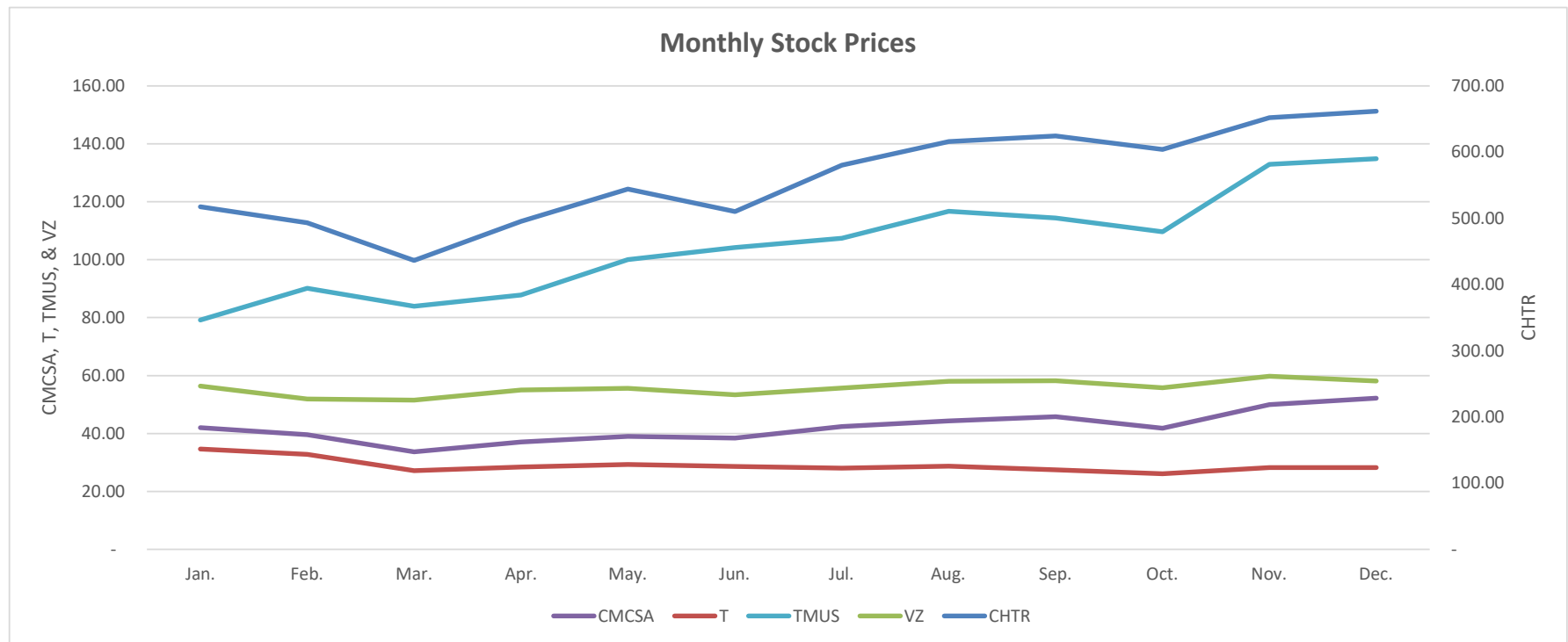
2021 Assessment Year

(\$ 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>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>
CHTR	Charter Communic.	3,848	85,386	79,078	94,226	82,752	89,806	4.28%	1.14
CMCSA	Comcast Corp.	4,588	115,800	102,217	125,600	103,760	120,700	3.80%	1.21
T	AT&T Inc.	7,925	184,162	163,147	189,260	157,245	186,711	4.24%	1.20
TMUS	T-Mobile US	2,483	27,191	26,315	75,064	72,569	51,128	4.86%	1.03
VZ	Verizon Communic.	4,247	130,316	111,489	158,036	129,062	144,176	2.95%	1.22
All Companies		23,091			642,186	545,388	592,521	3.90%	1.18
Average								4.03%	1.16
Median								4.24%	1.20
Trimmed Average								4.11%	1.18
High								4.86%	1.22
Low								2.95%	1.03
Selected								4.10%	1.18

MONTANA DEPARTMENT OF REVENUE
Support of Stock Price - From YAHOO Finance
Industry: Telecommunications - Large
2021 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.
CHTR	Charter Communic.	517.46	493.17	436.31	495.23	544.00	510.04	580.00	615.61	624.34	603.82	651.99	661.55
CMCSA	Comcast Corp.	42.05	39.55	33.63	37.05	38.99	38.38	42.39	44.38	45.82	41.84	50.01	52.16
T	AT&T Inc.	34.60	32.83	27.17	28.40	29.27	28.67	28.05	28.76	27.51	26.07	28.25	28.26
TMUS	T-Mobile US	79.19	90.16	83.90	87.80	100.04	104.15	107.38	116.68	114.36	109.57	132.94	134.85
VZ	Verizon Communic.	56.35	51.88	51.46	55.03	55.55	53.37	55.65	58.02	58.24	55.79	59.77	58.13



MONTANA DEPARTMENT OF REVENUE

Maintenance Capital Expenditures Estimate Based on Guideline Companies

Industry: Telecommunications - Large

2021 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	PP&E, Gross	Average PP&E	Depreciation Expense	Average Life of Assets			Replacement Cost (RC)	RC as % of Depreciation
			Current Year	Previous Year					Note [1]	Note [1]	Note [1]
		MTDOR (CPI)	10-K, Notes	10-K, Notes	(D+E)/2	10-K (CF)	F/G	C*H	1/(1+C)^H	G*I/(1-J)	K/G
CHTR	Charter Communic.	2.00%	65,996	62,247	64,122	6,704	10	0.19	0.83	7,432	110.86%
CMCSA	Comcast Corp.	2.00%	106,383	101,561	103,972	13,100	8	0.16	0.85	14,298	109.14%
T	AT&T Inc.	2.00%	327,751	333,538	330,645	28,516	12	0.23	0.79	32,233	113.04%
TMUS	T-Mobile US	2.00%	83,570	55,102	69,336	14,151	5	0.10	0.91	14,997	105.98%
VZ	Verizon Communic.	2.00%	279,737	265,734	272,736	16,720	16	0.33	0.72	19,761	118.19%
Average											111.44%
Median											110.86%
Trimmed Average											111.01%
High											118.19%
Low											105.98%
Selected											110.90%

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.