



COST OF CAPITAL STUDY

**YIELD CAPITALIZATION
2024 ASSESSMENT YEAR**

APPENDIX C

TELECOMMUNICATIONS

EQUITY RATE						8.00%	
CAPITAL ASSET PRICING MODEL							PAGE
	CAPM Ex Ante		8.0%				6
DIVIDEND GROWTH MODELS							
	Value Line, based on Dividends Growth		8.50%				7
	Value Line, based on Earnings Growth		8.00%				8
	Value Line, based on Return on Equity		7.75%				10
				RANGE	8-8.5%		
DEBT RATE						5.40%	11
SECURED DEBT (LEASE) RATE						5.00%	11
MARKET CAPITAL STRUCTURE							
	Equity	55%	x	8.00%	=	4.40%	3
	Debt	45%	x	5.40%	=	2.43%	3
	Marginal Tax Rate	24%	=	(1-.024)	x	2.43%	
						<u>1.85%</u>	

WEIGHTED AVERAGE COST OF CAPITAL **6.25%**

rounded

SUPPORT FOR GUIDELINE COMPANIES

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

TELECOMMUNICATIONS

Capital Structure at Book Value

Company	Ticker	Beta	Fin'l Strength	Price Stability	Growth Persist	Earnings Predict	P/E Ratio	Div'd Yield	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
AT&T Inc	t	0.80	B++	90	10	95	7.0	6.70%	98,098,276,019	42.0%	-	0.0%	135,240,000,000	58.0%	233,338,276,019
Alice USA, Inc	atus	1.15	C+	5	15	25	20.7	nil		nmf		nmf	21,940,332,326	58.7%	37,396,713,526
BCE Inc	bce	0.90	B++	100	15	100	14.4	8.10%	12,589,381,200	33.7%	2,867,000,000	7.7%	3,680,508,000	66.3%	5,552,508,275
Cable One	cabo	1.00	B+	60	55	45	9.7	2.70%	1,872,000,275	33.7%		0.0%	3,680,508,000	66.3%	5,552,508,275
Charter Communication	chtr	0.95	B+	50	65	40	9.7	nil	11,086,511,464	10.2%		0.0%	97,777,000,000	89.8%	108,863,511,464
Comcast Corp	cmcsa	0.85	A+	95	60	95	10.6	2.90%	83,360,000,000	46.2%		0.0%	97,100,000,000	53.8%	180,460,000,000
Lumen Technologies In	lumn	1.10	C+	5	5	15	3.6	nil	412,902,000	2.0%	-	0.0%	19,988,000,000	98.0%	20,400,902,000
Shenandoah Telecom	shen	0.90	B+	45	nmf	35	nmf	0.50%	652,432,200	68.0%		0.0%	307,095,000	32.0%	959,527,200
Telus Corp	tu	0.70	B++	100	50	70	41.1	6.60%	12,030,060,423	36.8%	-	0.0%	20,656,344,411	63.2%	32,686,404,834
Verizon Communication	vz	0.65	A	95	20	100	8.4	6.70%	93,797,318,203	38.4%	-	0.0%	150,674,000,000	61.6%	244,471,318,203
Mean		0.90	B+	65	33	62	13.9	4.89%	34,877,653,532	34.6%		0.9%	60,818,142,193	64.6%	
Weighted Mean									313,898,881,784	36.3%	2,867,000,000	0.3%	547,363,279,737	63.3%	864,129,161,521
Median		0.90		75	20	58	10	6.60%		36.8%		0.0%		61.6%	
Trimmed Mean		0.90		68	32	63	12	5.12%		34.4%		0.0%		64.5%	
Max		1.15		100	65	100	41	8.10%		68.0%		7.7%		98.0%	
Min		0.65		5	5	15	4	0.50%		2.0%		0.0%		32.0%	
Say		0.90								40%		0.0%		60%	100%

**SUPPORT FOR CAPITAL STRUCTURE
MARKET VALUE**

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
TELECOMMUNICATIONS

Capital Structure at Market Value

Company	Ticker	Stock Close	Common Shares	Common Stock	%	Preferred Stock	%	Long Term Debt (FV)	%	Total Debt & Equity
AT&T Inc	t	16.51	7,150,020,118	118,051,608,362	47.1%	-	0.0%	132,403,000,000	52.9%	250,454,608,362
Altice USA, Inc	atus	3.25	456,000,000	1,482,000,000	6.4%	-	0.0%	21,803,230,000	93.6%	23,285,230,000
BCE Inc	bce	39.38	912,274,000	35,925,351,032	59.8%	2,867,000,000	4.8%	21,317,975,831	35.5%	60,110,326,863
Cable One	cabo	556.59	5,616,731	3,126,216,459	48.0%	-	0.0%	3,388,855,000	52.0%	6,515,071,459
Charter Communications Inc	chtr	388.68	145,225,458	56,446,229,999	39.2%	-	0.0%	87,729,000,000	60.8%	144,175,229,999
Comcast Corp	cmcsa	43.56	4,000,000,000	174,239,992,000	65.4%	-	0.0%	92,200,000,000	34.6%	266,439,992,000
Lumen Technologies Inc	lumn	1.83	983,100,000	1,799,073,000	11.7%	-	0.0%	13,589,000,000	88.3%	15,388,073,000
Shenandoah Telecom	shen	21.62	50,110,000	1,083,378,250	77.9%	-	0.0%	307,095,000	22.1%	1,390,473,250
Telus Corp	tu	17.79	1,468,000,000	26,115,721,468	56.6%	-	0.0%	19,990,181,269	43.4%	46,105,902,737
Verizon Communications	vz	37.07	4,204,272,443	155,872,555,765	51.3%	-	0.0%	147,701,000,000	48.7%	303,573,555,765
			Mean		46.3%		0.5%		53.2%	
			Weighted Mean	574,142,126,335	51.4%	2,867,000,000	0.26%	540,429,337,100	48.4%	1,117,438,463,435
			Median		49.7%		0.00%		50.3%	
			Trimmed Mean		47.4%		0.0%		52.0%	
			Max		77.9%		4.8%		93.6%	
			Min		6.4%		0.0%		22.1%	
			Say		55%		0%		45%	100%

Source:
Stock Price: Yahoo
Market Value Debt: Fair Value 10k

SUPPORT FOR MARKET MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

TELECOMMUNICATIONS

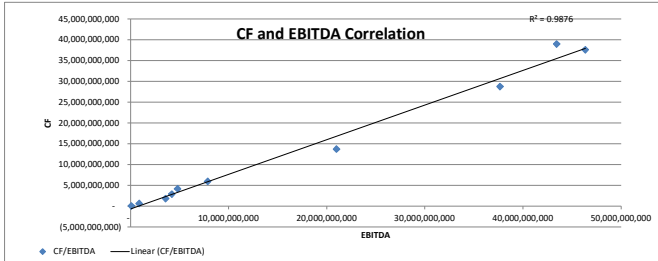
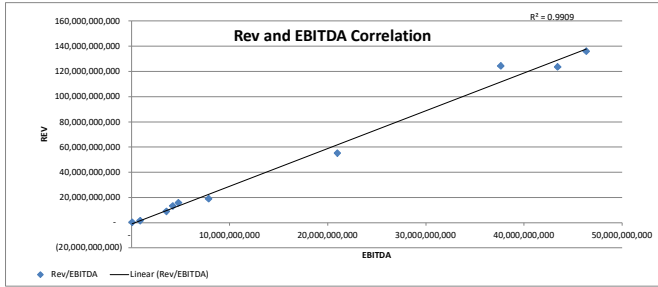
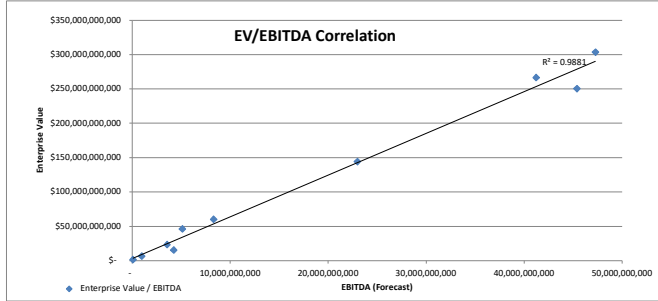
Company	Ticker	Stock Close	Revenues	Multiple	Cash Flow	Multiple	Earnings	Multiple	Divds Declid	Multiple	Captl Spend	Multiple	Book Value	Multiple
AT&T Inc	t	16.51	17.12	1.0	5.01	3.3	2.36	7.0	1.11	14.9	2.50	6.6	13.72	1.2
Altice USA, Inc	atus	3.25	20.26	0.2	3.72	0.9	0.12	27.1	nil		3.74	0.9	(0.93)	nmf
BCE Inc	bce	39.38	20.55	1.9	6.53	6.0	2.44	16.1	2.89	13.6	3.75	10.5	13.80	2.9
Cable One	cabo	556.59	298.58	1.9	108.59	5.1	45.14	12.3	11.60	48.0	66.00	8.4	333.29	1.7
Charter Communications	chtr	388.68	376.02	1.0	91.26	4.3	29.99	13.0	nil		76.54	5.1	76.34	5.1
Comcast Corp	cmcsa	43.56	30.63	1.4	7.20	6.0	3.98	10.9	1.14	38.2	3.12	14.0	20.84	2.1
Lumen Technologies Inc	lumn	1.83	14.81	0.1	3.44	0.5	0.51	3.6	nil		3.15	0.6	0.42	4.4
Shenandoah Telecom	shen	21.62	5.74	3.8	1.47	14.7	0.16	135.1	0.09	240.2	5.12	4.2	13.02	1.7
Telus Corp	tu	17.79	10.35	1.7	2.52	7.1	0.44	40.6	1.08	14.2	16.5	1.64	10.9	2.2
Verizon Communications	vz	37.07	31.87	1.2	9.00	4.1	4.71	7.9	2.62	14.2	4.46	8.3	22.31	1.7
				1.4		5.2		27.4		55.1		6.9		2.5
				1.3		4.7		12.6		16.5		7.5		2.1
				1.3		4.6		16.9		26.3		6.9		2.4
				3.8		14.7		135.1		240.2		14.0		5.1
				0.1		0.5		3.6		13.6		0.6		1.2
				1.0		4.0		39.4		82.8		4.3		1.3
				0.7		0.8		1.4		1.5		0.6		0.5
				0.5		2.2		10.8		21.7		2.5		2.1
				1.0		3.5		8.6		14.5		4.4		1.7
				1.8		6.0		24.3		43.1		10.0		2.9
				1.30		4.70		11.50		20.00		7.00		2.00

ENTERPRISE VALUE MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
TELECOMMUNICATIONS

Guideline Companies	Ticker	EV	EBITDA	EBITDA	EV / EBITDA	EV / EBITDA	Annual Change Rate	EBITDA	EV / EBITDA	Sales (Revenue)	EV / Sales	CF	Debt Service	EV / CF
			historic	historic M*	historic	historic M*	CF	forecast	forecast	forecast		forecast		
AT&T Inc	t	\$ 250,454,608,362	43,431,000,000	42,238,000,000	5.77	5.93	4.50%	45,385,395,000	5.52	123,695,000,000	2.02	38,967,500,000	7,149,762,000	5.43
Altice USA, Inc	atus	\$ 23,285,230,000	3,560,954,000	3,608,890,000	6.54	6.43		3,560,954,000	6.54	9,045,000,000	2.57	1,822,500,000	1,177,374,420	7.76
BCE Inc	bce	\$ 60,110,326,863	7,867,824,773	7,867,824,773	7.64	7.64	5.50%	8,300,555,136	7.24	19,011,200,000	3.16	5,941,000,000	1,151,170,695	8.48
Cable One	cabo	\$ 6,515,071,459	882,502,000	916,944,000	7.38	7.11	10.50%	975,164,710	6.68	1,659,900,000	3.92	655,050,000	182,998,170	7.77
Charter Communications Inc	chtr	\$ 144,175,229,999	20,986,000,000	21,894,000,000	6.87	6.59	9.50%	22,979,670,000	6.27	55,201,500,000	2.61	13,712,250,000	4,737,366,000	7.81
Comcast Corp	cmcsa	\$ 266,439,992,000	37,649,000,000	37,633,000,000	7.08	7.08	9.50%	41,225,655,000	6.46	124,375,825,000	2.14	28,758,475,000	4,978,800,000	7.90
Lumen Technologies Inc	lumn	\$ 15,388,073,000	4,215,000,000	4,146,000,000	3.65	3.71	0.50%	4,236,075,000	3.63	13,346,750,000	1.15	2,905,750,000	733,806,000	4.23
Shenandoah Telecom	shen	\$ 1,390,473,250	77,647,000	80,395,000	17.91	15.35	7.50%	83,470,525	16.66	320,000,000	4.35	82,500,000	16,583,130	14.03
Telus Corp	tu	\$ 46,105,902,737	4,783,232,628	5,399,546,828	9.64	8.54	7.00%	5,118,058,912	9.01	15,772,505,626	2.92	4,202,363,091	1,079,469,789	8.73
Verizon Communications	vz	\$ 303,573,555,765	46,342,000,000	47,789,000,000	6.55	6.35	2.00%	47,268,840,000	6.42	136,080,000,000	2.23	37,590,000,000	7,975,854,000	6.66
Mean					7.90	7.47	6.28%	7.44	7.44		2.71		2.88	
Median					6.97	6.83	7.00%	6.50	6.50		2.59		2.79	
Trimmed Mean					7.18	6.96	6.50%	6.77	6.77		2.70		7.57	
Max					17.91	15.35	10.50%	16.66	16.66		4.35		14.03	
Min					3.65	3.71	0.50%	3.63	3.63		1.15		4.23	
Std Dev					3.82	3.04	0.03	3.50	3.50		0.94		2.58	
Coefficient of Variation					0.48	0.41	0.55	0.47	0.47		0.35		0.33	
Harmonic Mean					6.82	6.68	2.68%	6.50	6.50		2.39		7.21	
Sav					7.00	7.00	6.50%		6.50		2.50		7.25	

EBITDA from Morningstar
Morningstar-data page



Guideline Companies	EV/EBITDA
Lumen Technologies Inc	4.23
AT&T Inc	5.52
Charter Communications Inc	6.27
Verizon Communications	6.42
Comcast Corp	6.46
Altice USA, Inc	6.54
Cable One	6.68
BCE Inc	7.24
Telus Corp	9.01
Shenandoah Telecom	16.66
Low Average	5.66
Low Median	6.27
Sav	6.00
High Average	9.23
High Median	7.24
Sav	8.25

Guideline Companies	EV/Sales
Lumen Technologies Inc	1.15
AT&T Inc	2.02
Comcast Corp	2.14
Verizon Communications	2.23
Altice USA, Inc	2.57
Charter Communications Inc	2.61
Telus Corp	2.92
BCE Inc	3.16
Cable One	3.92
Shenandoah Telecom	4.35
Low Average	2.03
Low Median	2.14
Sav	2.00
High Average	3.39
High Median	3.16
Sav	3.25

Guideline Companies	EV/CF
Lumen Technologies Inc	4.23
AT&T Inc	5.43
Verizon Communications	6.66
Altice USA, Inc	7.76
Cable One	7.77
Charter Communications Inc	7.81
Comcast Corp	7.90
BCE Inc	8.48
Telus Corp	8.73
Shenandoah Telecom	14.03
Low Average	6.37
Low Median	6.66
Sav	6.50
High Average	9.39
High Median	8.48
Sav	8.50

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
TELECOMMUNICATIONS

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

Ke = Cost of Equity **8.0%**

to page 1

Rm =	rate of return	8.48%
Rf =	risk free rate	4.03%
Rp =	risk premium	4.45%
B =	Beta	0.90

page 2

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 12-29-23

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%
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Gross Domestic Product (GDP) Nominal **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/fomcprojtabl20231213.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	2.20%
https://www.cbo.gov/system/files/2024-02/59710-Outlo	2029-2034	1.90%

Federal Reserve Bank of Philadelphia

The Livingston Survey, December 15, 2023, page 8	
Average 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
TELECOMMUNICATIONS

Based on Dividend Growth

Ke = (D1 / Po) + G

Ke = Cost of Equity
D1 = Expected Dividends
Po = Current Price
G = Sustainable Growth
Adj G assumption: Sustainable g can not exceed inflation plus real GDP. Minimum g inflation

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Dividend Growth (G)	Ke	Sustainable Dividend Growth	Ke (Sus)
AT&T Inc	t	16.51	1.11	6.72%	-5.50%	nmf	2.13%	8.85%
Altice USA, Inc	atus	3.25	nil					
BCE Inc	bce	39.38	2.99	7.59%	3.00%	10.59%		10.59%
Cable One	cabo	556.59	11.80	2.12%	3.00%	5.12%		5.12%
Charter Communications Inc	chtr	388.68	nil					
Comcast Corp	cmcsa	43.56	1.22	2.80%	7.00%	9.80%	3.93%	6.73%
Lumen Technologies Inc	lumn	1.83	nil					
Shenandoah Telecom	shen	21.62	0.10	0.46%	12.00%	12.46%	3.93%	4.39%
Telus Corp	tu	17.79	1.15	6.45%	6.50%	12.95%	3.93%	10.38%
Verizon Communications	vz	37.07	2.67	7.20%	2.50%	9.70%		9.70%
						10.10%	Mean	7.97%
						10.20%	Median	8.85%
						10.64%	Trimmed Mean	8.16%
						12.95%	Max	10.59%
						5.12%	Min	4.39%
Source: Value Line Projections 21-23 to 27-29						10.50%		8.50%
						Say		

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
TELECOMMUNICATIONS

Based on Earnings Growth

$$K_e = (D_1 / P_0) + G$$

Ke = Cost of Equity
D1 = Expected Dividends
Po = Current Price
G = Sustainable Growth
Adj G assumption: Sustainable g can not exceed inflation plus real GDP. Minimum g inflation

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Earnings Growth (G)	Ke	Sustainable Earnings Growth	Ke (Sus)
AT&T Inc	t	16.51	1.11	6.72%	2.00%	8.72%	2.13%	8.85%
Altice USA, Inc	atus	3.25	nil					
BCE Inc	bce	39.38	2.99	7.59%	3.50%	11.09%		11.09%
Cable One	cabo	556.59	11.80	2.12%	1.50%	3.62%	2.13%	4.25%
Charter Communications Inc	chtr	388.68	nil					
Comcast Corp	cmcsa	43.56	1.22	2.80%	8.00%	10.80%	3.93%	6.73%
Lumen Technologies Inc	lumn	1.83	nil					
Shenandoah Telecom	shen	21.62	0.10	0.46%	39.00%	39.46%	3.93%	4.39%
Telus Corp	tu	17.79	1.15	6.45%	17.00%	23.45%	3.93%	10.38%
Verizon Communications	vz	37.07	2.67	7.20%	1.50%	8.70%	2.13%	9.33%
						15.12%	Mean	7.86%
						10.80%	Median	8.85%
						12.55%	Trimmed Mean	7.94%
						39.46%	Max	11.09%
						3.62%	Min	4.25%

Source: Value Line Projections 21-23 to 27-29

12.00%
Say **8.00%** **8.00%**

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
TELECOMMUNICATIONS

Based on Earnings Growth

$$K_e = (D_1 / P_0) + G$$

Ke = Cost of Equity
D1 = Expected Dividends
Po = Current Price
G = Sustainable Growth
Adj G assumption: Sustainable g can not exceed inflation plus real GDP. Minimum g inflation

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Earnings Growth (G)	Ke	Sustainable Earnings Growth	Ke (Sus)
AT&T Inc	t	16.51	1.11	6.72%	1.32%	8.04%	2.13%	8.85%
Altice USA, Inc	atus	3.25	nil					
BCE Inc	bce	39.38	2.99	7.59%	1.42%	9.01%	2.13%	9.72%
Cable One	cabo	556.59	11.80	2.12%	8.00%	10.12%	3.93%	6.05%
Charter Communications Inc	chtr	388.68	nil					
Comcast Corp	cmcsa	43.56	1.22	2.80%	9.78%	12.58%	3.93%	6.73%
Lumen Technologies Inc	lumn	1.83	nil					
Shenandoah Telecom	shen	21.62	0.10	0.46%	24.40%	24.86%	3.93%	4.39%
Telus Corp	tu	17.79	1.15	6.45%	4.10%	10.55%	3.93%	10.38%
Verizon Communications	vz	37.07	2.67	7.20%	1.89%	9.09%	2.13%	9.33%
						12.04%	Mean	7.92%
						10.12%	Median	8.85%
						10.27%	Trimmed Mean	8.14%
						24.86%	Max	10.38%
						8.04%	Min	4.39%

Source: Yahoo Finance 5 year growth est

10.25%
Say **8.50%** **8.50%**

**SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT
DIVIDEND GROWTH MODEL**

WASHINGTON STATE DEPARTMENT OF REVENUE
2024 ASSESSMENT YEAR
TELECOMMUNICATIONS

Based on Return on Equity

Ke = Cost of Equity
D1 = Expected Dividends
E1 = Expected Earnings
Po = Current Price
G = Sustainable Growth
b = Retained Earnings % (plowback) (1 - payout ratio)
ROE = Return on Equity
Adj G assumption: Sustainable q can not exceed inflation plus real GDP. Minimum q inflation

$$Ke = (D1 / Po) + G$$

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	b (1-payout ratio)	ROE book	Proj Earnings (E1)	=ROE market	mk:bk	=ROE market	Growth (b*ROE)	Growth (b*ROE)	Growth (b*ROE) book	Ke	Sustainable Reinvestment Growth	Ke (Sus)
AT&T Inc	t	16.51	1.11	6.72%	53.0%	15.50%	2.35	14.23%	1.20	12.88%	7.54%	6.8%	8.22%	14.27%	3.93%	10.65%
Alice USA, Inc	atus	3.25	nil				0.30	9.23%	(3.49)	nmf						
BCE Inc	bce	39.38	2.99	7.59%		16.00%	2.35	5.97%	2.85	5.61%						
Cable One	cabo	556.59	11.80	2.12%	74.0%	14.00%	46.90	8.43%	1.67	8.38%	6.24%	6.2%	10.36%	8.36%	3.93%	6.05%
Charter Communications Tr	chtr	388.68	nil			33.50%	34.00	8.75%	5.09	6.58%						
Comcast Corp	cmcsa	43.56	1.22	2.80%	71.0%	20.50%	4.30	9.87%	2.09	9.81%	7.01%	7.0%	14.56%	9.81%	3.93%	6.73%
Lumen Technologies Inc	lumn	1.83	nil			4.00%	(0.10)	-5.46%	4.36	0.92%						
Shenandoah Telecom	shen	21.62	0.10	0.46%	44.0%	2.00%	0.25	1.16%	1.66	1.20%	0.51%	0.5%	0.88%	0.97%	2.13%	2.59%
Telus Corp	tu	17.79	1.15	6.45%		7.00%	0.56	3.16%	2.17	3.22%						
Verizon Communications	vz	37.07	2.67	7.20%	44.0%	19.00%	4.60	12.41%	1.66	11.43%	5.46%	5.0%	8.36%			
														12.66%	3.93%	11.13%
														9.21%	Mean	7.43%
														9.81%	Median	6.73%
														10.28%	Trimmed Mean	7.81%
														14.27%	Max	11.13%
														0.97%	Min	2.59%
														10.00%	Sav	7.75%
														Sav	7.75%	

SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

TELECOMMUNICATIONS

Company	Ticker	Moody's Ratings	S&P Ratings	WAYTM
AT&T Inc	t	Baa2	BBB	5.42%
Altice USA, Inc	atus	B2	B	10.15%
BCE Inc	bce	Baa1	BBB+	5.31%
Cable One	cabo	B2	BB	
Charter Communications Inc	chtr	Ba1	BB+	6.57%
Comcast Corp	cmcsa	A3	A-	5.09%
Lumen Technologies Inc	lumn	Caa3	CC	15.01%
Shenandoah Telecom	shen			
Telus Corp	tu	Baa2	BBB	5.42%
Verizon Communications	vz	Baa1	BBB+	5.15%
Overall Average Debt Rating		Ba1	BB+	5.50%

bond analysis, A-BBB- bonds

All issues 20+ year maturities

Guideline Companies, All Ratings	5.56%	5.40%
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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	4.84%	5.17%	5.39%	5.85%
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		5.39%	5.54%	5.84%
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	4.80%	4.93%	5.23%	5.87%

Debt Yield Rate	5.40%
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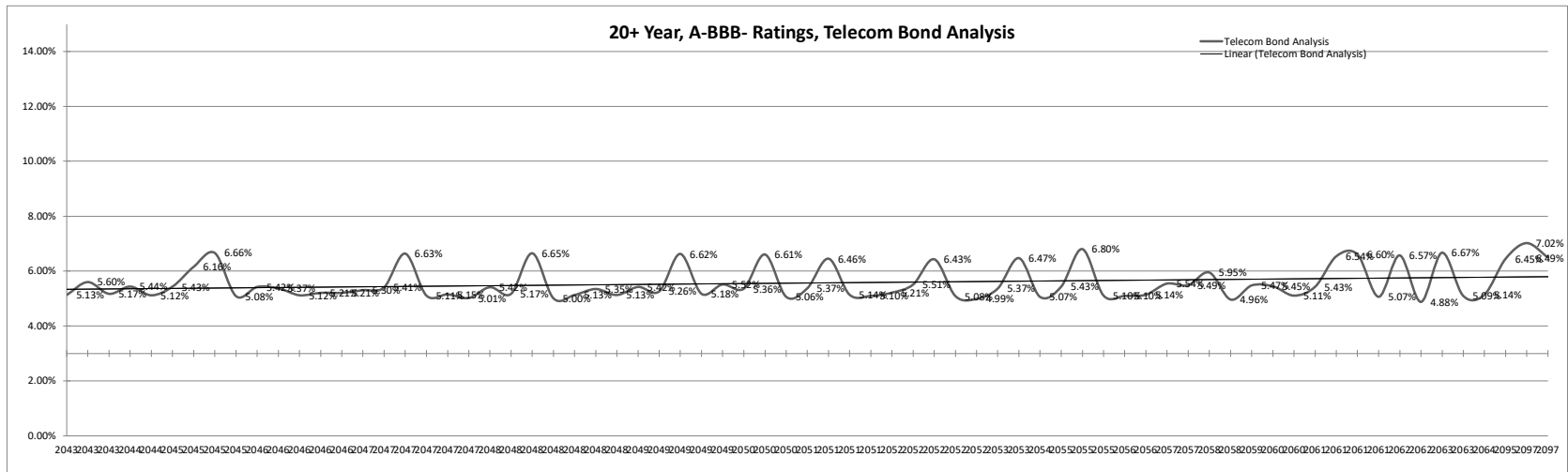
Secured Debt (Lease) Rate	based on Aa rate 5.00%
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to page 1

Telus	Sr unsecured note	4.300	2049	83.88	\$	500,000,000	5.13%	5.52%	0.01%	Baa2	\$	419,400,000	83.88%	\$	21,500,000	0.000130368	0.02206088	5.48	
Telus	Sr unsecured note	4.600	2048	90.11	\$	750,000,000	5.10%	5.35%	0.02%	Baa2	\$	675,847,500	90.11%	\$	34,500,000	0.000189658	0.03209381	5.32	
	2 Book Value	200	sum	173.99	\$	1,250,000,000	Percent of book	87.00%	0.03%		\$	1,095,247,500	87.62%	4.48%	\$	56,000,000		5.415%	
Verizon Communications	Sr unsec note	3.700	2061	77.47	\$	3,500,000,000	4.78%	5.07%	0.08%	BBB+	\$	2,711,450,000	77.47%		129,500,000	0.000838324	0.003044287	5.04	
Verizon Communications	Sr unsec note	3.000	2060	65.78	\$	2,000,000,000	4.56%	5.11%	0.05%	BBB+	\$	1,315,600,000	65.78%		60,000,000	0.000482599	0.001753597	5.05	
Verizon Communications	Sr unsec note	2.987	2056	66.78	\$	4,408,814,000	4.47%	5.14%	0.11%	BBB+	\$	3,004,307,889	66.78%		134,379,574	0.001092957	0.003697871	5.07	
Verizon Communications	fx rt Notes	4.672	2055	93.4	\$	5,500,000,000	5.00%	5.10%	0.13%	BBB+	\$	5,137,000,000	93.40%		256,960,000	0.001326955	0.004818701	5.09	
Verizon Communications	fx rt Notes	5.012	2054	99.19	\$	5,500,000,000	5.05%	5.07%	0.13%	BBB+	\$	5,455,450,000	99.19%		275,660,000	0.001317111	0.004782953	5.06	
Verizon Communications	sr rt	4.522	2048	91.84	\$	5,000,000,000	4.92%	5.13%	0.12%	BBB+	\$	4,592,000,000	91.84%		226,100,000	0.001211990	0.004401216	5.10	
Verizon Communications	fx rt Notes	5.500	2047	106.46	\$	1,500,000,000	5.17%	5.01%	0.04%	BBB+	\$	1,596,900,000	106.46%		82,500,000	0.000355607	0.001291350	5.02	
Verizon Communications	nt	4.862	2046	95.61	\$	4,500,000,000	5.09%	5.21%	0.11%	BBB+	\$	4,302,450,000	95.61%		218,790,000	0.001107555	0.004021970	5.19	
Verizon Communications	fx rt Notes	4.125	2046	86.17	\$	1,500,000,000	4.79%	5.21%	0.04%	BBB+	\$	1,202,490,000	86.17%		61,875,000	0.000369441	0.001341588	5.16	
Verizon Communications	fx rt Notes	6.550	2043	116.17	\$	15,000,000,000	5.64%	5.17%	0.37%	BBB+	\$	17,426,100,000	116.17%		982,500,000	0.003666984	0.015316273	5.22	
Verizon Communications	Notes	3.850	2042	84.41	\$	1,250,000,000	4.56%	5.23%	0.03%	BBB+	\$	1,055,125,000	84.41%		48,125,000	0.000309162	0.001122691	5.15	
Verizon Communications	fixed rate notes	4.750	2041	97.54	\$	750,000,000	4.87%	4.97%	0.02%	BBB+	\$	731,550,000	97.54%		35,625,000	0.000176292	0.000640184	4.95	
Verizon Communications	fixed rate notes	3.400	2041	79.94	\$	3,750,000,000	4.25%	5.25%	0.09%	BBB+	\$	2,997,562,500	79.94%		127,500,000	0.000303265	0.003378162	5.17	
Verizon Communications	fixed rate notes	2.850	2041	74.15	\$	1,000,000,000	3.84%	5.23%	0.02%	BBB+	\$	741,450,000	74.15%		28,500,000	0.000247104	0.000897331	5.08	
Verizon Communications	fixed rate notes	2.650	2040	72.37	\$	3,000,000,000	3.66%	5.31%	0.08%	BBB+	\$	2,171,100,000	72.37%		79,500,000	0.000753120	0.002734876	5.11	
	15 Book Val	1500	sum	1307.27	\$	58,248,814,000	Percent of book	87.15%	1.42%		\$	54,530,535,489	93.62%	4.72%	\$	2,747,514,574		5.151%	
	Total				\$	211,524,543,000					Total	\$	179,747,965,570.63	84.98%	4.38%	\$	9,265,163,377	5.56%	7.264%

Source: FINRA , February 2024, 2023 Yr End Prices
cBonds and Trace data

Embedded debt rate **4.3802%**
Weighted average yield to maturity **5.9612%**
Debt service / Market value **5.1545%**



DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

TELECOMMUNICATIONS

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

Guideline Companies		Stock Price	Revenues	Cash Flow	Earnings	Dividends	Capital Spending	Bk Value	Common	Calculated Debt
Name	Ticker	(YE Adj Close)	Per Share	Per Share	Per Share	Per Share	per share	Stock	Shares	mk to bk
AT&T Inc	t	16.51	17.12	5.01	2.36	1.11	2.50	13.72	7,150,020,118	83.93%
Altice USA, Inc	atus	3.25	20.26	3.72	0.12	nil	3.74	(0.93)	456,000,000	73.62%
BCE Inc	bce	39.38	20.55	6.53	2.44	2.89	3.75	13.80	912,274,000	82.03%
Cable One	cabo	556.59	298.58	108.59	45.14	11.60	66.00	333.29	5,616,731	92.08%
Charter Communications Inc	chtr	388.68	376.02	91.26	29.99	nil	76.54	76.34	145,225,458	79.73%
Comcast Corp	cmcsa	43.56	30.63	7.20	3.98	1.14	3.12	20.84	4,000,000,000	79.99%
Lumen Technologies Inc	lumn	1.83	14.81	3.44	0.51	nil	3.15	0.42	983,100,000	62.63%
Shenandoah Telecom	shen	21.62	5.74	1.47	0.16	0.09	5.12	13.02	50,110,000	100.00%
Telus Corp	tu	17.79	10.35	2.52	0.44	1.08	1.64	8.19	1,468,000,000	87.62%
Verizon Communications	vz	37.07	31.87	9.00	4.71	2.62	4.46	22.31	4,204,272,443	93.62%

Value Line March 8, 2024

Yahoo

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

Bond analysis
83.52%
84.98%
84.98%
80.40%

2024 Forecast

Wtd Avg YTM	Payout Ratio	Payout Ratio	ROE	Timeliness	Safety	Technical	Income Tax Rate	Return on Total Capital	CF growth	2024 Forecast				
										Revenues	CF	Earnings	Dividends	Common
	calculated	V L	V L	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	Shares
5.42%	47%	47%	16.8%	3	3	3	22.6%	9.10%	1.0%	17.30	5.45	2.35	1.11	7,150,000,000
10.15%		nil	nmf				33.3%	3.60%	1.0%	20.10	4.05	0.30	nil	450,000,000
5.31%	118%	nmf	15.4%	4	2	3	25.7%	7.50%	2.5%	20.80	6.50	2.35	2.99	914,000,000
	26%	26%	14.3%	2	3	3	21.8%	6.50%	6.0%	301.80	119.10	46.90	11.80	5,500,000
6.57%		nil	41.1%	3	3	4	23.2%	6.70%	6.5%	391.50	97.25	34.00	nil	141,000,000
5.09%	29%	29%	19.9%	3	1	2	25.9%	10.40%	8.5%	33.95	7.85	4.30	1.22	3,663,500,000
15.01%		nil	nmf				23.5%	4.80%	-5.0%	13.55	2.95	(0.10)	nil	985,000,000
	56%	56%	1.2%	2	3	2	27.0%	1.50%	10.0%	6.40	1.65	0.25	0.10	50,000,000
5.42%	247%	nmf	5.2%	4	2	4	20.4%	3.70%	12.0%	10.84	2.89	0.56	1.15	1,455,000,000
5.15%	56%	56%	20.0%	3	3	3	28.8%	11.50%	nil	32.40	8.95	4.60	2.67	4,200,000,000

Bond analysis calculated Value Line Value Line

83% 43% 16.7%

55.6% 47.0% 16.1%

48.8% 38.5% 5.9%

25% 6.53% 4.72%

6.60% 6.00%

6.54% 5.75%

6.50% **5.0%**

4.65%

0.032

0.490

avg

med

trimmed

max

min

std

P/E	Forecast Dividends % Change						Forecast Earnings % Change						Forecast Cash Flow %	
	2024	2025	2026	2027	2028	2029	2024	2025	2026	2027	2028	2029	2024	2025
calc	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
7.03	4.5	4.5	2.5	-6.5	-6.5	-6.5	5.5	5.5	2.5	0.5	1.5	1.5	4.5	3.5
10.83									44.5	10	-8.5	-12.5		9
16.76	4	4	4.5	4	3.5	3.5	4.5	3	3.5	4.5	4.5	4	5.5	4
11.87	9.5	7.5	6.5	5.5	4	4	15	11.5	11.5	7	3.5	1.5	10.5	7
11.43							17.5	34	27.5	22.5	12.5	12.5	9.5	9.5
10.13	11	8.5	9	9	8.5	8.5	13.5	8.5	11	9	9	9	9.5	6.5
nmf	-12	-9	-5.5	3	0		1	2.5	3.5	1.5	1.5	-8.5	0.5	2.5
86.48	7.5	8.5	5	-7	-1.5	-1.5	20.5	19.5	6.5	9.5	44	44	7.5	6
31.62	7	7	7	7	6.5	6.5	7.5	9	13	15	16	14.5	7	8
8.06	2	2	2	2.5	2.5	2.5	4	4	2.5	2.5	1.5	1.5	2	1.5

21.58
11.43
14.39
86.48
7.03
25.43

Change				Forecast Revenue % Change						Income		Balance Sheet
2026	2027	2028	2029	2024	2025	2026	2027	2028	2029	Operating Income	EBITDA	Current Assets
VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	M*	M*	M*
2	-0.5	0.5	1	1	2.5	1.5	-4.5	-2.5	-2	24,654,000,000	42,238,000,000	36,458,000,000
12	5	-0.5	-1		6	7.5	3	2		1,916,667,000	3,608,890,000	834,794,000
3.5	3	2.5	2	2	0.5	2	2	2	1.5	4,153,323,263	7,867,824,773	5,965,256,798
7.5	3.5	7.5	7	8.5	5	3.5	-0.5	6.5	6.5	539,611,000	916,944,000	342,378,000
11	15	7	7	11	7.5	9	14.5	8	8	12,290,000,000	21,894,000,000	4,132,000,000
7.5	7.5	8.5	8.5	9	6.5	7.5	7	7.5	7.5	23,313,000,000	37,633,000,000	23,987,000,000
0.5	-1.5	1.5	-5	-2.5	-0.5	-2	-0.5	4	-2.5	1,230,000,000	4,146,000,000	4,775,000,000
-7.5	0.5	10.5	10.5	5	4.5	-5.5	0.5	8.5	7.5	12,176,000	90,595,000	176,071,000
10	9.5	10.5	10	7	4	5	7	7	7	1,709,969,789	5,399,546,828	4,768,126,888
0.5	0.5	0.5		1.5	2	2.5	2.5	2	2	28,718,000,000	47,789,000,000	36,814,000,000

					Cash Flow	Fair Value
					Depreciation & Amortization	Debt
PP & E Gross	Intang	Current Liabilities	Long Term Debt	curr long term debt		
M*	M*	M*	M*	M*	M*	10-K
360,796,000,000	133,621,000,000	51,127,000,000	145,422,000,000	9,477,000,000	18,777,000,000	132,403,000,000
16,535,744,000	20,350,302,000	2,308,124,000	24,980,201,000	359,407,000	1,644,297,000	21,803,230,000
65,586,102,719	18,209,969,789	9,144,259,819	21,940,332,326		3,714,501,511	21,317,975,831
3,684,415,000	2,900,942,000	202,837,000.00	3,680,508,000	19,023,000	342,891,000	3,388,855,000
77,271,000,000	85,664,000,000	13,214,000,000	95,777,000,000	2,000,000,000	8,696,000,000	87,729,000,000
118,400,000,000	130,385,000,000	40,198,000,000	95,021,000,000	2,069,000,000	14,336,000,000	92,200,000,000
41,076,000,000	13,835,000,000	3,534,000,000	19,831,000,000	425,000,000	2,985,000,000	13,589,000,000
1,437,346,000	105,608,000	98,355,000	342,557,000	10,176,000	65,471,000	307,095,000
35,806,646,526	20,118,580,060	7,158,610,272	17,639,728,097	3,016,616,314	3,073,262,840	19,990,181,269
344,834,000,000	188,182,000,000	53,223,000,000	150,674,000,000	12,973,000,000	17,624,000,000	147,701,000,000

1,065,427,254,245

71,258,423,350

540,429,337,100

AVERAGE FOURTH QUARTER STOCK PRICE

WASHINGTON STATE DEPARTMENT OF REVENUE

2024 ASSESSMENT YEAR

TELECOMMUNICATIONS

								12/29/2023
								Adj Close
ATT	T							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	16.63	16.83	16.61	16.78	16.51067	33271100		16.51
Lumen Tech	LUMN							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	1.83	1.87	1.79	1.83	1.83	12217300		1.83
Comcast	CMCSA							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	44.09	44.14	43.56	43.85	43.56	13694900		43.56
Verizon	VZ							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	37.38	37.76	37.32	37.7	37.0748	16205200		37.07
Telus	TU							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	17.78	17.93	17.67	17.79	17.79	2426600		17.79
BCE	BCE							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	39.05	39.42	38.91	39.38	39.38	1863200		39.38
Altice USA, In	ATUS							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	3.33	3.49	3.2	3.25	3.25	13136600		3.25
CHTR								
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	390.72	393.99	387.47	388.68	388.68	746000		388.68
Cable One, In	CABO							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	557.03	557.03	553	556.59	556.59	33700		556.59
Shenandoah	SHEN							
Date	Open	High	Low	Close	Adj Close	Volume		
12/29/2023	21.35	21.67	21.32	21.62	21.62	138800		21.62

Source:

finance.yahoo.com

Historical Stock Quotes

01/29/2024

