



Cost of Capital Study

January 1, 2016

Staff Recommendation

Industry: Telecom Services		SIC: 4890
Equity:		Reference
Risk Adjusted Models		
CAPM	10.75%	Page 5
Dividend Growth Models		
DGM or DCF Model (Dividend Growth)	10.25%	Page 7
DGM or DCF Model (Earnings Growth)	14.00%	Page 7
DGM or DCF Model (b * ROE = Growth)	11.75%	Page 7
Estimated Cost of Equity Capital	12.50%	
Debt:		
Estimated Cost of Debt Capital	7.50%	Page 3
<hr/> Cost of Capital Summary <hr/>		
Capital Component	Market Capital Structure	Before-Tax Weighted Average Cost of Capital
Debt	29.00%	2.18%
Equity	71.00%	8.88%
TOTAL	100.00%	11.05%
	Rounded	11.00%

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Industry: Telecom Services			SIC: 4890
Equity:	Direct Rate		Reference
	Estimated Cost of Equity Capital	5.00%	Page 8
Debt:			
	Estimated Cost of Debt Capital	4.78%	Page 9
<hr/> Cost of Capital Summary <hr/>			
			Before-Tax Weighted Average
Capital Componer	Market Capital Structure	Cost of Capital	Cost of Capital
Debt	29.00%	4.78%	1.39%
Equity	71.00%	5.00%	3.55%
TOTAL	100.00%		4.94%
		Rounded	5.00%

Cost of Capital Study
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Analysis of the Market Capital Structure
Analysis of Debt Capital

Industry: Telecom Services		Ratings	
Company	Ticker	Moody's	S&P
America Movil	AMX	A2	A-
AT&T Inc.	T	Baa1	BBB+
Atlantic Tele-Network	ATNI	NR	NR
Dycom Inds.	DY	Ba2	BB
Gen'l Communic. 'A'	GNCMA	B2	NR
Gogo Inc.	GOGO	NR	NR
Inteliquent Inc.	IQNT	NR	NR
j2 Global	JCOM	B1	BB
Manitoba Telecom Svcs.	MBT.TO	NR	BBB
Shenandoah Telecom.	SHEN	NR	NR
Sprint Corp.	S	B3	B
T-Mobile US	TMUS	Ba3	BB
Telephone & Data	TDS	Ba1	BB
TELUS Corporation	T.TO	Baa1	BBB+
U.S. Cellular	USM	Ba1	BB
Verizon Communic.	VZ	Baa1	BBB+
Vodafone Group ADR	VOD	Baa1	BBB+
Vonage Holdings	VG	NR	NR
Overall Average Debt Rating Range		Ba	BB

NR = Not Rated

Ratings Dispersion & Averages			
Agency	Number of Companies		
S&P			
AAA	1		
AA	2		
A	3	1	3
BBB	4	5	20
BB	5	5	25
B	6	2	12
CCC	7		
C	9		
D	10		
Total:		13	60
Average Rating:			4.62
Moody's			
Aaa	1		
Aa	2		
A	3	1	3
Baa	4	4	16
Ba	5	4	20
B	6	3	18
Caa	7		
Ca	8		
C	9		
Total:		12	57
Average Rating:			4.75

Mergent Bond Record, Jan 2016, Page 208					
Corporate	Aaa	Aa	A	Baa	Ba*
October	3.95%	4.11%	4.33%	5.34%	
November	4.06%	4.21%	4.43%	5.46%	
December	3.97%	4.16%	4.38%	5.46%	
Average	3.99%	4.16%	4.38%	5.42%	7.50%
Public Utilities					
October		4.13%	4.29%	5.47%	
November		4.22%	4.40%	5.57%	
December		4.16%	4.35%	5.55%	
Average		4.17%	4.35%	5.53%	
Industrials					
October	3.95%	4.08%	4.37%	5.21%	
November	4.06%	4.20%	4.45%	5.34%	
December	3.97%	4.16%	4.40%	5.36%	
Average	3.99%	4.15%	4.41%	5.30%	

Debt Yield Rate Estimate:	7.50%
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Rating Sources:
Mergent Bond Record, January 2016;
www.standardandpoors.com;
www.moody's.com

Cost of Capital Study
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Capital Asset Pricing Model (CAPM)

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

Industry: Telecom Services	SIC: 4890
Risk-Free Rate (R_f)	3.50%
Beta (β)	1.05
Equity Risk Premium (ERP): ($R_m - R_f$)	6.90%
Adjusted Equity Risk Premium: ($\beta * ERP$)	7.25%
Cost of Equity Capital - CAPM	10.75%
Morningstar SBBI Presentation 1926 - 2015	
Long-Term Government Bonds - Income Return ¹	5.00%
Intermediate Term US Treasury Coupon Note Yield (5-Year) ¹	4.50%
Short-Term US Treasury Bill Yield (30-Day) ¹	3.50%
Long-Term Horizon Expected Equity Risk Premium ² (Large Compay Stock Total Return - Long-Term US Government Bond Income)	6.90%
¹ SBBI Summary Statistics of Annual Returns (1926-2015), Arithmetic Mean, p. 6	
² Building Blocks for Expected Return Construction (1926-2015), p. 7	
Federal Interest Rates - IRS.gov, January 2016 Weighted Average Rates	
Long Term Treasury (30 year) ¹	3.12%
Composite Corporate Bonds ²	4.32%
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 3821, January , 2016	
U.S. Treasury Securities:	
5-year	1.79%
10-year	2.31%
30-year	3.04%
30-year Zero	3.17%
Federal Reserve Statistical Release (http://www.federalreserve.gov/Releases/H15/20160104/) 1//2016	
Treasury constant Maturities:	
5-year	1.78%
10-year	2.29%
20-year	2.66%
30-year	3.01%
Risk-Free Rate of Return R_f Estimate:	3.50%

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Dividend Growth Model (DGM or DCF)

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

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

Industry: Telecom Services											SIC: 4890	
Company Name	Stock Symbol	Stock Price P ₀	Expected Dividend D ₁	Dividend Yield (D ₁ / P ₀)	Dividend Growth g	Earnings Growth g	b	ROE	g=(b * ROE)	(Dividends) K _c	(Earnings) K _c	g=(b * ROE) K _c
America Movil	AMX	19.02	0.35	1.84%	5.00%	2.00%	64.08%	20.24%	12.97%	6.84%	3.84%	14.81%
AT&T Inc.	T	33.43	1.93	5.77%	4.50%	6.50%	32.84%	12.38%	4.07%	10.27%	12.27%	9.84%
Atlantic Tele-Network	ATNI	70.84	1.36	1.92%	6.50%	9.00%	44.97%	5.09%	2.29%	8.42%	10.92%	4.21%
Dycom Inds.	DY	60.52	-	0.00%	0.00%	25.50%	100.00%	16.62%	16.62%	NMF	25.50%	16.62%
Gen'l Communic. 'A'	GNCMA	17.13	-	0.00%	0.00%	0.00%	100.00%	-29.48%	-29.48%	NMF	NMF	NMF
Gogo Inc.	GOGO	18.12	-	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	NMF	NMF	NMF
Inteliquent Inc.	IQNT	18.23	0.66	3.62%	13.00%	9.50%	48.36%	21.73%	10.51%	16.62%	13.12%	14.13%
j2 Global	JCOM	69.68	1.38	1.98%	9.00%	13.00%	55.98%	15.01%	8.40%	10.98%	14.98%	10.38%
Manitoba Telecom Svcs.	MBT.TO	26.90	1.30	4.83%	-4.00%	-6.50%	28.70%	12.51%	3.59%	NMF	NMF	8.42%
Shenandoah Telecom.	SHEN	36.83	0.26	0.71%	10.00%	14.00%	72.87%	14.09%	10.27%	10.71%	14.71%	10.97%
Sprint Corp.	S	4.46	-	0.00%	0.00%	0.00%	100.00%	-9.02%	-9.02%	NMF	NMF	NMF
T-Mobile US	TMUS	36.45	-	0.00%	0.00%	62.50%	92.50%	4.09%	3.78%	NMF	62.50%	NMF
Telephone & Data	TDS	27.07	0.59	2.18%	3.50%	21.00%	142.55%	-3.47%	-4.95%	5.68%	23.18%	NMF
TELUS Corporation	T.TO	41.89	1.84	4.39%	9.00%	9.00%	28.22%	18.01%	5.08%	13.39%	13.39%	9.47%
U.S. Cellular	USM	37.86	-	0.00%	0.00%	9.00%	100.00%	-1.29%	-1.29%	NMF	9.00%	NMF
Verizon Communic.	VZ	46.70	2.26	4.84%	2.50%	5.00%	41.49%	NMF	NMF	7.34%	9.84%	NMF
Vodafone Group ADR	VOD	34.08	1.75	5.13%	-4.00%	-4.00%	-113.37%	2.31%	-2.62%	NMF	NMF	NMF
Vonage Holdings	VG	5.30	-	0.00%	0.00%	7.00%	100.00%	17.35%	17.35%	NMF	7.00%	17.35%
Mean:				2.07%	3.06%	10.14%	63.29%	6.83%	2.80%	10.03%	16.94%	11.62%
Median:				1.88%	1.25%	8.00%	68.48%	12.38%	3.78%	10.27%	13.12%	10.68%
Cost of Equity Capital - DCF K_c Estimate:										10.25%	14.00%	11.75%

NMF = Not Meaningful

b = (1 - payout ratio) = Retention Ratio

ROE = Return on Book Equity

Stock Price = 2015 Average Closing Price

Data Source: Value Line Investment Survey

Cost of Capital Study
January 1, 2016
Direct Debt Rate Calculation

Industry: Telecom Services		
Direct Capitalization Debt Rate		
Interest Expense		\$ 11,442
Total Value of Debt (TVD)		\$ 239,157
Current Yield = Interest Expense/TVD		4.78%

\$ (millions)

Data Source: ValueLine Investment Survey