

COST OF CAPITAL STUDY

YIELD CAPITALIZATION
2022 Assessment Year

APPENDIX C

Pipeline Industry

EQUITY RATE						11.00%	
CAPITAL ASSET PRICING MODEL							PAGE
	CAPM Ex Ante		6.34%				4
DIVIDEND GROWTH MODELS Single Stage							
	Value Line, based on Dividends Growth		11.25%				5
	Value Line, based on Earnings Growth		17.00%				6
	Value Line, based on Return on Equity		7.00%				7
DIVIDEND GROWTH MODELS Sustainable Growth							
	Value Line, based on Dividends Growth		10.75%				5a
	Value Line, based on Earnings Growth		11.00%				6a
FCFE GROWTH MODEL Multi Stage							8
					RANGE	6.34% - 17.00%	
DEBT RATE						3.50%	9
MARKET CAPITAL STRUCTURE							
	Equity	60%	x	11.00%	=	6.60%	3
	Debt	40%	x	3.50%	=	1.40%	3
	Marginal Tax Rate	24%	=	(1-.24)	x	1.40%	
						<u>1.06%</u>	
WEIGHTED AVERAGE COST OF CAPITAL						7.66%	

SUPPORT FOR GUIDELINE COMPANIES

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

Capital Structure at Book Value

Company	Ticker	Beta	Fin'l Strength	P/E Ratio	Div'd Yield	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
Enbridge Inc	enb.to	0.90	B++	19.1	6.9%	53,197,500,000	42.2%	7,747,000,000	6.1%	65,036,000,000	51.6%	125,980,500,000
Kinder Morgan Inc	kmi	1.15	B	22.0	6.9%	30,813,966,000	50.1%			30,700,000,000	49.9%	61,513,966,000
ONEOK Inc	oke	1.50	B+	19.7	6.5%	5,900,400,000	30.2%			13,640,500,000	69.8%	19,540,900,000
Pembina Pipeline Corp	ppl.to	1.10	B++	NMF	6.6%	16,006,550,000	57.0%	2,424,000,000	8.6%	9,634,000,000	34.3%	28,064,550,000
TC Energy Corp	trp	1.05	B++	31.7	5.7%	21,101,310,000	39.5%	2,818,000,000	5.3%	29,499,400,000	55.2%	53,418,710,000
The Williams Cos Inc	wmb	1.20	B	23.7	6.3%	12,505,000,000	38.1%			20,338,000,000	61.9%	32,843,000,000
Mean		1.15		23.2	6.5%	23,254,121,000	42.9%		6.7%	28,141,316,667	53.8%	
Harmonic Mean		1.12					41.1%		6.4%		51.2%	
Weighted Mean						139,524,726,000	43.4%	12,989,000,000	4.0%	168,847,900,000	52.5%	321,361,626,000
Median		1.13			6.6%		40.9%		6.1%		53.4%	

SUPPORT FOR CAPITAL STRUCTURE Market Value

Washington State Department of Revenue

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Pipeline Industry

Company	Ticker	Stock Price	Common Shares	Common Stock	%	Preferred Stock	%	Long Term Debt	%	Total Debt & Equity
Enbridge Inc	enb.to	48.65	2,050,000,000	99,732,500,000	58.1%	7,747,000,000	4.5%	64,089,232,000	37.4%	171,568,732,000
Kinder Morgan Inc	kmi	15.62	2,267,400,000	35,416,788,000	48.6%	-		37,459,000,000	51.4%	72,875,788,000
ONEOK Inc	oke	57.85	447,000,000	25,858,950,000	62.4%	-		15,600,000,000	37.6%	41,458,950,000
Pembina Pipeline Cor	ppl.to	37.97	551,000,000	20,921,470,000	67.7%	2,424,000,000	7.8%	7,538,300,520	24.4%	30,883,770,520
TC Energy Corp	trp	46.54	981,000,000	45,655,740,000	50.0%	2,818,000,000	3.1%	42,870,225,176	46.9%	91,343,965,176
The Williams Cos Inc	wmb	26.04	1,220,000,000	31,768,800,000	53.4%	-		27,768,000,000	46.6%	59,536,800,000
Mean					56.7%		5.1%		40.7%	
Harmonic Mean					55.9%		4.5%		38.3%	
			Weighted Mean	259,354,248,000	55.5%	12,989,000,000	2.8%	195,324,757,696	41.8%	467,668,005,696
Median					55.7%		4.5%		42.1%	
Std Dev					7.5%		2.4%		9.7%	
Coefficient of Variation					13.2%		47.5%		23.9%	
Target					60%				40%	100%

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

2022 Assessment Year

Ex Ante
Ke = Rf + B (Rp)

Ke = Cost of Equity				6.34%
				to page 1
	Rm =	rate of return	5.76%	
	Rf =	risk free rate	1.90%	
	Rp =	risk premium	3.86%	
	B =	Beta	1.15	page 7

Rp = Risk Premium				3.86%
				to above
	Shannon Pratt and Roger Grabowski		3.50% - 6.00%	
	Cost of Capital, App and Exam, 5th Ed, 2014			
	Dr. Aswath Damodaran		4.24%	chart page 15
	http://pages.stern.nyu.edu/~adamodar/		3.86%	adjusted for Rf
	2021 Implied Premium			

Rf = Risk Free Rate				1.90%
				to above

Value Line Investment Survey, Selected Yields January 7, 2022, page 2089

as of 12-27-21	US Treasury Securities year end data		
		5 year	1.26%
		10 year	1.48%
		30 year	1.88%
		30 year Zero	1.90%

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

As of 12-31-21	Treasury Constant Maturities		
		5 year	1.26%
		10 year	1.52%
		20 year	1.94%
		30 year	1.90%
		20 year TIPS	-0.63%
		30 year TIPS	-0.44%

Inflation				2.34%
				to appraisal template

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

As of 12-31-21	Inflation Indication from Treasury Inflation-Protected Securities		
		20 year	2.57%
		30 year	2.34%

Federal Reserve Bank of Philadelphia

	The Livingston Survey December 17, 2021, page 8		
	Inflation median (measured by the CPI) over next 10 years		2.40%
	https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey		

Gross Domestic Product (GDP) Nominal				4.14%
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Federal Reserve Projected Long Run Real GDP Growth

			1.80%
	Median Projection Value From Dec 15, 2021 Report, page 2		
	https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20211215.pdf		

Congressional Budget Office Real GDP Economic Projections

			Table 2.3, pg 15
	The Budget and Economic Outlook 2021-2031	2021-2025	1.90%
	Average Percentage Change Year To Year	2026-2031	1.70%
	https://www.cbo.gov/system/files/2021-02/56970-Outlook.pdf		

Federal Reserve Bank of Philadelphia

	The Livingston Survey December 17, 2021, page 8		2.10%
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**SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT
DIVIDEND GROWTH MODEL**

Washington State Department of Revenue
2022 Assessment Year
Pipeline Industry

Based on Dividend Growth

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

Ke = Cost of Equity
D1 = Expected Dividends
Po = Current Price
G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Dividend Growth (G)	Ke with Short Term Growth
Enbridge Inc	enb.to	48.650	3.44	7.07%	3.00%	10.07%
Kinder Morgan Inc	kmi	15.620	1.11	7.11%	6.50%	13.61%
ONEOK Inc	oke	57.850	3.90	6.74%	4.50%	11.24%
Pembina Pipeline Corp	ppl.to	37.970	2.75	7.24%	4.00%	11.24%
TC Energy Corp	trp	46.540	2.84	6.10%	5.50%	11.60%
The Williams Cos Inc	wmb	26.040	1.70	6.53%	4.50%	11.03%
Mean Range						11.47%
Harmonic Mean Range						11.37%
Median Range						11.24%
Max						13.61%
Min						10.07%
Std Dev Range						1.17%
Coefficient of Variation						10.20%
Say						11.25%

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

Based on Dividend Growth

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

K_e = Cost of Equity
 D_1 = Expected Dividends
 P_o = Current Price
 G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Dividend Growth (G)	Dividend Growth LT	Ke Sustainable
Enbridge Inc	enb.to	48.65	3.44	7.07%	3.00%	3.00%	10.07%
Kinder Morgan Inc	kmi	15.62	1.11	7.11%	6.50%	4.14%	11.25%
ONEOK Inc	oke	57.85	3.90	6.74%	4.50%	4.14%	10.88%
Pembina Pipeline Corp	ppl.to	37.97	2.75	7.24%	4.00%	4.00%	11.24%
TC Energy Corp	trp	46.54	2.84	6.10%	5.50%	4.14%	10.24%
The Williams Cos Inc	wmb	26.04	1.70	6.53%	4.50%	4.14%	10.67%
Mean Range							10.73%
Harmonic Mean Range							10.71%
Median Range							10.77%
Max							11.25%
Min							10.07%
Std Dev Range							0.50%
Coefficient of Variation							4.62%
Say							10.75%

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

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

Based on Earnings Growth

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

Ke = Cost of Equity
 D1 = Expected Dividends
 Po = Current Price
 G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Earnings Growth (G)	Ke with Short Term Growth
Enbridge Inc	enb.to	48.650	3.44	7.07%	8.50%	15.57%
Kinder Morgan Inc	kmi	15.620	1.11	7.11%	19.00%	26.11%
ONEOK Inc	oke	57.850	3.90	6.74%	11.00%	17.74%
Pembina Pipeline Corp	ppl.to	37.970	2.75	7.24%	15.00%	22.24%
TC Energy Corp	trp	46.540	2.84	6.10%	4.50%	10.60%
The Williams Cos Inc	wmb	26.040	1.70	6.53%	10.00%	16.53%
Mean Range						18.13%
Harmonic Mean Range						16.73%
Median Range						17.13%
Max						26.11%
Min						10.60%
Std Dev						5.41%
Coefficient of Variation						29.85%
Say						17.00%

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue
2022 Assessment Year
Pipeline Industry

Based on Dividend Growth

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

Ke = Cost of Equity
D1 = Expected Dividends
Po = Current Price
G = Sustainable Growth

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Dividend Yield (D1/Po)	Earnings Growth (G)	Dividend Growth LT	Ke Sustainable
Enbridge Inc	enb.to	48.65	3.44	7.07%	8.50%	4.14%	11.21%
Kinder Morgan Inc	kmi	15.62	1.11	7.11%	19.00%	4.14%	11.25%
ONEOK Inc	oke	57.85	3.90	6.74%	11.00%	4.14%	10.88%
Pembina Pipeline Corp	ppl.to	37.97	2.75	7.24%	15.00%	4.14%	11.38%
TC Energy Corp	trp	46.54	2.84	6.10%	4.50%	4.14%	10.24%
The Williams Cos Inc	wmb	26.04	1.70	6.53%	10.00%	4.14%	10.67%
Mean Range							10.94%
Harmonic Mean Range							10.92%
Median Range							11.05%
Max							11.38%
Min							10.24%
Std Dev Range							0.43%
Coefficient of Variation							3.94%
Say							11.00%

SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

Based on Return on Equity $K_e = (D1 / P_o) + G$

Ke = Cost of Equity

D1 = Expected Dividends

E1 = Expected Earnings

Po = Current Price

G = Sustainable Growth

b = Retained Earnings % = (1 - Payout Ratio)

ROE = Return on Equity = (E1 / Po)

Company	Ticker	Stock Price (Po)	Expected Dividend (D1)	Expected Earnings (E1)	Dividend Yield (D1/Po)	Retained Earnings (b)	ROE (E1/Po)	Growth (b*ROE)	Ke Dividends	Ke Earnings
Enbridge Inc	enb.to	48.650	3.44	3.00	7.07%	-29.0%	6.17%	-1.79%	5.28%	4.38%
Kinder Morgan Inc	kmi	15.620	1.11	1.15	7.11%	NMF	7.36%	NMF	NMF	NMF
ONEOK Inc	oke	57.850	3.90	3.80	6.74%	NMF	6.57%	NMF	NMF	NMF
Pembina Pipeline Corp	ppl.to	37.970	2.75	2.80	7.24%	-3.0%	7.37%	-0.22%	7.02%	7.15%
TC Energy Corp	trp	46.540	2.84	3.00	6.10%	32.0%	6.45%	2.06%	8.17%	8.51%
The Williams Cos Inc	wmb	26.040	1.70	1.45	6.53%	NMF	5.57%	NMF	NMF	NMF
Mean									6.82%	6.68%
Harmonic Mean									6.61%	6.18%
Median									7.02%	7.15%
Std Dev									1.45%	2.11%
Coefficient of Variation									21.27%	31.52%

say **7.00%**

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

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	Expected Earnings	P/E	Payout Ratio	ROE	Ke
Enbridge Inc	enb.to	48.65	3.00	16.22	121.00%	10.50%	8.02%
Kinder Morgan Inc	kmi	15.62	1.15	13.58	96.00%	8.00%	10.43%
ONEOK Inc	oke	57.85	3.80	15.22	NMF	28.50%	9.23%
Pembina Pipeline Corp	ppl.to	37.97	2.80	13.56	98.00%	9.00%	10.00%
TC Energy Corp	trp	46.54	3.00	15.51	100.00%	11.50%	8.97%
The Williams Cos Inc	wmb	26.04	1.45	17.96	NMF	14.00%	6.37%
Mean				15.34	103.75%	13.58%	8.84%
Harmonic Mean				15.20	102.87%	11.43%	8.60%
Median				15.37	99.00%	11.00%	9.10%
Industry Summary				15.30	99.00%	11.00%	

Say **9.00%**

SUPPORT FOR DEBT RATING AND DEBT YIELD

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

Company	Ticker	Mergent's Ratings	S&P Ratings
Enbridge Inc	enb.to	Baa1	BBB+
Kinder Morgan Inc	kmi	Baa2	BBB
ONEOK Inc	oke	Baa3	BBB
Pembina Pipeline Corp	ppl.to		BBB
TC Energy Corp	trp	Baa2	BBB+
The Williams Cos Inc	wmb	Baa2	BBB
Overall Average Debt Rating		Baa2	BBB

Mergent's Bond Record January 2022 page 90

Corporate	Aaa	Aa	A	Baa
October	2.68%	2.86%	3.02%	3.35%
November	2.62%	2.77%	2.95%	3.28%
December	2.71%	2.82%	3.04%	3.37%
4th Qtr Average	2.67%	2.82%	3.00%	3.33%
Public Utilities		Aa	A	Baa
October		2.99%	3.09%	3.32%
November		2.91%	3.02%	3.25%
December		3.01%	3.13%	3.36%
4th Qtr Average		2.97%	3.08%	3.31%
Industrials	Aaa	Aa	A	Baa
October	2.68%	2.73%	2.96%	3.38%
November	2.62%	2.63%	2.88%	3.30%
December	2.71%	2.62%	2.95%	3.37%
4th Qtr Average	2.67%	2.66%	2.93%	3.35%

Bloomberg S&P Bond Yields	BBB	Corporate	Utilities
		3.24%	3.31%
Capital IQ Bond Yield	BBB	Corporate	Energy
		3.79%	4.07%

Debt Yield Rate	3.50%
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SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2022 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	2021		2022		2021		2022	
			Actual Earnings Ratio (EPS/P)		Projected Earnings Ratio (PEPS/P)		Cash Flow Ratio (CF/P)		Projected Cash Flow Ratio	
Enbridge Inc	enb.to	48.650	2.74	5.6%	3.00	6.2%	4.40	9.0%	4.65	9.6%
Kinder Morgan Inc	kmi	15.620	0.78	5.0%	1.15	7.4%	1.73	11.1%	2.15	13.8%
ONEOK Inc	oke	57.850	3.40	5.9%	3.80	6.6%	4.85	8.4%	5.35	9.2%
Pembina Pipeline Corp	ppl.to	37.970	2.55	6.7%	2.80	7.4%	3.90	10.3%	4.15	10.9%
TC Energy Corp	trp	46.540	1.48	3.2%	3.00	6.4%	3.65	7.8%	5.05	10.9%
The Williams Cos Inc	wmb	26.040	1.30	5.0%	1.45	5.6%	3.00	11.5%	3.25	12.5%
Mean			5.2%		6.6%		9.7%		11.1%	
Harmonic Mean			5.0%		6.5%		9.5%		10.9%	
Median			5.3%		6.5%		9.7%		10.9%	
Max			6.7%		7.4%		11.5%		13.8%	
Min			3.2%		5.6%		7.8%		9.2%	
Std Dev			1.2%		0.7%		1.5%		1.7%	
Coefficient of Variation			22.8%		10.6%		15.4%		15.5%	
Say			5.2%		6.5%		9.7%		11.0%	

Source: VL/Year End Stock Price

SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

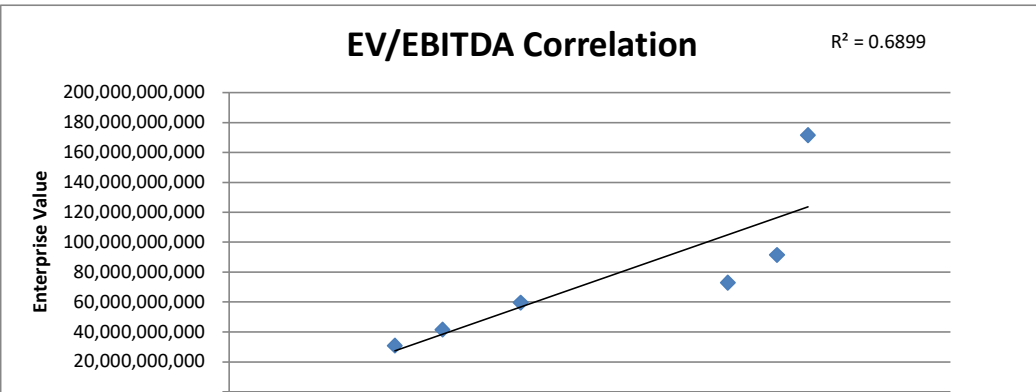
2022 Assessment Year

Company	Ticker	Stock Price	Enterprise Value	EBITDA Historical	Annual Change VL	EBITDA Forecast	EV / EBITDA Forecast	Revenue Forecast	EV / Sales Forecast	Cashflow Forecast	Debt Service	EV / CF Forecast	
Enbridge Inc	enb.to	48.650	171,568,732,000	9,110,831,432	5.68%	9,628,492,309	17.82	46,330,000,000	3.70	9,532,500,000	2,243,123,120	14.57	
Kinder Morgan Inc	kmi	15.620	72,875,788,000	6,675,000,000	24.28%	8,295,520,231	8.78	17,232,240,000	4.23	4,874,910,000	1,311,065,000	11.78	
ONEOK Inc	oke	57.850	41,458,950,000	3,216,566,000	10.31%	3,548,170,742	11.68	17,388,300,000	2.38	2,391,450,000	546,000,000	14.11	
Pembina Pipeline Corp	ppl.to	37.970	30,883,770,520	2,588,579,712	6.41%	2,754,514,309	11.21	8,871,100,000	3.48	2,286,650,000	263,840,518	12.11	
TC Energy Corp	trp	46.540	91,343,965,176	6,587,122,528	38.36%	9,113,690,073	10.02	11,036,250,000	8.28	4,954,050,000	1,500,457,881	14.15	
The Williams Cos Inc	wmb	26.040	59,536,800,000	4,475,000,000	8.33%	4,847,916,667	12.28	10,553,000,000	5.64	3,965,000,000	971,880,000	12.06	
							11.97		4.62			13.13	
Mean													
Harmonic Mean							11.41		3.97			13.03	
Median							11.45		3.97			13.11	
Std Dev							3.13		2.08			1.27	

Source: **Say** **11.75** **4.25** **13.25**
 Value Line & Morning Star

Forecast EV/EBITDA By Rank

Guideline Companies	EV/EBITDA forecast	
Kinder Morgan Inc	8.78	9.91 Low Harmonic mean
TC Energy Corp	10.02	
Pembina Pipeline Corp	11.21	
ONEOK Inc	11.68	10.02 Low Median
The Williams Cos Inc	12.28	10.00 Say
Enbridge Inc	17.82	13.93 High Average
		12.28 High Median
		13.45 High Harmonic mean
		13.00 Say



SUPPORT FOR DIRECT CAPITALIZATION EQUITY COMPONENT

2022 Assessment Year

Pipeline Industry

Company	Ticker	Stock Price	Revenues		Cash Flow		Earnings		Book Value	
				Multiple		Multiple		Multiple		Multiple
Enbridge Inc	enb.to	48.650	22.95	2.12	4.40	11.06	2.74	17.76	25.95	1.87
Kinder Morgan Inc	kmi	15.620	7.33	2.13	1.73	9.03	0.78	20.03	13.59	1.15
ONEOK Inc	oke	57.850	34.35	1.68	4.85	11.93	3.40	17.01	13.20	4.38
Pembina Pipeline Corp	ppl.to	37.970	15.15	2.51	3.90	9.74	2.55	14.89	29.05	1.31
TC Energy Corp	trp	46.540	10.78	4.32	3.65	12.75	1.48	31.45	21.51	2.16
The Williams Cos Inc	wmb	26.040	8.10	3.21	3.00	8.68	1.30	20.03	10.25	2.54
Mean			2.66		10.53		20.19		2.24	
Harmonic Mean			2.42		10.32		19.11		1.84	
Median			2.32		10.40		18.89		2.02	
Max			4.32		12.75		31.45		4.38	
Min			1.68		8.68		14.89		1.15	
Say			2.50		10.40		19.50		2.15	

Source: VL/Year End Stock Price

DATA INPUT

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

Guideline Companies		Stock Price 12/31/21	Historic Figures (2021)												
			Beta Levered	Fin'I Strength	Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Per Share	Bk Value Per Share	Common Shares	LTD (BV)	Trailing P/E Ratio	Div Yield	Operating Margin	Calculated Debt
Name	Ticker	Yahoo	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	V L	Formula
Enbridge Inc	enb.to	48.65	0.90	B++	22.95	4.40	2.74	3.34	25.95	2,050,000,000	65,036,000,000	19.1	6.5%	28.5%	110.22%
Kinder Morgan Inc	kmi	15.62	1.15	B	7.33	1.73	0.78	1.07	13.59	2,267,400,000	30,700,000,000	22.0	6.3%	40.1%	113.49%
ONEOK Inc	oke	57.85	1.50	B+	34.35	4.85	3.40	3.74	13.20	447,000,000	13,640,500,000	19.7	6.2%	26.0%	122.38%
Pembina Pipeline Corp	ppl.to	37.97	1.10	B++	15.15	3.90	2.55	2.52	29.05	551,000,000	9,634,000,000	NMF	6.0%	32.0%	105.12%
TC Energy Corp	trp	46.54	1.05	B++	10.78	3.65	1.48	2.67	21.51	981,000,000	29,499,400,000	31.7	5.4%	15.3%	115.23%
The Williams Cos Inc	wmb	26.04	1.20	B	8.10	3.00	1.30	1.64	10.25	1,220,000,000	20,338,000,000	23.7	5.7%	52.1%	117.29%
											average	23.2		32.3%	
Average											harmonic mean	22.5		28.0%	
Harmonic Mean											median	22.0		30.3%	
Median															

		Projected (Next Year) 2022									Longer Term Forecasts		Income Statement			
All DIV's to Net Profits	Rtn on Shrhldrs Equity	Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Dividends Per Share	Bk Value Per Share	All DIV's to Net Profits	Rtn on Shrhldrs Equity	CF Projection 25-27	Earnings Projection 25-27	Earnings Growth 25-27	Dividend Growth 25-27	Operating Income	Current Assets	PP & E Gross	
V L	V L	V L	V L	V L	V L	V L	VL	V L	V L	V L	VL	VL	Morningstar	Morningstar	Morningstar	
129%	9.5%	22.60	4.65	3.00	3.44	25.95	121%	10.50%	5.95	4.20	8.5%	3.0%	6,100,200,680	7,002,139,384	31,199,732,344	
NMF	5.80%	7.60	2.15	1.15	1.11	14.30	96%	8.00%	2.95	1.70	19.0%	6.5%	4,540,000,000	3,829,000,000	54,445,000,000	
NMF	26.0%	38.90	5.35	3.80	3.90	13.45	NMF	28.50%	7.70	5.75	11.0%	4.5%	2,594,865,000	2,374,374,000	23,820,539,000	
103%	9.0%	16.10	4.15	2.80	2.75	30.45	98%	9.00%	5.15	3.80	15.0%	4.0%	2,023,500,264	973,062,120	17,286,897,968	
68%	7.5%	11.25	5.05	3.00	2.84	25.60	100%	11.50%	6.80	4.50	4.5%	5.5%	4,615,987,856	5,801,638,648	29,279,400,112	
NMF	12.5%	8.65	3.25	1.45	1.70	10.45	NMF	14.00%	4.15	1.90	10.0%	4.5%	2,633,000,000	4,549,000,000	44,184,000,000	
100%	11.7%						average			5.45						
	9.4%						Median			5.55						
	9.3%						Harmonic mean			4.92						

Balance Sheet			Cash Flow Statement	Other Financials	
Intangibles (excl. GW)	Current Liabilities	Long Term Debt Less Current Maturities	Depreciation & Amortization	Carrying Value Debt	Fair Value Debt
Morningstar	Morningstar	Morningstar	Morningstar	10-K	10-K
4,326,023,160	14,247,348,904	53,116,686,536	3,010,630,752	58,149,254,400	64,089,232,000
3,036,000,000	5,821,000,000	30,564,000,000	2,135,000,000	33,006,000,000	37,459,000,000
381,435,000	3,184,619,000	12,747,363,000	621,701,000	12,747,636,000	15,600,000,000
1,679,606,824	1,867,966,640	7,538,300,520	565,079,448	8,784,132,664	9,233,538,864
-	10,192,532,616	36,171,337,280	1,971,134,672	37,203,017,600	42,870,225,176
7,402,000,000	4,972,000,000	21,650,000,000	1,842,000,000	23,675,000,000	27,768,000,000

STOCK PRICE

Washington State Department of Revenue

2022 Assessment Year

Pipeline Industry

38.66
2021 Year End

Enbridge Inc	enb.to								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2021	49.27	49.46	48.91	49.41	48.65	2,742,700			48.65
Kinder Morgan Energy	kmi								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2021	15.75	15.94	15.75	15.86	15.62	8,280,900			15.62
ONEOK Inc	oke								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2021	58.38	59.13	58.25	58.76	57.85	1,202,600			57.85
Pembina Pipeline Corp	ppl.to								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/30/2021	38.5	38.74	38.31	38.31	37.91	698,800			37.91
TransCanada Corp	trp								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/30/2021	46.49	46.71	46.03	46.21	46.21	3,646,800			46.21
Williams Cos	wmb								
Date	Open	High	Low	Close	Adj. Close*	Volume			
12/31/2021	25.87	26.15	25.82	26.04	25.7	3,581,000			25.70

Source:

finance.yahoo.com

Historical Stock Quotes

IMPLIED PREMIUMS FOR US MARKET

Updated January 2022

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

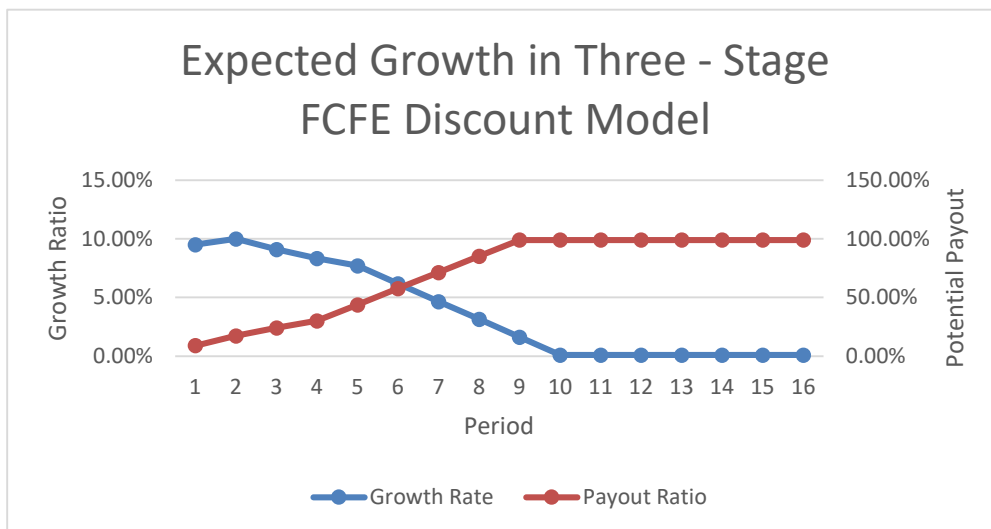
Year	Earnings Yield	Dividend Yield	S&P 500	Earnings*	Dividends*	Ends + Buyback	Ingrain in Earnings	Ingrain in Dividends	T.Bill Rate	T.Bond Rate	Bond-Bill	Boothed Growth	Implied Premium	Real Growth	Implied Premium (%)
1960	5.34%	3.41%	58.11	3.10	1.98				2.66%	2.76%	0.10%	2.45%			
1961	4.71%	2.85%	71.55	3.37	2.04		8.60%	2.91%	2.13%	2.35%	0.22%	2.41%	2.92%		2.92%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%	7.81%	3.48%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%

Three Stage Free Cash Flow to Equity Discount Model

Company **Enbridge Inc** 4.14% GDP
 Ticker **enb.to** 15.3 Industry P/E use median
 99.0% Target Dividend Payout Ratio
 11.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		86.26%	13.74%	2.74			(48.65)
	1	9.49%	90.91%	9.09%	3.00	0.27		0.27
	2	10.00%	82.64%	17.36%	3.30	0.57		0.57
Stage 1	3	9.09%	75.76%	24.24%	3.60	0.87		0.87
	4	8.33%	69.93%	30.07%	3.90	1.17		1.17
	5	7.69%	56.14%	43.86%	4.20	1.84		1.84
	6	6.18%	42.36%	57.64%	4.46	2.57		2.57
	7	4.66%	28.57%	71.43%	4.67	3.33		3.33
Stage 2	8	3.14%	14.79%	85.21%	4.81	4.10		4.10
	9	1.63%	1.00%	99.00%	4.89	4.84		4.84
	10	0.11%	1.00%	99.00%	4.90	4.85	75.01	79.86
Stage 3	11+	0.11%	1.00%	99.00%	4.90	4.85		

$K_e = 8.02\%$

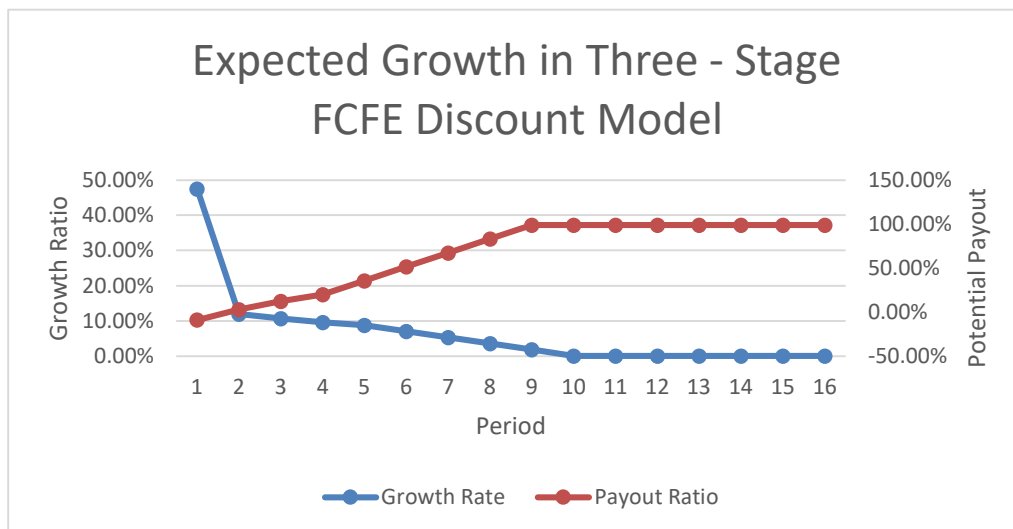


Three Stage Free Cash Flow to Equity Discount Model

Company **Kinder Morgan** 4.14% GDP
 Ticker **kmi** 15.3 Industry P/E use median
 99.0% Target Dividend Payout Ratio
 11.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		431.24%	-331.24%	0.78			(15.62)
	1	47.44%	108.70%	-8.70%	1.15	(0.10)		-0.10
	2	11.96%	97.09%	2.91%	1.29	0.04		0.04
Stage 1	3	10.68%	87.72%	12.28%	1.43	0.17		0.17
	4	9.65%	80.00%	20.00%	1.56	0.31		0.31
	5	8.80%	64.20%	35.80%	1.70	0.61		0.61
	6	7.06%	48.40%	51.60%	1.82	0.94		0.94
	7	5.32%	32.60%	67.40%	1.92	1.29		1.29
Stage 2	8	3.59%	16.80%	83.20%	1.99	1.65		1.65
	9	1.85%	1.00%	99.00%	2.02	2.00		2.00
	10	0.11%	1.00%	99.00%	2.02	2.00	31.01	33.02
Stage 3	11+	0.11%	1.00%	99.00%	2.03	2.01		

$K_e = 10.43\%$

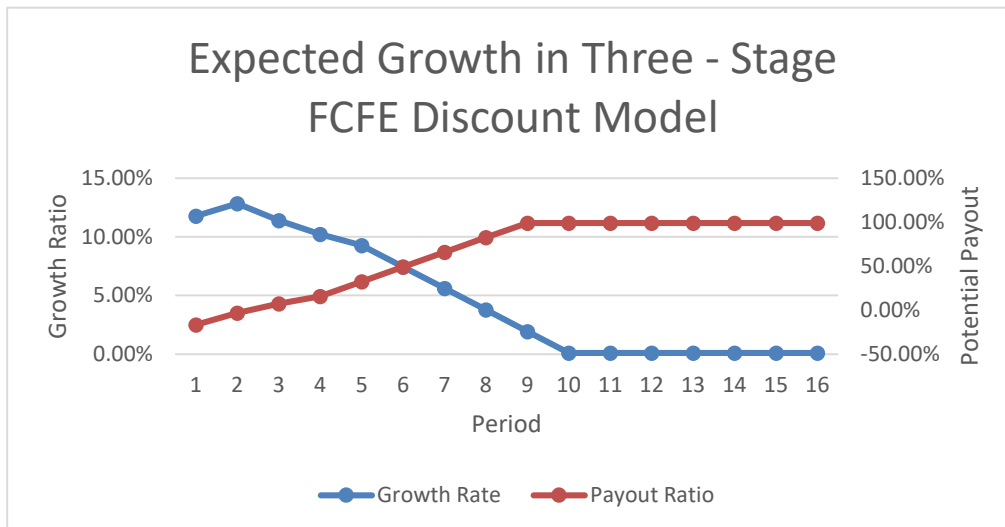


Three Stage Free Cash Flow to Equity Discount Model

Company **ONEOK Inc** 4.14% GDP
 Ticker **oke** 15.3 Industry P/E use median
 99.0% Target Dividend Payout Ratio
 11.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		106.95%	-6.95%	3.40			(57.85)
	1	11.76%	116.63%	-16.63%	3.80	(0.63)		-0.63
	2	12.83%	103.37%	-3.37%	4.29	(0.14)		-0.14
Stage 1	3	11.37%	92.81%	7.19%	4.78	0.34		0.34
	4	10.21%	84.22%	15.78%	5.26	0.83		0.83
	5	9.26%	67.57%	32.43%	5.75	1.86		1.86
	6	7.43%	50.93%	49.07%	6.18	3.03		3.03
	7	5.60%	34.29%	65.71%	6.52	4.29		4.29
Stage 2	8	3.77%	17.64%	82.36%	6.77	5.58		5.58
	9	1.94%	1.00%	99.00%	6.90	6.83		6.83
	10	0.11%	1.00%	99.00%	6.91	6.84	105.82	112.66
Stage 3	11+	0.11%	1.00%	99.00%	6.92	6.85		

K_e = 9.23%

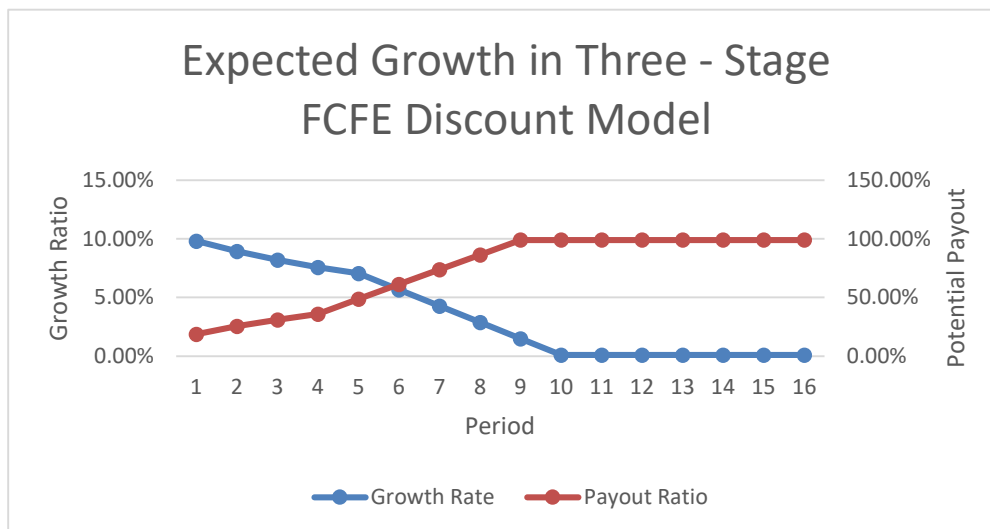


Three Stage Free Cash Flow to Equity Discount Model

Company **Pembina Pipelin** 4.14% GDP
 Ticker **ppl.to** 15.3 Industry P/E use median
 99.0% Target Dividend Payout Ratio
 11.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		89.13%	10.87%	2.55			(37.97)
	1	9.80%	81.17%	18.83%	2.80	0.53		0.53
	2	8.93%	74.52%	25.48%	3.05	0.78		0.78
Stage 1	3	8.20%	68.87%	31.13%	3.30	1.03		1.03
	4	7.58%	64.02%	35.98%	3.55	1.28		1.28
	5	7.04%	51.42%	48.58%	3.80	1.85		1.85
	6	5.66%	38.81%	61.19%	4.01	2.46		2.46
	7	4.27%	26.21%	73.79%	4.19	3.09		3.09
Stage 2	8	2.88%	13.60%	86.40%	4.31	3.72		3.72
	9	1.50%	1.00%	99.00%	4.37	4.33		4.33
	10	0.11%	1.00%	99.00%	4.38	4.33	67.03	71.36
Stage 3	11+	0.11%	1.00%	99.00%	4.38	4.34		

$K_e = 10.00\%$

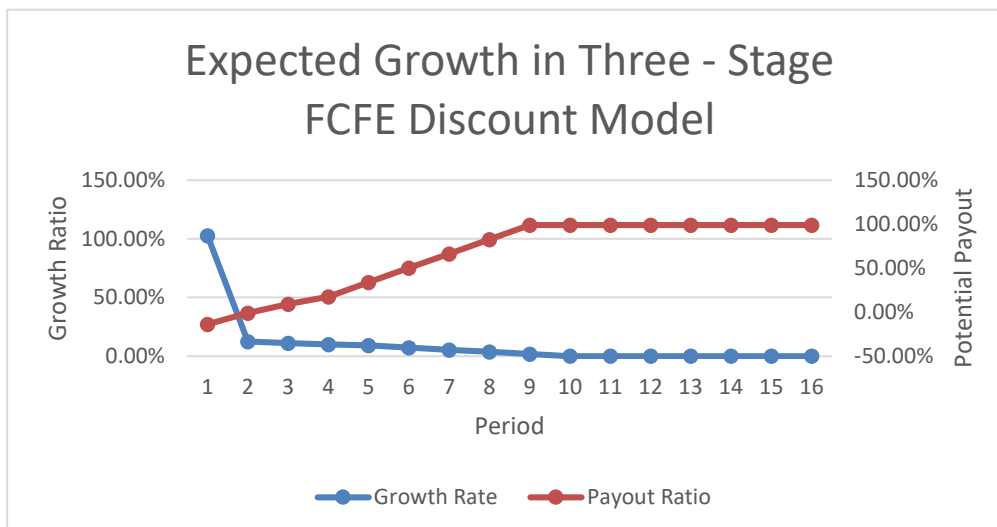


Three Stage Free Cash Flow to Equity Discount Model

Company **TC Energy Corp** 4.14% GDP
 Ticker **trp** 15.3 Industry P/E use median
 99.0% Target Dividend Payout Ratio
 11.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		933.66%	-833.66%	1.48			(46.54)
	1	#####	113.64%	-13.64%	3.00	(0.41)		-0.41
	2	12.50%	101.01%	-1.01%	3.38	(0.03)		-0.03
Stage 1	3	11.11%	90.91%	9.09%	3.75	0.34		0.34
	4	10.00%	82.64%	17.36%	4.13	0.72		0.72
	5	9.09%	66.32%	33.68%	4.50	1.52		1.52
	6	7.29%	49.99%	50.01%	4.83	2.41		2.41
	7	5.50%	33.66%	66.34%	5.09	3.38		3.38
Stage 2	8	3.70%	17.33%	82.67%	5.28	4.37		4.37
	9	1.91%	1.00%	99.00%	5.38	5.33		5.33
	10	0.11%	1.00%	99.00%	5.39	5.34	82.54	87.88
Stage 3	11+	0.11%	1.00%	99.00%	5.39	5.34		

K_e = 8.97%



Three Stage Free Cash Flow to Equity Discount Model

Company **The Williams Co** 4.14% GDP
 Ticker **wmb** 15.3 Industry P/E use median
 99.0% Target Dividend Payout Ratio
 11.0% Target ROE

	Year	Growth Rate	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		104.90%	-4.90%	1.30			(26.04)
Stage 1	1	11.54%	70.53%	29.47%	1.45	0.43		0.43
	2	7.76%	65.45%	34.55%	1.56	0.54		0.54
	3	7.20%	61.06%	38.94%	1.68	0.65		0.65
	4	6.72%	57.22%	42.78%	1.79	0.76		0.76
	5	6.29%	45.97%	54.03%	1.90	1.03		1.03
Stage 2	6	5.06%	34.73%	65.27%	2.00	1.30		1.30
	7	3.82%	23.49%	76.51%	2.07	1.59		1.59
	8	2.58%	12.24%	87.76%	2.13	1.87		1.87
	9	1.35%	1.00%	99.00%	2.15	2.13		2.13
	10	0.11%	1.00%	99.00%	2.16	2.14	33.04	35.17
Stage 3	11+	0.11%	1.00%	99.00%	2.16	2.14		

$K_e = 6.37%$

