



Cost of Capital Study

January 1, 2014

Staff Recommendation

Industry: Telecom Utility			SIC: 4810
Equity:			Reference
Risk Adjusted Models			
	CAPM	10.36%	Page 5
Dividend Growth Models			
	DGM or DCF Model (Dividend Growth)	10.25%	Page 7
	DGM or DCF Model (Earnings Growth)	16.00%	Page 7
	DGM or DCF Model (b * ROE = Growth)	12.50%	Page 7
Estimated Cost of Equity Capital		12.50%	
Debt:			
Estimated Cost of Debt Capital		8.00%	Page 3
<hr/> Cost of Capital Summary <hr/>			
<u>Capital Component</u>	<u>Market Capital Structure</u>	<u>Cost of Capital</u>	<u>Before-Tax Weighted Average Cost of Capital</u>
Debt	50.00%	8.00%	4.00%
Equity	50.00%	12.50%	6.25%
TOTAL	100.00%		10.25%
		Rounded	10.25%

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Industry: Telecom Utility			SIC: 4810
Equity:	Direct Rate		Reference
	Estimated Cost of Equity Capital	7.14%	Page 8
Debt:			
	Estimated Cost of Debt Capital	6.63%	Page 9
<hr/> Cost of Capital Summary <hr/>			
Capital Componer	Market Capital Structure	Cost of Capital	Before-Tax Weighted Average Cost of Capital
Debt	50.00%	6.63%	3.32%
Equity	50.00%	7.14%	3.57%
TOTAL	100.00%		6.89%
		Rounded	7.00%

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Analysis of the Market Capital Structure

Industry: Telecom Utility								SIC: 4810
Company Name	Stock Symbol	Debt (\$ mil)	Debt %	Stock Price	Shares Outstanding	Equity (\$ mil)	Equity %	Total Capital (\$ mil)
BCE Inc.	BCE	13,886.0	29.36%	43.08	775.4	33,403	70.64%	47,288.6
BT Group ADR	BT	12,498.3	24.37%	49.21	788.3	38,793	75.63%	51,291.2
CenturyLink Inc.	CTL	19,400.0	47.67%	34.04	625.7	21,299	52.33%	40,698.9
Cincinnati Bell	CBB	2,676.0	79.19%	3.47	202.7	703	20.81%	3,379.2
Consol. Communic.	CNSL	1,208.2	63.57%	17.36	39.9	693	36.43%	1,900.7
Deutsche Telekom ADR	DTEGY	46,720.3	45.84%	12.77	4321.3	55,203	54.16%	101,923.2
Frontier Communic.	FTR	8,381.9	66.80%	4.17	998.4	4,167	33.20%	12,548.6
Telefonica SA ADR	TEF	74,807.5	53.39%	14.35	4551	65,300	46.61%	140,107.1
tw telecom	TWTC	1,384.2	24.35%	28.28	152.1	4,301	75.65%	5,685.2
Windstream Corp.	WIN	8,114.9	62.49%	8.28	588.2	4,871	37.51%	12,986.2
Mean:			49.70%			22,873	50.30%	41,781
Median:			50.53%				49.47%	
Market Capital Structure:		Debt:	50.00%			Equity:	50.00%	

Stock Price = 2013 Average Closing Price

Data Source: Value Line Investment Survey

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Capital Asset Pricing Model (CAPM)

CAPM ==> $K_c = R_f + (\beta * ERP)$

Industry: Telecom Utility	SIC: 4810
Risk-Free Rate (R_f)	3.75%
Beta (β)	0.95
Equity Risk Premium (ERP): ($R_m - R_f$)	6.96%
Adjusted Equity Risk Premium: ($\beta * ERP$)	6.61%
Cost of Equity Capital - CAPM	10.36%
Ibbotson SBBBI 2014 Classic Yearbook	
Long-Term Government Bonds - Income Return ¹	5.90%
Intermediate Term US Treasury Coupon Note Yield (5-Year) ¹	5.40%
Short-Term US Treasury Bill Yield (30-Day) ¹	3.50%
Long-Term US Treasury Coupon Bond Yield (20-Year) ²	3.67%
Long-Term Horizon Expected Equity Risk Premium ³ (Large Company Stock Total Return - Long-Term US Government Bond Income)	6.96%
¹ Table 2-1: Basic Series, Summary Statistics of Annual Total Returns, Arithmetic Mean, p. 40	
² Table 11-1: Building Blocks for Expected Return Construction, p. 142	
³ Table 11.4: Long-Horizon Expected Equity Risk Premium, p. 152	
Federal Interest Rates - IRS.gov, January 2014 Weighted Average Rates	
Long Term Treasury (30 year) ¹	3.46%
Composite Corporate Bonds ²	4.69%
¹ http://www.irs.gov/Retirement-Plans/Weighted-Average-Interest-Rate-Table	
² http://www.irs.gov/Retirement-Plans/Composite-Corporate-Bond-Rate-Table	
The ValueLine Investment Survey, Selected Yields, Page 553, January 10, 2014	
U.S. Treasury Securities:	
5-year	1.75%
10-year	3.03%
30-year	3.96%
30-year Zero	4.24%
Federal Reserve Statistical Release (http://www.federalreserve.gov/Releases/H15/20140106/) 1/6/2014	
Treasury constant Maturities:	
5-year	1.73%
10-year	3.01%
20-year	3.69%
30-year	3.93%
Risk-Free Rate of Return R_f Estimate:	3.75%

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Beta (β) Analysis

Industry: Telecom Utility		SIC: 4810
Company Name	Stock Symbol	Beta "β"
BCE Inc.	BCE	0.70
BT Group ADR	BT	1.10
CenturyLink Inc.	CTL	0.80
Cincinnati Bell	CBB	1.05
Consol. Communic.	CNSL	0.80
Deutsche Telekom ADR	DTEGY	0.90
Frontier Communic.	FTR	0.90
Telefonica SA ADR	TEF	1.05
tw telecom	TWTC	1.05
Windstream Corp.	WIN	0.95
Mean:		0.93
Median:		0.93
Beta (β) Estimate:		0.95

NMF = Not Meaningful

Data Source: Value Line Investment Survey

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Dividend Growth Model (DGM or DCF)

$$\text{DGM or DCF Model} \implies K_e = \frac{D_1}{P_0} + g$$

where
K_e = Cost of Equity
D₁ = Expected Dividends
P₀ = Current Price
g = Sustainable Growth

Industry: Telecom Utility												SIC: 4810
Company Name	Stock Symbol	Stock Price P ₀	Expected Dividend D ₁	Dividend Yield (D ₁ / P ₀)	Dividend Growth g	Earnings Growth g				(Dividends) K _e	(Earnings) K _e	g=(b * ROE) K _e
							b	ROE	g=(b * ROE)			
BCE Inc.	BCE	43.08	2.22	5.15%	6.50%	5.00%	40.52%	25.77%	10.44%	11.65%	10.15%	15.60%
BT Group ADR	BT	49.21	1.75	3.56%	13.50%	7.00%	67.29%	0.00%	0.00%	17.06%	10.56%	3.56%
CenturyLink Inc.	CTL	34.04	2.16	6.35%	-4.00%	6.50%	-133.08%	4.02%	-5.35%	NMF	12.85%	NMF
Cincinnati Bell	CBB	3.47	-	0.00%	0.00%	24.50%	7.14%	-0.09%	-0.01%	NMF	24.50%	NMF
Consol. Communic.	CNSL	17.36	1.55	8.93%	0.00%	11.50%	100.00%	4.27%	4.27%	8.93%	20.43%	13.20%
Deutsche Telekom ADR	DTEGY	12.77	0.70	5.48%	-1.00%	11.00%	-58.51%	7.02%	-4.11%	4.48%	16.48%	NMF
Frontier Communic.	FTR	4.17	0.40	9.58%	-7.00%	13.50%	-192.30%	3.31%	-6.37%	NMF	23.08%	NMF
Telefonica SA ADR	TEF	14.35	1.02	7.11%	-0.50%	0.00%	49.37%	31.59%	15.60%	6.61%	7.11%	22.70%
tw telecom	TWTC	28.28	-	0.00%	0.00%	18.50%	100.00%	6.91%	6.91%	NMF	18.50%	6.91%
Windstream Corp.	WIN	8.28	1.00	12.07%	0.00%	4.00%	-108.59%	25.51%	-27.70%	12.07%	16.07%	NMF
Mean:				5.82%	0.75%	10.15%	-12.82%	10.83%	-0.63%	10.13%	15.97%	12.39%
Median:				5.91%	0.00%	9.00%	23.83%	5.59%	0.00%	10.29%	16.28%	13.20%
Cost of Equity Capital - DCF K_e Estimate:										10.25%	16.00%	12.50%

NMF = Not Meaningful
b = (1 - payout ratio) = Retention Ratio
ROE = Return on Book Equity
Stock Price = 2013 Average Closing Price

Data Source: Value Line Investment Survey

Support for Market Multiples
Telecom Utility
2014 Assessment Year

Industry Overall				
Company Name	Ticker	\$Stock\$ Average	Earnings	P/E Multiple
BCE Inc.	BCE	43.08	3.16	13.63
BT Group ADR	BT	49.21	4.51	10.91
CenturyLink Inc.	CTL	34.04	2.63	12.94
Cincinnati Bell	CBB	3.47	-0.11	NMF
Consol. Communic.	CNSL	17.36	0.72	24.11
Deutsche Telekom ADR	DTEGY	12.77	0.91	14.04
Frontier Communic.	FTR	4.17	0.22	18.97
Telefonica SA ADR	TEF	14.35	1.67	8.59
tw telecom	TWTC	28.28	0.47	60.17
Windstream Corp.	WIN	8.28	0.39	21.24
Total:		215.01	14.57	
Mean:				20.51
Median:				14.04
Weighted Mean:				14.76
Estimated:				14.0
Equity Rate:				7.14%

NMF = Not Meaningful

Stock Price = 2013 Average Closing Price

Note: Units per share comparisons

Data Source: ValueLine Investment Survey

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Direct Debt Rate Calculation

Industry: Telecom Utility		
Direct Capitalization Debt Rate		
Interest Expense		\$ 12,610
Total Value of Debt (TVD)		\$ 190,059
Current Yield = Interest Expense/TVD		6.63%

\$ (millions)

Data Source: ValueLine Investment Survey