



COST OF CAPITAL STUDY

**YIELD CAPITALIZATION
2021 ASSESSMENT YEAR**

APPENDIX C

TELECOMMUNICATIONS

EQUITY RATE						8.50%	
CAPITAL ASSET PRICING MODEL							PAGE
	CAPM Ex Ante		5.1%				6
DIVIDEND GROWTH MODELS							
	Value Line, based on Dividends Growth		8.50%				7
	Value Line, based on Earnings Growth		8.50%				8
	Value Line, based on Return on Equity		8.50%				10
				RANGE	5-8.5%		
DEBT RATE						3.50%	11
SECURED DEBT (LEASE) RATE						2.50%	11
MARKET CAPITAL STRUCTURE							
	Equity	60%	x	8.50%	=	5.10%	3
	Debt	40%	x	3.50%	=	1.40%	3
	Marginal Tax Rate	24%	=	(1-.024)	x	1.40%	
						<u>1.06%</u>	

WEIGHTED AVERAGE COST OF CAPITAL **6.2%**

rounded

SUPPORT FOR GUIDELINE COMPANIES

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 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	0.85	A++	100	15	100	8.8	7.40%	179,218,900,000	53.3%	-	0.0%	157,245,000,000	46.7%	336,463,900,000	
ATN International Inc	atni	0.75	B++	45	40	30	nmf	1.40%	645,637,151	89.9%	-	0.0%	72,800,000	10.1%	718,437,151	
BCE Inc	bce	0.90	B++	100	10	95	19.3	6.10%	15,988,024,000	47.5%	1,542,000,000	4.6%	16,098,039,216	47.9%	33,628,063,216	
Charter	chtr	0.90	B++	85	95	10	40.1	nil	23,805,664,420	22.3%	-	0.0%	82,752,000,000	77.7%	106,557,664,420	
Lumen Technologies Inc	lumn	1.00	B	50	5	70	7.5	8.00%	11,138,400,000	25.9%	-	0.0%	31,837,000,000	74.1%	42,975,400,000	
Cincinnati Bell Inc	cbb	0.90	C+	15	15	10	nmf	nil	-	nmf	-	0.0%	-	-	-	
Comcast Corp	comca	0.80	A+	100	90	100	20.9	1.80%	90,330,539,712	46.5%	-	0.0%	103,760,000,000	53.5%	194,090,539,712	
Altice USA, Inc	atus	1.05	B	35	nmf	nmf	43.2	nil	-	nmf	-	0.0%	-	-	-	
Telus Corp	tu	0.70	B++	100	65	85	27.3	4.90%	9,467,333,333	37.3%	-	0.0%	15,912,156,863	62.7%	25,379,490,196	
Verizon Communication	vz	0.65	A++	100	35	90	11.3	4.60%	63,106,765,967	32.8%	-	0.0%	129,062,000,000	67.2%	192,168,765,967	
Mean	0.85	B++	73	41	66	22.3	4.89%	49,212,658,073	44.5%	393,701,264,583	42.2%	1,542,000,000	0.6%	67,092,374,510	55.0%	931,982,260,661
Weighted Mean	0.88		93	35	85	20	4.90%									
Median	0.85		77	39	69	21	4.96%									
Trimmed Mean	0.85		77	39	69	21	4.96%									
Max	1.05		100	95	100	43	8.00%									
Min	0.65		15	5	10	8	1.40%									
Say	0.85									40%		0.0%		60%		100%

**SUPPORT FOR CAPITAL STRUCTURE
MARKET VALUE**

WASHINGTON STATE DEPARTMENT OF REVENUE
2021 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	28.26	7,126,000,000	201,380,724,370	51.6%	-	0.0%	189,260,000,000	48.4%	390,640,724,370
ATN International Inc	atni	41.76	15,898,477	663,920,368	90.1%	-	0.0%	73,300,000	9.9%	737,220,368
BCE Inc	bce	42.80	904,300,000	38,704,039,096	65.2%	1,542,000,000	2.6%	19,110,588,235	32.2%	59,356,627,331
Charter	chtr	661.55	193,730,993	128,162,736,094	57.6%	-	0.0%	94,226,000,000	42.4%	222,388,736,094
Lumen Technologies Inc	lumn	9.75	1,092,000,000	10,647,000,000	24.1%	-	0.0%	33,512,000,000	75.9%	44,159,000,000
Cincinnati Bell Inc	cbb	15.28	50,680,605	774,399,644	26.4%	129,400,000	4.4%	2,025,500,000	69.1%	2,929,299,644
Comcast Corp	cmcsa	52.16	4,580,656,172	238,933,420,528	65.5%	-	0.0%	125,600,000,000	34.5%	364,533,420,528
Altice USA, Inc	atus	37.87	476,469,575	18,043,902,329	39.0%	-	0.0%	28,226,444,000	61.0%	46,270,346,329
Telus Corp	tu	19.80	1,291,000,000	25,561,798,709	59.5%	-	0.0%	17,372,549,020	40.5%	42,934,347,729
Verizon Communications	vz	58.13	4,138,148,588	240,541,142,442	60.3%	-	0.0%	158,036,000,000	39.7%	398,577,142,442
			Mean		53.9%		0.7%		45.4%	
			Weighted Mean	903,413,083,579	57.4%	1,671,400,000	0.11%	667,442,381,255	42.4%	1,572,526,864,834
			Median		58.6%		0.00%		41.4%	
			Trimmed Mean		53.2%		0.3%		46.0%	
			Max		90.1%		4.4%		75.9%	
			Min		24.1%		0.0%		9.9%	
			Say		60%		0%		40%	100%

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

SUPPORT FOR MARKET MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 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	28.26	24.10	1.2	7.21	3.9	3.18	8.9	2.08	13.6	2.20	12.8	25.15	1.1
ATN International Inc	atni	41.76	28.64	1.5	6.15	6.8	0.57	73.3	0.68	61.4	4.75	8.8	40.61	1.0
BCE Inc	bce	42.80	18.94	2.3	6.05	7.1	2.28	18.8	2.45	17.5	3.25	13.2	17.68	2.4
Charter	chtr	661.55	248.27	2.7	66.72	9.9	15.40	43.0	nil		38.27	17.3	122.88	5.4
Lumen Technologies Inc	lumn	9.75	18.95	0.5	5.95	1.6	1.67	5.8	1.00	9.8	3.40	2.9	10.20	1.0
Cincinnati Bell Inc	cbb	15.28	30.78	0.5	5.43	2.8	(0.36)	nfm	nil		4.41	3.5	(3.77)	nfm
Comcast Corp	cmcsa	52.16	22.61	2.3	5.09	10.2	2.61	20.0	0.90	58.0	2.33	22.4	19.72	2.6
Altice USA, Inc	atus	37.87	20.77	1.8	5.29	7.2	0.75	50.5	nil		2.25	16.8	(2.39)	nfm
Telus Corp	tu	19.80	9.40	2.1	2.56	7.7	0.74	26.9	0.91	21.8	1.72	11.5	7.33	2.7
Verizon Communications	vz	58.13	31.00	1.9	9.00	6.5	4.90	11.9	2.47	23.5	4.40	13.2	15.25	3.8
				1.7		6.4		28.8		29.4		12.2		2.5
				1.8		6.9		20.0		21.8		13.0		2.5
				1.7		6.5		25.7		26.9		12.1		2.3
				2.7		10.2		73.3		61.4		22.4		5.4
				0.5		1.6		5.8		9.8		2.9		1.0
				0.7		2.8		22.5		21.3		6.0		1.5
				0.4		0.4		0.8		0.7		0.5		0.6
				1.2		4.7		17.0		19.7		8.1		1.8
				1.2		4.6		11.9		15.5		9.5		1.1
				2.2		7.6		43.0		40.7		15.9		3.0
				1.50		6.00		17.00		20.00		11.00		2.00

**SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT
CAPITAL ASSET PRICING MODEL**

WASHINGTON STATE DEPARTMENT OF REVENUE
2021 ASSESSMENT YEAR
TELECOMMUNICATIONS

Ex Ante
Ke = Rf + B (Rp)

Ke = Cost of Equity	5.1%
	to page 1

Rm =	rate of return	5.65%	
Rf =	risk free rate	1.65%	
Rp =	risk premium	4.00%	
B =	Beta	0.85	page 2

Rp = Risk Premium	4.00%
	to above

Shannon Pratt and Roger Grabowski	3.5 - 6%	
Cost of Capital, Applications and Examples, Third Edition, 2008, Page 113		
Dr. Aswath Damodaran	4.72%	chart page 15
http://pages.stern.nyu.edu/~adamodar/	4.00%	adjusted for Rf
2020 Implied Premium		
John Graham and Campbell Harvey	6.20%	10 year expected return
Duke CFO magazine Global Business Outlook	5.48%	adjusted for Rf
4th Qtr 2020	0.93%	Rf rate adjusted by 10 yr-es

Rf = Risk Free Rate	1.65%
	to above

Value Line Investment Survey, Selected Yields January 8, 2021, page 689

as of 12-28-20

US Treasury Securities year end data		
	5 year	0.37%
	10 year	0.94%
	30 year	1.67%
	30 year Zero	NA

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

As of 12-31-20

Treasury Constant Maturities		
	5 year	0.36%
	10 year	0.93%
	20 year	1.45%
	30 year	1.65%
	20 year TIPS	-0.61%
	30 year TIPS	-0.37%
		2.06%
		2.02%
		TIPS inflation indication

Inflation	2.00%
	to appraisal template

Value Line Investment Survey, Economic Series January 1, 2021, page 1500	
Consumer Price Index Annual Rate of Change 2023-2025	2.30%
The Livingston Survey December 18, 2020, page 4, 10	
Inflation median (measured by the Consumer Price Index) over next 10 years	2.23%

Gross Domestic Product (GDP) Nominal	3.80%
	real GDP + inflation est

Federal Reserve Projected Long Run Real GDP Growth		
Median Projection Value From Dec 16, 2020 Report		1.80%
https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20201216.pdf		
Congressional Budget Office Real GDP Economic Projections		
The Budget and Economic Outlook 2021-2031 Table 2.3, pg 15		
Average Percentage Change Year To Year	2021-2025	1.90%
https://www.cbo.gov/system/files/2021-02/56970-Outl	2026-2031	1.70%
Federal Reserve Bank of Philadelphia		
The Livingston Survey, December 18, 2020, page 4, 10		
Average Annual Real GDP Growth Rate for Next 10 Years		2.20%
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
2021 ASSESSMENT YEAR
TELECOMMUNICATIONS

Based on Dividend Growth

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

K_e = Cost of Equity

D_1 = Expected Dividends

P_0 = 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	28.26	2.08	7.36%	2.50%	9.86%		9.86%
ATN International Inc	atni	41.76	0.68	1.63%	nil	nmf	2.00%	3.63%
BCE Inc	bce	42.80	2.64	6.17%	4.00%	10.17%	3.80%	9.97%
Charter	chtr	661.55	nil					
Lumen Technologies Inc	lumn	9.75	1.00	10.26%	-8.00%	nmf	2.00%	12.26%
Cincinnati Bell Inc	cbb	15.28	nil					
Comcast Corp	cmcsa	52.16	0.98	1.88%	9.00%	10.88%	3.80%	5.68%
Altice USA, Inc	atus	37.87	nil					
Telus Corp	tu	19.80	0.93	4.71%	7.00%	11.71%	3.80%	8.51%
Verizon Communications	vz	58.13	2.52	4.34%	2.00%	6.34%		6.34%
						9.79%	Mean	8.03%
						10.17%	Median	8.51%
						10.30%	Trimmed Mean	8.07%
						11.71%	Max	12.26%
						6.34%	Min	3.63%
Source: Value Line Projections 18-20 to 24-26						10.25%		8.50%
						Say		

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
2021 ASSESSMENT YEAR
TELECOMMUNICATIONS

Based on Earnings Growth

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

K_e = Cost of Equity
 $D1$ = Expected Dividends
 P_o = 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	28.26	2.08	7.36%	2.50%	9.86%		9.86%
ATN International Inc	atni	41.76	0.68	1.63%	24.50%	26.13%	3.80%	5.43%
BCE Inc	bce	42.80	2.64	6.17%	3.00%	9.17%		9.17%
Charter	chtr	661.55	nil					
Lumen Technologies Inc	lumn	9.75	1.00	10.26%	2.50%	12.76%		12.76%
Cincinnati Bell Inc	cbb	15.28	nil					
Comcast Corp	cmcsa	52.16	0.98	1.88%	11.50%	13.38%	3.80%	5.68%
Altice USA, Inc	atus	37.87	nil					
Telus Corp	tu	19.80	0.93	4.71%	13.00%	17.71%	3.80%	8.51%
Verizon Communications	vz	58.13	2.52	4.34%	3.50%	7.84%		7.84%
						13.83%	Mean	8.46%
						12.76%	Median	8.51%
						12.57%	Trimmed Mean	8.21%
						26.13%	Max	12.76%
						7.84%	Min	5.43%

Source: Value Line Projections 18-20 to 24-26

12.50%
Say **8.50%** **8.50%**

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

WASHINGTON STATE DEPARTMENT OF REVENUE
2021 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	28.26	2.08	7.36%	1.36%	8.72%	2.00%	9.36%
ATN International Inc	atni	41.76	0.68	1.63%	20.00%	21.63%	3.80%	5.43%
BCE Inc	bce	42.80	2.64	6.17%	2.74%	8.91%		8.91%
Charter	chtr	661.55	nil		33.74%			
Lumen Technologies Inc	lumn	9.75	1.00	10.26%	3.00%	13.26%		13.26%
Cincinnati Bell Inc	cbb	15.28	nil		35.80%			
Comcast Corp	cmcsa	52.16	0.98	1.88%	14.35%	16.23%	3.80%	5.68%
Altice USA, Inc	atus	37.87	nil		57.70%			
Telus Corp	tu	19.80	0.93	4.71%	4.68%	9.39%	3.80%	8.51%
Verizon Communications	vz	58.13	2.52	4.34%	2.82%	7.16%		7.16%
						12.18%	Mean	8.33%
						9.39%	Median	8.51%
						11.30%	Trimmed Mean	7.92%
						21.63%	Max	13.26%
						7.16%	Min	5.43%

Source: Yahoo Finance 5 year growth est

11.00%
Say **8.50%** **8.50%**

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

WASHINGTON STATE DEPARTMENT OF REVENUE
2021 ASSESSMENT YEAR
TELECOMMUNICATIONS

Based on Return on Equity

Ke = (D1 / Po) + 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	28.26	2.08	7.36%	35.0%	11.50%	3.20	11.32%	1.12	10.23%	3.96%	3.6%	4.03%	11.32%	3.80%	11.16%
ATN International Inc	atni	41.76	0.68	1.63%		1.50%	0.65	1.56%	1.03	1.46%						
BCE Inc	bce	42.80	2.64	6.17%	-7.0%	14.00%	2.50	5.84%	2.42	5.78%	-0.41%	-0.4%	-0.98%	5.76%	2.00%	8.17%
Charter	chtr	661.55	nil			15.50%	20.50	3.10%	5.38	2.88%						
Lumen Technologies Inc	lumn	9.75	1.00	10.26%	40.0%	11.00%	1.60	16.41%	0.96	11.51%	6.56%	4.6%	4.40%	16.82%	3.80%	14.06%
Cincinnati Bell Inc	cbi	15.28	nil			nmf	(0.70)									
Comcast Corp	cmcsa	52.16	0.98	1.88%	66.0%	13.50%	2.80	5.37%	2.65	5.10%	3.54%	3.4%	8.91%	5.42%		5.42%
Alice USA, Inc	atus	37.87	nil			nmf	1.60	4.22%	(15.85)							
Telus Corp	tu	19.80	0.93	4.71%		11.50%	0.83	4.18%	2.70	4.26%						
Verizon Communications	vz	58.13	2.52	4.34%	44.0%	37%	5.10	8.77%	3.81	9.71%	3.86%	4.3%	16.28%			
														8.20%	3.80%	8.14%
														9.50%	Mean	9.39%
														8.20%	Median	8.17%
														8.43%	Trimmed Mean	9.15%
														16.82%	Max	14.06%
														5.42%	Min	5.42%
														8.50%	Sav	8.50%

SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

TELECOMMUNICATIONS

Company	Ticker	Mergent's Ratings	S&P Ratings	WAYTM
AT&T Inc	t	Baa2	BBB	3.30%
ATN International Inc	atni			
BCE Inc	bce		BBB+	
Charter	chtr	Ba1	BB+	3.57%
Lumen Technologies Inc	lumn	B2	BB	5.66%
Cincinnati Bell Inc	cbb		B-	
Comcast Corp	cmcsa	A3	A-	2.40%
Altice USA, Inc	atus	Ba3	BB-	3.95%
Telus Corp	tu	Baa1	BBB+	2.90%
Verizon Communications	vz	Baa1	BBB+	2.67%
Overall Average Debt Rating		Baa2	BBB-	3.49%

bond analysis, A-BBB- bonds

All issues 20+ year maturities

Guideline Companies, All Ratings	2.95%	3.50%
---	--------------	--------------

bond analysis page 12

Mergent's Bond Record January 2021, page 251

Corporate	Aaa	Aa	A	Baa
October	2.35%	2.55%	2.88%	3.44%
November	2.30%	2.47%	2.79%	3.30%
December	2.26%	2.44%	2.72%	3.16%
4th Qtr Average	2.30%	2.49%	2.80%	3.30%
2020 Average	2.48%	2.64%	2.97%	3.60%
Public Utilities	Aaa	Aa	A	Baa
October		2.72%	2.95%	3.27%
November		2.63%	2.85%	3.17%
December		2.57%	2.77%	3.05%
4th Qtr Average		2.64%	2.86%	3.16%
2020 Average		2.79%	3.02%	3.39%
Industrials	Aaa	Aa	A	Baa
October	2.35%	2.37%	2.81%	3.60%
November	2.30%	2.30%	2.72%	3.41%
December	2.26%	2.31%	2.66%	3.27%
4th Qtr Average	2.30%	2.33%	2.73%	3.43%
2020 Average	2.48%	2.49%	2.91%	3.81%

Debt Yield Rate	3.50%
------------------------	--------------

Secured Debt (Lease) Rate	based on Aa rate 2.50%
----------------------------------	-------------------------------

to page 1

Company	Issue	Call	Coupon	Maturity	Price 1/20	Issued / Book	Current Yield	Yield to Maturity	Weighted Ave Rating	Mkt Val	Mkt : Book	Embedded Rat	Debt Service	WATM	YATM	YTM	
Bel South Capital Fundm	dbf	2100	7.120	2027	154.5	500,000,000	4.87%	4.85%	0.01%	BBB	\$		750,200,000	154.00%	0.00022652	0.00099807	4.58
Bel South Telecommunications	dbb	NC	7.000	2026	150.15	500,000,000	4.66%	4.60%	0.01%	BBB	\$		750,750,000	150.15%	0.00012543	0.00056422	4.61
AT&T Inc	dbf		7.120	2027	151.33	85,856,000	4.70%	4.65%	0.00%	Baa2	\$		129,926,885	151.33%	0.00020273	0.00087705	4.66
AT&T Inc	FR Global Notes		5.300	2026	132.73	643,706,000	3.893%	3.86%	0.01%	BBB	\$		34,116,418	132.73%	0.00013268	0.00017289	3.68
AT&T Inc	FR Global Notes		5.700	2027	142.75	1,000,000,000	3.993%	3.96%	0.02%	BBB	\$		57,000,000	142.75%	0.00013869	0.00078169	3.57
AT&T Inc	FR Global Notes		5.160	2026	132.64	1,694,666,000	3.833%	3.80%	0.03%	BBB	\$		87,275,296	132.64%	0.00034969	0.00147669	3.36
AT&T Inc	FR Global Notes		4.550	2049	118.98	2,484,000,000	3.824%	3.47%	0.05%	BBB	\$		2,987,31,200	118.98%	0.00047823	0.00189216	3.48
AT&T Inc	FR Global Notes		4.540	2049	119.28	2,484,000,000	3.773%	3.39%	0.06%	BBB	\$		2,824,244,000	119.28%	0.00047823	0.00189216	3.48
AT&T Inc	Fx Rate S Notes		5.650	2047	137.08	1,500,000,000	4.122%	3.44%	0.03%	BBB	\$		2,056,200,000	137.08%	0.00020935	0.00133723	3.46
AT&T Inc	FR Global Notes		5.450	2047	135.44	2,000,000,000	4.023%	3.36%	0.04%	BBB	\$		2,700,200,000	135.44%	0.00038542	0.00147473	3.37
AT&T Inc	Fixed Rate		4.750	2046	124.1	3,820,000,000	3.820%	3.26%	0.06%	BBB	\$		4,340,250,000	124.10%	0.00052654	0.00213639	3.32
AT&T Inc	note		4.950	2045	116.37	3,044,000,000	3.738%	3.33%	0.06%	BBB	\$		3,542,302,800	116.37%	0.00052236	0.00228570	3.35
Bel South Telecommunications	NC		6.800	2045	138.35	300,000,000	4.66%	4.12%	0.01%	BBB	\$		17,550,000	138.35%	0.00027243	0.00071363	4.18
AT&T Inc	Fixed Rate		4.800	2044	124.41	2,000,000,000	3.858%	3.25%	0.04%	BBB	\$		2,488,200,000	124.41%	0.00034022	0.00142689	3.28
AT&T Inc	Fixed Rate		5.150	2042	124.68	1,200,000,000	4.131%	3.45%	0.02%	BBB	\$		1,248,200,000	124.68%	0.00022664	0.00081642	3.49
AT&T Inc	Fixed Rate PI		4.300	2042	115.7	1,956,000,000	3.717%	3.24%	0.03%	BBB	\$		2,261,936,000	115.70%	0.00034464	0.00139022	3.27
AT&T Inc	FR SN		6.375	2041	146.49	984,000,000	4.326%	3.20%	0.02%	BBB	\$		1,431,621,500	146.49%	0.00017460	0.00089185	3.28
AT&T Inc	Fixed Rate		5.550	2041	131.25	2,000,000,000	4.229%	3.34%	0.04%	BBB	\$		2,625,000,000	131.25%	0.00038391	0.00146891	3.21
AT&T Inc	FR Global Notes		6.000	2040	140.07	1,234,000,000	4.284%	3.12%	0.02%	BBB	\$		1,728,463,800	140.07%	0.00020295	0.00084416	3.42
AT&T Inc	Global Notes		6.550	2039	141.29	2,256,000,000	4.613%	3.46%	0.04%	BBB	\$		3,154,775,000	141.29%	0.00049165	0.00205118	3.42
AT&T Inc	Global Notes	2100	6.300	2038	140.05	2,000,000,000	4.488%	3.15%	0.03%	BBB	\$		2,801,000,000	140.05%	0.00034217	0.00138452	3.23
AT&T Inc	Global Notes	2100	6.400	2038	138.35	1,250,000,000	4.620%	3.43%	0.02%	BBB	\$		1,728,370,000	138.35%	0.00020295	0.00081638	3.45
AT&T Inc	FR Global Notes		5.250	2037	130.20	3,000,000,000	4.052%	2.82%	0.05%	BBB	\$		3,906,000,000	130.20%	0.00040032	0.00156475	2.85
AT&T Inc	Global Notes	2100	6.500	2037	135.57	2,000,000,000	4.756%	3.49%	0.04%	BBB	\$		2,711,400,000	135.57%	0.00039778	0.00152007	3.64
AT&T Inc	Fixed Rate		4.600	2035	120.63	2,500,000,000	3.780%	2.86%	0.04%	BBB	\$		3,015,750,000	120.63%	0.00038160	0.00146074	2.7
Bel South Corp	dbf	2100	6.500	2034	136.11	700,000,000	4.81%	3.64%	0.01%	BBB	\$		852,770,000	136.11%	0.00015813	0.00046661	3.22
Bel South Corp	note	2100	6.000	2034	130.05	700,000,000	4.61%	3.07%	0.01%	BBB	\$		910,420,000	130.05%	0.00016866	0.00047116	3.28
27 Book Val	2700	sum	3995.67	sum	45,542,228.000	Percent of book	133.17%	0.82%	0.02%	\$	58,807,961.841	129.13%	5.30%	2,412,279.164	3.30%		
CSC HLDGS LLC	Senior unsec	callable	3.375	2031	98.62	1,000,000,000	3.42%	3.55%	0.02%	BB	\$		986,200,000	98.62%	0.00019085	0.013818708	3.54
CSC HLDGS LLC	Senior unsec	callable	4.625	2030	104.73	625,000,000	4.42%	3.96%	0.01%	B	\$		694,662,500	104.73%	0.000134026	0.000620761	3.92
CSC HLDGS LLC	Senior unsec	callable	5.750	2030	109.88	1,000,000,000	5.23%	4.34%	0.02%	B	\$		1,098,800,000	109.88%	0.000226903	0.016516668	3.75
3 Book Val	300	sum	313.23	sum	2,625,000,000	Percent of book	104.41%	0.06%	0.02%	\$	2,739,562,500	104.39%	4.58%	129,156,250	3.94%		
CenturLink	sr notes		7.650	2042	120.86	650,000,000	6.33%	5.87%	0.02%	BB-	\$		788,520,000	120.86%	0.00020775	0.015981963	5.91
CenturLink	sr unsec note		7.000	2039	122.54	400,000,000	6.21%	5.57%	0.01%	BB-	\$		480,400,000	122.54%	0.00016271	0.00577136	6.65
Entanq	sr unsec note		7.995	2036	123.53	1,485,000,000	6.47%	5.58%	0.05%	BB	\$		1,834,420,500	123.53%	0.00045126	0.032716069	5.68
3 Book Val	300	sum	966.72	sum	2,535,000,000	Percent of book	122.24%	0.96%	0.03%	\$	3,169,360,500	122.68%	7.84%	198,859,750	5.62%		
Charter Communications	SSN		3.850	2061	101.42	1,350,000,000	3.80%	3.79%	0.03%	BBB-	\$		1,369,170,000	101.42%	0.00027767	0.002191854	3.78
Charter Communications	SSN		6.834	2055	151.75	500,000,000	4.50%	4.00%	0.01%	BBB	\$		758,500,000	151.75%	0.00010888	0.00059492	4.03
Charter Communications	SSN		4.800	2050	119.83	2,450,000,000	4.22%	3.88%	0.05%	BBB-	\$		2,720,200,000	119.83%	0.00030651	0.002372156	3.69
Charter Communications	SSN		5.125	2049	122.02	1,250,000,000	4.20%	3.82%	0.03%	BBB-	\$		1,525,250,000	122.02%	0.00025966	0.00249882	3.84
Charter Communications	SSN		5.750	2048	130.88	1,700,000,000	4.39%	3.87%	0.04%	BBB-	\$		2,224,960,000	130.88%	0.00037678	0.00282401	3.88
Charter Communications	SSN		5.075	2047	124.02	2,450,000,000	4.33%	3.88%	0.05%	BBB-	\$		3,074,863,728	124.02%	0.00026266	0.004132881	3.89
Charter Communications	SSN		6.484	2045	142.44	3,499,875,000	4.05%	3.74%	0.07%	BBB-	\$		4,985,221,950	142.44%	0.00071193	0.005619728	3.79
Charter Communications	SSN		5.875	2042	137.66	1,250,000,000	3.84%	3.45%	0.02%	BBB-	\$		1,463,250,000	137.66%	0.00020700	0.00179752	3.37
TWC	Senior unsec		5.500	2041	128.98	1,250,000,000	4.26%	3.44%	0.02%	BBB-	\$		1,612,250,000	128.98%	0.00023711	0.00144841	3.49
TWC	Senior unsec		5.875	2040	137.74	1,250,000,000	4.47%	3.45%	0.02%	BBB-	\$		1,632,000,000	137.74%	0.00020204	0.00179752	3.49
TWC	Senior unsec		6.750	2039	142.44	1,500,000,000	4.74%	3.47%	0.03%	BBB-	\$		2,136,000,000	142.44%	0.00020346	0.002237509	3.59
TWC	Senior unsec		7.300	2038	148.87	1,500,000,000	4.89%	3.39%	0.03%	BBB-	\$		2,233,300,000	148.87%	0.00027632	0.00218121	3.53
Charter Communications	SSN		5.375	2038	125.55	800,000,000	4.24%	3.34%	0.01%	BBB-	\$		1,004,400,000	125.55%	0.00014523	0.001146361	3.37
TWC	Senior unsec		6.650	2037	138.29	1,500,000,000	4.74%	3.34%	0.03%	BBB-	\$		2,074,350,000	138.29%	0.00027294	0.002154487	3.46
Charter Communications	note		6.384	2035	137.7	2,000,000,000	4.64%	2.86%	0.03%	BBB-	\$		2,754,000,000	137.70%	0.00032114	0.002636600	3.1
15 Book Val	1500	sum	1.964	sum	23,282,913.000	Percent of book	130.91%	0.45%	0.01%	\$	30,606,545.678	131.45%	5.82%	1,350,532.688	3.57%		
Comcast Corp NEW	sr note		4.950	2058	151.42	2,500,000,000	3.37%	2.71%	0.04%	A-	\$		3,786,500,000	151.42%	0.000389028	0.001863263	2.74
Comcast Corp NEW	sr note		4.049	2052	128.19	1,499,870,000	3.16%	2.68%	0.02%	A-	\$		1,922,690,890	128.19%	0.000219018	0.001098822	2.71
Comcast Corp NEW	sr note		3.999	2049	126.68	1,999,999,000	3.18%	2.62%	0.02%	A-	\$		2,533,938,733	126.68%	0.000206631	0.001421280	2.65
Comcast Corp NEW	sr note		4.700	2048	139.84	4,000,000,000	3.36%	2.60%	0.06%	A-	\$		5,597,600,000	139.84%	0.000616121	0.002810210	2.64
Comcast Corp NEW	sr note		4.000	2048	125.66	1,000,000,000	3.17%	2.63%	0.01%	A-	\$		1,268,600,000	125.66%	0.000148223	0.000712870	2.64
Comcast Corp	gd fixed rate		4.000	2047	126.00	850,000,000	3.17%	2.59%	0.01%	A-	\$		1,071,000,000	126.00%	0.000118953	0.000566777	2.62
Comcast Corp NEW	gd fixed																

Company	Issue	Call	Coupon	Maturity	Price 12/20	Issued / Book	Current Yield	Yield to Maturity	Weighted Ave Rating	Mkt Val	Mkt : Book	Embedded Rt	Debt Service	WYTM	WYMT	YTM
Comcast Corp	notes	2100	7.050	2033	152.78	\$ 750,000,000	4.61%	1.90%	0.01% A-	\$ 1,146,800,000	152.78%	\$ 52,876,000	0.00079984	0.000386420	2.12	
Comcast Corp	cdt notes	2100	4.250	2033	126.56	\$ 1,700,000,000	3.38%	1.77%	0.02% A-	\$ 72,250,000	126.56%	\$ 72,250,000	0.00018871	0.00018623	1.87	
Verizon Communications	fx rate rt	6.400	2033	144.4	\$ 6,000,000	\$ 6,000,000	4.43%	2.03%	0.07% BBB+	\$ 864,000,000	144.40%	\$ 384,000,000	0.00062419	0.00170282	2.34	
Verizon Communications	fx r notes	4.500	2033	106.44	\$ 3,000,000	\$ 3,000,000	3.56%	1.94%	0.02% BBB+	\$ 135,000,000	106.44%	\$ 135,000,000	0.00035167	0.00035162	2.1	
Bell South Telecommunications	deb	2100	6.550	2034	136.11	\$ 700,000,000	4.81%	3.04%	0.01% BBB	\$ 952,770,000	136.11%	\$ 48,850,000	0.00011893	0.00046661	3.22	
Bell South Telecommunications	cdt fx r notes	4.200	2034	125.25	\$ 1,000,000,000	\$ 1,000,000,000	3.35%	1.91%	0.01% A-	\$ 1,252,500,000	125.25%	\$ 42,000,000	0.00010693	0.000471154	2.00	
Verizon Communications	fx r notes	5.050	2034	127.75	\$ 1,250,000,000	\$ 1,250,000,000	3.95%	2.45%	0.02% BBB+	\$ 1,598,875,000	127.75%	\$ 63,126,000	0.00017197	0.00042701	2.52	
Verizon Communications	FR Global Notes	4.400	2034	124.6	\$ 2,000,000,000	\$ 2,000,000,000	3.73%	2.14%	0.03% BBB+	\$ 2,115,000,000	124.60%	\$ 110,000,000	0.00029041	0.000745809	2.25	
AT&T Inc	Fixed Rate	4.500	2035	120.63	\$ 2,500,000,000	\$ 2,500,000,000	3.70%	2.86%	0.04% BBB	\$ 3,018,750,000	120.63%	\$ 112,500,000	0.00037416	0.001460704	2.7	
Charter Communications	notes	6.384	2035	117.7	\$ 2,000,000,000	\$ 2,000,000,000	4.64%	2.96%	0.02% BBB+	\$ 2,748,600,000	117.70%	\$ 127,680,000	0.00031103	0.00253960	3.1	
Comcast Corp	notes	2100	6.550	2035	143.59	\$ 750,000,000	3.93%	1.95%	0.01% A-	\$ 1,078,925,000	143.59%	\$ 42,375,000	0.00009170	0.000396361	2.13	
Comcast Corp	notes	2100	6.500	2035	156.34	\$ 1,000,000,000	4.18%	2.16%	0.01% BBB	\$ 1,553,400,000	156.34%	\$ 65,000,000	0.00012917	0.00043664	2.14	
Comcast Corp	cdt fixed rate	4.400	2035	126.82	\$ 800,000,000	\$ 800,000,000	3.47%	2.10%	0.01% A-	\$ 1,054,500,000	126.82%	\$ 35,200,000	0.00039965	0.00045438	2.18	
Verizon Global Funding	Notes	2100	6.000	2035	142.74	\$ 1,000,000,000	4.10%	2.16%	0.01% BBB	\$ 1,427,400,000	142.74%	\$ 65,500,000	0.00012202	0.000303202	2.98	
Comcast Corp	cdt fixed rate	3.200	2036	113.66	\$ 1,000,000,000	\$ 1,000,000,000	2.82%	2.10%	0.01% A-	\$ 1,136,600,000	113.66%	\$ 32,000,000	0.00017431	0.000697924	2.13	
Verizon Communications	fx r notes	4.272	2036	124.08	\$ 2,875,000,000	\$ 2,875,000,000	3.44%	2.30%	0.04% BBB+	\$ 3,557,373,600	124.08%	\$ 124,476,240	0.000389179	0.000520906	2.36	
Verizon Communications	FR Global Notes	5.250	2037	130.23	\$ 3,000,000,000	\$ 3,000,000,000	4.02%	2.82%	0.02% BBB	\$ 3,626,000,000	130.23%	\$ 157,500,000	0.00047321	0.00066475	2.85	
AT&T Inc	Global Notes	2100	6.500	2037	135.57	\$ 2,000,000,000	4.79%	3.49%	0.04% BBB	\$ 2,711,400,000	135.57%	\$ 130,000,000	0.00030748	0.00152607	3.64	
TWC	Senior unsec	6.550	2037	138.28	\$ 1,500,000,000	\$ 1,500,000,000	4.74%	3.34%	0.02% BBB	\$ 2,074,300,000	138.28%	\$ 98,250,000	0.000215487	0.002154487	3.66	
Comcast Corp	notes	2100	6.550	2037	160.44	\$ 2,000,000,000	4.33%	2.29%	0.03% A-	\$ 3,208,000,000	160.44%	\$ 139,000,000	0.00025057	0.001233516	2.49	
Comcast Corp	notes	2100	6.450	2037	153.49	\$ 2,250,000,000	4.20%	2.31%	0.02% A-	\$ 3,181,825,000	153.49%	\$ 153,490,000	0.00021091	0.000780325	2.44	
Verizon Communications	Notes	2100	6.250	2037	140.78	\$ 750,000,000	4.44%	2.94%	0.01% BBB+	\$ 1,058,850,000	140.78%	\$ 48,875,000	0.00012319	0.00030792	3.05	
Verizon Communications	fx r notes	5.500	2037	136.82	\$ 3,000,000,000	\$ 3,000,000,000	3.85%	2.49%	0.04% BBB+	\$ 4,038,600,000	136.82%	\$ 197,300,000	0.00040168	0.00055546	2.92	
Verizon Communications	AT&T Inc	Global Notes	6.300	2038	140.05	\$ 2,000,000,000	4.88%	3.15%	0.04% BBB+	\$ 2,801,000,000	140.05%	\$ 126,000,000	0.00032720	0.00138342	3.23	
AT&T Inc	Global Notes	2100	6.400	2038	138.35	\$ 1,250,000,000	4.60%	3.34%	0.02% BBB	\$ 1,728,375,000	138.35%	\$ 80,000,000	0.00023877	0.00091858	3.45	
Comcast Corp NEW	Senior unsec	6.300	2038	148.87	\$ 1,500,000,000	\$ 1,500,000,000	4.90%	3.39%	0.02% BBB	\$ 2,233,500,000	148.87%	\$ 109,500,000	0.00022441	0.00218111	3.53	
Charter Communications	SSN	5.375	2038	125.55	\$ 800,000,000	\$ 800,000,000	4.28%	3.34%	0.01% BBB+	\$ 1,004,400,000	125.55%	\$ 40,000,000	0.00014842	0.001146361	3.37	
Comcast Corp NEW	notes	6.400	2038	153.49	\$ 1,000,000,000	\$ 1,000,000,000	3.19%	2.26%	0.04% A-	\$ 1,488,600,000	153.49%	\$ 84,800,000	0.00011179	0.00074038	2.98	
Comcast Corp NEW	notes	6.400	2038	156.03	\$ 1,000,000,000	\$ 1,000,000,000	4.10%	2.29%	0.01% A-	\$ 1,560,300,000	156.03%	\$ 64,000,000	0.00012952	0.000618807	2.43	
Verizon Communications	Notes	6.400	2038	139.86	\$ 1,750,000,000	\$ 1,750,000,000	4.98%	3.24%	0.03% BBB+	\$ 2,447,550,000	139.86%	\$ 112,000,000	0.00031764	0.000879243	3.33	
Verizon Communications	Notes	6.900	2038	146.81	\$ 1,250,000,000	\$ 1,250,000,000	4.73%	3.26%	0.02% BBB+	\$ 1,822,625,000	146.81%	\$ 89,250,000	0.00022475	0.00069964	3.4	
AT&T Inc	Global Notes	6.150	2039	131.25	\$ 2,500,000,000	\$ 2,500,000,000	4.61%	3.19%	0.04% BBB+	\$ 3,154,775,000	131.25%	\$ 110,000,000	0.00014815	0.001158	3.42	
TWC	Senior unsec	7.450	2039	142.44	\$ 1,500,000,000	\$ 1,500,000,000	4.74%	3.47%	0.03% BBB+	\$ 2,156,600,000	142.44%	\$ 101,250,000	0.00029164	0.00227599	3.59	
Comcast Corp NEW	Notes	6.550	2039	155.85	\$ 800,000,000	\$ 800,000,000	5.09%	3.49%	0.01% A-	\$ 1,240,400,000	155.85%	\$ 62,400,000	0.00014815	0.00063463	3.4	
Verizon Communications	Notes	7.350	2039	143.8	\$ 1,000,000,000	\$ 1,000,000,000	5.11%	3.86%	0.02% BBB+	\$ 1,438,000,000	143.80%	\$ 73,500,000	0.00029140	0.00039098	3.26	
Verizon Communications	Notes	6.950	2039	151.22	\$ 1,000,000,000	\$ 1,000,000,000	5.22%	3.92%	0.02% BBB+	\$ 1,571,975,000	151.22%	\$ 77,000,000	0.00012952	0.00044816	3.11	
AT&T Inc	FR Global Notes	6.000	2040	140.07	\$ 1,234,000,000	\$ 1,234,000,000	4.284%	3.12%	0.02% BBB+	\$ 1,726,483,800	140.07%	\$ 74,040,000	0.000215340	0.000648616	3.21	
TWC	Senior unsec	5.875	2040	132.74	\$ 1,000,000,000	\$ 1,000,000,000	4.4%	3.45%	0.02% BBB	\$ 1,452,000,000	132.74%	\$ 70,000,000	0.00023165	0.00179776	3.53	
Comcast Corp	notes	6.400	2040	156.43	\$ 1,000,000,000	\$ 1,000,000,000	4.09%	2.54%	0.01% A-	\$ 1,564,300,000	156.43%	\$ 64,000,000	0.00014265	0.00068752	2.64	
AT&T Inc	FR SN	6.375	2041	146.49	\$ 984,000,000	\$ 984,000,000	4.326%	3.20%	0.02% BBB+	\$ 1,431,621,600	146.49%	\$ 67,370,000	0.00017413	0.00069195	3.28	
AT&T Inc	Global Notes	5.950	2041	131.25	\$ 2,000,000,000	\$ 2,000,000,000	4.22%	3.34%	0.04% BBB	\$ 2,511,000,000	131.25%	\$ 110,000,000	0.00037430	0.00146801	3.42	
TWC	Senior unsec	5.900	2041	128.98	\$ 1,250,000,000	\$ 1,250,000,000	4.26%	3.44%	0.02% BBB+	\$ 1,612,250,000	128.98%	\$ 69,750,000	0.00025046	0.00144441	3.49	
Verizon Communications	Fixed rate notes	6.000	2041	144.1	\$ 1,000,000,000	\$ 1,000,000,000	3.93%	2.89%	0.02% BBB+	\$ 1,441,000,000	144.10%	\$ 60,000,000	0.00016708	0.000416702	3.05	
Verizon Communications	Fixed Rate	4.750	2041	132.65	\$ 750,000,000	\$ 750,000,000	3.60%	2.60%	0.01% BBB+	\$ 997,300,000	132.65%	\$ 36,625,000	0.00011036	0.000676200	2.72	
AT&T Inc	Fixed Rate PI	4.300	2042	115.7	\$ 1,954,000,000	\$ 1,954,000,000	3.717%	3.24%	0.04% BBB	\$ 2,281,933,000	115.70%	\$ 84,066,000	0.00035499	0.00139082	3.27	
TWC	Senior unsec	4.500	2042	117.66	\$ 1,250,000,000	\$ 1,250,000,000	3.84%	3.34%	0.02% BBB	\$ 1,463,250,000	117.66%	\$ 66,250,000	0.00023266	0.00179182	3.37	
Comcast Corp	Fixed rate	4.650	2042	134.28	\$ 1,250,000,000	\$ 1,250,000,000	3.46%	2.49%	0.02% A-	\$ 1,678,500,000	134.28%	\$ 68,125,000	0.000174510	0.000643973	2.57	
Verizon Communications	Notes	3.850	2042	119	\$ 1,250,000,000	\$ 1,250,000,000	3.24%	2.64%	0.02% BBB+	\$ 1,487,500,000	119.00%	\$ 48,125,000	0.000184615	0.000460467	2.67	
Comcast Corp	cdt notes	4.000	2043	131.84	\$ 500,000,000	\$ 500,000,000	3.81%	2.95%	0.01% A-	\$ 782,500,000	131.84%	\$ 125,000,000	0.000271419	0.00046288	2.84	
Verizon Communications	fx r notes	6.550	2043	166.39	\$ 15,000,000,000	\$ 15,000,000,000	3.94%	2.51%	0.21% BBB+	\$ 24,985,500,000	166.39%	\$ 982,500,000	0.00011707	0.000526727	2.64	
AT&T Inc	Fixed Rate	4.800	2044	124.41	\$ 2,000,000,000	\$ 2,000,000,000	3.868%	3.29%	0.04% BBB	\$ 2,488,200,000	124.41%	\$ 94,000,000	0.00034269	0.001429669	3.28	
Comcast Corp	cdt fx r notes	4.750	2044	136.61	\$ 1,000,000,000	\$ 1,000,000,000	3.48%	2.58%	0.01% A-	\$ 1,386,100,000	136.61%	\$ 47,500,000	0.00014866	0.00099592	2.63	
AT&T Inc	notes	4.350	2045	116.97	\$ 3,044,000,000	\$ 3,044,000,000	3.738%	3.33%	0.06% BBB	\$ 3,542,302,300	116.97%	\$ 132,414,000	0.00058189	0.002295570	3.36	
Bell South Telecommunications	deb	NC	5.850	2045	125.74	\$ 300,000,000	4.65%	4.12%	0.01% BBB	\$ 377,220,000	125.74%	\$ 17,550,000	0.00008196	0.000271363	1.83	
Charter Communications	SSN	6.684	2045	142.44	\$ 3,498,875,000	\$ 3,498,875,000	4.25%	3.74%	0.07% BBB	\$ 4,966,221,950	142.44%	\$ 228,931,895	0.00072290	0.005819728	3.79	
Comcast Corp	cdt fixed rate	4.800	2045	134.68	\$ 1,750,000,000	\$ 1,750,000,000	3.81%	2.65%	0.02% A							

DATA INPUT
 WASHINGTON STATE DEPARTMENT OF REVENUE
 2021 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	Wtd Avg YTM	Payout Ratio	Payout Ratio	ROE	Timeliness	Safety	Technical	Income Tax Rate	Return on Total Capital	CF growth
Name	Ticker	(YE Adj) Close	Per Share	Per Share	Per Share	Per Share	per share	Stock	Shares	mk to bk		calculated	V L	V L	VL	VL	VL	VL	VL	VL
AT&T Inc	t	28.260	24.10	7.21	3.18	2.08	2.20	25.15	7,126,000,000	129.13%	3.301%	65%	65%	12.7%	3	1	4	19.0%	8.00%	2.0%
ATN International Inc	atni	41.760	28.64	6.15	0.57	0.68	4.75	40.61	15,898,477	100.69%		119%	nmf	1.5%	4	3	4	3.5%	1.50%	6.0%
BCE Inc	bce	42.800	18.94	6.05	2.28	2.45	3.25	17.68	904,300,000	118.71%		107%	107%	12.5%	3	2	3	25.5%	6.00%	4.0%
Charter	chtr	661.550	248.27	66.72	15.40	nil	38.27	122.88	193,730,993	131.45%	3.572%		nil	13.5%	2	3	1	14.6%	4.90%	10.5%
Lumen Technologies Inc	lumn	9.750	18.95	5.95	1.67	1.00	3.40	10.20	1,092,000,000	122.66%	5.657%	60%	60%	16.1%	5	3	5	24.5%	4.00%	2.5%
Cincinnati Bell Inc	cbi	15.980	30.78	5.43	(0.36)	nil	4.41	(3.77)	50,680,605	101.01%		nmf	nmf		4			nmf	nmf	7.5%
Comcast Corp	comca	52.161	22.61	5.09	2.61	0.90	2.33	19.72	4,580,656,172	136.69%	2.403%	34%	34%	13.3%	1	1	3	20.8%	7.20%	7.5%
Altice USA, Inc	atus	37.870	20.77	5.29	0.75	nil	2.25	(2.39)	476,469,575	104.36%	3.946%		nil	nmf	3	3	1	24.0%	4.50%	12.0%
Telus Corp	tu	19.800	9.40	2.56	0.74	0.91	1.72	7.33	1,291,000,000	129.19%	2.901%	123%	77%	10.0%	3	2	1	26.4%	5.10%	10.5%
Verizon Communications	vz	58.128	31.00	9.00	4.90	2.47	4.40	15.25	4,138,148,588	140.01%	2.667%	50%	56%	37.0%	3	1	3	23.4%	11.50%	1.0%
Value Line March 12, 2021	Yahoo	Value Line	Value Line	Value Line	Value Line	Value Line	Value Line	Value Line	Value Line	Bond analysis	Bond analysis	calculated	Value Line	Value Line	3	2	3	20%	3.86%	6.33%
										121.39%									5.10%	6.75%
										134.74%		80%	67%	14.6%					5.67%	6.31%
										134.74%		65.4%	62.5%	13.0%					4.38%	5.50%
										127.64%		65.7%	59.0%	6.9%					0.028	6.50%
																			0.483	6.5%

2021 Forecast						Forecast Dividends % Change						Forecast Earnings % Change						Forecast Cash Flow % Change							
Revenues	CF	Earnings	Dividends	Common	P/E	2021	2022	2023	2024	2025	2026	2021	2022	2023	2024	2025	2026	2021	2022	2023	2024	2025	2026		
VL	VL	VL	VL	Shares	calc	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	
24.35	7.25	3.20	2.08	7,125,000,000	8.83	4.5	4	4.5	4.5	4.5	4.5	6.5	5.5	7	5.5	5.5	5.5	4.5	4.5	2.5	4.5	3.5	3.5	3.5	3.5
31.55	6.30	0.65	0.68	16,000,000	64.25	6.5	5.5	-6	-4	-4	-4	12	10.5	14	16	29	29	10	8	9.5	4.5	7	6.5	6.5	6.5
18.60	6.50	2.50	2.64	905,000,000	17.12	1	4	4.5	4.5	2	4	3	4	5	4.5	3	3	1	3.5	5.5	5	4	4	4	4
272.20	73.35	20.50	nil	187,000,000	32.27									26	19.5	17.5	34	36.5	15	10	4.5	9.5	9.5	10	10
18.25	6.05	1.60	1.00	1,095,000,000	6.09	-1.5	-8.5	-9.5	-12	-9	-9	14	6.5	2.5	1	2.5	2.5	3.5	0.5	-0.5	0.5	2.5	2.5	2.5	2.5
30.60	5.10	(0.70)	nil	51,000,000	rnf	0	0	0	0	0	0	-1	-10.5	-23	-1.5	3	5	5	-2.5	-3	4	8	8.5	8	8.5
24.50	5.35	2.80	0.98	4,550,000,000	18.63	10	8	12	11	8.5	8.5	8	11	12.5	13.5	8.5	8	8	8.5	9.5	9.5	6	6	6	6
22.40	6.50	1.60	nil	455,000,000	23.67																				9
9.36	2.71	0.83	0.93	1,295,000,000	23.94	9	8	7	7	7	7	9	9	8.5	7.5	9	9	7	7	7.5	7	9	8	8	8
32.15	9.05	5.10	2.52	4,140,000,000	11.40	2	2	2	2	2	2	3	2	4.5	4	4.5	4	-3	-4	-3.5	2	1.5	1.5	1.5	1.5
					avg	22.91																			
					med	18.63																			
					trimmed	19.41																			
					max	64.25																			
					min	6.99																			
					std	17.55																			

Forecast Revenue % Change						Income		Balance Sheet						Cash Flow		Fair Value
2021	2022	2023	2024	2025	2026	Operating Income	EBITDA	Current Assets	PP & E Gross	Intang	Current Liabilities	Long Term Debt	curr long term debt	Depreciation & Amortization	Debt	
VL	VL	VL	VL	VL	VL	M*	M*	M*	M*	M*	M*	M*	M*	M*	10-K	
3.5	2	1	1	2.5	2.5	25,285,000,000	34,921,000,000	52,008,000,000	352,465,000,000	163,226,000,000	63,438,000,000	175,977,000,000	3,470,000,000	28,516,000,000	189,260,000,000	
10.5	7.5	7.5	3.5	5	4.5	32,393,000	120,704,000	240,065,000	1,316,015,000	119,996,000	147,928,000	69,073,000	3,750,000	88,311,000	73,300,000	
-1.5	1.5	2	2	0.5	1	4,080,784,314	7,534,901,961	4,461,176,471	62,116,078,431	10,276,078,431	6,487,058,824	16,098,039,216	-	3,454,117,647	19,110,588,235	
12	12.5	10	11	7.5	9.5	8,463,000,000	18,518,000,000	3,906,000,000	65,996,000,000	85,552,000,000	9,875,000,000	81,744,000,000	1,243,000,000	9,704,000,000	94,226,000,000	
2	-1	-3.5	-2.5	-0.5	-0.5	3,604,000,000	8,489,000,000	3,176,000,000	57,934,000,000	22,678,000,000	6,634,000,000	29,410,000,000	2,806,000,000	4,710,000,000	33,512,000,000	
2	2	5.5	2	2	2	117,900,000	421,200,000	459,100,000	4,961,000,000	199,600,000	546,100,000	1,983,500,000	21,800,000	293,400,000	2,025,500,000	
8.5	10	7.5	9	6.5	6	17,493,000,000	30,826,000,000	26,741,000,000	106,383,000,000	127,919,000,000	28,796,000,000	100,614,000,000	3,146,000,000	13,100,000,000	125,600,000,000	
6.5	5.5	5.5	7	4	9	2,206,362,000	4,414,814,000	976,566,000	12,479,181,000	20,258,445,000	3,098,103,000	25,734,053,000	1,245,713,000	2,083,365,000	28,226,444,000	
2	0.5	1.5	1.5	2	1.5	1,863,529,412	4,471,372,549	3,672,941,176	31,830,588,235	15,600,784,314	4,634,509,804	14,789,019,608	1,123,137,255	2,362,352,941	17,372,549,020	
2	0.5	1.5	1.5	2	1.5	28,798,000,000	47,060,000,000	54,594,000,000	302,268,000,000	123,574,000,000	39,660,000,000	123,173,000,000	5,889,000,000	16,720,000,000	158,036,000,000	

997,748,862,667

81,031,546,588

667,442,381,255

AVERAGE FOURTH QUARTER STOCK PRICE

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

TELECOMMUNICATIONS

								12/31/2020
								Adj Close
ATT	T							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	28.45	28.8	28.39	28.76	28.26	38596700		28.26
Lumen	LUMN							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	9.71	9.76	9.66	9.75	9.75	9926200		9.75
Cincinnati Bell	CBB							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	15.24	15.34	15.24	15.28	15.28	388100		15.28
Comcast	CMCSA							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	51.36	52.48	51.24	52.4	52.1614	11651200		52.16
Verizon	VZ							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	58.06	58.8	58.02	58.75	58.12772	12900600		58.13
Telus	TU	split march 2020						
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	19.8	19.92	19.75	19.8	19.8	814600		19.80
BCE	BCE							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	42.74	42.98	42.7	42.8	42.8	732600		42.80
Altice USA, Inc	ATUS							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	37.69	37.96	37.42	37.87	37.87	6317100		37.87
ATN Internatic	ATNI							
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	41.83	42.14	40.99	41.76	41.76	25400		41.76
CHTR								
Date	Open	High	Low	Close	Adj Close	Volume		
12/31/2020	653.44	664.78	652.86	661.55	661.55	699500		661.55

Source:
 finance.yahoo.com
 Historical Stock Quotes
 02/09/2021

IMPLIED PREMIUMS FOR US MARKET

Updated January 5, 2021

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

Year	Earnings Yield	Dividend Yield	S&P 500	Earnings*	Dividends*	ends + Buybacks	Change in Earnings	Change in Dividends	T.Bill Rate	T.Bond Rate	Bond-Bill	Boothed Growth	Premium	Implied Growth	Implied Premium	Implied 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%	3.44%	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%	102.46	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		-14.77%	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	3.68%	1.51%	3756.07	138.12	56.70	127.78	-14.92%	-3.57%	0.09%	0.93%	0.84%	0.74%	1.65%	5.42%	4.72%		

<http://pages.stern.nyu.edu/~adamodar/>