



# COST OF CAPITAL STUDY

**YIELD CAPITALIZATION  
2023 ASSESSMENT YEAR**

APPENDIX C

## TELECOMMUNICATIONS

<b>EQUITY RATE</b>						<b>9.00%</b>	
<b>CAPITAL ASSET PRICING MODEL</b>							PAGE
CAPM Ex Ante						9.2%	6
<b>DIVIDEND GROWTH MODELS</b>							
Value Line, based on Dividends Growth						8.00%	7
Value Line, based on Earnings Growth						8.00%	8
Value Line, based on Return on Equity						8.00%	10
<b>RANGE</b>						8-9.2%	
<b>DEBT RATE</b>						<b>5.75%</b>	11
<b>SECURED DEBT (LEASE) RATE</b>						<b>4.75%</b>	11
<b>MARKET CAPITAL STRUCTURE</b>							
Equity	55%	x	9.00%	=	4.95%	3	
Debt	45%	x	5.75%	=	2.59%	3	
Marginal Tax Rate	24%	=	(1-.024)	x	2.59%	<u>1.97%</u>	

**WEIGHTED AVERAGE COST OF CAPITAL** **6.9%**

rounded

**SUPPORT FOR GUIDELINE COMPANIES**

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 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	nmf	B++	nmf	nmf	nmf	7.2	5.80%	92,302,420,000	40.6%	-	0.0%	135,024,000,000	59.4%	227,326,420,000
Alice USA, Inc	atus	1.15	B	20	25	30	8.9	nil	nmf	nmf	nmf	nmf	nmf	nmf	nmf
BCE Inc	bce	0.90	B++	100	15	100	17.8	6.50%	13,542,353,550	38.5%	3,162,000,000	9.0%	18,508,862,629	52.6%	35,213,216,179
Cable One	cabo	0.95	B++	65	70	85	19.2	1.60%	1,761,414,022	31.4%	-	0.0%	3,848,748,000	68.6%	5,610,162,022
Charter Communication	chtr	0.95	B++	70	80	20	12.2	nil	9,119,394,457	8.5%	-	0.0%	97,603,000,000	91.5%	106,722,394,457
Comcast Corp	cmcsa	0.85	A+	95	65	90	10.2	3.10%	80,941,518,000	46.1%	-	0.0%	94,800,000,000	53.9%	175,741,518,000
Lumen Technologies In	lumn	1.00	B	45	5	75	nmf	14.37%	10,437,200,031	33.7%	-	0.0%	20,572,000,000	66.3%	31,009,200,031
Shenandoah Telecom	shen	nmf	B+	nmf	nmf	nmf	nmf	0.50%	637,900,300	89.4%	-	0.0%	75,648,000	10.6%	713,548,300
Telus Corp	tu	0.70	B++	100	60	85	23.4	5.40%	12,238,537,666	39.8%	-	0.0%	18,491,137,371	60.2%	30,729,675,037
Verizon Communication	vz	0.60	A++	100	20	100	7.5	6.80%	92,481,422,273	38.0%	-	0.0%	150,639,000,000	62.0%	243,120,422,273
<b>Mean</b>		<b>0.89</b>	<b>B++</b>	<b>74</b>	<b>43</b>	<b>73</b>	<b>13.3</b>	<b>5.51%</b>	<b>34,829,184,478</b>	<b>40.7%</b>		<b>1.0%</b>	<b>59,951,377,333</b>	<b>58.3%</b>	
<b>Weighted Mean</b>									<b>313,462,660,298</b>	<b>36.6%</b>	<b>3,162,000,000</b>	<b>0.4%</b>	<b>539,562,396,000</b>	<b>63.0%</b>	<b>856,187,056,298</b>
<b>Median</b>		<b>0.93</b>		<b>83</b>	<b>43</b>	<b>85</b>	<b>11</b>	<b>5.60%</b>		<b>38.5%</b>		<b>0.0%</b>		<b>60.2%</b>	
<b>Trimmed Mean</b>		<b>0.89</b>		<b>79</b>	<b>43</b>	<b>78</b>	<b>13</b>	<b>4.87%</b>		<b>38.3%</b>		<b>0.0%</b>		<b>60.4%</b>	
<b>Max</b>		<b>1.15</b>		<b>100</b>	<b>80</b>	<b>100</b>	<b>23</b>	<b>14.37%</b>		<b>89.4%</b>		<b>9.0%</b>		<b>91.5%</b>	
<b>Min</b>		<b>0.60</b>		<b>20</b>	<b>5</b>	<b>20</b>	<b>7</b>	<b>0.50%</b>		<b>8.5%</b>		<b>0.0%</b>		<b>10.6%</b>	
<b>Say</b>		<b>0.90</b>								<b>40%</b>		<b>0.0%</b>		<b>60%</b>	<b>100%</b>

**SUPPORT FOR CAPITAL STRUCTURE  
MARKET VALUE**

WASHINGTON STATE DEPARTMENT OF REVENUE  
2023 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	18.15	7,127,600,000	129,351,278,527	50.8%	-	0.0%	125,207,000,000	49.2%	254,558,278,527
Altice USA, Inc	atus	4.60	456,200,000	2,098,520,000	8.6%	-	0.0%	22,263,443,000	91.4%	24,361,963,000
BCE Inc	bce	43.95	911,943,000	40,079,895,762	66.5%	3,162,000,000	5.2%	17,005,908,419	28.2%	60,247,804,181
Cable One	cabo	711.86	5,809,413	4,135,488,651	54.5%	-	0.0%	3,455,268,000	45.5%	7,590,756,651
Charter Communications Inc	chtr	339.10	152,651,397	51,764,089,639	38.5%	-	0.0%	82,798,000,000	61.5%	134,562,089,639
Comcast Corp	cmcsa	34.70	4,220,100,000	146,437,474,220	62.8%	-	0.0%	86,900,000,000	37.2%	233,337,474,220
Lumen Technologies Inc	lumn	5.22	1,007,500,003	5,259,150,016	23.0%	-	0.0%	17,626,000,000	77.0%	22,885,150,016
Shenandoah Telecom	shen	15.88	50,110,000	795,746,800	91.3%	-	0.0%	75,648,000	8.7%	871,394,800
Telus Corp	tu	19.31	1,431,000,000	27,632,608,569	61.6%	-	0.0%	17,237,813,885	38.4%	44,870,422,454
Verizon Communications	vz	38.79	4,199,882,937	162,914,231,905	53.6%	-	0.0%	140,773,000,000	46.4%	303,687,231,905
			<b>Mean</b>		<b>51.1%</b>		<b>0.5%</b>		<b>48.4%</b>	
			<b>Weighted Mean</b>	<b>570,468,484,088</b>	<b>52.5%</b>	<b>3,162,000,000</b>	<b>0.29%</b>	<b>513,342,081,304</b>	<b>47.2%</b>	<b>1,086,972,565,392</b>
			<b>Median</b>		<b>54.1%</b>		<b>0.00%</b>		<b>45.9%</b>	
			<b>Trimmed Mean</b>		<b>51.4%</b>		<b>0.0%</b>		<b>47.9%</b>	
			<b>Max</b>		<b>91.3%</b>		<b>5.2%</b>		<b>91.4%</b>	
			<b>Min</b>		<b>8.6%</b>		<b>0.0%</b>		<b>8.7%</b>	
			<b>Say</b>		<b>55%</b>		<b>0%</b>		<b>45%</b>	<b>100%</b>

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

## SUPPORT FOR MARKET MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

TELECOMMUNICATIONS

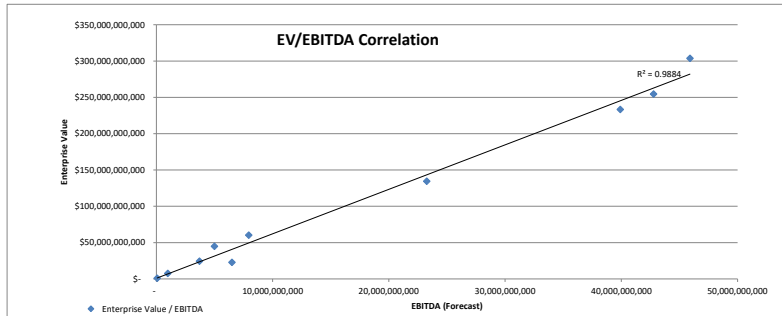
Company	Ticker	Stock Close	Revenues	Multiple	Cash Flow	Multiple	Earnings	Multiple	Divds Decld	Multiple	Captl Spend	Multiple	Book Value	Multiple
AT&T Inc	t	18.15	16.94	1.1	5.28	3.4	2.64	6.9	1.35	13.4	2.75	6.6	12.95	1.4
Altice USA, Inc	atus	4.60	21.15	0.2	4.31	1.1	0.43	10.7	nil		4.16	1.1	(1.04)	nmf
BCE Inc	bce	43.95	19.60	2.2	6.30	7.0	2.48	17.7	2.79	15.8	4.25	10.3	14.85	3.0
Cable One	cabo	711.86	294.14	2.4	100.79	7.1	38.06	18.7	11.20	63.6	71.38	10.0	303.20	2.3
Charter Communications	chtr	339.10	353.89	1.0	91.44	3.7	30.74	11.0	nil		61.42	5.5	59.74	5.7
Comcast Corp	cmcsa	34.70	28.77	1.2	6.58	5.3	3.64	9.5	1.06	32.7	2.60	13.3	19.18	1.8
Lumen Technologies Inc	lumn	5.22	17.36	0.3	1.68	3.1	(1.58)	nmf	0.75	7.0	3.00	1.7	10.36	0.5
Shenandoah Telecom	shen	15.88	5.34	3.0	1.27	12.5	(0.11)	nmf	0.08	198.5	3.78	4.2	12.73	1.2
Telus Corp	tu	19.31	9.51	2.0	2.61	7.4	0.85	22.7	0.98	19.7	1.88	10.3	8.55	2.3
Verizon Communications	vz	38.79	32.58	1.2	9.15	4.2	5.18	7.5	2.56	15.2	5.00	7.8	22.02	1.8
				<b>1.5</b>		<b>5.5</b>		<b>13.1</b>		<b>45.7</b>		<b>7.1</b>		<b>2.2</b>
				<b>1.2</b>		<b>4.8</b>		<b>10.9</b>		<b>17.7</b>		<b>7.2</b>		<b>1.8</b>
				<b>1.4</b>		<b>5.1</b>		<b>12.5</b>		<b>26.7</b>		<b>7.0</b>		<b>2.0</b>
				<b>3.0</b>		<b>12.5</b>		<b>22.7</b>		<b>198.5</b>		<b>13.3</b>		<b>5.7</b>
				<b>0.2</b>		<b>1.1</b>		<b>6.9</b>		<b>7.0</b>		<b>1.1</b>		<b>0.5</b>
				<b>0.9</b>		<b>3.2</b>		<b>5.8</b>		<b>64.2</b>		<b>4.0</b>		<b>1.5</b>
				<b>0.6</b>		<b>0.6</b>		<b>0.4</b>		<b>1.4</b>		<b>0.6</b>		<b>0.7</b>
				<b>0.8</b>		<b>3.6</b>		<b>11.1</b>		<b>17.8</b>		<b>3.9</b>		<b>1.5</b>
				<b>1.0</b>		<b>3.5</b>		<b>9.0</b>		<b>14.7</b>		<b>4.5</b>		<b>1.4</b>
				<b>2.2</b>		<b>7.0</b>		<b>18.0</b>		<b>40.4</b>		<b>10.2</b>		<b>2.3</b>
				<b>1.30</b>		<b>4.75</b>		<b>11.00</b>		<b>18.00</b>		<b>7.00</b>		<b>1.75</b>

**ENTERPRISE VALUE MULTIPLES**

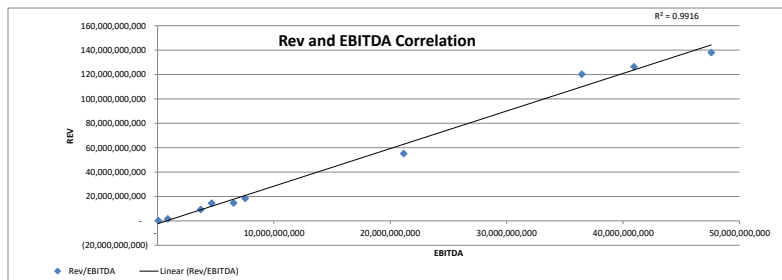
WASHINGTON STATE DEPARTMENT OF REVENUE  
2023 ASSESSMENT YEAR  
TELECOMMUNICATIONS

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
			<b>historic</b>	<b>historic M*</b>	<b>historic</b>	<b>historic M*</b>	<b>CF</b>	<b>forecast</b>	<b>forecast</b>	<b>forecast</b>		<b>forecast</b>		
AT&T Inc	t	\$ 254,558,278,527	40,932,000,000	13,434,000,000	6.22	18.95	4.50%	42,773,940,000	5.95	126,360,000,000	2.01	42,120,000,000	7,199,402,500	5.16
Alice USA, Inc	atus	\$ 24,361,963,000	3,786,532,000	3,866,537,000	6.37	6.30		3,706,552,000	6.57	9,297,400,000	2.62	2,015,200,000	1,380,147,973	7.39
BCE Inc	bce	\$ 60,247,804,181	7,532,496,307	7,532,496,307	8.00	8.00	5.50%	7,946,783,604	7.58	18,483,000,000	3.26	5,947,500,000	977,839,734	8.70
Cable One	cabo	\$ 7,590,756,651	884,817,000	911,851,000	8.58	8.32	10.50%	977,722,785	7.76	1,710,150,000	4.44	715,000,000	198,677,910	8.31
Charter Communications Inc	chtr	\$ 134,562,089,639	21,146,000,000	21,616,000,000	6.28	6.21	10.00%	23,269,600,000	5.78	55,202,000,000	2.44	14,229,000,000	4,160,885,000	7.05
Comcast Corp	comca	\$ 233,337,974,220	36,445,000,000	36,459,000,000	6.40	6.40	9.50%	39,907,275,000	5.85	120,315,000,000	1.94	27,105,000,000	4,996,750,000	7.27
Lumen Technologies Inc	lumn	\$ 22,885,150,016	6,532,000,000	6,703,000,000	3.50	3.41	-0.50%	6,499,340,000	3.52	14,670,000,000	1.56	3,645,000,000	1,013,495,000	4.91
Shenandoah Telecom	shen	\$ 871,394,800	67,433,000	75,961,000	12.92	11.47	7.00%	72,153,310	12.08	285,000,000	3.06	70,000,000	4,249,760	11.72
Telus Corp	tu	\$ 44,870,422,454	4,646,971,935	4,906,203,840	9.66	9.15	7.50%	4,995,494,830	8.98	14,538,634,659	3.09	4,169,167,292	991,174,298	8.70
Verizon Communications	vz	\$ 303,687,231,905	47,566,000,000	47,870,000,000	6.38	6.34	3.50%	45,901,190,000	6.62	137,987,500,000	2.20	37,350,000,000	8,094,447,500	6.68
<b>Mean</b>					<b>7.46</b>	<b>8.46</b>	<b>5.61%</b>	<b>7.07</b>	<b>2.66</b>			<b>2.59</b>	<b>7.33</b>	
<b>Median</b>					<b>6.49</b>	<b>7.20</b>	<b>7.00%</b>	<b>6.59</b>	<b>2.53</b>			<b>2.58</b>	<b>7.41</b>	
<b>Trimmed Mean</b>					<b>7.27</b>	<b>7.78</b>	<b>6.21%</b>	<b>6.89</b>	<b>2.58</b>			<b>2.58</b>	<b>7.41</b>	
<b>Max</b>					<b>12.92</b>	<b>18.95</b>	<b>10.50%</b>	<b>12.08</b>	<b>4.44</b>			<b>11.72</b>	<b>8.70</b>	
<b>Min</b>					<b>3.50</b>	<b>3.41</b>	<b>-3.50%</b>	<b>3.52</b>	<b>1.56</b>			<b>1.56</b>	<b>4.91</b>	
<b>Std Dev</b>					<b>2.53</b>	<b>4.26</b>	<b>0.05</b>	<b>2.28</b>	<b>0.83</b>			<b>0.83</b>	<b>1.95</b>	
<b>Coefficient of Variation</b>					<b>0.34</b>	<b>0.50</b>	<b>0.86</b>	<b>0.32</b>	<b>0.31</b>			<b>0.31</b>	<b>0.26</b>	
<b>Harmonic Mean</b>					<b>6.71</b>	<b>7.04</b>	<b>#NUM!</b>	<b>6.43</b>	<b>2.45</b>			<b>2.45</b>	<b>7.16</b>	
<b>Sav</b>					<b>7.00</b>	<b>7.00</b>	<b>6.00%</b>	<b>6.75</b>	<b>2.50</b>			<b>2.50</b>	<b>7.25</b>	

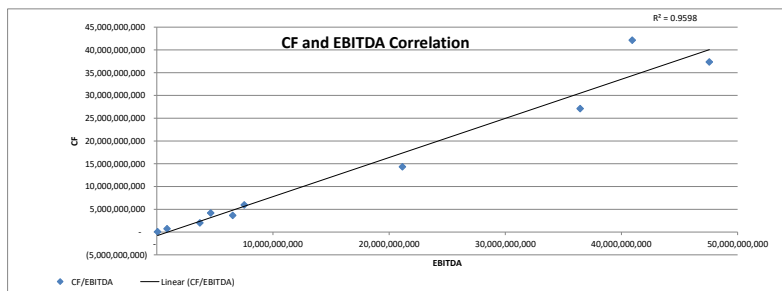
EBITDA from Morningstar  
Morningstar-data page



Guideline Companies	EV/EBITDA
Lumen Technologies Inc	5.95
Comcast Corp	5.85
Charter Communications Inc	5.78
AT&T Inc	5.95
Alice USA, Inc	6.57
Verizon Communications	6.62
BCE Inc	7.58
Cable One	7.76
Lumen Technologies Inc	6.62
Shenandoah Telecom	8.98
Shenandoah Telecom	12.08
<b>Low Average</b>	5.54
<b>Low Median</b>	5.85
<b>Sav</b>	5.75
<b>High Average</b>	8.60
<b>High Median</b>	7.76
<b>Sav</b>	8.25



Guideline Companies	EV/Sales
Lumen Technologies Inc	1.56
Comcast Corp	1.94
AT&T Inc	2.01
Verizon Communications	2.20
Charter Communications Inc	2.44
Alice USA, Inc	2.62
Shenandoah Telecom	3.06
Telus Corp	3.09
BCE Inc	3.26
Cable One	4.44
<b>Low Average</b>	2.03
<b>Low Median</b>	2.01
<b>Sav</b>	2.00
<b>High Average</b>	3.29
<b>High Median</b>	3.09
<b>Sav</b>	3.25



Guideline Companies	EV/CF
Lumen Technologies Inc	4.91
AT&T Inc	5.16
Verizon Communications	6.68
Charter Communications Inc	7.05
Comcast Corp	7.27
Alice USA, Inc	7.39
Cable One	8.31
Telus Corp	8.70
BCE Inc	8.70
Shenandoah Telecom	11.72
<b>Low Average</b>	6.21
<b>Low Median</b>	6.68
<b>Sav</b>	6.95
<b>High Average</b>	8.96
<b>High Median</b>	8.70
<b>Sav</b>	8.75

# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

TELECOMMUNICATIONS

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

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**Ke = Cost of Equity** **9.2%**

to page 1

Rm =	rate of return	9.82%
Rf =	risk free rate	3.97%
Rp =	risk premium	5.85%
B =	Beta	0.90

page 2

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**Rp = Risk Premium** **5.85%**

to above

<b>Shannon Pratt and Roger Grabowski</b>	3.5 - 6%	
Cost of Capital, Applications and Examples, Third Edition, 2008, Page 113		
<b>Dr. Aswath Damodaran</b>	5.94%	chart page 15
<a href="http://pages.stern.nyu.edu/~adamodar/2022/Implied%20Premium">http://pages.stern.nyu.edu/~adamodar/2022 Implied Premium</a>	5.85%	adjusted for Rf

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**Rf = Risk Free Rate** **3.97%**

to above

**Value Line Investment Survey, Selected Yields January 6, 2023, page 1465**  
as of 12-27-22

US Treasury Securities year end data		
	5 year	3.94%
	10 year	3.84%
	30 year	3.93%
	30 year Zero	3.81%

**Federal Reserve Statistical Release (<http://www.federalreserve.gov/Releases/H15/Current/>)**

As of 12-30-22

Treasury Constant Maturities		
	5 year	3.99%
	10 year	3.88%
	20 year	4.14%
	30 year	3.97%
	20 year TIPS	<u>1.62%</u> 2.52%
	30 year TIPS	<u>1.67%</u> 2.30%
		TIPS inflation indication

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**Inflation** **2.30%**

to appraisal template

**The Livingston Survey December 16, 2022, page 4, 8**

Inflation median (measured by the Consumer Price Index) over next 10 years	2.50%
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**Gross Domestic Product (GDP) Nominal** **4.10%**

real GDP + inflation est

**Federal Reserve Projected Long Run Real GDP Growth**

Median Projection Value From Dec 14, 2022 Report	1.80%
<a href="https://www.federalreserve.gov/monetarypolicy/files/fomcprojtbl20221214.pdf">https://www.federalreserve.gov/monetarypolicy/files/fomcprojtbl20221214.pdf</a>	

**Congressional Budget Office Real GDP Economic Projections**

The Budget and Economic Outlook 2023-2033	Table 2.3, pg 49
Average Percentage Change Year To Year	2023-2027 1.80%
<a href="https://www.cbo.gov/system/files/2023-02/58848-Outlook.pdf">https://www.cbo.gov/system/files/2023-02/58848-Outlook.pdf</a>	2028-2033 1.80%

**Federal Reserve Bank of Philadelphia**

The Livingston Survey, December 16, 2022, page 8	
Average Real GDP Growth Rate for Next 10 Years	1.97%
<a href="https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey">https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey</a>	

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

WASHINGTON STATE DEPARTMENT OF REVENUE  
2023 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	18.15	1.11	6.12%	-4.50%	nmf	2.30%	8.42%
Altice USA, Inc	atus	4.60	nil					
BCE Inc	bce	43.95	2.90	6.60%	4.00%	10.60%		10.60%
Cable One	cabo	711.86	11.50	1.62%	5.50%	7.12%	4.10%	5.72%
Charter Communications Inc	chtr	339.10	nil					
Comcast Corp	cmcsa	34.70	1.14	3.29%	7.50%	10.79%	4.10%	7.39%
Lumen Technologies Inc	lumn	5.22	nil					
Shenandoah Telecom	shen	15.88	0.09	0.57%	-1.50%	nmf	2.30%	2.87%
Telus Corp	tu	19.31	1.07	5.56%	6.50%	12.06%	4.10%	9.66%
Verizon Communications	vz	38.79	2.64	6.81%	2.50%	9.31%		9.31%
						<b>9.97%</b>	<b>Mean</b>	<b>7.71%</b>
						<b>10.60%</b>	<b>Median</b>	<b>8.42%</b>
						<b>10.23%</b>	<b>Trimmed Mean</b>	<b>8.10%</b>
						<b>12.06%</b>	<b>Max</b>	<b>10.60%</b>
						<b>7.12%</b>	<b>Min</b>	<b>2.87%</b>
Source: Value Line Projections 20-22 to 26-28						<b>10.00%</b>		<b>8.00%</b>
						<b>Say</b>		

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

WASHINGTON STATE DEPARTMENT OF REVENUE  
2023 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	18.15	1.11	6.12%	1.00%	7.12%	2.30%	8.42%
Altice USA, Inc	atus	4.60	nil					
BCE Inc	bce	43.95	2.90	6.60%	3.50%	10.10%		10.10%
Cable One	cabo	711.86	11.50	1.62%	7.00%	8.62%	4.10%	5.72%
Charter Communications Inc	chtr	339.10	nil					
Comcast Corp	cmcsa	34.70	1.14	3.29%	8.50%	11.79%	4.10%	7.39%
Lumen Technologies Inc	lumn	5.22	nil					
Shenandoah Telecom	shen	15.88	0.09	0.57%	44.00%	44.57%	4.10%	4.67%
Telus Corp	tu	19.31	1.07	5.56%	16.00%	21.56%	4.10%	9.66%
Verizon Communications	vz	38.79	2.64	6.81%	2.50%	9.31%		9.31%
						<b>16.15%</b>	<b>Mean</b>	<b>7.89%</b>
						<b>10.10%</b>	<b>Median</b>	<b>8.42%</b>
						<b>12.27%</b>	<b>Trimmed Mean</b>	<b>8.10%</b>
						<b>44.57%</b>	<b>Max</b>	<b>10.10%</b>
						<b>7.12%</b>	<b>Min</b>	<b>4.67%</b>

Source: Value Line Projections 20-22 to 26-28

**11.00%**  
**Say** **8.00%** **8.00%**



# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE  
2023 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	18.15	1.11	6.12%	0.76%	6.88%	2.30%	8.42%
Altice USA, Inc	atus	4.60	nil					
BCE Inc	bce	43.95	2.90	6.60%	4.06%	10.66%		10.66%
Cable One	cabo	711.86	11.50	1.62%	10.00%	11.62%	4.10%	5.72%
Charter Communications Inc	chtr	339.10	nil					
Comcast Corp	cmcsa	34.70	1.14	3.29%	7.00%	10.29%	4.10%	7.39%
Lumen Technologies Inc	lumn	5.22	nil		-16.75%			
Shenandoah Telecom	shen	15.88	0.09	0.57%	24.40%	24.97%	4.10%	4.67%
Telus Corp	tu	19.31	1.07	5.56%	9.88%	15.44%	4.10%	9.66%
Verizon Communications	vz	38.79	2.64	6.81%	0.82%	7.63%	2.30%	9.11%
						<b>12.49%</b>	<b>Mean</b>	<b>7.94%</b>
						<b>10.66%</b>	<b>Median</b>	<b>8.42%</b>
						<b>11.12%</b>	<b>Trimmed Mean</b>	<b>8.06%</b>
						<b>24.97%</b>	<b>Max</b>	<b>10.66%</b>
						<b>6.88%</b>	<b>Min</b>	<b>4.67%</b>

Source: Yahoo Finance 5 year growth est

**11.00%**  
**Say** **8.00%** **8.00%**

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

WASHINGTON STATE DEPARTMENT OF REVENUE  
2023 ASSESSMENT YEAR  
TELECOMMUNICATIONS

Based on Return on Equity

$$K_e = (D1 / P_0) + G$$

**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 g can not exceed inflation plus real GDP. Minimum g inflation

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	18.15	1.11	6.12%	50.0%	13.00%	2.40	13.22%	1.40	9.28%	6.61%	4.6%	6.50%	12.73%	4.10%	10.22%
Alice USA, Inc	atus	4.60	nil			nmf	0.45	9.78%	(4.42)	nmf						
BCE Inc	bce	43.95	2.90	6.60%		18.00%	2.35	5.35%	2.96	6.08%						
Cable One	cabo	711.86	11.50	1.62%	71.0%	19.00%	52.50	7.38%	2.35	8.09%	5.24%	5.7%	13.49%	6.85%	4.10%	5.72%
Charter Communications Inc	chtr	339.10	nil			56.00%	35.10	10.35%	5.68	9.87%						
Comcast Corp	cmcsa	34.70	1.14	3.29%	71.0%	19.50%	3.70	10.66%	1.81	10.78%	7.57%	7.7%	13.85%	10.86%	4.10%	7.39%
Lumen Technologies Inc	lumn	5.22	nil		47.0%	5.00%	0.60	11.49%	0.50	9.92%	5.40%	4.7%	2.35%			
Shenandoah Telecom	shen	15.88	0.09	0.57%		nmf	nil		1.25							
Telus Corp	tu	19.31	1.07	5.56%	26.0%	11.50%	0.98	5.05%	2.26	5.09%	1.31%	1.3%	2.99%	6.87%	2.30%	7.86%
Verizon Communications	vz	38.79	2.64	6.81%	51.0%	35.00%	4.80	12.37%	1.76	19.87%	6.31%	10.1%	17.85%	13.12%	4.10%	10.91%
														<b>10.08%</b>	<b>Mean</b>	<b>8.42%</b>
														<b>10.86%</b>	<b>Median</b>	<b>7.86%</b>
														<b>10.15%</b>	<b>Trimmed Mean</b>	<b>8.49%</b>
														<b>13.12%</b>	<b>Max</b>	<b>10.91%</b>
														<b>6.85%</b>	<b>Min</b>	<b>5.72%</b>
														<b>10.25%</b>	<b>Sav</b>	<b>8.00%</b>

# SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

TELECOMMUNICATIONS

Company	Ticker	Mergent's Ratings	S&P Ratings	WAYTM
AT&T Inc	t		BBB	5.82%
Altice USA, Inc	atus		B+	11.10%
BCE Inc	bce	Baa1	BBB+	5.53%
Cable One	cabo		BB	
Charter Communications Inc	chtr		BB+	7.11%
Comcast Corp	cmcsa	A3	A-	5.33%
Lumen Technologies Inc	lumn		B+	16.48%
Shenandoah Telecom	shen			
Telus Corp	tu		BBB	5.43%
Verizon Communications	vz	Baa1	BBB+	5.59%
<b>Overall Average Debt Rating</b>		<b>Baa1</b>	<b>BBB-</b>	<b>5.80%</b>

bond analysis, A-BBB- bonds

All issues 20+ year maturities

<b>Guideline Companies, All Ratings</b>	<b>5.98%</b>	<b>5.75%</b>
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bond analysis page 12

## Mergent's Bond Record January 2023, page 81

Corporate	Aaa	Aa	A	Baa
October	5.10%	5.40%	5.74%	6.26%
November	4.90%	5.23%	5.58%	6.07%
December	4.43%	4.77%	5.12%	5.59%
<b>4th Qtr Average</b>	<b>4.81%</b>	<b>5.13%</b>	<b>5.48%</b>	<b>5.97%</b>
<b>2022 Average</b>	<b>4.09%</b>	<b>4.33%</b>	<b>4.62%</b>	<b>5.08%</b>
Public Utilities	Aaa	Aa	A	Baa
October		5.68%	5.88%	6.18%
November		5.54%	5.75%	6.05%
December		5.06%	5.28%	5.57%
<b>4th Qtr Average</b>		<b>5.43%</b>	<b>5.64%</b>	<b>5.93%</b>
<b>2022 Average</b>		<b>4.53%</b>	<b>4.72%</b>	<b>5.03%</b>
Industrials	Aaa	Aa	A	Baa
October	5.10%	5.11%	5.59%	6.33%
November	4.90%	4.92%	5.40%	6.08%
December	4.43%	4.48%	4.94%	5.61%
<b>4th Qtr Average</b>	<b>4.81%</b>	<b>4.84%</b>	<b>5.31%</b>	<b>6.01%</b>
<b>2022 Average</b>	<b>4.07%</b>	<b>4.10%</b>	<b>4.49%</b>	<b>5.11%</b>

<b>Debt Yield Rate</b>	<b>5.75%</b>
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<b>Secured Debt (Lease) Rate</b>	based on Aa rate <b>4.75%</b>
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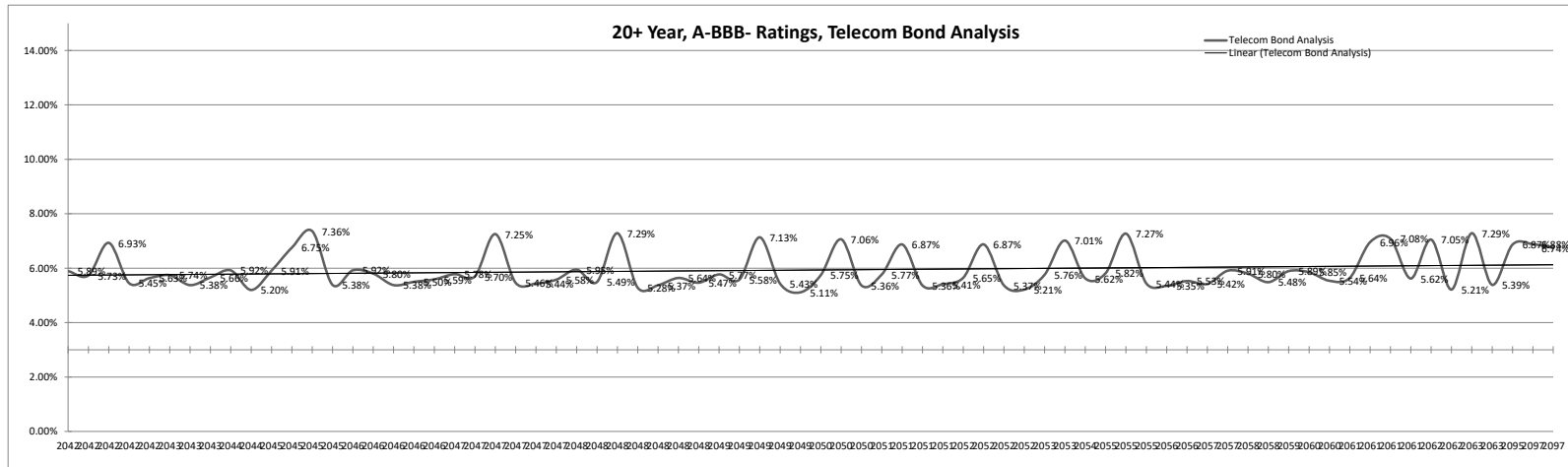
to page 1

Company	type	Call	coupon	maturity	Price 12/22	Issued / Book	current yield	yield to maturity	Weighted Ave Rating	Mkt Val	Mkt : Book	Embedded Ra	Debt Service	WAYTM	WAYTM	YTM
Bell South Capital Funding	deb	Z100	7.120	2097	103.46 \$	500,000,000	6.88%	6.88%	0.01% BBB	\$ 517,300,000			35,000,000	0.000130911	0.000374611	6.92
Bell South Telecommunications	deb	NC	7.000	2095	101.94 \$	500,000,000	6.87%	6.87%	0.01% BBB	\$ 509,700,000	101.94%		35,000,000	0.000130636	0.000373821	6.87
AT&T inc	SUN		7.120	2097	105.53 \$	6,765,000,000	6.76%	6.74%	0.00% Baa2	\$ 4,967,613,837	6.112447		109,000,000	0.000433963	0.002141553	6.59
AT&T inc	SUN		3.500	2061	66.90 \$	1,500,000,000	5.23%	5.23%	0.00% BBB	\$ 1,003,500,000	66.90%		52,500,000	0.000021968	0.000021331	5.62
AT&T inc	SUN		3.850	2050	70.10 \$	1,500,000,000	5.49%	5.48%	0.00% BBB	\$ 1,051,500,000	70.10%		57,750,000	0.000333951	0.000095621	5.82
AT&T inc	SUN		2059	66.93 \$	6,605,911,000	6,495,000,000	6.49%	6.48%	0.00% Baa2	\$ 4,947,113,232	66.93%		237,000,000	0.000418816	0.000418816	5.74
AT&T inc	FR Global Notes		5.300	2058	92.62 \$	643,706,000	5.722%	5.80%	0.01% BBB	\$ 596,200,497	92.62%		34,116,418	0.000410263	0.000410263	5.79
AT&T inc	FR Global Notes		5.700	2057	104.27 \$	1,000,000,000	5.467%	5.42%	0.02% BBB	\$ 1,042,700,000	104.27%		57,000,000	0.000202922	0.000590317	5.42
AT&T inc	SUN		3.550	2055	69.56 \$	5,923,231,000	5.463%	5.31%	0.01% BBB	\$ 4,307,999,484	69.56%		225,027,778	0.000133120	0.000133120	5.76
AT&T inc	SUN		3.550	2055	67.81 \$	7,496,129,000	5.251%	5.82%	0.01% BBB	\$ 1,067,456,717	67.81%		266,077,080	0.001658710	0.001658710	5.74
AT&T inc	SUN		3.500	2053	68.31 \$	7,496,266,000	5.124%	5.76%	0.01% BBB	\$ 1,102,699,305	68.31%		262,369,310	0.001644444	0.004899948	5.70
AT&T inc	SUN		3.650	2052	67.14 \$	2,250,000,000	4.937%	5.16%	0.00% BBB	\$ 1,510,850,000	67.14%		74,250,000	0.001633213	0.001633213	5.60
AT&T inc	SUN		3.650	2051	71.11 \$	3,000,000,000	5.133%	5.77%	0.00% BBB	\$ 2,133,300,000	71.11%		109,500,000	0.000658773	0.000658773	5.72
AT&T inc	FR Global Notes		5.150	2050	92.00 \$	1,694,666,000	5.598%	5.79%	0.04% BBB	\$ 1,599,092,720	92.00%		87,275,299	0.000370497	0.001060199	5.73
AT&T inc	FR Global Notes		4.550	2048	83.90 \$	2,494,000,000	5.423%	5.77%	0.04% BBB	\$ 2,092,466,000	83.90%		113,477,000	0.000547798	0.000547798	5.75
AT&T inc	FR Global Notes		4.500	2048	81.58 \$	4,498,000,000	5.516%	5.95%	0.10% BBB	\$ 3,669,468,400	81.58%		202,410,000	0.001017909	0.002912805	5.91
AT&T inc	Fx Rate S Notes		5.650	2047	98.35 \$	1,500,000,000	5.745%	5.78%	0.03% BBB	\$ 1,475,250,000	98.35%		84,750,000	0.000329642	0.000944148	5.89
AT&T inc	Fx Rate S Notes		5.450	2047	96.80 \$	2,000,000,000	5.630%	5.80%	0.04% BBB	\$ 1,939,000,000	96.80%		109,000,000	0.000433963	0.001215523	5.69
AT&T inc	Fixed Rate		4.750	2046	85.64 \$	3,500,000,000	5.546%	5.92%	0.08% BBB	\$ 2,897,400,000	85.64%		166,250,000	0.000758670	0.002256840	5.78
AT&T inc	SUN		5.150	2046	91.93 \$	1,749,603,000	5.602%	5.80%	0.04% BBB	\$ 1,608,410,038	91.93%		90,104,555	0.000386254	0.001105289	5.78
AT&T inc	note	NC	4.350	2045	81.31 \$	3,044,000,000	5.350%	5.91%	0.07% BBB	\$ 2,475,076,400	81.31%		132,414,000	0.000684326	0.001958237	5.86
Bell South Telecommunications	note	NC	3.850	2045	89.90 \$	2,900,000,000	6.351%	6.25%	0.01% BBB	\$ 297,700,000	89.90%		17,550,000	0.000077108	0.000202892	5.74
AT&T inc	Fixed Rate		4.800	2044	86.92 \$	2,000,000,000	5.522%	5.92%	0.00% BBB	\$ 1,738,400,000	86.92%		96,000,000	0.000454020	0.001288922	5.88
AT&T inc	SUN fixed		3.100	2043	69.49 \$	2,000,000,001	4.461%	5.74%	0.04% BBB	\$ 1,389,800,001	69.49%		62,000,000	0.001250273	0.001250273	5.68
AT&T inc	Fixed Rate		5.150	2042	91.78 \$	1,209,000,000	5.611%	5.89%	0.03% BBB	\$ 1,093,600,000	91.78%		62,263,500	0.000716633	0.000716633	5.87
AT&T inc	Fixed Rate Ptl		4.300	2042	83.92 \$	1,955,000,000	5.124%	5.73%	0.04% BBB	\$ 1,640,636,000	83.92%		84,000,000	0.000424891	0.001202340	5.65
AT&T inc	FR SN		6.375	2041	105.57 \$	984,000,000	6.039%	5.88%	0.02% BBB	\$ 1,038,808,800	105.57%		62,730,000	0.000219347	0.000607675	5.87
AT&T inc	Fixed Rate		4.650	2041	99.95 \$	984,000,000	5.729%	6.03%	0.02% BBB	\$ 1,039,000,000	99.95%		11,000,000	0.000493628	0.001210329	5.82
AT&T inc	Fixed Rate		3.500	2041	74.93 \$	2,500,000,000	4.671%	5.82%	0.06% BBB	\$ 1,873,250,000	74.93%		87,500,000	0.000553911	0.001580548	5.72
AT&T inc	FR Global Notes		6.000	2040	102.62 \$	1,234,000,000	5.847%	5.75%	0.03% BBB	\$ 1,268,330,800	102.62%		74,040,000	0.000727016	0.000727866	5.76
AT&T inc	SUN fixed		3.650	2040	97.91 \$	2,490,738,000	5.464%	5.82%	0.06% BBB	\$ 2,474,493,738	97.91%		133,245,063	0.001509833	0.001509833	5.54
AT&T inc	Global Notes		6.550	2039	105.70 \$	2,250,000,000	6.197%	5.98%	0.05% BBB	\$ 2,378,250,000	105.70%		147,375,000	0.000511674	0.001461854	5.99
AT&T inc	deb	>100	4.850	2039	89.92 \$	2,000,000,000	5.394%	5.86%	0.04% BBB	\$ 1,798,400,000	89.92%		97,000,000	0.000445794	0.001275664	5.82
AT&T inc	Global Notes >100		6.200	2038	103.78 \$	2,000,000,000	6.071%	6.00%	0.04% BBB	\$ 1,850,000,000	103.78%		128,000,000	0.000329642	0.001268081	5.91
AT&T inc	Global Notes >100		6.400	2038	106.58 \$	1,250,000,000	6.005%	5.72%	0.03% BBB	\$ 1,332,250,000	106.58%		80,000,000	0.000277825	0.000778625	5.87
AT&T inc	FR Global Notes		5.250	2037	99.14 \$	3,000,000,000	5.296%	5.34%	0.06% BBB	\$ 2,974,200,000	99.14%		157,500,000	0.000699756	0.001744851	5.34
AT&T inc	Global Notes >100		6.400	2037	102.60 \$	2,000,000,000	6.402%	6.20%	0.04% BBB	\$ 1,820,000,000	102.60%		130,000,000	0.000493628	0.000493628	5.92
AT&T inc	deb		4.900	2037	95.19 \$	1,278,479,000	5.148%	5.41%	0.03% BBB	\$ 1,216,984,160	95.19%		62,645,471	0.000263272	0.000753569	5.38
AT&T inc	Fixed Rate		4.500	2035	91.43 \$	2,800,000,000	4.922%	5.53%	0.05% BBB	\$ 2,285,750,000	91.43%		112,500,000	0.000525795	0.000525795	5.46
3 Book Val		3900	sum	3459 \$	91,330,585,001	Percent of book	68.69%	2.03%		\$ 75,704,706,066	82.44%	4.51%	\$ 4,142,045,092	5.816%		
Bell CDA	Senior unsec		4.300	2049	82.80 \$	600,000,000	5.19%	5.58%	0.01% Baa1	\$ 496,800,000	82.80%		25,800,000	0.000127418	0.024802013	5.54
Bell CDA	Senior unsec		4.454	2048	85.31 \$	600,000,000	5.17%	5.49%	0.02% Baa1	\$ 617,325,000	85.31%		33,480,000	0.000156033	0.030827154	5.68
2 Book Val		200	sum	169.11 \$	1,350,000,000	Percent of book	84.56%	0.04%		\$ 1,114,125,000	84.75%	4.93%	\$ 59,280,000	5.532%		
CSC HDGS LLC	Senior unsec	callable	3.375	2031	65.09 \$	1,000,000,000	5.19%	10.28%	0.04% B+	\$ 650,800,000	65.09%		33,750,000	0.000391050	0.025046324	9.47
CSC HDGS LLC	deb	callable	4.500	2031	69.41 \$	1,500,000,000	6.48%	10.62%	0.06% B+	\$ 1,041,150,000	69.41%		67,500,000	0.000606137	0.038848707	9.73
CSC HDGS LLC	Senior unsec	callable	5.000	2031	56.00 \$	500,000,000	8.93%	15.24%	0.03% B-	\$ 280,000,000	56.00%		25,000,000	0.000289864	0.018584471	13.73
CSC HDGS LLC	Senior unsec	callable	4.125	2030	70.58 \$	1,100,000,000	5.84%	10.62%	0.04% B+	\$ 776,380,000	70.58%		45,375,000	0.000444518	0.028490179	9.5
4 Book Val		400	sum	261.08 \$	4,100,000,000	Percent of book	65.27%	11.7%		\$ 2,745,530,000	67.03%	4.19%	\$ 171,625,000	11.066%		
CenturLink	sr unsec		7.650	2042	66.87 \$	650,000,000	11.44%	12.25%	0.03% B+	\$ 434,655,000	66.87%		49,725,000	0.000303004	0.031413514	12.13
CenturLink	sr unsec		7.200	2039	69.56 \$	600,000,000	11.09%	12.11%	0.02% B+	\$ 474,240,000	69.56%		30,400,000	0.000180991	0.0109271024	12
Embarq	sr unsec	note	7.995	2036	47.41 \$	1,485,000,000	19.48%	0.11%	CCC	\$ 704,038,500	47.41%		118,725,750	0.001126096	0.011412500	18.40
3 Book Val		300	sum	182.84 \$	2,535,000,000	Percent of book	60.95%	0.16%		\$ 1,412,933,500	55.74%	7.84%	\$ 198,850,750	16.481%		
Charter Communications	SSN		3.850	2061	58.93 \$	1,350,000,000	6.53%	6.86%	0.04% BBB-	\$ 795,555,000	58.93%		51,975,000	0.000295637	0.000295637	6.92
Charter Communications	SSN	callable	5.500	2063	77.91 \$	1,000,000,000	7.14%	7.29%	0.03% BBB-	\$ 770,100,000	77.91%		55,000,000	0.000277272	0.002324131	7.27
Charter Communications	SSN	callable	3.950	2062	62.82 \$	1,400,000,000	6.82%	7.06%	0.04% BBB-	\$ 820,800,000	62.82%		62,300,000	0.000337560	0.000337560	7.04
Charter Communications	note	callable	4.500	2061	65.06 \$	1,400,000,000	6.76%	7.08%	0.04% BBB-	\$ 1,001,840,000	65.06%		61,600,000	0.000371719	0.000316138	7.04
Charter Communications	SSN		6.834	2055	94.67 \$	500,000,000	7.22%	7.27%	0.01% BBB-	\$ 473,350,000	94.67%		34,170,000	0.000138331	0.001159364	7.26
Charter Communications	SSN		3.900	2053	70.25 \$	1,000,000,000	6.71%	7.01%	0.03% BBB-	\$ 1						

Telus	Sr unsecured note	4,600	2048	86.37	\$	750,000,000	5.33%	5.64%	0.02%	Baa1	\$	647,775,000	86.37%	\$	34,500,000	0.000160968	0.03383909	5.06
Telus	Sr unsecured note	4,300	2049	88.56	\$	500,000,000	4.86%	5.11%	0.01%	Baa1	\$	442,800,000	88.56%	\$	21,500,000	0.000097284	0.02045129	5.09
	<b>2 Book Value</b>	<b>200</b>	<b>sum</b>	<b>174.93</b>	<b>\$</b>	<b>1,250,000,000</b>	<b>Percent of book</b>	<b>87.47%</b>	<b>0.03%</b>		<b>\$</b>	<b>1,090,575,000</b>	<b>87.25%</b>	<b>4.48%</b>	<b>56,000,000</b>		<b>5.429%</b>	
Verizon Communications	Sr unsec note	2,987	2056	62.05	\$	4,498,814,000	4.81%	5.53%	0.09%	BBB+	\$	2,791,514,087	62.05%		134,379,574	0.000946113	0.003425807	5.46
Verizon Communications	Sr unsec note	3,700	2061	70.24	\$	3,500,000,000	5.27%	5.62%	0.07%	BBB+	\$	2,458,400,000	70.24%		120,500,000	0.000748455	0.002710103	5.59
Verizon Communications	Sr unsec note	3,000	2060	60.6	\$	2,000,000,000	4.95%	5.54%	0.04%	BBB+	\$	1,212,000,000	60.60%		60,000,000	0.000421346	0.001525664	5.48
Verizon Communications	fx rt Notes	4,672	2055	88.57	\$	5,500,000,000	5.27%	5.44%	0.11%	BBB+	\$	4,871,350,000	88.57%		256,960,000	0.001138196	0.004121328	5.43
Verizon Communications	fx rt Notes	5,012	2054	91.19	\$	5,500,000,000	5.50%	5.62%	0.12%	BBB+	\$	5,016,450,000	91.19%		276,660,000	0.001176786	0.004261059	5.61
Verizon Communications	sr rt	4,522	2048	87.42	\$	5,000,000,000	5.17%	5.47%	0.10%	BBB+	\$	4,371,000,000	87.42%		226,100,000	0.001040012	0.003765809	5.44
Verizon Communications	fx rt Notes	5,500	2047	99	\$	1,500,000,000	5.56%	5.58%	0.03%	BBB+	\$	1,468,000,000	99.00%		82,500,000	0.000318370	0.001152796	5.57
Verizon Communications	nt	4,862	2046	91.91	\$	4,500,000,000	5.29%	5.50%	0.09%	BBB+	\$	4,135,850,000	91.91%		218,790,000	0.000941395	0.003408726	5.48
Verizon Communications	fx rt Notes	4,125	2046	81.53	\$	1,500,000,000	5.06%	5.59%	0.03%	BBB+	\$	1,222,950,000	81.53%		61,875,000	0.000318934	0.001154837	5.54
Verizon Communications	Notes	6,560	2043	110.35	\$	15,000,000,000	5.94%	5.66%	0.32%	BBB+	\$	16,552,500,000	110.35%		982,500,000	0.003230865	0.011688733	5.70
Verizon Communications	Notes	3,950	2042	79.82	\$	1,250,000,000	4.82%	5.63%	0.02%	BBB+	\$	997,750,000	79.82%		48,125,000	0.000388012	0.000970453	5.54
Verizon Communications	fixed rate notes	4,750	2041	93.14	\$	750,000,000	5.10%	5.36%	0.02%	BBB+	\$	698,550,000	93.14%		35,625,000	0.000153097	0.000554352	5.33
Verizon Communications	fixed rate notes	6,000	2041	96.32	\$	1,000,000,000	6.23%	6.35%	0.02%	BBB+	\$	963,200,000	96.32%		60,000,000	0.000241817	0.000875603	6.34
Verizon Communications	fixed rate notes	2,850	2041	69.58	\$	1,000,000,000	4.10%	5.63%	0.02%	BBB+	\$	695,800,000	69.58%		28,500,000	0.000214145	0.000775405	5.47
Verizon Communications	fixed rate notes	3,400	2041	75.98	\$	3,750,000,000	4.47%	5.59%	0.08%	BBB+	\$	2,849,250,000	75.98%		127,500,000	0.000977193	0.002866580	5.5
Verizon Communications	fixed rate notes	2,650	2040	67.25	\$	3,000,000,000	3.94%	5.78%	0.07%	BBB+	\$	2,017,500,000	67.25%		79,500,000	0.000660216	0.002390596	5.56
Verizon Communications	Notes	7,350	2039	115.98	\$	1,000,000,000	6.94%	5.76%	0.02%	BBB+	\$	1,159,800,000	115.98%		73,500,000	0.000219321	0.000794145	5.82
Verizon Communications	Sr unsec note	4,912	2039	93.19	\$	1,706,297,000	5.16%	5.49%	0.04%	BBB+	\$	1,600,098,174	93.19%		82,107,012	0.000355513	0.001297288	5.45
Verizon Communications	Notes	6,400	2038	105.86	\$	1,750,000,000	6.05%	5.79%	0.04%	BBB+	\$	1,892,550,000	105.86%		112,000,000	0.000385706	0.001396616	5.81
Verizon Communications	Notes	6,900	2038	108.36	\$	1,250,000,000	6.37%	6.02%	0.03%	BBB+	\$	1,354,500,000	108.36%		86,250,000	0.000286340	0.001036818	6.05
Verizon Communications	Notes	6,250	2037	101.88	\$	750,000,000	6.13%	6.04%	0.02%	BBB+	\$	754,100,000	101.88%		46,875,000	0.000172456	0.000624450	6.05
Verizon Communications	fx rt Notes	2,250	2037	101.88	\$	750,000,000	6.13%	6.04%	0.02%	BBB+	\$	754,100,000	101.88%		46,875,000	0.000172456	0.000624450	6.05
Verizon Communications	fx rt Notes	99.9	2037	99.9	\$	3,000,000,000	5.26%	5.26%	0.06%	BBB+	\$	2,987,000,000	99.90%		157,500,000	0.000600567	0.002174609	5.26
Verizon Communications	fx rt Notes	4,272	2036	90.39	\$	2,867,000,000	4.73%	5.36%	0.06%	BBB+	\$	2,591,481,300	90.39%		122,478,240	0.000832324	0.002111849	5.3
Verizon Global Funding	Notes	2,100	2035	101.98	\$	1,000,000,000	5.74%	5.61%	1.54%	BBB+	\$	1,019,800,000	101.98%		58,500,000	0.000213553	0.000773259	5.63
	<b>24 Book Val</b>	<b>2400</b>	<b>sum</b>	<b>2142.49</b>	<b>\$</b>	<b>72,572,111,000</b>	<b>Percent of book</b>	<b>89.27%</b>	<b>1.54%</b>		<b>\$</b>	<b>65,667,493,561</b>	<b>90.49%</b>	<b>4.89%</b>	<b>3,546,724,826</b>		<b>5.588%</b>	
	<b>Total</b>				<b>\$</b>	<b>262,778,465,001</b>				<b>Total</b>	<b>\$</b>	<b>219,921,418,852.50</b>	<b>83.69%</b>	<b>4.64%</b>	<b>12,198,493,158</b>	<b>5.98%</b>	<b>7.799%</b>	<b>6.189</b>

Source: FINRA - February 2023, 2022 Yr End Prices

Embedded debt rate 4.6421%  
 Weighted average yield to maturity 5.9832%  
 Debt service / Market value 5.5468%



02/16/2023

Telecom Bond Analysis

Telecom Bond Analysis 12/2022

Company	Type	Call	Coupon	Maturity	Price 12/22	Issued / Book	Current Yield	Yield to Maturity	Weighted Ave Rating	Mkt Val	Mkt : Book	Embedded Re Debt Service	WAYTM	WAYTM	YTM
AT&T Inc	Fixed Rate		5.150	2042	91.78	\$ 1,209,000,000	5.611%	5.89%	0.04% BBB	\$ 1,109,620,200	91.78%	62,263,500	0.00039393	0.001073754	5.87
AT&T Inc	Fixed Rate Pft		83.92	2042	1.32	\$ 1,955,000,000	5.124%	5.73%	0.06% BBB	\$ 1,640,636,000	83.92%	84,065,000	0.000619618	0.001698913	5.65
Charter Communications	SSN		3.500	2042	64.83	\$ 1,350,000,000	5.40%	6.93%	0.05% BBB-	\$ 875,205,000	64.83%	47,250,000	0.00051728	0.004382350	6.78
Comcast Corp	fixed rate		4.650	2042	90.88	\$ 1,250,000,000	5.12%	5.42%	0.04% BBB-	\$ 1,135,625,000	90.88%	58,125,000	0.000576456	0.001652622	5.41
Verizon Communications	Notes		3.850	2042	79.82	\$ 2,500,000,000	4.82%	5.00%	0.04% BBB-	\$ 997,750,000	79.82%	48,125,000	0.000393785	0.004156688	5.54
AT&T Inc	SUN fixed		3.100	2043	69.49	\$ 2,000,000,001	4.461%	5.74%	0.06% BBB	\$ 1,389,800,001	69.49%	62,000,000	0.000634770	0.001730827	5.66
Comcast Corp	qd fixed notes		4.650	2043	89.57	\$ 3,499,875,000	5.03%	5.38%	0.06% BBB-	\$ 3,173,686,650	89.57%	22,500,000	0.00048623	0.00686682	5.43
Verizon Communications	Ix rt Notes		6.550	2043	110.35	\$ 15,000,000,000	5.94%	6.47%	0.07% BBB+	\$ 16,552,500,000	110.35%	982,500,000	0.004938886	0.004938886	5.70
AT&T Inc	Fixed Rate		4.800	2044	86.92	\$ 2,000,000,000	5.522%	5.92%	0.07% BBB	\$ 1,738,400,000	86.92%	96,000,000	0.000654392	0.001784331	5.88
AT&T Inc	Fixed Rate		4.750	2044	94.43	\$ 1,000,000,000	5.03%	5.20%	0.04% BBB-	\$ 940,000,000	94.43%	47,500,000	0.001272704	0.001272704	5.19
AT&T Inc	note		4.350	2045	81.31	\$ 3,044,000,000	5.350%	5.91%	0.10% BBB	\$ 2,475,076,400	81.31%	132,414,000	0.000994206	0.002710903	5.86
Bell South Telecommunications	deb	NC	6.580	2045	89.90	\$ 300,000,000	6.51%	6.75%	0.01% BBB-	\$ 269,700,000	89.90%	17,500,000	0.000112021	0.000305448	6.72
Charter Communications	SSN		4.684	2046	90.68	\$ 3,499,875,000	7.15%	7.36%	0.06% BBB-	\$ 3,173,686,650	90.68%	225,321,895	0.00142421	0.001230747	7.33
Comcast Corp	qd fixed rate		4.600	2045	90.16	\$ 1,700,000,000	5.10%	5.38%	0.05% A-	\$ 1,532,700,000	90.16%	78,200,000	0.000505895	0.002240874	5.35
AT&T Inc	Fixed Rate		4.750	2046	85.64	\$ 3,500,000,000	5.546%	5.92%	0.11% BBB	\$ 2,997,400,000	85.64%	166,250,000	0.001145809	0.003124277	5.89
AT&T Inc	SUN		5.150	2046	91.93	\$ 1,749,603,000	5.602%	5.80%	0.05% BBB	\$ 1,604,010,330	91.93%	60,104,555	0.000561160	0.001530116	5.78
Comcast Corp	qd fixed rate		3.400	2046	74.55	\$ 1,400,000,000	4.56%	5.38%	0.04% A-	\$ 1,043,700,000	74.55%	47,600,000	0.000416176	0.001843136	5.31
Verizon Communications	nt		4.82	2046	91.91	\$ 4,500,000,000	5.29%	5.50%	0.14% BBB+	\$ 4,135,950,000	91.91%	218,790,000	0.001367684	0.004972584	5.48
Verizon Communications	Ix rt Notes		4.125	2046	81.53	\$ 1,500,000,000	5.06%	5.59%	0.05% BBB+	\$ 1,222,950,000	81.53%	61,875,000	0.000463355	0.001684642	5.54
AT&T Inc	FX Rate S Notes		5.650	2047	88.35	\$ 1,500,000,000	5.749%	5.79%	0.05% BBB	\$ 1,475,250,000	88.35%	47,750,000	0.000170349	0.001307940	5.78
AT&T Inc	FR Global Notes		5.450	2047	96.80	\$ 2,000,000,000	5.630%	5.70%	0.06% BBB	\$ 1,936,000,000	96.80%	109,000,000	0.000630327	0.001718714	5.69
Charter Communications	Note		5.375	2047	79.1	\$ 2,499,630,000	6.80%	7.25%	0.10% BBB-	\$ 1,977,444,830	79.10%	134,371,238	0.00100250	0.006493127	7.21
Comcast Corp	qd fixed rate		4.000	2047	80.91	\$ 850,000,000	4.94%	5.46%	0.03% A-	\$ 697,535,000	80.91%	34,000,000	0.000256667	0.001136665	5.41
Comcast Corp NEW	sr note		3.989	2047	80.79	\$ 1,985,328,000	4.91%	5.44%	0.06% A-	\$ 1,603,946,491	80.79%	79,797,668	0.000596692	0.002642591	5.38
Verizon Communications	Ix rt Notes		5.500	2047	99	\$ 1,500,000,000	5.56%	5.58%	0.05% BBB+	\$ 1,485,000,000	99.00%	82,500,000	0.000462537	0.001681865	5.57
AT&T Inc	FR Global Notes		5.048	2048	81.58	\$ 4,498,000,000	5.516%	6.10%	0.08% BBB	\$ 3,669,468,400	81.58%	202,410,000	0.001478846	0.004032388	5.91
Bell CDA	Senior unsec		4.484	2048	86.31	\$ 7,700,000,000	5.17%	5.49%	0.02% Baa1	\$ 6,477,325,000	86.31%	33,480,000	0.000227807	0.003052174	5.47
Charter Communications	SSN		5.750	2048	82.88	\$ 1,700,000,000	6.06%	7.29%	0.07% BBB-	\$ 1,405,560,000	82.88%	97,750,000	0.00098482	0.006801717	7.18
Comcast Corp NEW	sr note		4.700	2048	92.14	\$ 1,000,000,000	5.10%	5.28%	0.12%	\$ 846,620,000	92.14%	188,000,000	0.001167447	0.001744872	5.26
Comcast Corp NEW	sr note		4.000	2048	81.55	\$ 1,000,000,000	4.90%	5.33%	0.03% A-	\$ 815,500,000	81.55%	40,000,000	0.000296988	0.001315282	5.34
Telus	Sr unsecured note		4.600	2048	86.37	\$ 750,000,000	5.33%	5.64%	0.02% Baa1	\$ 647,775,000	86.37%	34,500,000	0.000233858	0.003383909	5.06
Charter Communications	SSN		4.522	2048	87.42	\$ 5,000,000,000	5.17%	5.47%	0.16% BBB+	\$ 4,197,100,000	87.42%	225,100,000	0.001510957	0.005439662	5.44
AT&T Inc	FR Global Notes		4.550	2049	83.90	\$ 2,494,000,000	5.423%	5.77%	0.08% BBB	\$ 2,092,466,000	83.90%	113,477,000	0.000795765	0.002169814	5.75
Bell CDA	Senior unsec		4.300	2049	82.80	\$ 600,000,000	5.19%	5.58%	0.02% Baa1	\$ 498,800,000	82.80%	25,800,000	0.000185116	0.002482013	5.54
Charter Communications	SSN		5.125	2049	76.7	\$ 1,250,000,000	6.66%	7.13%	0.05% BBB-	\$ 858,700,000	76.70%	109,500,000	0.000697083	0.002699879	5.72
Comcast Corp NEW	sr note		3.999	2049	80.51	\$ 1,999,999,000	4.97%	5.43%	0.06% A-	\$ 1,610,199,195	80.51%	79,979,960	0.000602224	0.002658236	5.38
Telus	Sr unsecured note		4.300	2049	88.56	\$ 500,000,000	4.86%	5.11%	0.01% Baa1	\$ 442,800,000	88.56%	21,500,000	0.000141337	0.002045129	5.09
AT&T Inc	FR Global Notes		5.150	2050	92.00	\$ 1,894,666,000	5.589%	6.17%	0.05% BBB	\$ 1,559,922,720	92.00%	67,275,298	0.000336288	0.001467895	5.73
Charter Communications	SSN		4.800	2050	73.22	\$ 1,500,000,000	6.56%	7.06%	0.06% BBB-	\$ 1,098,300,000	73.22%	72,000,000	0.000586566	0.004981656	7.02
Comcast Corp NEW	sr note		3.450	2050	73.25	\$ 1,800,000,000	4.71%	5.36%	0.05% A-	\$ 1,318,500,000	73.25%	62,100,000	0.00033834	0.002364213	5.33
AT&T Inc	SUN		3.650	2051	71.11	\$ 3,000,000,000	5.133%	5.77%	0.10% BBB	\$ 2,633,300,000	71.11%	109,500,000	0.000697083	0.002699879	5.72
Charter Communications	Note		3.700	2051	61.27	\$ 1,400,000,000	6.04%	6.87%	0.05% BBB-	\$ 857,780,000	61.27%	51,800,000	0.00053184	0.004505743	6.8
Comcast Corp NEW	sr note		2.887	2051	64.82	\$ 4,959,172,000	4.45%	5.38%	0.15% A-	\$ 3,214,535,290	64.82%	143,171,296	0.001470084	0.006510619	5.28
Comcast Corp NEW	sr note		2.800	2051	63.08	\$ 1,700,000,000	4.44%	5.41%	0.05% A-	\$ 1,072,360,000	63.08%	47,600,000	0.000508522	0.002252110	5.28
AT&T Inc	SUN		3.300	2052	67.14	\$ 2,250,000,000	4.915%	5.65%	0.07% BBB	\$ 1,616,650,000	67.14%	74,250,000	0.000702684	0.001914883	5.60
Charter Communications	Note		3.900	2052	63.24	\$ 1,000,000,000	6.17%	6.87%	0.04% BBB-	\$ 632,400,000	63.24%	39,000,000	0.00038005	0.003319754	6.81
Comcast Corp NEW	sr note		4.049	2052	80.96	\$ 1,499,679,000	5.00%	5.37%	0.04% A-	\$ 1,214,302,338	80.96%	60,730,101	0.000445169	0.001971537	5.33
Comcast Corp NEW	sr note		2.450	2052	59.46	\$ 1,500,000,000	4.12%	5.21%	0.04% A-	\$ 891,900,000	59.46%	36,750,000	0.000432254	0.001914338	5.12
AT&T Inc	SUN		3.500	2053	68.31	\$ 7,496,266,000	5.124%	5.76%	0.24% BBB	\$ 5,120,699,305	68.31%	262,369,310	0.002386187	0.006506416	5.70
Charter Communications	SSN		5.250	2053	78.25	\$ 1,500,000,000	6.71%	7.01%	0.06% BBB-	\$ 1,173,750,000	78.25%	78,750,000	0.00058171	0.004928236	6.99
Verizon Communications	Ix rt Notes		5.012	2054	91.19	\$ 5,500,000,000	5.50%	5.62%	0.17% BBB+	\$ 5,015,450,000	91.19%	275,660,000	0.001709696	0.002119898	5.61
AT&T Inc	SUN		3.550	2055	67.61	\$ 7,495,129,000	5.251%	5.82%	0.21% BBB	\$ 5,067,456,717	67.61%	266,077,000	0.002409826	0.007580774	5.76
Charter Communications	SSN		6.834	2055	94.67	\$ 500,000,000	7.22%	7.27%	0.02% BBB-	\$ 473,350,000	94.67%	34,170,000	0.00020295	0.001702396	7.26
Verizon Communications	Ix rt Notes		4.672	2055	88.57	\$ 5,800,000,000	5.27%	5.44%	0.17% BBB+	\$ 4,871,350,000	88.57%	256,960,000	0.001638932	0.00612073	5.43
Comcast Corp NEW	sr note		2.937	2056	63.18	\$ 5,963,382,000	4.65%	5.35%	0.18% A-	\$ 3,767,684,748	63.18%	175,144,529	0.001764118	0.007812816	5.28
Verizon Communications	Sr unsec note		2.987	2056	62.05	\$ 4,498,814,000	4.81%	5.53%	0.14% BBB-	\$ 2,791,514,087	62.05%	134,379,574	0.001937453	0.004987466	5.46
AT&T Inc	FR Global Notes		5.700	2057	104.27	\$ 1,000,000,000	5.467%	5.42%	0.03% BBB	\$ 1,042,700,000	104.27%	57,000,000	0.000299707	0.000617211	5.42
AT&T Inc	SUN		3.800	2057	69.56	\$ 5,923,231,000	5.463%	5.91%	0.19% BBB+	\$ 4,120,199,484	69.56%	225,082,778	0.001934004	0.005273449	5.86
AT&T Inc	FR Global Notes		5.300	2058	92.62	\$ 643,706,000	5.722%	5.80%	0.02% BBB	\$ 596,200,497	92.62%	34,116,418	0.00026393	0.0005	

# DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 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	18.15	16.94	5.28	2.64	1.35	2.75	12.95	7,127,600,000	82.44%
Altice USA, Inc	atus	4.60	21.15	4.31	0.43	nil	4.16	(1.04)	456,200,000	67.03%
BCE Inc	bce	43.95	19.60	6.30	2.48	2.79	4.25	14.85	911,943,000	84.75%
Cable One	cabo	711.86	294.14	100.79	38.06	11.20	71.38	303.20	5,809,413	89.78%
Charter Communications Inc	chtr	339.10	353.89	91.44	30.74	nil	61.42	59.74	152,651,397	79.60%
Comcast Corp	cmcsa	34.70	28.77	6.58	3.64	1.06	2.60	19.18	4,220,100,000	81.67%
Lumen Technologies Inc	lumn	5.22	17.36	1.68	(1.58)	0.75	3.00	10.36	1,007,500,003	55.74%
Shenandoah Telecom	shen	15.88	5.34	1.27	(0.11)	0.08	3.78	12.73	50,110,000	100.00%
Telus Corp	tu	19.31	9.51	2.61	0.85	0.98	1.88	8.55	1,431,000,000	87.25%
Verizon Communications	vz	38.79	32.58	9.15	5.18	2.56	5.00	22.02	4,199,882,937	90.49%

Value Line March 10, 2023

Yahoo

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

Bond analysis  
81.87%  
83.69%  
83.69%  
78.62%

										2023 Forecast				
Wtd Avg YTM	Payout Ratio	Payout Ratio	ROE	Timeliness	Safety	Technical	Income Tax Rate	Return on Total Capital	CF growth	Revenues	CF	Earnings	Dividends	Common
	calculated	V L	V L	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	Shares
5.82%	51%	50%	20.3%		3		20.0%	10.10%	-0.5%	17.55	5.85	2.40	1.11	7,200,000,000
11.10%		nil	nmf	5	3	2	nmf	3.50%	4.0%	20.30	4.40	0.45	nil	458,000,000
5.53%	113%	nmf	17.5%	4	2	4	25.0%	8.00%	2.5%	20.20	6.50	2.35	2.90	915,000,000
	29%	29%	13.5%	4	3	3	13.7%	5.50%	3.5%	263.10	110.00	52.50	11.50	6,500,000
7.11%		nil	55.4%	4	3	3	21.6%	7.00%	11.0%	394.30	102.35	35.10	nil	140,000,000
5.33%	29%	29%	19.9%	3	1	3	25.3%	10.10%	8.0%	30.85	6.95	3.70	1.14	3,900,000,000
16.48%	-47%	53%	17.2%	3	3	1	24.6%	7.10%	-1.5%	16.30	4.05	0.60	nil	900,000,000
	-73%	nmf	nmf		4		nmf	nmf	10.5%	5.70	1.40	nil	0.09	50,000,000
5.43%	116%	74%	9.7%	4	2	4	26.0%	4.90%	9.5%	10.20	2.93	0.98	1.07	1,425,000,000
5.59%	49%	49%	37.0%	4	1	4	23.1%	12.50%	0.5%	33.25	9.00	4.80	2.64	4,150,000,000
Bond analysis	calculated	Value Line	Value Line	4	3	3	22%	7.63%	4.75%					
								7.10%	3.75%					
	33%	47%	23.8%					7.53%	4.75%					
	39.4%	49.5%	18.7%					<b>7.50%</b>	<b>4.8%</b>					
	#NUM!	42.3%	18.3%					6.63%						
								0.029						
								0.376						
														<b>avg</b>
														<b>med</b>
														<b>max</b>
														<b>min</b>
														<b>std</b>



P/E	Forecast Dividends % Change						Forecast Earnings % Change						Forecast Cash Flow %	
	2023	2024	2025	2026	2027	2028	2023	2024	2025	2026	2027	2028	2023	2024
calc	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
7.56	4.5	4.5	4.5	2.5	-6.5	-6.5	7	5.5	5.5	2.5	0.5	1	4.5	4.5
10.22										44.5	10	10		
18.70	4	4	4	4.5	4	3	5	4.5	3	3.5	4.5	3.5	5.5	5.5
13.56	11.5	9.5	7.5	6.5	5.5	5.5	13	15	11.5	11.5	7	9	10.5	10.5
9.66							19.5	17.5	34	27.5	22.5	23	10	9.5
9.38	12	11	8.5	9	9	9	12.5	13.5	8.5	11	9	8.5	9.5	9.5
8.70	-9.5	-12	-9	-5.5	3		2.5	1	2.5	3.5	1.5	4.5	-0.5	0.5
nmf	6	7.5	8.5	5	-7	-7	10	20.5	19.5	6.5	9.5	2.5	7	7.5
19.80	7	7	7	7	7	7	8.5	7.5	9	13	15	15	7.5	7
8.08	2	2	2	2	2.5	2.5	4.5	4	4	2.5	2.5	2.5	-3.5	2

11.74  
9.66  
11.19  
19.80  
7.56  
4.60

Change				Forecast Revenue % Change						Income		Balance Sheet
2025	2026	2027	2028	2023	2024	2025	2026	2027	2028	Operating Income	EBITDA	Current Assets
VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	M*	M*	M*
3.5	2	-0.5	-0.5	1	1	2.5	1.5	-4.5	-4.5	22,911,000,000	13,434,000,000	<b>33,108,000,000</b>
9	12	5	4			6	7.5	3	3	1,932,879,000	3,866,537,000	<b>2,568,445,000</b>
4	3.5	3	2	2	2	0.5	2	2	1	4,044,313,146	7,532,496,307	<b>4,790,989,660</b>
7	7.5	3.5	9.5	6	8.5	5	3.5	-0.5	9.5	534,355,000	911,851,000	<b>346,705,000</b>
9.5	11	15	14.5	10	11	7.5	9	14.5	14	12,243,000,000	21,616,000,000	<b>4,017,000,000</b>
6.5	7.5	7.5	7.5	7.5	9	6.5	7.5	7	7	22,624,000,000	36,459,000,000	<b>21,826,000,000</b>
2.5	0.5	-1.5	2.5	-3.5	-2.5	-0.5	-2	-0.5	4	3,293,000,000	6,703,000,000	<b>5,420,000,000</b>
6	-7.5	0.5	-1.5	5	5	4.5	-5.5	0.5	0.5	(1,466,000)	75,961,000	<b>128,562,000</b>
8	10	9.5	9.5	5.5	7	4	5	7	7	2,097,488,922	4,906,203,840	<b>4,499,261,448</b>
1.5	0.5	0.5	0.5	1.5	1.5	2	2.5	2.5	2.5	30,467,000,000	47,870,000,000	<b>37,857,000,000</b>

					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
351,444,000,000	130,420,000,000	<b>56,173,000,000</b>	147,082,000,000	7,597,000,000	18,021,000,000	125,207,000,000
15,536,778,000	20,426,360,000	<b>4,039,701,000</b>	24,772,893,000	2,075,077,000	1,773,673,000	22,263,443,000
61,751,846,381	16,381,831,610	<b>8,470,457,903</b>	18,508,862,629		3,488,183,161	17,005,908,419
3,706,925,000	2,898,991,000	<b>244,155,000.00</b>	3,792,817,000	55,931,000	350,462,000	3,455,268,000
72,203,000,000	85,613,000,000	<b>12,065,000,000</b>	96,093,000,000	1,805,000,000	8,903,000,000	82,798,000,000
112,400,000,000	127,125,000,000	<b>27,887,000,000</b>	93,068,000,000	1,743,000,000	13,821,000,000	86,900,000,000
39,052,000,000	13,855,000,000	<b>4,803,000,000</b>	20,418,000,000	498,000,000	3,239,000,000	17,626,000,000
1,210,177,000	105,510,000	<b>96,421,000</b>	126,283,000	3,477,000	68,899,000	75,648,000
33,607,090,103	18,610,044,313	<b>6,115,952,733</b>	16,614,475,628	1,876,661,743	2,549,483,013	17,237,813,885
333,819,000,000	180,358,000,000	<b>50,171,000,000</b>	140,676,000,000	9,963,000,000	17,099,000,000	140,773,000,000

1,024,730,816,484

69,313,700,174

513,342,081,304

## AVERAGE FOURTH QUARTER STOCK PRICE

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

TELECOMMUNICATIONS

								<b>12/30/2022</b>
								<b>Adj Close</b>
ATT	T							
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	18.42	18.48	18.22	18.41	18.14794	26200800		<b>18.15</b>
Lumen Tech LUMN								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	5.24	5.3	5.11	5.22	5.22	18540900		<b>5.22</b>
Comcast CMCSA								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	34.81	34.98	34.53	34.97	34.7	15385300		<b>34.70</b>
Verizon VZ								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	39.31	39.69	39.07	39.4	38.79018	43999100		<b>38.79</b>
Telus TU								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	19.48	19.51	19.12	19.31	19.31	1685000		<b>19.31</b>
BCE BCE								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	44	44.35	43.65	43.95	43.95	1167800		<b>43.95</b>
Altice USA, In ATUS								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	4.48	4.63	4.42	4.6	4.6	2850200		<b>4.60</b>
CHTR								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	336.3	339.87	334.98	339.1	339.1	1201500		<b>339.10</b>
Cable One, In CABO								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	693	711.89	688.16	711.86	711.86	66300		<b>711.86</b>
Shenandoah TSHEN								
Date	Open	High	Low	Close	Adj Close	Volume		
12/30/2022	15.88	15.93	15.65	15.88	15.88	157400		<b>15.88</b>

Source:

finance.yahoo.com

Historical Stock Quotes

02/06/2023

# IMPLIED PREMIUMS FOR US MARKET

Updated January 5, 2023

These implied premiums are calculated using the S&P 500.

Year	Earnings Yield	Dividend Yield	S&P 500	Earnings*	Dividends*	Ends + Buyback	Increase in Earnings	Increase in Divid.	T.Bill Rate	T.Bond Rate	Bond-Bill	Unadjusted Growth	Adjusted Premium	Real Growth Est.	Implied ERP (FCI)	Implied ERP (FCI)	ERP/Riskfree
1960	5.34%	3.41%	58.11	3.10	1.98				2.66%	2.76%	0.10%	2.45%					
1961	4.71%	2.85%	71.55	3.37	2.04		8.60%	2.91%	2.13%	2.35%	0.22%	2.41%	2.92%		2.92%		1.24
1962	5.81%	3.40%	63.1	3.67	2.15		8.79%	5.21%	2.73%	3.85%	1.12%	4.05%	3.56%		3.56%		0.92
1963	5.51%	3.13%	75.02	4.13	2.35		12.75%	9.45%	3.12%	4.14%	1.02%	4.96%	3.38%		3.38%		0.82
1964	5.62%	3.05%	84.75	4.76	2.58		15.23%	10.08%	3.54%	4.21%	0.67%	5.13%	3.31%		3.31%		0.79
1965	5.73%	3.06%	92.43	5.30	2.83		11.20%	9.42%	3.93%	4.65%	0.72%	5.46%	3.32%		3.32%		0.71
1966	6.74%	3.59%	80.33	5.41	2.88		2.23%	1.96%	4.76%	4.64%	-0.12%	4.19%	3.68%		3.68%		0.79
1967	5.66%	3.09%	96.47	5.46	2.98		0.85%	3.37%	4.21%	5.70%	1.49%	5.25%	3.20%		3.20%		0.56
1968	5.51%	2.93%	103.86	5.72	3.04		4.81%	2.09%	5.21%	6.16%	0.95%	5.32%	3.00%		3.00%		0.49
1969	6.63%	3.52%	92.06	6.10	3.24		6.66%	6.49%	6.58%	7.88%	1.30%	7.55%	3.74%		3.74%		0.47
1970	5.98%	3.46%	92.15	5.51	3.19		-9.72%	-1.61%	6.53%	6.50%	-0.03%	4.78%	3.41%		3.41%		0.52
1971	5.46%	3.10%	102.09	5.57	3.16		1.15%	-0.74%	4.39%	5.89%	1.50%	4.57%	3.09%		3.09%		0.52
1972	5.23%	2.70%	118.05	6.17	3.19		10.76%	0.71%	3.84%	6.41%	2.57%	5.21%	2.72%		2.72%		0.42
1973	8.16%	3.70%	97.55	7.96	3.61		28.93%	13.24%	6.93%	6.90%	-0.03%	8.30%	4.30%		4.30%		0.62
1974	13.64%	5.43%	68.56	9.35	3.72		17.48%	3.14%	8.00%	7.40%	-0.60%	6.42%	5.59%		5.59%		0.76
1975	8.55%	4.14%	90.19	7.71	3.73		-17.54%	0.30%	5.80%	7.76%	1.96%	5.99%	4.13%		4.13%		0.53
1976	9.07%	3.93%	107.46	9.75	4.22		26.39%	13.10%	5.08%	6.81%	1.73%	8.19%	4.55%		4.55%		0.67
1977	11.43%	5.11%	95.1	10.87	4.86		11.53%	15.07%	5.12%	7.78%	2.66%	9.52%	5.92%		5.92%		0.76
1978	12.11%	5.39%	96.11	11.64	5.18		7.07%	6.60%	7.18%	9.15%	1.97%	8.48%	5.72%		5.72%		0.63
1979	13.48%	5.53%	107.94	14.55	5.97		25.01%	15.23%	10.38%	10.33%	-0.05%	11.70%	6.45%		6.45%		0.62
1980	11.04%	4.74%	135.76	14.99	6.44		3.01%	7.81%	11.24%	12.43%	1.19%	11.01%	5.03%		5.03%		0.40
1981	12.39%	5.57%	122.55	15.18	6.83		1.31%	6.08%	14.71%	13.98%	-0.73%	11.42%	5.73%		5.73%		0.41
1982	9.83%	4.93%	140.64	13.82	6.93		-8.95%	1.58%	10.54%	10.47%	-0.07%	7.96%	4.90%		4.90%		0.47
1983	8.06%	4.32%	164.93	13.29	7.12		-3.84%	2.76%	8.80%	11.80%	3.00%	9.09%	4.31%		4.31%		0.37
1984	10.07%	4.68%	167.24	16.84	7.83		26.69%	9.85%	9.85%	11.51%	1.66%	11.02%	5.11%		5.11%		0.44
1985	7.42%	3.88%	211.28	15.68	8.20		-6.91%	4.74%	7.72%	8.99%	1.27%	7.89%	4.03%	6.75%	3.84%		0.43
1986	5.96%	3.38%	242.17	14.43	8.19		-7.93%	-0.15%	6.16%	7.22%	1.06%	5.54%	3.36%	6.96%	3.58%		0.50
1987	6.49%	3.71%	247.08	16.04	9.17		11.10%	11.99%	5.47%	8.86%	3.39%	9.66%	4.18%	8.58%	3.99%		0.45
1988	8.20%	3.68%	277.72	24.12	10.22		50.42%	11.49%	6.35%	9.14%	2.79%	9.76%	4.12%	7.67%	3.77%		0.41
1989	6.80%	3.32%	353.4	24.32	11.73		0.83%	14.80%	8.37%	7.93%	-0.44%	9.58%	3.85%	7.46%	3.51%		0.44
1990	6.58%	3.74%	330.22	22.65	12.35		-6.87%	5.26%	7.81%	8.07%	0.26%	7.39%	3.92%	7.19%	3.89%		0.48
1991	4.58%	3.11%	417.09	19.30	12.97		-14.79%	5.03%	7.00%	6.70%	-0.30%	6.34%	3.27%	7.81%	3.48%		0.52
1992	4.16%	2.90%	435.71	20.87	12.64		8.13%	-2.59%	5.30%	6.68%	1.38%	4.67%	2.83%	9.83%	3.55%		0.53
1993	4.25%	2.72%	466.45	26.90	12.69		28.89%	0.41%	3.50%	5.79%	2.29%	4.73%	2.74%	8.00%	3.17%		0.55
1994	5.89%	2.91%	459.27	31.75	13.36		18.03%	5.34%	5.00%	7.82%	2.82%	7.23%	3.06%	7.17%	3.55%		0.45
1995	5.74%	2.30%	615.93	37.70	14.17		18.74%	6.00%	3.50%	5.57%	2.07%	5.65%	2.44%	6.50%	3.29%		0.59
1996	4.83%	2.01%	740.74	40.63	14.89		7.77%	5.10%	5.00%	6.41%	1.41%	6.13%	2.11%	7.92%	3.20%		0.50
1997	4.08%	1.60%	970.43	44.09	15.52		8.52%	4.25%	5.35%	5.74%	0.39%	5.45%	1.67%	8.00%	2.73%		0.48
1998	3.11%	1.32%	1229.23	44.27	16.20		0.41%	4.37%	4.33%	4.65%	0.32%	4.60%	1.38%	7.20%	2.26%		0.49
1999	3.07%	1.14%	1469.25	51.68	16.71		16.74%	3.16%	5.37%	6.44%	1.07%	5.75%	1.20%	12.50%	2.05%		0.32
2000	3.94%	1.23%	1320.28	56.13	16.27		8.61%	-2.65%	5.73%	5.11%	-0.62%	3.71%	1.65%	12.00%	2.87%		0.56
2001	3.85%	1.37%	1148.09	38.85	15.74	30.08	-30.79%	-3.24%	1.80%	5.05%	3.25%	3.56%	1.73%	10.30%	3.62%	2.91%	0.72
2002	5.23%	1.83%	879.82	46.04	16.08	29.83	18.51%	2.15%	1.20%	3.81%	2.61%	3.57%	2.29%	8.00%	4.10%	4.73%	1.08
2003	4.87%	1.61%	1111.91	54.69	17.88	31.58	18.79%	11.19%	1.00%	4.25%	3.25%	5.35%	2.12%	11.00%	3.69%	4.74%	0.87
2004	5.58%	1.60%	1211.92	67.68	19.407	40.60	23.75%	8.54%	2.18%	4.22%	2.04%	4.90%	2.02%	8.50%	3.65%	4.86%	0.86
2005	5.47%	1.79%	1248.29	76.45	22.38	61.17	12.96%	15.32%	4.31%	4.39%	0.08%	6.16%	2.20%	8.00%	4.08%	5.22%	0.93
2006	6.18%	1.77%	1418.3	87.72	25.05	73.16	14.74%	11.93%	4.88%	4.70%	-0.18%	5.93%	1.97%	12.50%	4.16%	6.12%	0.89
2007	5.62%	1.89%	1468.36	82.54	27.73	95.36	-5.91%	10.70%	3.31%	4.02%	0.71%	5.03%	2.06%	5.00%	4.37%	4.59%	1.09
2008	7.24%	3.11%	903.25	65.39	28.05	67.52	-20.78%	1.15%	1.59%	2.21%	0.62%	2.11%	4.05%	4.00%	6.43%	6.92%	2.91
2009	5.35%	2.00%	1115.10	59.65	22.31	37.43	-8.78%	-20.46%	0.14%	3.84%	3.70%	0.28%	2.60%	7.20%	4.36%	4.64%	1.14
2010	6.65%	1.84%	1257.64	83.66	23.12	55.53	40.25%	3.63%	0.13%	3.29%	3.16%	3.33%	2.24%	6.95%	5.20%	6.09%	1.58
2011	7.72%	2.07%	1257.60	97.05	26.02	71.28	16.01%	12.54%	0.03%	1.88%	1.85%	2.75%	2.71%	7.18%	6.01%	8.34%	3.20
2012	7.18%	2.13%	1426.19	102.47	30.44	75.90	5.58%	16.99%	0.05%	1.76%	1.71%	2.93%	2.47%	5.27%	5.78%	7.30%	3.28
2013	5.81%	1.96%	1848.36	107.45	36.28	88.13	4.86%	19.19%	0.07%	3.04%	2.97%	5.01%	2.03%	4.28%	4.96%	4.99%	1.63
2014	5.49%	1.92%	2058.90	113.01	39.44	101.98	5.17%	8.71%	0.05%	2.17%	2.12%	2.77%	2.24%	5.58%	5.78%	5.48%	2.66
2015	5.20%	2.11%	2043.94	106.32	43.16	106.10	-5.92%	9.43%	0.21%	2.27%	2.06%	2.96%	2.46%	5.51%	6.12%	5.16%	2.70
2016	4.86%	2.01%	2238.83	108.86	45.03	108.67	2.39%	4.33%	0.51%	2.45%	1.94%	2.64%	2.41%	5.54%	5.69%	4.50%	2.32
2017	4.67%	1.86%	2673.61	124.94	49.73	108.28	14.77%	10.44%	1.39%	2.41%	1.02%	3.22%	2.36%	7.05%	5.08%	4.75%	2.11
2018	5.92%	2.14%	2506.85	148.34	53.61	136.65	18.73%	7.80%	2.37%	2.68%	0.31%	3.24%	2.50%	4.12%	5.96%	5.55%	2.22
2019	5.03%	1.82%	3230.78	162.35	58.80	150.50	9.44%	9.68%	1.55%	1.92%	0.37%	2.57%	2.03%	3.96%	5.20%	5.06%	2.71
2020	3.72%	1.51%	3756.07	139.76	56.70	127.78	-13.91%	-3.57%	0.09%	0.93%	0.84%	0.74%	1.65%	5.42%	4.72%	4.94%	5.08
2021	4.33%	1.24%	4766.18	206.38	59.20	147.24	47.67%	4.41%	0.06%	1.51%	1.45%	1.71%	1.72%	6.47%	4.24%	4.90%	2.81
2022	5.72%	1.78%	3839.50	219.49	68.34	181.99	6.35%	15.44%	4.42%	3.88%	-0.54%	5.59%	2.16%	6.41%	5.94%	5.11%	1.53

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