

COST OF CAPITAL STUDY

**YIELD CAPITALIZATION
 2017 ASSESSMENT YEAR**

APPENDIX C

Railroads

EQUITY RATE		11.75%		
CAPITAL ASSET PRICING MODEL			PAGE	
CAPM Ex Ante	9.04%		6	
DIVIDEND GROWTH MODELS				
Value Line, based on Dividends Growth	11.25%		7	
Value Line, based on Earnings Growth	12.25%		8	
Value Line, based on Return on Equity	9.50%		9	
	RANGE	9.0375% - 12.25%		
DEBT RATE		4.75%	10	
SECURED DEBT (LEASE) RATE		4.00%	10	
MARKET CAPITAL STRUCTURE				
Equity	77%	x 11.75%	= 9.05%	3
Debt	23%	x 4.75%	= 1.09%	3
Marginal Tax Rate	38%	= (1-.038)	x 1.09%	
			<u>0.68%</u>	
WEIGHTED AVERAGE COST OF CAPITAL		9.7%		

rounded

SUPPORT FOR GUIDELINE COMPANIES

WASHINGTON STATE DEPARTMENT OF REVENUE

2017 ASSESSMENT YEAR

RAILROADS

Capital Structure at Book Value

Company	Ticker	Beta	Fin'l Strength	Operating Margin	P/E Ratio	Div'd Yield	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
Union Pacific Corp.	UNP	1.05	A++	44.0%	18.7	2.31%	19,861,099,200	58.2%	-	0.0%	14,249,000,000	41.8%	34,110,099,200
Norfolk Southern Corp.	NSC	1.15	A	37.5%	17.4	2.26%	12,436,729,200	56.5%	-	0.0%	9,562,000,000	43.5%	21,998,729,200
CSX Corp.	CSX	1.25	B++	41.5%	18.0	2.12%	11,888,470,000	52.0%	-	0.0%	10,962,000,000	48.0%	22,850,470,000
Kansas City Southern	KSU	1.15	A	41.0%	16.5	1.70%	4,373,086,350	65.8%	-	0.0%	2,271,500,000	34.2%	6,644,586,350
Genesee & Wyoming	GWR	1.45	B+	29.0%	18.3	0.00%	2,675,551,800	53.7%	-	0.0%	2,306,915,000	46.3%	4,982,466,800
Canadian National	CNI	1.05	A	54.0%	18.5	1.85%	11,686,075,000	63.4%	-	0.0%	6,738,750,000	36.6%	18,424,825,000
Canadian Pacific	CP	1.20	B++	51.5%	15.7	1.05%	3,781,855,000	36.8%	-	0.0%	6,494,250,000	63.2%	10,276,105,000
Mean		1.19	A	42.6%	17.6	1.61%	9,528,980,936	55.2%		0.0%	7,512,059,286	44.8%	
Weighted Mean							66,702,866,550	55.9%	-	0.00%	52,584,415,000	44.1%	119,287,281,550
Median		1.15			18.0	1.85%		56.5%		0.0%		43.5%	
Std Dev		0.14			1.11	0.8%		9.5%		-		9.5%	
Coeff Var		0.12			0.06	0.52		17.2%		-		21.2%	
Harmonic Mean		1.17			17.50	#NUM!		53.5%		-		43.3%	
Max		1.45			18.68	2.31%		65.8%		0.0%		63.2%	
Min		1.05			15.69	0.00%		36.8%		0.0%		34.2%	
Say		1.15											

SUPPORT FOR CAPITAL STRUCTURE MARKET VALUE

WASHINGTON STATE DEPARTMENT OF REVENUE

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RAILROADS

Capital Structure at Market Value

Company	Ticker	Stock Price	Common Shares	Common Stock	%	Preferred Stock	%	Operating Lease	%	Long Term Debt	%	Total Debt & Equity
Union Pacific Corp.	UNP	103.68	824,112,000	85,443,932,160	78.4%	-	0.0%	7,696,576,478	7.1%	15,900,000,000	14.6%	109,040,508,638
Norfolk Southern Corp.	NSC	108.07	291,942,000	31,550,171,940	68.9%	-	0.0%	2,637,811,952	5.8%	11,626,000,000	25.4%	45,813,983,892
CSX Corp.	CSX	35.93	936,100,000	33,634,073,000	72.4%	-	0.0%	713,297,999	1.5%	12,096,000,000	26.0%	46,443,370,999
Kansas City Southern	KSU	84.85	107,579,000	9,128,078,150	73.4%	129,400,000	1.0%	882,093,295	7.1%	2,303,800,000	18.5%	12,443,371,445
Genesee & Wyoming	GWR	69.41	58,038,000	4,028,417,580	61.6%	-	0.0%	205,582,163	3.1%	2,303,531,000	35.2%	6,537,530,743
Canadian National	CNI	67.40	766,300,000	51,648,620,000	82.0%	-	0.0%	2,249,963,292	3.6%	9,063,000,000	14.4%	62,961,583,292
Canadian Pacific	CP	142.77	146,300,000	20,887,251,000	70.1%	-	0.0%	1,424,652,574	4.8%	7,485,750,000	25.1%	29,797,653,574
			Mean		72.4%		0.1%		4.7%		22.8%	
			Weighted Mean	236,320,543,830	75.5%	129,400,000	0.04%	15,809,977,753	5.05%	60,778,081,000	19.4%	313,038,002,583
			Median		72.4%		0.00%		4.78%		25.1%	
			Harmonic Mean		71.9%		#NUM!		3.7%		20.7%	
			Std Dev		6.6%		0.4%		2.1%		7.5%	
			Coeff Var		10.93		0.38		2.26		3.05	
			Max		82.0%		1.0%		7.1%		35.2%	
			Min		61.6%		0.0%		1.5%		14.4%	

Source:

Stock Price: Yahoo

Market Value Debt: Bond Analysis

Target

77%

0%

5%

18%

100%

SUPPORT FOR MARKET MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE
 2017 ASSESSMENT YEAR
 RAILROADS

Company	Ticker	Stock Price	Revenues	Multiple	Cash Flow	Multiple	Earnings	Multiple	Book Value	Multiple
Union Pacific Corp.	UNP	103.68	24.20	4.3	7.60	13.6	4.90	21.2	24.10	4.3
Norfolk Southern Corp.	NSC	108.07	33.85	3.2	9.15	11.8	5.55	19.5	42.60	2.5
CSX Corp.	CSX	35.93	11.55	3.1	3.20	11.2	1.79	20.1	12.70	2.83
Kansas City Southern	KSU	84.85	21.35	3.97	7.20	11.8	4.45	19.1	40.65	2.1
Genesee & Wyoming	GWR	69.41	34.75	2.0	7.15	9.7	3.60	19.3	46.10	1.51
Canadian National	CNI	67.40	11.70	5.8	4.65	14.5	3.37	20.0	15.25	4.42
Canadian Pacific	CP	142.77	31.95	4.5	11.35	12.6	7.90	18.1	25.85	5.52
		Mean		3.8		12.2		19.6		3.3
		Median		4.0		11.8		19.5		2.8
		Harmonic Mean		3.5		12.0		19.5		2.8
		Max		5.8		14.5		21.2		5.5
		Min		2.0		9.7		18.1		1.51
		Std Dev		1.2		1.6		1.0		1.5
		Coefficient of Variation		0.3		0.1		0.0		0.4
		Percentile .25		3.2		11.5		19.2		2.3
		Percentile .75		4.4		13.1		20.0		4.4
		Say		3.75		12.00		19.25		3.00

ENTERPRISE VALUE MULTIPLES

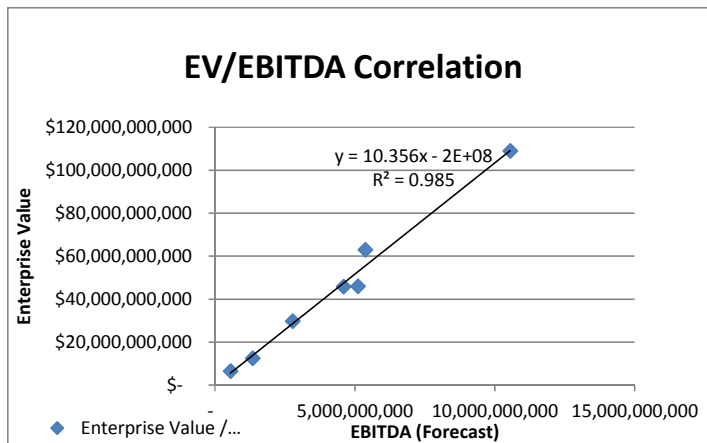
WASHINGTON STATE DEPARTMENT OF REVENUE

2017 ASSESSMENT YEAR

RAILROADS

Guideline Companies	Ticker	EV+OL	EBITDA + OL	EV / EBITDA	Annual Cash Flow Rate Change VL	EBITDA	EV / EBITDA	Revenue	EV/Sales	Cash Flow	Debt Service	EV / CF
					forecast							
Union Pacific Corp.	UNP	\$ 109,040,508,638	9,845,000,000	11.08	7.24%	10,557,467,105	10.33	20,684,800,000	5.27	6,585,200,000	755,250,000	14.85
Norfolk Southern Corp.	NSC	\$ 45,813,983,892	4,275,000,000	10.72	7.65%	4,602,049,180	9.96	10,346,200,000	4.43	2,846,650,000	552,235,000	13.48
CSX Corp.	CSX	\$ 45,996,370,999	4,740,000,000	9.70	7.81%	5,110,312,500	9.00	11,113,500,000	4.14	3,208,500,000	574,560,000	12.16
Kansas City Southern	KSU	\$ 12,443,371,445	1,184,500,000	10.51	13.89%	1,349,013,889	9.22	2,498,450,000	4.98	877,400,000	109,430,500	12.61
Genesee & Wyoming	GWR	\$ 6,531,302,743	509,091,000	12.83	9.79%	558,932,077	11.69	2,079,300,000	3.14	455,300,000	109,417,723	11.57
Canadian National	CNI	\$ 62,961,583,292	5,000,250,000	12.59	7.53%	5,376,612,903	11.71	9,312,500,000	6.76	3,725,000,000	430,492,500	15.15
Canadian Pacific	CP	\$ 29,797,653,574	2,508,750,000	11.88	10.57%	2,773,992,291	10.74	4,971,300,000	5.99	1,832,300,000	355,573,125	13.62
Mean							10.38			2,790,050,000		13.35
Median							10.33			2,846,650,000		13.48
Max							11.71					
Min							9.00					
Std Dev							1.08					
fficient of Variation							0.10					
Harmonic Mean							10.28		4.69	1,409,834,578		13.23
Say							10.50		4.75			13.25

9.25 put in income direct excluding IPP
 10.50 put in income direct including IPP



Forecast EV/EBITDA By Rank

Guideline Companies	EV/EBITDA forecast		
CSX Corp.	9.00	9.63	Low Average
Kansas City Southern	9.22	9.22	Low Median
Norfolk Southern Corp.	9.96	9.25	Say
Union Pacific Corp.	10.33	10.38	Average
Canadian Pacific	10.74	10.33	Median
Genesee & Wyoming	11.69	10.50	Say
Canadian National	11.71		

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE
2017 ASSESSMENT YEAR
RAILROADS

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

Ke = Cost of Equity 9.04%

	Rm =	rate of return	8.25%	to page 1
	Rf =	risk free rate	3.00%	
	Rp =	risk premium	5.25%	
	B =	Beta	1.15	page 7

Rp = Risk Premium 5.25%

		to above
Shannon Pratt and Roger Grabowski	3.5 - 6%	
Cost of Capital, Applications and Examples, Third Edition, 2008, Page 113		
Dr. Aswath Damodaran	5.69%	chart page 14
http://pages.stern.nyu.edu/~adamodar/		
	5.14%	adjusted for Rf
2016 Implied Premium		
John Graham and Campbell Harvey	5.70%	10 year expected real return
Duke CFO magazine Global Business Outlook		
	2.23%	Rf rate used in survey
4th Qtr 2016		
	4.93%	adjusted for Rf

Rf = Risk Free Rate 3.00%

US Department of the Treasury

Long Term (20 years) US Treasury Bond Yield 2.79%

as of 12-30-16

Value Line Investment Survey, Selected Yields January 6, 2017, page 3197

as of 12-28-16

US Treasury Securities year end data	
5 year	2.00%
10 year	2.51%
30 year	3.09%
30 year Zero	3.17%

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

January 4, 2017 as of 12-30-16

Treasury Constant Maturities		
5 year	1.93%	
10 year	2.45%	
20 year	2.79%	
30 year	3.06%	
20 year TIPS	<u>0.82%</u>	1.97%
30 year TIPS	<u>0.99%</u>	2.07%
		TIPS inflation indication

Inflation 2.00%

Value Line Investment Survey, Economic Series January 6, 2017, page 1500

Consumer Price Index Annual Rate of Change 2019-2021 2.50%

Federal Reserve Bank of Philadelphia

The Livingston Survey, December 9, 2016 Table 3

Inflation median (measured by the CPI) over next 10 years 2.30%

<https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey>

Gross Domestic Product (GDP) 3.80%

Federal Reserve Projected Long Run Real GDP Growth

Median Projection Value From Dec 14, 2016 Report 1.80%

<http://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>

Congressional Budget Office Real GDP Economic Projections

The Budget and Economic Outlook 2017-2027 Table C-1, pg 126

Average Percentage Change From Year To Year 1.86%

2017-2021 1.90%

2022-2027

Federal Reserve Bank of Philadelphia

The Livingston Survey, December 9, 2016 pg 4

Average Annual Real GDP Growth Rate for Next Ten 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
2017 ASSESSMENT YEAR
RAILROADS

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	Ke Multistage
Union Pacific Corp.	UNP	103.68	2.40	2.31%	9.50%	11.81%	12.06%	14.38%	3.80%	6.11%	10.65%
Norfolk Southern Corp.	NSC	108.07	2.44	2.26%	4.00%	6.26%	4.42%	6.68%	3.80%	6.06%	6.28%
CSX Corp.	CSX	35.93	0.76	2.12%	9.50%	11.62%	12.06%	14.18%	3.80%	5.92%	10.58%
Kansas City Southern	KSU	84.85	1.44	1.70%	10.50%	12.20%	13.67%	15.37%	3.80%	5.50%	10.78%
Genesee & Wyoming	GWR	69.41	0.00						3.80%		
Canadian National	CNI	67.40	1.25	1.85%	13.50%	15.35%	18.96%	20.82%	3.80%	5.65%	13.48%
Canadian Pacific	CP	142.77	1.50	1.05%	14.00%	15.05%	19.92%	20.97%	3.80%	4.85%	12.94%
			Mean			12.05%				5.68%	10.78%
			Median			12.01%				5.78%	10.71%
			Harmonic Mean			11.03%				5.65%	10.14%
			Std Dev			3.28%				0.47%	2.54%
			Coeff Var			27.21%				8.29%	23.56%
			Max			15.35%				6.11%	13.48%
			Min			6.26%				4.85%	6.28%

Source: Value Line Projections 13-15 to 19-21

12.00%

5.50%

10.75%

Say

11.25%

to page 1

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2017 ASSESSMENT YEAR

RAILROADS

Based on Earnings Growth

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

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

must be hig

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	Ke Multistage *
Union Pacific Corp.	UNP	103.680	5.55	5.35%	7.00%	12.35%	8.35%	13.70%	3.80%	9.15%	10.60%
Norfolk Southern Corp.	NSC	108.070	6.20	5.74%	6.50%	12.24%	7.65%	13.39%	3.80%	9.54%	10.95%
CSX Corp.	CSX	35.930	2.00	5.57%	8.00%	13.57%	9.78%	15.35%	3.80%	9.37%	10.97%
Kansas City Southern	KSU	84.850	5.15	6.07%	9.00%	15.07%	11.29%	17.35%	3.80%	9.87%	12.14%
Genesee & Wyoming	GWR	69.410	3.80	5.47%	6.50%	11.97%	7.65%	13.13%	3.80%	9.27%	11.10%
Canadian National	CNI	67.400	3.65	5.42%	9.50%	14.92%	12.06%	17.48%	3.80%	9.22%	10.01%
Canadian Pacific	CP	142.770	9.10	6.37%	12.50%	18.87%	17.12%	23.50%	3.80%	10.17%	12.31%
			Mean	5.71%		14.14%				9.51%	11.15%
			Median	5.57%		13.57%				9.37%	10.97%
			Harmonic Mean	5.69%		13.83%				9.50%	11.10%
			Std Dev	0.38%		2.44%				0.38%	0.82%
			Coeff Var	6.63%		17.25%				3.98%	7.32%
			Max	6.37%		18.87%				10.17%	12.31%
			Min	5.35%		11.97%				9.15%	10.01%

Source: Value Line Projections 13-15 to 19-21

13.50%

9.50%

11.00%

Say

12.25%

to page 1

*please contact me if you would like to see the multi-stage calculations

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

WASHINGTON STATE DEPARTMENT OF REVENUE
2017 ASSESSMENT YEAR
RAILROADS

Based on Return on Equity

- Ke =** Cost of Equity
D1 = Expected Dividends
E1 = Expected Earnings
Po = 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 (b*ROE) (G)	Ke Dividends	Expected Earnings (E1)	Ke Earnings
Union Pacific Corp.	UNP	103.68	2.40	2.31%	57.0%	5.35%	3.05%	5.37%	5.55	8.40%
Norfolk Southern Corp.	NSC	108.07	2.44	2.26%	59.0%	5.74%	3.38%	5.64%	6.20	9.12%
CSX Corp.	CSX	35.93	0.76	2.12%	59.0%	5.57%	3.28%	5.40%	2.00	8.85%
Kansas City Southern	KSU	84.85	1.44	1.70%	72.0%	6.07%	4.37%	6.07%	5.15	10.44%
Genesee & Wyoming	GWR	69.41	0.00		100.0%	5.47%	5.47%		3.80	10.95%
Canadian National	CNI	67.40	1.25	1.85%	66.0%	5.42%	3.57%	5.43%	3.65	8.99%
Canadian Pacific	CP	142.77	1.50	1.05%	84.0%	6.37%	5.35%	6.40%	9.10	11.73%
Mean								5.72%		9.78%
Median								5.54%		9.12%
Harmonic Mean								5.69%		9.65%
Std Dev								0.43%		1.25%
Coeff Var								7.45%		12.80%
Max								6.40%		11.73%
Min								5.37%		8.40%
								5.75%		9.50%

Say **9.50%**
to page 1

SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

WASHINGTON STATE DEPARTMENT OF REVENUE

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RAILROADS

Company	Ticker	Mergent's Ratings	S&P Ratings	WAYTM	S&P YTM (avg)	Mergent's Ratings	S&P Ratings	Mergent's	S&P	
Union Pacific Corp.	UNP	A3	A	2.99%	2.94%	9	8	Aaa1	AAA+	1
Norfolk Southern Corp.	NSC	A3	BBB+	2.40%	3.58%	10	10	Aaa2	AAA	2
CSX Corp.	CSX	Baa1	BBB+	3.20%	3.27%	10	10	Aaa3	AAA-	3
Canadian Pacific	CP		BBB+	2.71%	5.62%		10	Aa1	AA+	4
Kansas City Southern	KSU	Baa3	BBB-	5.13%		12	12	Aa2	AA	5
Canadian National	CNI	A2	A	1.21%	3.08%	8	8	Aa3	AA-	6
Genesee & Wyoming	GWR		BB				14	A1	A+	7
Overall Average Debt Rating		Baa1	BBB+	2.94%		9.8	10.3	A2	A	8
					bond analysis, A-BBB bonds	3.29%		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			2.75%	4.50%						
										bond analysis page 12
Mergent's Bond Record January 2017, page 201										
Corporate	Aaa	Aa	A	Baa						
October	3.51%	3.61%	3.78%	4.38%						
November	3.86%	3.94%	4.11%	4.71%						
December	4.06%	4.12%	4.28%	4.83%						
4th Qtr Average	3.81%	3.89%	4.06%	4.64%						
Public Utilities	Aaa	Aa	A	Baa						
October		3.59%	3.77%	4.34%						
November		3.91%	4.08%	4.64%						
December		4.11%	4.27%	4.79%						
4th Qtr Average		3.87%	4.04%	4.59%						
Industrials	Aaa	Aa	A	Baa						
October	3.51%	3.63%	3.79%	4.40%						
November	3.86%	3.97%	4.14%	4.77%						
December	4.06%	4.13%	4.29%	4.85%						
4th Qtr Average	3.81%	3.91%	4.07%	4.67%						
Debt Yield Rate				4.75%						to page 1
Cost of Secured Debt (Operating Lease) Rate				4.00%						to page 1

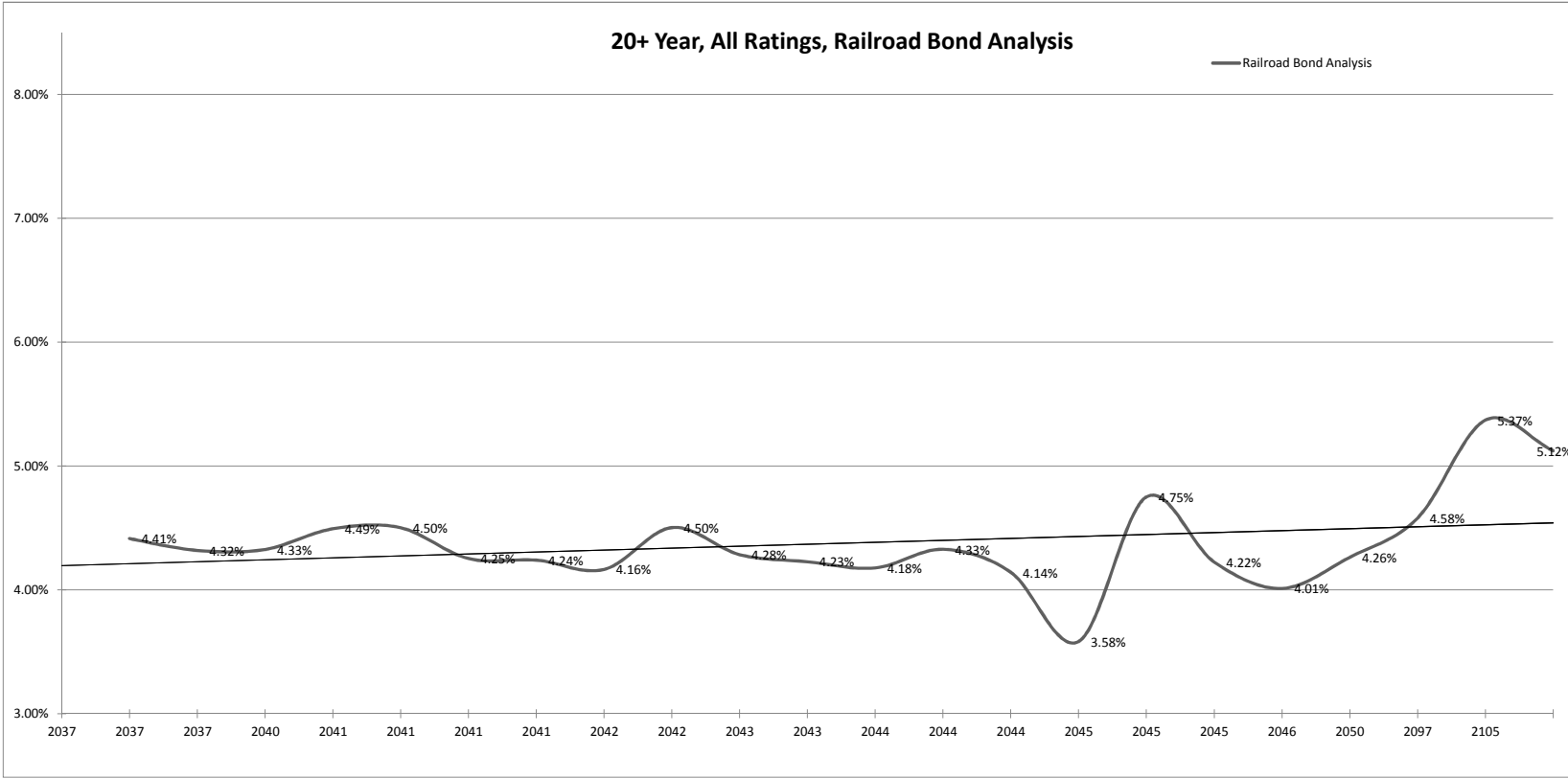
Union Pacific Corp	Deb	Z100	6.625	2029	130.39	\$ 600,000,000	5.08%	3.39%	0.05%	A	\$ 782,340,000	130.39%		39,750,000	0.00046272	0.002187044	3.54
Union Pacific Corp	SR NOTES	Z100	6.250	2034	126.18	\$ 250,000,000	4.95%	4.04%	0.02%	A	\$ 315,450,000	126.18%		15,625,000	0.00023004	0.001087281	4.12
Union Pacific Corp	Deb		6.150	2037	123.70	\$ 250,000,000	4.97%	4.33%	0.02%	A	\$ 309,250,000	123.70%		15,375,000	0.00024605	0.001162929	4.39
Union Pacific Corp	SR NOTES		4.750	2041	108.67	\$ 500,000,000	4.37%	4.16%	0.05%	A	\$ 543,350,000	108.67%		23,750,000	0.00047371	0.002238971	4.22
Union Pacific Corp	Fixed Rate		4.750	2043	108.89	\$ 500,000,000	4.36%	4.18%	0.05%	A	\$ 544,450,000	108.89%		23,750,000	0.00047511	0.002245574	4.22
Union Pacific Corp	Fixed Rate		4.821	2044	110.81	\$ 700,000,000	4.35%	4.14%	0.07%	A	\$ 775,670,000	110.81%		33,747,000	0.00065953	0.003117237	4.17
Union Pacific Corp	FR 144a		4.820	2044	120.95	\$ 700,000,000	3.99%	3.58%	0.06%	A	\$ 846,650,000	120.95%		33,740,000	0.00057052	0.002696558	0.00
Union Pacific Corp	Fixed Rate		4.050	2045	100.64	\$ 500,000,000	4.02%	4.01%	0.05%	NR	\$ 503,200,000	100.64%		20,250,000	0.00045627	0.002156537	4.05
17	Book Value	1700		sum	1907.45	\$ 9,300,000,000	Percent of book	112.20%	0.63%		\$ 10,404,765,000	111.88%	5.25%	\$ 488,557,000		2.990%	
Kansas City Southern	Deb	Z100	7.000	2025	111.41	\$ 100,000,000	6.28%	5.13%	0.01%	NR	\$ 111,410,000	111.41%		7,000,000	0.00011669	0.051291082	0.00
1	Book Value	100		sum	111.41	\$ 100,000,000	Percent of book	111.41%	0.01%		\$ 111,410,000	111.41%	7.00%	\$ 7,000,000		5.129%	
Canadian Pacific, Ltd	Deb (foreign)	NC	9.450	2021	125.36	\$ 250,000,000	7.54%	1.89%	0.01%	BBB+	\$ 313,400,000	125.36%		23,625,000	0.000107677	0.016320899	3.78
Canadian Pacific Railway	Deb (foreign)	NC	4.000	2022	86.00	\$ 40,000,000	4.65%	7.81%	0.01%	A+	\$ 34,400,000	86.00%		1,600,000	7.10566E-05	0.010770213	7.45
2	Book Value	200		sum	211.36	\$ 290,000,000	Percent of book	105.68%	0.02%		\$ 347,800,000	119.93%	8.70%	25,225,000		2.709%	
Total	\$				43,956,000,000						Total \$	49,089,047,800	111.68%	5.72%	\$ 2,513,399,500	2.75%	2.908%

This includes short term. For 20+ year maturities see below

Embedded debt rate 5.7180%
Weighted average yield to maturity 2.7515%
Debt service / Market value 5.1201%

Source: Standard & Poor's Bond Guide, January 2017, 2016 Yr End Prices

20+ Year, All Ratings, Railroad Bond Analysis



01/31/2017

Railroad Bond Analysis

Company	type	Call	coupon	maturity	Price 12/12	Issued / Book	current yield	yield to maturity	Weighted Aver Rating	Mkt Val	Mkt : Book	Embedded F Debt Service	WAYTM	WAYTM	S&P YTM
CSX Corp	NOTES	Z100	6.150	2037	122.39	\$ 700,000,000	5.02%	4.41%	0.07% BBB+	\$ 856,730,000	122.39%	43,050,000	0.00070292	0.002806318	4.44
Norfolk Southern	Notes	Z100	7.050	2037	135.52	\$ 750,000,000	5.20%	4.32%	0.07% BBB+	\$ 1,016,400,000	135.52%	41,052,000	0.000674615	0.002693313	4.51
Union Pacific Corp	Deb		6.150	2037	123.70	\$ 250,000,000	4.972%	4.33%	0.02% A	\$ 309,250,000	123.70%	30,250,000	0.000563171	0.002248386	4.51
CSX Corp	Fixed Rt nts		6.220	2040	124.14	\$ 660,000,000	5.01%	4.49%	0.07% BBB+	\$ 819,324,000	124.14%	28,500,000	0.000614577	0.002453618	4.58
CSX Corp	NOTES		5.500	2041	114.31	\$ 550,000,000	4.81%	4.50%	0.06% BBB+	\$ 628,705,000	114.31%	32,800,000	0.00078753	0.00314411	4.32
Norfolk Southern	Notes		4.837	2041	108.58	\$ 596,000,000	4.45%	4.25%	0.06% BBB+	\$ 647,136,800	108.58%	23,700,000	0.000625115	0.002495691	4.57
Norfolk Southern	Notes		4.837	2041	108.78	\$ 596,000,000	4.45%	4.24%	0.06% BBB+	\$ 648,328,800	108.78%	52,875,000	0.000736808	0.002626479	4.39
Union Pacific Corp	SR NOTES		4.750	2041	108.67	\$ 500,000,000	4.37%	4.16%	0.05% A	\$ 543,350,000	108.67%	28,828,520	0.000576592	0.002055362	4.29
CSX Corp	NOTES		4.750	2042	103.63	\$ 600,000,000	4.58%	4.50%	0.06% BBB+	\$ 621,780,000	103.63%	28,828,520	0.000574848	0.002049146	4.29
Norfolk Southern	SR NTS		3.950	2042	94.99	\$ 600,000,000	4.16%	4.28%	0.06% BBB+	\$ 569,940,000	94.99%	23,700,000	0.000584798	0.002084613	4.34
Norfolk Southern	SR NTS		4.800	2043	108.85	\$ 500,000,000	4.41%	4.23%	0.05% BBB+	\$ 544,250,000	108.85%	24,000,000	0.000480746	0.001713704	4.29
Union Pacific Corp	Fixed Rate		4.750	2043	108.89	\$ 500,000,000	4.36%	4.18%	0.05% A	\$ 544,450,000	108.89%	22,250,000	0.000480448	0.001712642	4.29
CSX Corp	NOTES		4.100	2044	96.46	\$ 800,000,000	4.25%	4.33%	0.08% BBB+	\$ 771,680,000	96.46%	27,900,000	0.000581866	0.002074162	4.29
Union Pacific Corp	Fixed Rate		4.821	2044	110.81	\$ 700,000,000	4.35%	4.14%	0.07% A	\$ 775,670,000	110.81%	27,650,000	0.000427608	0.001524284	5.49

Union Pacific Corp	FR 144a	4.820	2044	120.95 \$	700,000,000	3.99%	3.58%	0.06%	A	\$	846,650,000	120.95%	33,000,000	0.000640919	0.002284668	5.20
Burlington Northern R.R.	Mtg M NC	3.200	2045	76.48 \$	1,500,000,000	4.18%	4.75%	0.16%	BBB+	\$	1,147,200,000	76.48%	48,000,000	0.001620831	0.007786363	4.73
Norfolk Southern	FR SR Note	4.450	2045	103.64 \$	500,000,000	4.29%	4.22%	0.05%	BBB+	\$	518,200,000	103.64%	15,375,000	0.000246047	0.001162929	4.39
Union Pacific Corp	Fixed Rate	4.050	2045	100.64 \$	500,000,000	4.02%	4.01%	0.05%	NR	\$	503,200,000	100.64%	23,750,000	0.000473711	0.002238971	4.22
Norfolk Southern	FR SR Note	4.650	2046	106.32 \$	600,000,000	4.37%	4.26%	0.06%	NR	\$	637,920,000	106.32%	23,750,000	0.000475108	0.002245574	4.22
CSX Corp	FR SR Note	3.950	2050	89.46 \$	600,000,000	4.42%	4.58%	0.06%	BBB+	\$	536,760,000	89.46%	33,747,000	0.00065953	0.003117237	4.17
Norfolk Southern	Notes Z100	7.900	2097	146.37 \$	350,000,000	5.40%	5.37%	0.04%	BBB+	\$	512,295,000	146.37%	33,740,000	0.000570525	0.002696558	0.00
Norfolk Southern	FR SR Note Z100	6.000	2105	116.92 \$	550,000,000	5.13%	5.12%	0.06%	BBB+	\$	643,060,000	116.92%	20,250,000	0.00045627	0.002156537	4.05

Total	\$				13,602,000,000						Total	\$	14,642,279,600	107.65%	4.90%	\$	666,996,040	1.36%	0.252%	4.254
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Source: Standard & Poor's Bond Guide, January 2017, 2016 Yr End Prices

Embedded debt rate	4.9037%
Weighted average yield to maturity	1.3555%
Debt service / Market value	4.5553%
S&P YTM	4.25%
	SAY
	4.50%

DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2017 ASSESSMENT YEAR

RAILROADS

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

Current Year										Current Year			
Guideline Companies		Stock Price	Beta	Revenues	Cash Flow	Earnings	Dividends	Bk Value	Common	Long-Term Debt	Capital Spending per share	Trailing P/E Ratio	Average Annual Dividend Yield
Name	Ticker	(Adj YE Close)		Per Share	Per Share	Per Share	Per Share	Stock	Shares		per share	VL	VL
Union Pacific Corp.	UNP	\$103.68	1.05	\$ 24.20	\$ 7.60	\$ 4.90	\$ 2.20	24.10	824,112	\$ 15,205,000,000	\$ 4.45	19.80	-
Norfolk Southern Corp.	NSC	\$108.07	1.15	\$ 33.85	\$ 9.15	\$ 5.55	\$ 2.36	42.60	291,942	\$ 9,555,000,000	\$ 6.50	19.40	-
CSX Corp.	CSX	\$35.93	1.25	\$ 11.55	\$ 3.20	\$ 1.79	\$ 0.72	12.70	936,100	\$ 9,888,000,000	\$ 2.90	19.20	-
Kansas City Southern	KSU	\$84.85	1.15	\$ 21.35	\$ 7.20	\$ 4.45	\$ 1.32	40.65	107,579	\$ 2,275,700,000	\$ 5.40	19.10	-
Genesee & Wyoming	GWR	\$69.41	1.45	\$ 34.75	\$ 7.15	\$ 3.60	\$ -	46.10	58,038	\$ 1,977,600,000	\$ 3.85	21.90	-
Canadian National	CNI	\$67.40	1.05	\$ 11.70	\$ 4.65	\$ 3.37	\$ 1.12	15.25	766,300	\$ 7,517,000,000	\$ 2.70	18.50	-
Canadian Pacific	CP	\$142.77	1.20	\$ 31.95	\$ 11.35	\$ 7.90	\$ 1.27	25.85	146,300	\$ 6,366,000,000	\$ 5.60	19.20	-

Value Line February 24, 2017

Yahoo

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

Value Line

19.586

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

Note:

Canadian Exchange Rate per Value Line is .75 for 2016.

Value Line figures are all values in US dollars.

			Projected (Next Year)						Projected (Next Year)					Forecast Dividends % Change			
Operating Margin	Income Tax Rate	% Return on Shareholders' Equity	Revenues	Cash Flow	Earnings	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	2017	2018	2019	2020
VL	VL	V L	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	Calc Debt	VL	VL	VL	VL
44.0%	37.5%	21.0%	\$ 25.60	\$ 8.15	\$ 5.55	\$ 2.40	25.85	808,000	4.50	21.5%	12.5%	43.0%	106.0%	9.50	9.50	9.50	9.50
37.5%	38.0%	13.0%	\$ 35.80	\$ 9.85	\$ 6.20	\$ 2.44	45.00	289,000	6.50	13.5%	8.0%	41.0%	115.0%	4.00	4.00	4.00	4.00
41.5%	37.0%	14.0%	\$ 11.95	\$ 3.45	\$ 2.00	\$ 0.76	13.55	930,000	2.15	15.0%	9.0%	41.0%	107.1%	9.50	9.50	9.50	9.50
41.0%	33.0%	11.0%	\$ 23.35	\$ 8.20	\$ 5.15	\$ 1.44	45.35	107,000	5.50	11.5%	8.0%	28.0%	100.3%	10.50	10.50	10.50	10.50
29.0%	29.0%	8.0%	\$ 35.85	\$ 7.85	\$ 3.80	\$ -	48.30	58,000	3.50	8.0%	8.0%	0.0%	101.3%	0.00	0.00	0.00	0.00
54.0%	26.5%	22.5%	\$ 12.50	\$ 5.00	\$ 3.65	\$ 1.25	16.40	745,000	2.55	22.5%	15.0%	34.0%	110.5%	13.50	13.50	13.50	13.50
51.5%	26.0%	31.5%	\$ 34.05	\$ 12.55	\$ 9.10	\$ 1.50	32.70	146,000	5.50	28.0%	26.5%	16.0%	114.9%	14.00	14.00	14.00	14.00

17.3%

29.0%

		Forecast Earnings % Change						Forecast Cash Flow % Change						Forecast Revenue % Change						Income		Balance Sheet	
2021	2022	2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022	Operating Income		Current Assets	
VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	M*	M*	
9.50	9.50	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	\$ 7,272,000,000	\$ 3,596,000,000	
4.00	4.00	6.50	6.50	6.50	6.50	6.50	6.50	6.00	6.00	6.00	6.00	6.00	6.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	\$ 3,074,000,000	\$ 2,291,000,000	
9.50	9.50	8.00	8.00	8.00	8.00	8.00	8.00	7.50	7.50	7.50	7.50	7.50	7.50	4.00	4.00	4.00	4.00	4.00	4.00	4.00	\$ 3,389,000,000	\$ 2,487,000,000	
10.50	10.50	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00	5.50	5.50	5.50	5.50	5.50	5.50	5.50	\$ 818,500,000	\$ 648,000,000	
0.00	0.00	6.50	6.50	6.50	6.50	6.50	6.50	7.50	7.50	7.50	7.50	7.50	7.50	7.00	7.00	7.00	7.00	7.00	7.00	7.00	\$ 289,612,000	\$ 485,338,000	
13.50	13.50	9.50	9.50	9.50	9.50	9.50	9.50	8.50	8.50	8.50	8.50	8.50	8.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	\$ 3,984,000,000	\$ 1,614,750,000	
14.00	14.00	12.50	12.50	12.50	12.50	12.50	12.50	11.50	11.50	11.50	11.50	11.50	11.50	7.00	7.00	7.00	7.00	7.00	7.00	7.00	\$ 1,933,500,000	\$ 756,750,000	

			Cash Flow	Fair Value	Carrying Value	Operating Lease	Balance Sheet
PP & E Gross	Current Liabilities	Long Term Debt	Depreciation & Amortization	Debt	Debt	Rent	Intangibles (excluding Goodwill)
M*	M*	M*	M*	10-k	10-k	10-k	M*
\$ 69,058,000,000	\$ 3,640,000,000	\$ 14,249,000,000	\$ 2,038,000,000	\$ 15,900,000,000	\$ 15,000,000,000	\$ 535,000,000	\$ -
\$ 41,488,000,000	\$ 2,339,000,000	\$ 9,562,000,000	\$ 1,030,000,000	\$ 11,626,000,000	\$ 10,112,000,000	\$ 171,000,000	\$ -
\$ 43,227,000,000	\$ 2,040,000,000	\$ 10,962,000,000	\$ 1,301,000,000	\$ 12,096,000,000	\$ 11,293,000,000	\$ 50,000,000	\$ -
\$ 10,461,800,000	\$ 744,400,000	\$ 2,271,500,000	\$ 305,000,000	\$ 2,303,800,000	\$ 2,296,900,000	\$ 61,000,000	\$ -
\$ 5,479,665,000	\$ 479,110,000	\$ 2,306,915,000	\$ 205,188,000	\$ 2,303,531,000	\$ 2,273,058,000	\$ 14,291,000	\$ 1,472,376,000
\$ 33,620,250,000	\$ 2,248,500,000	\$ 6,738,750,000	\$ 868,500,000	\$ 9,063,000,000	\$ 8,202,750,000	\$ 147,750,000	\$ 216,000,000
\$ 17,860,500,000	\$ 1,010,250,000	\$ 6,494,250,000	\$ 480,000,000	\$ 7,485,750,000	\$ 6,513,000,000	\$ 95,250,000	\$ 11,000,000

SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

WASHINGTON STATE DEPARTMENT OF REVENUE

2017 ASSESSMENT YEAR

RAILROADS

Company	Ticker	Stock Price	2016		2017		2016		2017	
			Actual Earnings Ratio (EPS/P)	Projected Earnings Ratio (PEPS/P)	Cash Flow Ratio (CF/P)	Projected Cash Flow Ratio (PCF/P)				
Union Pacific Corp.	UNP	103.68	4.90	4.73%	5.55	5.35%	7.60	7.33%	8.15	7.86%
Norfolk Southern Corp.	NSC	108.07	5.55	5.14%	6.20	5.74%	9.15	8.47%	9.85	9.11%
CSX Corp.	CSX	35.93	1.79	4.98%	2.00	5.57%	3.20	8.91%	3.45	9.60%
Kansas City Southern	KSU	84.85	4.45	5.24%	5.15	6.07%	7.20	8.49%	8.20	9.66%
Genesee & Wyoming	GWR	69.41	3.60	5.19%	3.80	5.47%	7.15	10.30%	7.85	11.31%
Canadian National	CNI	67.40	3.37	5.00%	3.65	5.42%	4.65	6.90%	5.00	7.42%
Canadian Pacific	CP	142.77	7.90	5.53%	9.10	6.37%	11.35	7.95%	12.55	8.79%
	Mean			5.12%		5.71%		8.33%		9.11%
	Median			5.14%		5.57%		8.47%		9.11%
	Max			5.53%		6.07%		10.30%		11.31%
	Min			4.73%		5.35%		6.90%		7.42%
	stdev			0.00		0.00		0.01		0.01
	cov			0.05		0.07		0.13		0.14
	harmean			5.10%		5.69%		8.21%		8.96%
	Say			5.25%		5.50%		8.50%		9.00%

Source:

Actual earnings: Value Line / Q4 average stock price

Estimated Earnings: Value Line / Q4 average stock price

Actual Cash Flow: Value Line / Q4 average stock price

Estimated Cash Flow: Value Line / Q4 average stock price

IMPLIED PREMIUMS FOR US MARKET

Updated January 5, 2016.

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

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

Year	Earnings Yield	Dividend Yield	S&P 500	Earnings*	Dividends*	% Change in Earnings	% Change in Dividends	T.Bill Rate	T.Bond Rate	Bond-Bill	Smoothed Growth	Implied Premium (t Growth Est)	Implied Premium (FCFE)	ERP/Riskfree Rate	ERP+Riskfree Rate
1960	5.34%	3.41%	58.11	3.10	1.98			0.0266	2.76%	0.10%	2.45%				2.76%
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	5.27%
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	7.41%
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	7.52%
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	7.52%
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	7.97%
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	8.32%
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	8.90%
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	9.16%
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	11.62%
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	9.91%
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	8.98%
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	9.13%
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	11.20%
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	12.99%
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	11.89%
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	11.36%
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	13.70%
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	14.87%
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	16.78%
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	17.46%
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	19.71%
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	15.37%
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	16.11%
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	16.62%
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%	3.84%	0.43	12.83%
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%	3.58%	0.50	10.80%
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%	3.99%	0.45	12.85%
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%	3.77%	0.41	12.91%
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%	3.51%	0.44	11.44%
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%	3.89%	0.48	11.96%
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%	3.48%	0.52	10.18%
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%	3.55%	0.53	10.23%
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%	3.17%	0.55	8.96%
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%	3.55%	0.45	11.37%
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%	3.29%	0.59	8.86%
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%	3.20%	0.50	9.61%
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%	2.73%	0.48	8.47%
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%	2.26%	0.49	6.91%
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%	2.05%	0.32	8.49%
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%	2.87%	0.56	7.98%
2001	3.85%	1.37%	1148.09	38.85	15.74	-30.79%	-3.24%	1.80%	5.05%	3.25%	3.56%	1.73%	3.62%	0.72	8.67%
2002	5.23%	1.83%	879.82	46.04	16.08	18.51%	2.15%	1.20%	3.81%	2.61%	3.57%	2.29%	4.10%	1.08	7.91%
2003	4.87%	1.61%	1111.91	54.69	17.88	18.79%	11.19%	1.00%	4.25%	3.25%	5.35%	2.12%	3.69%	0.87	7.94%
2004	5.58%	1.60%	1211.92	67.68	19.407	23.75%	8.54%	2.18%	4.22%	2.04%	4.90%	2.02%	3.65%	0.86	7.87%
2005	5.47%	1.79%	1248.29	76.45	22.38	12.96%	15.32%	4.31%	4.39%	0.08%	6.16%	2.20%	4.08%	0.93	8.47%
2006	6.18%	1.77%	1418.3	87.72	25.05	14.74%	11.93%	4.88%	4.70%	-0.18%	5.93%	1.97%	4.16%	0.89	8.86%

2007	5.62%	1.89%	1468.36	82.54	27.73	-5.91%	10.70%	3.31%	4.02%	0.71%	5.03%	2.06%	5.00%	4.37%	1.09	8.39%
2008	7.24%	3.11%	903.25	65.39	28.05	-20.78%	1.15%	1.59%	2.21%	0.62%	2.11%	4.05%	4.00%	6.43%	2.91	8.64%
2009	5.35%	2.00%	1115.10	59.65	22.31	-8.78%	-20.46%	0.14%	3.84%	3.70%	0.28%	2.60%	7.20%	4.36%	1.14	8.20%
2010	6.65%	1.84%	1257.64	83.66	23.12	40.25%	3.63%	0.13%	3.29%	3.16%	3.33%	2.24%	6.95%	5.20%	1.58	8.49%
2011	7.72%	2.07%	1257.60	97.05	26.02	16.01%	12.54%	0.03%	1.88%	1.85%	2.75%	2.71%	7.18%	6.01%	3.20	7.89%
2012	7.18%	2.13%	1426.19	102.47	30.44	5.58%	16.99%	0.05%	1.76%	1.71%	2.93%	2.47%	5.27%	5.78%	3.28	7.54%
2013	5.81%	1.96%	1848.36	107.45	36.28	4.86%	19.19%	0.07%	3.04%	2.97%	5.01%	2.03%	4.28%	4.96%	1.63	8.00%
2014	5.49%	1.92%	2058.90	113.01	39.44	5.17%	8.71%	0.05%	2.17%	2.12%	2.77%	2.24%	5.58%	5.78%	2.66	7.95%
2015	5.20%	2.11%	2043.94	106.32	43.16	-5.92%	9.43%	0.21%	2.27%	2.06%	2.96%	2.46%	5.51%	6.12%	2.70	8.39%
2016	4.86%	2.01%	2238.83	108.86	45.03	2.39%	4.33%	0.51%	2.45%	1.94%	2.64%	2.41%	5.54%	5.69%	2.32	8.14%