



COST OF CAPITAL STUDY

**YIELD CAPITALIZATION
2023 ASSESSMENT YEAR**

APPENDIX C

WIRELESS

EQUITY RATE						10.25%	
CAPITAL ASSET PRICING MODEL							PAGE
	CAPM Ex Ante		8.36%				6
DIVIDEND GROWTH MODELS (Single Stage)							
	Value Line, based on Dividends Growth		9.75%				7
	Value Line, based on Earnings Growth		11.50%				8
	Value Line, based on Return on Equity		14.00%				9
FCFE GROWTH MODEL (Multi Stage)							10
						RANGE	8.3575% - 14%
DEBT RATE						5.30%	11
SECURED DEBT (LEASE) RATE						4.75%	11
MARKET CAPITAL STRUCTURE							
	Equity	55%	x	10.25%	=	5.64%	3
	Debt	45%	x	5.30%	=	2.39%	3
	Marginal Tax Rate	24%	=	(1-.24)	x	2.39%	3
WEIGHTED AVERAGE COST OF CAPITAL						7.5%	

rounded

SUPPORT FOR GUIDELINE COMPANIES

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

Capital Structure at Book Value

Company	Ticker	Beta	Fin'l Strength	Operting Margin	Trailing P/E	Div'd Yield	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
AT&T Inc	T	0.80	B++	16.4%	7.2	6.12%	92,331,816,500	9.0%	-	0.0%	128,423,000,000	58.2%	220,754,816,500
Verizon	VZ	0.60	A++	15.9%	7.5	6.81%	92,481,401,640	39.7%	-	0.0%	140,676,000,000	60.3%	233,157,401,640
US Cellular	USM	0.70	B+	18.9%	-	0.00%	4,537,422,300	58.7%	-	0.0%	3,187,000,000	41.3%	7,724,422,300
T-Mobile	TMUS	0.80	A	33.6%	23.3	0.00%	68,834,170,350	48.8%	-	0.0%	72,100,000,000	51.2%	140,934,170,350
Mean		0.73	B+	21%	9.5	3.23%	64,546,202,698	39.1%		0.0%	86,096,500,000	52.7%	
Weighted Mean							258,184,810,790	42.8%	-	0.00%	344,386,000,000	57.2%	602,570,810,790
Median		0.75			7.4	3.06%		44.3%		0.0%		54.7%	
Std Dev		0.10				3.74%		21.5%		0.0%		8.6%	
Coeff Var		0.13				115.80%		55.0%		0.0%		16.3%	
Max		0.80				6.81%		58.7%		0.0%		60.3%	
Min		0.60				0.00%		9.0%		0.0%		41.3%	
Harmonic Mean		0.71						23.01%				51.58%	

Say **0.75**

**SUPPORT FOR CAPITAL STRUCTURE
MARKET VALUE**

WASHINGTON STATE DEPARTMENT OF REVENUE
2023 ASSESSMENT YEAR
WIRELESS

Capital Structure at Market Value

Company	Ticker	Stock Price	Common Shares	Common Stock	%	Preferred Stock	%	Debt	%	Total Debt & Equity
AT&T Inc	T	18.15	7,129,870,000	129,407,140,500	50.7%	-	0.0%	126,082,000,000	49.3%	255,489,140,500
Verizon	VZ	38.79	4,199,882,000	162,913,422,780	54.0%	-	0.0%	139,041,000,000	46.0%	301,954,422,780
US Cellular	USM	20.85	84,685,000	1,765,682,250	41.4%	-	0.0%	2,502,000,000	58.6%	4,267,682,250
T-Mobile	TMUS	140.00	1,219,383,000	170,713,620,000	72.7%	-	0.0%	64,199,000,000	27.3%	234,912,620,000
			Mean		54.7%		0.0%		45.3%	
			Weighted Mean	464,799,865,530	58.3%	-	0.00%	331,824,000,000	41.7%	796,623,865,530
			Median		52.3%		0.0%		47.7%	
			Harmonic Mean		52.5%		0.0%		41.8%	
			Std Dev		13.1%		0.0%		13.1%	
			Coeff Var		24.0%		0.0%		29.0%	
			Max		72.7%		0.0%		58.6%	
			Min		41.4%		0.0%		27.3%	

Source:

Stock Price: Yahoo

Market Value Debt: Bond Analysis

Say

55%

0%

45%

SUPPORT FOR MARKET MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

Company	Ticker	Stock Price	Revenues	Multiple	Cash Flow	Multiple	Earnings	Multiple	Book Value	Multiple
AT&T Inc	T	18.15	16.94	1.1	5.28	3.4	2.64	6.9	12.95	1.4
Verizon	VZ	38.79	32.58	1.2	9.15	4.2	5.18	7.5	22.02	1.8
US Cellular	USM	20.85	49.05	0.43	8.59	2.4	0.35	59.6	53.58	0.4
T-Mobile	TMUS	140.00	64.48	2.2	17.36	8.1	6.19	22.6	56.45	2.48
		Mean		1.2		4.5		24.1		1.5
		Median		1.1		3.8		15.1		1.6
		Harmonic Mean		0.9		3.8		11.8		0.9
		Max		2.2		8.1		59.6		2.5
		Min		0.43		2.43		6.88		0.39
		Std Dev		0.7		2.5		24.7		0.9
		Coefficient of Variation		0.6		0.5		1.0		0.6
		Harmonic Mean		0.9		3.8		11.8		0.9
		Percentile .25		0.9		3.2		7.3		1.1
		Percentile .75		1.4		5.2		31.9		1.9
		Say		1.00		3.75		11.75		1.00

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT

CAPITAL ASSET PRICING MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
 2023 ASSESSMENT YEAR
 WIRELESS

Ex Ante
 $Ke = Rf + B (Rp)$

Ke = Cost of Equity **8.36%**

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Rm =	rate of return	9.82%	
Rf =	risk free rate	3.97%	
Rp =	risk premium	5.85%	
B =	Beta	0.75	

Rp = Risk Premium **5.85%**

to above

Shannon Pratt and Roger Grabowski	3.5 - 6%	
Cost of Capital, Applications and Examples, Fifth Edition, 2014		
Dr. Aswath Damodaran	5.94%	chart page 15
http://pages.stern.nyu.edu/~adamodar/	5.85%	adjusted for Rf
2021 Implied Premium		

Rf = Risk Free Rate **3.97%**

Value Line Investment Survey, Selected Yields January 7, 2022, page 2089
 as of 12-27-21

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 12-31-21

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

Inflation **2.30%**

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The Livingston Survey December 16, 2022, page 4, 8	
Inflation median (measured by the Consumer Price Index) over next 10 ye	2.50%

Gross Domestic Product (GDP) **4.10%**

Federal Reserve Projected Long Run Real GDP Growth	
Median Projection Value From Dec 14, 2022 Report	1.80%
https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20221214.pdf	

Congressional Budget Office Real GDP Economic Projections	
The Budget and Economic Outlook 2023-2033	
Average Percentage Change Year To Year	2023-2027 1.80%
https://www.cbo.gov/system/files/2023-02/58848-Outlook.pdf	
	2028-2033 1.80%

Federal Reserve Bank of Philadelphia	
The Livingston Survey, December 16, 2022, page 4, 8	
Average Annual Real GDP Growth Rate for Next 10 Years	1.97%
https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey	

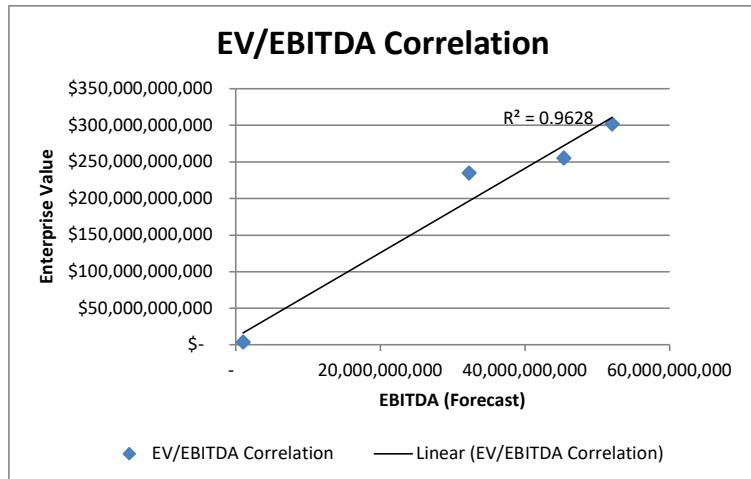
ENTERPRISE VALUE MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

Guideline Companies	Ticker	Enterprise Value	EBITDA	EV / EBITDA	One Year Cash Flow Rate Change VL	EBITDA	EV / EBITDA	Revenue	EV/Sales	Cash Flow	Debt Service	EV / CF
AT&T Inc	T	\$ 255,489,140,500	40,932,000,000	6.24	10.8%	45,350,795,455	5.63	126,360,000,000	2.02	42,120,000,000	6,682,346,000	5.24
Verizon	VZ	\$ 301,954,422,780	52,911,000,000	5.71	-1.6%	52,043,606,557	5.80	139,646,076,500	2.16	37,350,000,000	7,369,173,000	6.75
US Cellular	USM	\$ 3,739,682,250	989,000,000	3.78	3.6%	1,024,691,502	3.65	4,166,502,000	0.90	756,500,000	132,606,000	4.21
T-Mobile	TMUS	\$ 234,912,620,000	29,557,000,000	7.95	9.2%	32,264,121,544	7.28	82,308,352,500	2.85	23,213,750,000	3,402,547,000	8.83
	Mean						5.59		1.98			6.25
	Median						5.72		2.09			5.99
	Max						7.28		2.85			8.83
	Min						3.65		0.90			4.21
	Std Dev						1.49		0.81			2.01
	Coefficient of Variation						0.27		0.41			0.32
	Harmonic Mean						5.25		1.65			5.80
	Say						5.75		2.00			6.25



4.75 put in income direct excluding IPP
 6.50 put in income direct including IPP

Forecast EV/EBITDA By Rank

Guideline Companies	EV/EBITDA forecast	
US Cellular	3.65	4.64 Average
AT&T Inc	5.63	4.64 Median
Verizon	5.80	4.75 Say
T-Mobile	7.28	6.54 Average
		6.54 Median
		6.50 Say

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

WASHINGTON STATE DEPARTMENT OF REVENUE
2023 ASSESSMENT YEAR
WIRELESS

Based on Dividend Growth

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

Ke = Cost of Equity
D1 = Expected Dividends
P0 = Current Stock Price
GD = Sustainable Growth -- Dividend
assumption Sustainable growth can not exceed inflation plus real GDP

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Dividend Growth (GD) VL	Ke	Forecast Dividend Growth	Ke Forecast Growth	Sustainable Dividend Growth	Ke Sustainable Growth
AT&T Inc	T	18.15	1.11	6.12%	-4.50%				4.10%	10.22%
Verizon	VZ	38.79	2.64	6.81%	2.50%	9.31%	2.66%	9.47%	2.66%	9.47%
US Cellular	USM	20.85	0.00		0.00%				4.10%	
T-Mobile	TMUS	140.00	0.00		0.00%				4.10%	
			Mean	6.46%		9.31%				9.84%
			Median	6.46%		9.31%				9.84%
			Harmonic Mean	6.44%		9.31%				9.83%
			Std Dev	0.49%						0.53%
			Coeff Var	7.55%		0.00%				5.38%
			Max	6.81%		9.31%				10.22%
			Min	6.12%		9.31%				9.47%

9.25%

9.75%

Say

9.75%
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**SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT
DIVIDEND GROWTH MODEL**

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

Based on Earnings Growth

9.0%

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

- Ke = Cost of Equity
- D1 = Expected Dividends
- P0 = Current Stock Price
- G = Sustainable Growth -- Earnings

assumption: Sustainable growth can not exceed inflation plus real GDP

Company	Ticker	Stock Price (Po)	Expected Earnings (D1)	Yield (D1/Po)	Earnings Growth (G) VL	Ke	Forecast Earnings Growth	Ke Forecast Growth	Sustainable Earnings Growth	Ke Sustainable Growth
AT&T Inc	T	18.15	2.40	13.22%	1.00%	14.22%	1.03%	14.25%	1.03%	14.25%
Verizon	VZ	38.79	4.80	12.37%	2.50%	14.87%	2.66%	15.04%	2.66%	15.04%
US Cellular	USM	20.85	0.65	3.12%	0.50%				4.10%	7.22%
T-Mobile	TMUS	140.00	7.50	5.36%	16.00%	21.36%	23.94%	29.30%	4.10%	9.46%
			Mean			16.82%				11.49%
			Median			14.87%				11.85%
			Harmonic Mean			16.27%				10.50%
			Std Dev			3.94%				3.77%
			Coeff Var			23.45%				32.79%
			Max			21.36%				15.04%
			Min			14.22%				7.22%

16.00%

11.50%

Say

11.50%

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SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

Based on Return on Equity

$K_e = (D1 / P_o) + G$

K_e = Cost of Equity
 $D1$ = Expected Dividends
 $E1$ = Expected Earnings
 P_o = Current Price
 G = Sustainable Growth
 b = Retained Earnings % (plowback)
 ROE = Return on Equity

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	b (1-payout ratio)	ROE	Growth (G) (b*ROE)	K_e Dividends	Expected Earnings (E1)	K_e Earnings
AT&T Inc	T	18.15	1.11	6.12%	60.0%	13.22%	7.934%	14.05%	2.40	21.16%
Verizon	VZ	38.79	2.64	6.81%	45.0%	12.37%	5.568%	12.37%	4.80	17.94%
US Cellular	USM	20.85	0.00		100.0%	3.12%	3.118%		0.65	6.24%
T-Mobile	TMUS	140.00	0.00		100.0%	5.36%	5.357%		7.50	10.71%
Mean								13.21%		14.01%
Median								13.21%		14.33%
Harmonic Mean								13.16%		11.21%
Std Dev								1.18%		6.78%
Coeff Var								8.97%		48.38%
Max								14.05%		21.16%
Min								12.37%		6.24%
								13.00%		14.00%

Say

14.00%

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SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT FREE CASH FLOW TO EQUITY MODEL

Washington State Department of Revenue
2023 ASSESSMENT YEAR

Based on Earnings Growth

$$K_e = (FCFE / P) + G$$

K_e = Cost of Equity
 $FCFE$ = Free Cash Flow to Equity
 P = Current Price
 G = Sustainable Growth

Company	Ticker	Stock Price	Expected Earnings	P/E	Payout Ratio	ROE	K_e
AT&T Inc	T	18.15	2.40	7.56	40.00%	13.00%	12.01%
Verizon	VZ	38.79	4.80	8.08	55.00%	35.00%	11.21%
US Cellular	USM	20.85	0.65	32.08	0.00%	1.00%	9.46%
T-Mobile	TMUS	140.00	7.50	18.67	0.00%	11.00%	4.82%
Mean				16.60	23.75%	15.00%	9.38%
Harmonic Mean				11.74		3.34%	8.24%
Median				13.37	20.00%	12.00%	10.33%
Max				32.08	55.00%	35.00%	12.01%
Min				7.56	0.00%	1.00%	4.82%
Std Dev				11.52	28.10%	14.33%	3.22%
Coefficient of Variation				0.69	118.31%	95.53%	34.33%
Say							10.00%

SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

Company	Ticker	Mergent's Ratings	S&P Ratings	WAYTM	S&P YTM (avg)	Mergent's Ratings	S&P Ratings	Mergent's	S&P	
AT&T Inc	T		BBB	5.28%	5.14%	11	11	Aaa1	AAA+	1
Verizon	VZ		BBB+	5.29%	4.98%	10	10	Aaa2	AAA	2
US Cellular	USM		BB	6.70%	7.57%	14	14	Aaa3	AAA-	3
T-Mobile	TMUS		BBB-	4.98%	4.89%	12	12	Aa1	AA+	4
Overall Average Debt Rating			BBB	5.56%	5.65%	11.8	11.8	Aa2	AA	5
					5.07%			Aa3	AA-	6
								A1	A+	7
								A2	A	8
								A3	A-	9
								Baa1	BBB+	10
								Baa2	BBB	11
								Baa3	BBB-	12
								Ba1	BB+	13
								Ba2	BB	14
								Ba3	BB-	15
								B1	B+	16
								B2	B	17
								B3	B-	18
								Caa1	CCC+	19
								Caa2	CCC	20

All issues 20+ year maturities

Guideline Companies, All Ratings	5.26%	5.30%
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bond analysis page 12

Mergent's Bond Record January 2023				
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%
4th Qtr Average	4.81%	5.13%	5.48%	5.97%
2022 Average	2.67%	2.82%	3.00%	3.33%
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%
4th Qtr Average		5.43%	5.64%	5.93%
2022 Average		2.97%	3.08%	3.31%
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%
4th Qtr Average	4.81%	4.84%	5.31%	6.01%
2022 Average	2.67%	2.66%	2.95%	3.37%
Debt Yield Rate				5.30%
Cost of Secured Debt (Operating Lease) Rate				4.75%

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DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

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

Guideline Companies			Current Year													
			Stock Price 12/31/2022	Beta levered	Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Per Share	Book Value	Common Shares	Long-Term Debt	Capital Spending per share	Trailing P/E Ratio	Average Annual Dividend Yield	Operating Margin	Income Tax Rate
Name	Ticker	Yahoo	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
AT&T Inc	T	\$18.15	0.80	\$ 16.94	\$ 5.28	\$ 2.64	\$ 1.35	\$ 12.95	7,129,870	\$128,423,000,000	\$ 2.75	7.20	6.70	16.4%	20.0%	20.3%
Verizon	VZ	\$38.79	0.60	\$ 32.58	\$ 9.15	\$ 5.18	\$ 2.56	\$ 22.02	4,199,882	\$140,676,000,000	\$ 5.00	7.50	5.50	15.9%	23.1%	37.0%
US Cellular	USM	\$20.85	0.70	\$ 49.05	\$ 8.59	\$ 0.35	\$ -	\$ 53.58	84,685	\$ 3,187,000,000	\$ 7.08	-	n/a	18.9%	51.4%	0.7%
T-Mobile	TMUS	\$140.00	0.80	\$ 64.48	\$ 17.36	\$ 6.19	\$ -	\$ 56.45	1,219,383	\$ 72,100,000,000	\$ 11.32	23.30	n/a	33.6%	19.6%	11.2%

Value Line 12-9-22

The harmonic mean is the preferable method for averaging multiples, such as the price/earning ratio, in which price is in the numerator. If these ratios are averaged using an arithmetic mean (a common error), high data points are given greater weights than low data points.

The harmonic mean, on the other hand, gives equal weight to each data point

17.3%

Note:

Value Line figures are all values in US dollars.

Forecast % Change

Projected (Next Year)											Dividends	Earnings	Cash Flow	Revenue	Income	Balance Sheet
Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Dividends	Bk Value	Common Shares	Capital Spending per share	% Return on Shareholders' Equity	% Retained to Common Equity	All Dividends to Net Profits	Market to Book	2023-2027	2023-2027	2023-2027	2023-2027	Operating Income	Current Assets
VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	M*	M*
\$ 17.55	\$ 5.85	\$ 2.40	\$ 1.11	20.95	7,200,000	3.35	13.0%	8.0%	40.0%	92.2%	-4.50	1.00	-0.50	-2.50	\$22,911,000,000	\$ 33,108,000,000
\$ 33.25	\$ 9.00	\$ 4.80	\$ 2.64	15.85	4,150,000	4.45	35.0%	35.0%	55.0%	93.4%	2.50	2.50	0.50	2.50	\$30,467,000,000	\$ 37,857,000,000
\$ 49.20	\$ 8.90	\$ 0.65	\$ -	54.10	85,000	7.50	1.0%	1.0%	0.0%	77.1%	0.00	0.50	1.00	2.00	\$ 90,000,000	\$ 1,723,000,000
\$ 67.50	\$18.95	\$ 7.50	\$ -	69.40	1,225,000	7.75	11.0%	11.0%	0.0%	89.2%	0.00	16.00	6.00	4.50	\$ 8,107,000,000	\$ 19,067,000,000

ave 15.0%
 med 12.0%
 har mean 3%

47.5%

6.75
 7.65 0.0318

				Cash Flow		Fair Value	Carrying Value	Current Maturity	ROE	All Div'ds to Net Prof	Cash Flow	EPS
PP & E Gross	Current Liabilities	Long Term Debt	Intangibles (excl. Goodwill)	Depreciation & Amortization	Share Repurchase	Debt	Debt	Operating Lease Expense	5 yr	5 yr	5 yr	5 yr
M*	M*	M*	M*	M*	M*	10-K	10-k	10-K	VL	VL	VL	VL
\$ 351,444,000,000	\$ 56,173,000,000	\$ 147,082,000,000	\$ 130,420,000,000	\$ 18,021,000,000	\$ 890,000,000	\$ 126,082,000,000	\$ 136,765,000,000	\$ 5,437,000,000	11.0%	41%	\$ 6.45	\$ 3.10
\$ 333,819,000,000	\$ 50,171,000,000	\$ 140,676,000,000	\$ 180,358,000,000	\$ 17,099,000,000	\$ -	\$ 139,041,000,000	\$ 148,906,000,000	\$ 5,345,000,000	40.0%	49%	\$ 9.25	\$ 5.85
\$ 10,252,000,000	\$ 1,195,000,000	\$ 3,187,000,000	\$ 4,690,000,000	\$ 700,000,000		\$ 2,502,000,000	\$ 3,244,000,000	\$ 199,000,000	3.5%		\$ 10.70	\$ 2.00
\$ 127,160,000,000	\$ 24,742,000,000	\$ 66,796,000,000	\$ 102,705,000,000	\$ 13,651,000,000	\$ 3,000,000,000	\$ 64,199,000,000	\$ 71,940,000,000	\$ 7,799,000,000	11.5%		\$ 23.00	\$ 10.45

16.5% 45.0%
8.2% 44.6%
11.3% 45.0%

SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

WASHINGTON STATE DEPARTMENT OF REVENUE

2023 ASSESSMENT YEAR

WIRELESS

Company	Ticker	Stock Price	2022		2023		2022		2023	
			Actual Earnings Ratio (EPS/P)		Projected Earnings Ratio (PEPS/P)		Cash Flow Ratio (CF/P)		Projected Cash Flow Ratio (PCF/P)	
AT&T Inc	T	18.15	2.64	14.55%	2.40	13.22%	5.28	29.09%	5.85	32.23%
Verizon	VZ	38.79	5.18	13.35%	4.80	12.37%	9.15	23.59%	9.00	23.20%
US Cellular	USM	20.85	0.35	1.68%	0.65	3.12%	8.59	41.20%	8.90	42.69%
T-Mobile	TMUS	140.00	6.19	4.42%	7.50	5.36%	17.36	12.40%	18.95	13.54%
		Mean		8.50%		8.52%		26.57%		27.91%
		Median		8.89%		8.87%		26.34%		27.72%
		Max		14.55%		13.22%		41.20%		42.69%
		Min		1.68%		3.12%		12.40%		13.54%
		stdev		6.41%		5.04%		11.97%		12.46%
		cov		75.42%		59.15%		45.06%		44.64%
		harmean		4.14%		6.03%		22.02%		23.33%

Say **8.75%** **8.75%** **26.25%** **27.75%**

Source:

Actual earnings: Value Line

Estimated Earnings: Value Line

Actual Cash Flow: Value Line

Estimated Cash Flow: Value Line

2023 Multi Stage Earnings Growth Model

Wireless Industry

4.10% GDP

7.4 Median Trailing Industry P/E

45.0% Average Target Dividend Payout Ratio (All dividends to net profit)

11.3% Average Target ROE

AT&T

Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
0		-80.81%	180.81%	2.64		stock price =	-18.15
1	-9.09%	64.81%	35.19%	2.40	0.84		0.84
2	7.29%	60.41%	39.59%	2.58	1.02		1.02
3	6.80%	56.57%	43.43%	2.75	1.19		1.19
4	6.36%	53.18%	46.82%	2.93	1.37		1.37
5	5.98%	49.83%	50.17%	3.10	1.56		1.56
6	5.61%	46.49%	53.51%	3.27	1.75		1.75
7	5.23%	43.14%	56.86%	3.45	1.96		1.96
8	4.85%	39.79%	60.21%	3.61	2.17		2.17
9	4.48%	36.44%	63.56%	3.77	2.40		2.40
10	4.10%	36.44%	63.56%	3.93	2.50	30.06	32.56
11+	4.10%	36.44%	63.56%	4.09	2.60		

Value Line Earnings Growth Rate

Ke = 12.01%

Verizon

Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
0		-65.21%	165.21%	5.18		stock price =	-38.79
1	-7.34%	48.61%	51.39%	4.80	2.47		2.47
2	5.47%	46.09%	53.91%	5.06	2.73		2.73
3	5.19%	43.82%	56.18%	5.33	2.99		2.99
4	4.93%	41.76%	58.24%	5.59	3.25		3.25
5	4.70%	40.70%	59.30%	5.85	3.47		3.47
6	4.58%	39.63%	60.37%	6.12	3.69		3.69
7	4.46%	38.57%	61.43%	6.39	3.93		3.93
8	4.34%	37.51%	62.49%	6.67	4.17		4.17
9	4.22%	36.44%	63.56%	6.95	4.42		4.42
10	4.10%	36.44%	63.56%	7.23	4.60	55.35	59.95
11+	4.10%	36.44%	63.56%	7.53	4.79		

Value Line Earnings Growth Rate

Ke = 11.21%

US Cellular

Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
0		7.62%	92.38%	0.35		stock price =	-20.85
1	85.71%	4.62%	95.38%	0.65	0.62		0.62
2	51.92%	3.04%	96.96%	0.99	0.96		0.96
3	34.18%	2.26%	97.74%	1.33	1.30		1.30
4	25.47%	1.80%	98.20%	1.66	1.63		1.63
5	20.30%	1.52%	98.48%	2.00	1.97		1.97
6	17.06%	1.23%	98.77%	2.34	2.31		2.31
7	13.82%	0.94%	99.06%	2.66	2.64		2.64
8	10.58%	0.65%	99.35%	2.95	2.93		2.93
9	7.34%	36.44%	63.56%	3.16	2.01		2.01
10	4.10%	36.44%	63.56%	3.29	2.09	25.19	27.29
11+	4.10%	36.44%	63.56%	3.43	2.18		

Value Line Earnings Growth Rate

Ke = 9.46%

T-Mobile

TMUS

Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
0		1.88%	98.12%	6.19		stock price =	-140.00
1	21.16%	0.87%	99.13%	7.50	7.43		7.43
2	9.83%	0.80%	99.20%	8.24	8.17		8.17
3	8.95%	0.73%	99.27%	8.98	8.91		8.91
4	8.22%	0.67%	99.33%	9.71	9.65		9.65
5	7.59%	0.61%	99.39%	10.45	10.39		10.39
6	6.89%	0.55%	99.45%	11.17	11.11		11.11
7	6.20%	0.49%	99.51%	11.86	11.80		11.80
8	5.50%	0.43%	99.57%	12.51	12.46		12.46
9	4.80%	36.44%	63.56%	13.12	8.34		8.34
10	4.10%	36.44%	63.56%	13.65	8.68	104.46	113.14
11+	4.10%	36.44%	63.56%	14.21	9.03		

Value Line Earnings Growth Rate

Ke =

4.82%

Average

9.38%

Median

10.33%