

## COST OF CAPITAL STUDY

YIELD CAPITALIZATION  
 2021 ASSESSMENT YEAR

APPENDIX C

### PASSENGER AIRLINES

<b>EQUITY RATE</b>		<b>14.00%</b>	
<b>CAPITAL ASSET PRICING MODEL</b>			PAGE
CAPM Ex Ante	7.65%		6
<b>DIVIDEND GROWTH MODELS</b>			
Value Line, based on Dividends Growth	NMF		7
Value Line, based on Residual Income Method	13.50%		7a
Value Line, based on Residual Income Method Multistage	15.00%		
Value Line, based on Earnings Growth	NMF		8
Value Line, based on Return on Equity	NMF		9
	<b>RANGE</b>	7.65% - 15%	
<b>DEBT RATE</b>		<b>6.00%</b>	10
<b>OPERATING LEASE DEBT RATE</b>		<b>4.00%</b>	10
<b>MARKET CAPITAL STRUCTURE</b>			
		Tax Shield	
Equity	50%	x 14.00% =	7.00%
Operating Leases	15%	x 4.00% x 76.00% =	0.46%
Debt	35%	x 6.00% x 76.00% =	1.60%
Marginal Tax Rate	24%		
<b>WEIGHTED AVERAGE COST OF CAPITAL</b>		<b>9.05%</b>	

# SUPPORT FOR GUIDELINE COMPANIES

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

Capital Structure at Book Value

Company	Ticker	Beta	P/E Ratio	Div'd Yield	Common Stock	%	Preferr ed Stock	%	Long Term Debt	%	Total Debt & Equity	%
Alaska Air Group, Inc.	ALK	1.50	(12.2)	0.00%	2,974,057,464	55.8%	-	0.0%	2,357,000,000	44.2%	5,331,057,464	100.0%
Allegiant Travel Co	ALGT	1.30	39.8	0.00%	695,924,600	32.6%	-	0.0%	1,441,777,000	67.4%	2,137,701,600	100.0%
American Airlines Group	AAL	1.65	(2.1)	0.00%	NMF		-		29,796,000,000			
Delta Air Lines, Inc.	DAL	1.55	(14.1)	0.00%	1,358,374,061	4.7%	-	0.0%	27,425,000,000	95.3%	28,783,374,061	100.0%
Hawaiian Holdings, Inc.	HA	1.65	(3.5)	0.00%	671,654,765	39.4%	-	0.0%	1,034,805,000	60.6%	1,706,459,765	100.0%
JetBlue Airways Corp.	JBLU	1.65	(6.3)	0.00%	3,480,750,000	44.1%	-	0.0%	4,413,000,000	55.9%	7,893,750,000	100.0%
Southwest Airlines Co.	LUV	1.10	(46.6)	0.00%	8,874,829,285	46.7%	-	0.0%	10,111,000,000	53.3%	18,985,829,285	100.0%
Spirit Airlines	SAVE	1.85	(12.2)	0.00%	2,344,278,360	43.3%	-	0.0%	3,066,635,000	56.7%	5,410,913,360	100.0%
United Continental Holding, Inc	UAL	1.65	(4.2)	0.00%	6,198,129,025	20.0%	-	0.0%	24,836,000,000	80.0%	31,034,129,025	100.0%
<b>Mean</b>		<b>1.54</b>	<b>(6.84)</b>	<b>0.00%</b>	<b>3,324,749,695</b>	<b>35.8%</b>		<b>0.0%</b>	<b>11,609,024,111</b>	<b>64.2%</b>		
<b>Weighted Mean</b>					<b>26,597,997,559</b>	<b>26.3%</b>		<b>0.0%</b>	<b>104,481,217,000</b>	<b>103.2%</b>	<b>101,283,214,559</b>	
<b>Harmonic Mean</b>		<b>1.51</b>			<b>1,604,462,080.85</b>	<b>19.8%</b>		<b>0.0%</b>	<b>3,162,214,420.33</b>	<b>61.0%</b>	<b>4,783,228,166.36</b>	
<b>Median</b>		<b>1.65</b>	<b>(6.32)</b>	<b>-</b>	<b>2659167912</b>	<b>41.3%</b>		<b>0.0%</b>	<b>4,413,000,000.00</b>	<b>58.7%</b>		
<b>Max</b>		<b>1.85</b>	<b>39.8</b>	<b>0.00%</b>	<b>8874829285</b>	<b>55.8%</b>		<b>0.0%</b>	<b>29796000000</b>	<b>95.3%</b>		
<b>Min</b>		<b>1.10</b>	<b>-46.6</b>	<b>0.00%</b>	<b>671654765</b>	<b>4.7%</b>		<b>0.0%</b>	<b>1034805000</b>	<b>44.2%</b>		
<b>Say</b>		<b>1.50</b>				<b>35%</b>		<b>0.0%</b>		<b>65%</b>		<b>100%</b>

**SUPPORT FOR CAPITAL STRUCTURE  
MARKET VALUE**

WASHINGTON STATE DEPARTMENT OF REVENUE  
2021 ASSESSMENT YEAR  
PASSENGER AIRLINES

Capital Structure at Market Value

Company	Ticker	Stock Price	Common Shares	Common Stock	%	Preferred Stock	%	Operating Lease	%	Long Term Debt	%	Total Debt & Equity	Sum
Alaska Air Group, Inc.	ALK	52.00	123,661,433	6,430,394,516	57.3%	-	0.0%	2,808,125,223	25.0%	1,991,000,000	17.7%	11,229,519,739	100%
Allegiant Travel Co	ALGT	189.24	16,298,000	3,084,233,520	72.1%	-	0.0%	-	0.0%	1,191,008,000	27.9%	4,275,241,520	100%
American Airlines Group	AAL	15.77	621,479,522	9,800,732,062	18.7%	-	0.0%	12,161,276,861	23.2%	30,454,000,000	58.1%	52,416,008,923	100%
Delta Air Lines, Inc.	DAL	40.21	637,734,301	25,643,296,243	43.4%	-	0.0%	3,592,943,325	6.1%	29,800,000,000	50.5%	59,036,239,568	100%
Hawaiian Holdings, Inc.	HA	17.70	46,003,751	814,266,393	29.1%	-	0.0%	925,341,870	33.1%	1,054,410,000	37.7%	2,794,018,263	100%
JetBlue Airways Corp.	JBLU	14.54	273,000,000	3,969,420,000	41.0%	-	0.0%	782,001,607	8.1%	4,930,000,000	50.9%	9,681,421,607	100%
Southwest Airlines Co.	LUV	46.61	590,474,337	27,522,008,848	66.9%	-	0.0%	1,366,437,549	3.3%	12,232,000,000	29.7%	41,120,446,396	100%
Spirit Airlines	SAVE	24.45	97,678,265	2,388,233,579	29.9%	-	0.0%	1,742,182,717	21.8%	3,859,800,000	48.3%	7,990,216,297	100%
United Continental Holding, Inc	UAL	43.25	290,991,973	12,585,402,832	30.1%	-	0.0%	1,759,562,298	4.2%	27,441,000,000	65.7%	41,785,965,130	100%
			<b>Mean</b>		<b>43.2%</b>		<b>0.0%</b>		<b>13.9%</b>		<b>43.0%</b>		
			<b>Weighted Mean</b>	<b>92,237,987,993</b>	<b>40.0%</b>	<b>-</b>	<b>0.0%</b>	<b>25,137,871,450</b>	<b>10.91%</b>	<b>112,953,218,000</b>	<b>49.0%</b>	<b>230,329,077,443</b>	
			<b>Median</b>		<b>41.0%</b>		<b>0.0%</b>		<b>8.08%</b>		<b>48.3%</b>		
			<b>Harmonic Mean</b>		<b>36.3%</b>		<b>0.0%</b>				<b>36.7%</b>		
			<b>Max</b>		<b>72.1%</b>		<b>0.0%</b>		<b>33.1%</b>		<b>65.7%</b>		
			<b>Min</b>		<b>18.7%</b>		<b>0.0%</b>		<b>0.0%</b>		<b>17.7%</b>		
			<b>Std Dev</b>		<b>18.5%</b>		<b>0.0%</b>		<b>11.9%</b>		<b>15.7%</b>		
			<b>Coefficient of Variation</b>		<b>0.43</b>		<b>0.0%</b>		<b>0.86</b>		<b>0.36</b>		
			<b>Target</b>		<b>50%</b>		<b>0%</b>		<b>15%</b>		<b>35%</b>		<b>100%</b>

Source:  
Stock Price: Yahoo  
Market Value Debt: 10-k Reported Fair Value

Due to extraordinary volatility in 2020, previous years' capital structures were also considered when reconciling this target capital structure for 2021.

## SUPPORT FOR MARKET MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

Company	Ticker	Stock Price	Revenues	Multiple	Cash Flow	Multiple	Earnings	Multiple	Divds Decld	Multiple	Book Value	Multiple
Alaska Air Group, Inc.	ALK	52.00	28.55	1.8	(6.70)		(10.17)		0.38	136.8	24.05	2.2
Allegiant Travel Co	ALGT	189.24	60.35	3.1	1.65	114.7	(9.33)		0.70	270.3	42.70	4.4
American Airlines Group	AAL	15.77	27.90	0.6	(12.02)		(19.66)		0.10	157.7	(12.00)	
Delta Air Lines, Inc.	DAL	40.21	26.88	1.5	(6.95)		(10.76)		0.40	100.5	2.13	18.9
Hawaiian Holdings, Inc.	HA	17.70	17.60	1.0	(8.30)		(11.96)		0.12	147.5	14.60	1.2
JetBlue Airways Corp.	JBLU	14.54	9.55	1.5	(3.35)		(5.68)		NIL		12.75	1.1
Southwest Airlines Co.	LUV	46.61	15.32	3.0	(3.82)		(6.22)		0.18	258.9	15.03	3.1
Spirit Airlines	SAVE	24.45	18.20	1.3	(4.25)		(8.25)		NIL		24.00	1.0
United Continental Holding, Inc	UAL	43.25	54.85	0.8	(18.63)		(27.57)		NIL		21.30	2.0
	<b>Mean</b>			<b>1.6</b>		<b>114.7</b>				<b>178.6</b>		<b>4.2</b>
	<b>Median</b>			<b>1.5</b>		<b>114.7</b>				<b>152.6</b>		<b>2.1</b>
	<b>Harmonic Mean</b>			<b>1.2</b>		<b>114.7</b>				<b>158.2</b>		<b>1.9</b>
	<b>Max</b>			<b>3.1</b>		<b>114.7</b>		-		<b>270.3</b>		<b>18.9</b>
	<b>Min</b>			<b>0.6</b>		<b>114.7</b>		-		<b>100.5</b>		<b>1.0</b>
	<b>Std Dev</b>			<b>0.9</b>						<b>69.4</b>		<b>6.0</b>
	<b>Coefficient of Variation</b>			<b>0.56</b>						<b>0.39</b>		<b>1.42</b>
	<b>Say</b>			<b>1.50</b>		<b>NMF</b>		<b>NMF</b>		<b>NMF</b>		<b>3.00</b>

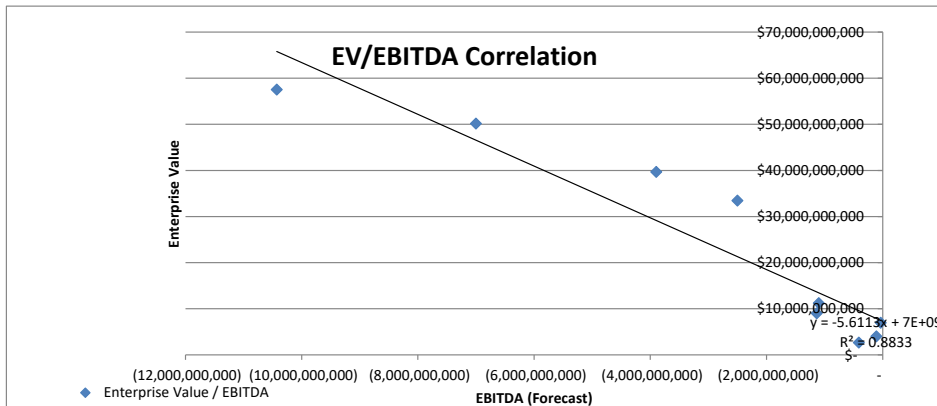
# ENTERPRISE VALUE MULTIPLES

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

Guideline Companies	Ticker	EV+OL	EBITDA + OL	EV / EBITDA	Annual Change Rate	EBITDA	EV / EBITDA	Revenue	EV / Sales	CF	Debt Service	EV / CF
			historic	historic	(Growth)	forecast	forecast	forecast				
Alaska Air Group, Inc.	ALK	\$ 11,229,519,739	(1,056,000,000)	-10.63	4.0%	(1,098,695,504)	-10.22	5,250,000,000	2.14	(828,531,601)	119,460,000	(15.84)
Allegiant Travel Co	ALGT	\$ 4,020,953,520	(104,718,000)	-38.40	5.0%	(109,905,260)	-36.59	1,399,740,000	2.87	26,891,700	71,460,480	40.88
American Airlines Group	AAL	\$ 50,164,008,923	(6,710,000,000)	-7.48	4.3%	(7,001,407,774)	-7.16	25,500,000,000	1.97	(7,470,183,854)	1,827,240,000	(8.89)
Delta Air Lines, Inc.	DAL	\$ 57,559,239,568	(9,758,000,000)	-5.90	6.9%	(10,429,233,428)	-5.52	25,488,100,000	2.26	(4,432,253,392)	1,788,000,000	(21.77)
Hawaiian Holdings, Inc.	HA	\$ 2,680,088,263	(392,056,000)	-6.84	5.1%	(411,926,372)	-6.51	1,550,000,000	1.73	(381,831,133)	63,264,600	(8.41)
JetBlue Airways Corp.	JBLU	\$ 9,010,421,607	(1,094,000,000)	-8.24	3.7%	(1,134,713,364)	-7.94	4,805,000,000	1.88	(914,550,000)	295,800,000	(14.56)
Southwest Airlines Co.	LUV	\$ 33,453,446,396	(2,400,000,000)	-13.94	4.2%	(2,501,765,319)	-13.37	14,400,000,000	2.32	(2,255,611,967)	733,920,000	(21.98)
Spirit Airlines	SAVE	\$ 6,976,258,297	(32,815,000)	-212.59	4.3%	(34,231,544)	-203.80	2,700,000,000	2.58	(415,132,626)	231,588,000	(38.01)
United Continental Holding, Inc	UAL	\$ 39,710,965,130	(3,671,000,000)	-10.82	6.1%	(3,896,173,070)	-10.19	22,997,000,000	1.73	(5,421,180,457)	1,646,460,000	(10.52)
		<b>Mean</b>		<b>(34.98)</b>	<b>4.86%</b>		<b>(33.48)</b>		<b>2.16</b>			<b>(11.01)</b>
		<b>Median</b>		<b>(10.63)</b>	<b>4.34%</b>		<b>(10.19)</b>		<b>2.14</b>			<b>(14.56)</b>
		<b>Harmonic Mean</b>			<b>4.68%</b>				<b>2.11</b>			
		<b>Max</b>		<b>(5.90)</b>	<b>6.88%</b>		<b>(5.52)</b>		<b>2.87</b>			<b>40.88</b>
		<b>Min</b>		<b>(212.59)</b>	<b>3.72%</b>		<b>(203.80)</b>		<b>1.73</b>			<b>(38.01)</b>
		<b>Std Dev</b>		<b>67.35</b>	<b>1.0%</b>		<b>64.57</b>		<b>0.39</b>			<b>21.52</b>
		<b>Coefficient of Variation</b>		<b>(1.93)</b>	<b>0.21</b>		<b>(1.93)</b>		<b>0.18</b>			<b>(1.95)</b>
		<b>Say</b>		<b>NMF</b>	<b>4.50%</b>		<b>NMF</b>		<b>2.30</b>			<b>NMF</b>



Forecast EV/EBITDA By Rank

Guideline Companies	EV/EBITDA forecast	
Spirit Airlines	-203.80	<b>-54.83 Low Average</b>
Allegiant Travel Co	-36.59	
Southwest Airlines Co.	-13.37	
Alaska Air Group, Inc.	-10.22	
United Continental Holding, Inc	-10.19	<b>-13.4 Low Median Say</b>
JetBlue Airways Corp.	-7.94	
American Airlines Group	-7.16	
Hawaiian Holdings, Inc.	-6.51	
Delta Air Lines, Inc.	-5.52	<b>NMF</b>
		<b>-7.46 High Average</b>
		<b>-7.2 High Median Say</b>

# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT CAPITAL ASSET PRICING MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

$$\text{Ex Ante} \\ K_e = R_f + \beta (R_p)$$

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**Ke = Cost of Equity** **7.65%**

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to page 1

Rm =	rate of return	5.65%
Rf =	risk free rate	1.65%
Rp =	risk premium	4.00%
B =	Beta	1.50

page 2

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**Rp = Risk Premium** **4.00%**

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to above

<b>Shannon Pratt and Roger Grabowski</b>	3.50% - 6.00%	
Cost of Capital, Applications and Examples, Fifth Edition, 2014		
<b>Dr. Aswath Damodaran</b>	4.72%	chart page 14
<a href="http://pages.stern.nyu.edu/~adamodar/2020/ImpliedPremium">http://pages.stern.nyu.edu/~adamodar/2020/Implied Premium</a>	<b>4.00%</b>	adjusted for Rf
<b>John Graham and Campbell Harvey</b>	6.20%	10 year expected return
Duke CFO magazine Global Business Outlook 4th Qtr Dec 2020	5.48%	95% Interval 10 year expected return
	<b>0.93%</b>	adjusted for Rf

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**Rf = Risk Free Rate** **1.65%**

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to above

**Value Line Investment Survey, Selected Yields January 8, 2020, page 689**  
as of 12-28-20

US Treasury Securities year end data		
5 year		0.37%
10 year		0.94%
30 year		1.67%
30 year Zero	NA	

**Federal Reserve Statistical Release (http://www.federalreserve.gov/Releases/H15/Current/)**  
as of 12-31-20

Treasury Constant Maturities		
5 year		0.36%
10 year		0.93%
20 year		1.45%
30 year		1.65%
20 year TIPS	-0.61%	2.06%
30 year TIPS	-0.37%	2.02%
		TIPS inflation indication

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**Inflation** **2.00%**

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**Value Line Investment Survey, Economic Series January 1, 2021, page 1500**

Consumer Price Index Annual Rate of Change 2023-2025	2.30%
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**Federal Reserve Bank of Philadelphia**

<b>The Livingston Survey, December 18, 2020, page 4, 10</b>	
Inflation median (measured by the CPI) over next 10 years	2.23%
<a href="https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey">https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey</a>	

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**Gross Domestic Product (GDP)** **3.80%**

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real GDP + inflation est

**Federal Reserve Projected Long Run Real GDP Growth**

Median Projection Value From Dec 18, 2020 Report	1.80%
<a href="https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20181219.pdf">https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20181219.pdf</a>	

**Congressional Budget Office Real GDP Economic Projections**

<b>The Budget and Economic Outlook 2021-2031</b>		
Average Percentage Change From Year To Year	2021-2025	1.90%
<a href="http://www.cbo.gov/publication/56020">http://www.cbo.gov/publication/56020</a>	2026-2031	1.70%
		Table 2.3, pg 15

**Federal Reserve Bank of Philadelphia**

<b>The Livingston Survey, December 18, 2020, page 4, 10</b>	
Average Annual Real GDP Growth Rate for Next Ten Years	2.20%
<a href="https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey">https://www.philadelphiafed.org/research-and-data/real-time-center/livingston-survey</a>	

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

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

**Based on Dividend Growth**

$$K_e = (D_1 + BB_1 / P_0) + G_D$$

Ke = Cost of Equity  
 D1 = Expected Dividends  
 BB1 = Expected Share Repurchase  
 P0 = Current Stock Price  
 GD = Sustainable Growth -- Dividend  
 assumption: Sustainable growth can not exceed inflation plus real GDP

Company	Ticker	Stock Price (Po)	Expected FCFE1	Expected Dividend (D1)	Expected Buyback (BB1)	Dividend Yield (D1/Po)	Buyback Yield (BB1/Po)	Total Yield	Growth	Ke
Alaska Air Group, Inc.	ALK	52.00		0.00						
Allegiant Travel Co	ALGT	189.24	4.75	0.00	4.75		2.51%			
American Airlines Group	AAL	15.77		0.00					0.00%	
Delta Air Lines, Inc.	DAL	40.21		0.00						
Hawaiian Holdings, Inc.	HA	17.70		0.00						
JetBlue Airways Corp.	JBLU	14.54		0.00					0.00%	
Southwest Airlines Co.	LUV	46.61		0.00						
Spirit Airlines	SAVE	24.45		0.00					0.00%	
United Continental Holding, Inc	UAL	43.25		0.00					0.00%	
							<b>Mean</b>			
							<b>Median</b>			
							<b>Harmonic Mean</b>			
							<b>Max</b>	<b>0.00%</b>		<b>0.00%</b>
							<b>Min</b>	<b>0.00%</b>		<b>0.00%</b>
							<b>Std Dev</b>			
							<b>Coefficient of Variation</b>			

to page 1

NMF

# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT RESIDUAL INCOME MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

$$K_e = (BVPS * (ROE - g)) / P_o + g$$

*where g = b \* ROE*

Company	Ticker	Stock Price (Po)	Retention Rate (b)	Book Value Per Share (BVPS)	Return on Equity Forecast (ROE)	Sustainable Growth Rate (b * ROE)	Ke
Alaska Air Group, Inc.	ALK	52.00	0.17	24.05	17.00%	2.89%	9.42%
Allegiant Travel Co	ALGT	189.24	0.30	42.70	29.50%	8.70%	13.40%
American Airlines Group	AAL	15.77	NMF	(12.00)	10.00%		
Delta Air Lines, Inc.	DAL	40.21	0.29	2.13	35.00%	9.98%	11.30%
Hawaiian Holdings, Inc.	HA	17.70	0.25	14.60	25.00%	6.25%	21.72%
JetBlue Airways Corp.	JBLU	14.54	0.13	12.75	13.00%	1.69%	11.61%
Southwest Airlines Co.	LUV	46.61	0.19	15.03	19.00%	3.61%	8.57%
Spirit Airlines	SAVE	24.45	0.15	24.00	15.00%	2.25%	14.77%
United Continental Holding, Inc	UAL	43.25	0.38	21.30	37.50%	14.06%	25.61%
						<b>Mean</b>	<b>14.55%</b>
						<b>Median</b>	<b>12.50%</b>
						<b>Harmonic Mean</b>	<b>12.80%</b>
						<b>Max</b>	<b>25.61%</b>
						<b>Min</b>	<b>8.57%</b>
						<b>Std Dev</b>	<b>6.1%</b>
						<b>Coefficient of Variation</b>	<b>0.42</b>
						<b>Say</b>	<b>13.50%</b>

to page 1



# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT

## DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

### Based on Earnings Growth

$$K_e = (D_1 + BB_1 / P_0) + G_D$$

Ke = Cost of Equity  
 D1 = Expected Dividends  
 BB1 = Expected Share Repurchase  
 P0 = Current Stock Price  
 GD = Sustainable Growth -- Dividend  
 assumption: Sustainable growth can not exceed inflation plus real GDP

Company	Ticker	Stock Price (Po)	Expected FCFE1	Expected Dividend (D1)	Expected Buyback (BB1)	Dividend Yield (D1/Po)	Buyback Yield (BB1/Po)	Total Yield	Growth	Ke
Alaska Air Group, Inc.	ALK	52.00		0.00						
Allegiant Travel Co	ALGT	189.24	4.75	0.00	4.75		2.51%			
American Airlines Group	AAL	15.77		0.00						
Delta Air Lines, Inc.	DAL	40.21		0.00						
Hawaiian Holdings, Inc.	HA	17.70		0.00						
JetBlue Airways Corp.	JBLU	14.54		0.00					0.00%	
Southwest Airlines Co.	LUV	46.61		0.00						
Spirit Airlines	SAVE	24.45		0.00					0.00%	
United Continental Holding, Inc	UAL	43.25		0.00					0.00%	
							<b>Mean</b>			
							<b>Median</b>			
							<b>Harmonic Mean</b>			
							<b>Max</b>	<b>0.00%</b>		<b>0.00%</b>
							<b>Min</b>	<b>0.00%</b>		<b>0.00%</b>
							<b>Std Dev</b>			
							<b>Coefficient of Variation</b>			

to page 1

NMF

# SUPPORT FOR YIELD CAPITALIZATION EQUITY COMPONENT DIVIDEND GROWTH MODEL

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

## Based on Return on Equity

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

**Ke** = Cost of Equity  
**D1** = Expected Dividends  
**E1** = Expected Earnings  
**Po** = Current Price  
**G** = Growth  
**b** = Retained Earnings % = (EPS - DPS) / EPS  
**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)	Sustainable Growth Rate	Ke Dividends	Ke Earnings
Alaska Air Group, Inc.	ALK	52.00	0.00	-4.25		100.0%	-8.17%	-8.17%		
Allegiant Travel Co	ALGT	189.24	0.00	4.75		100.0%	2.51%	2.51%		5.02%
American Airlines Group	AAL	15.77	0.00	-7.50		100.0%	-47.56%	-47.56%		
Delta Air Lines, Inc.	DAL	40.21	0.00	-2.85		100.0%	-7.09%	-7.09%		
Hawaiian Holdings, Inc.	HA	17.70	0.00	-5.00		100.0%	-28.25%	-28.25%		
JetBlue Airways Corp.	JBLU	14.54	0.00	-2.30		100.0%	-15.82%	-15.82%		
Southwest Airlines Co.	LUV	46.61	0.00	-1.00		100.0%	-2.15%	-2.15%		
Spirit Airlines	SAVE	24.45	0.00	-2.00		100.0%	-8.18%	-8.18%		
United Continental Holding, Inc	UAL	43.25	0.00	-10.25		100.0%	-23.70%	-23.70%		
								<b>Mean</b>		<b>5.02%</b>
								<b>Median</b>		<b>5.02%</b>
								<b>Harmonic Mean</b>		<b>5.02%</b>
								<b>Max</b>	<b>0.00%</b>	<b>5.02%</b>
								<b>Min</b>	<b>0.00%</b>	<b>5.02%</b>
								<b>Std Dev</b>		
								<b>Coefficient of Variation</b>		

NMF

to page 1

# SUPPORT FOR DEBT RATING AND DEBT YIELD RATE

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

## Standard's and Poor's Website

Company	Ticker	Mergent's Ratings	S&P Ratings
Alaska Air Group, Inc.	ALK	Ba3	BB-
Allegiant Travel Co	ALGT	B2	B
American Airlines Group	AAL	B3	B-
Delta Air Lines, Inc.	DAL	Ba2	BB
Hawaiian Holdings, Inc.	HA	Caa1	CCC+
JetBlue Airways Corp.	JBLU	B1	B+
Southwest Airlines Co.	LUV	Baa2	BBB
Spirit Airlines	SAVE	B2	B
United Continental Holding, Inc	UAL	B1	B+
<b>Overall Average Debt Rating</b>		<b>B1</b>	<b>B+</b>

All issues

## Bond Yields for Guideline Companies, All Ratings

**3.19%**

## Mergent's Bond Record January 2021, page 251

Corporate	Aaa	Aa	A	Baa
October	2.35%	2.55%	2.88%	3.44%
November	2.30%	2.47%	2.79%	3.30%
December	2.26%	2.44%	2.72%	3.16%
<b>4th Qtr Average</b>	<b>2.30%</b>	<b>2.49%</b>	<b>2.80%</b>	<b>3.30%</b>
Public Utilities		Aa	A	Baa
October		2.72%	2.95%	3.27%
November		2.63%	2.85%	3.17%
December		2.57%	2.77%	3.05%
<b>4th Qtr Average</b>		<b>2.64%</b>	<b>2.86%</b>	<b>3.16%</b>
Industrials	Aaa	Aa	A	Baa
October	2.35%	2.37%	2.81%	3.60%
November	2.30%	2.30%	2.72%	3.41%
December	2.26%	2.31%	2.66%	3.27%
<b>4th Qtr Average</b>	<b>2.30%</b>	<b>2.33%</b>	<b>2.73%</b>	<b>3.43%</b>

## Standard & Poor's Long Term Bond Yields (%) 4th Qtr

S&P	Avg YTM	Med YTM
<b>BB-</b>	5.95%	5.86%
<b>B+</b>	6.00%	5.77%
<b>B</b>	8.47%	8.13%

Source: Bloomberg Bond Yields, January 2021.

## Debt Yield Rate

**6.00%**

## Operating Lease Debt Rate

See Lease Bond Analysis 16 Tab

**4.00%**

## Cost of Secured Debt (Possessory Lease)

Based on 4th Quarter Aa rate

**2.50%**

to page 1

Add'l Bond Data Pg



## DATA INPUT

WASHINGTON STATE DEPARTMENT OF REVENUE

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

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

				Historic Figures (2020)													
Guideline Companies		Stock Price 12/31/2019	Stock Price 12/31/2020	Beta levered	Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Gross Equipment Per Share	Load Factor	%Net Profit Margin	Long-Term Debt (\$Mil)	Dividends Per Share	Bk Value Per Share	Common Shares	Trailing P/E Ratio	Relative P/E Ratio	Net Operating Revenues (\$Mil)
Name	Ticker	Yahoo	Yahoo	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
Alaska Air Group, Inc.	ALK	69.02	52.00	1.50	28.55	(6.70)	(10.17)	81.50	55.2%	NMF	2,357	0.38	24.05	123,661,433	10.00	NMF	3,566
Allegiant Travel Co	ALGT	176.18	189.24	1.30	60.35	1.65	(9.33)	157.20	59.5%	NMF	1,400	0.70	42.70	16,298,000	15.00	NMF	990
American Airlines Group	AAL	28.57	15.77	1.65	27.90	(12.02)	(19.66)	77.95	64.5%	NMF	29,796	0.10	(12.00)	621,479,522	NMF	NMF	17,337
Delta Air Lines, Inc.	DAL	58.58	40.21	1.55	26.88	(6.95)	(10.76)	68.00	54.6%	NMF	27,425	0.40	2.13	637,734,301	8.00	NMF	17,095
Hawaiian Holdings, Inc.	HA	30.56	17.70	1.65	17.60	(8.30)	(11.96)	62.00	60.6%	NMF	1,100	0.12	14.60	46,003,751	7.50	NMF	845
JetBlue Airways Corp.	JBLU	18.79	14.54	1.65	9.55	(3.35)	(5.68)	36.20	59.9%	NMF	4,500	NIL	12.75	273,000,000	13.00	NMF	2,957
Southwest Airlines Co.	LUV	53.60	46.61	1.10	15.32	(3.82)	(6.22)	46.75	52.4%	NMF	10,111	0.18	15.03	590,474,337	15.00	NMF	9,048
Spirit Airlines	SAVE	40.42	24.45	1.85	18.20	(4.25)	(8.25)	-	0.0%	NMF	3,100	NIL	24.00	97,678,265	NMF	NMF	1,820
United Continental Holding, Inc	UAL	88.84	43.25	1.65	54.85	(18.63)	(27.57)	155.00	60.2%	NMF	24,836	NIL	21.30	290,991,973	8.00	NMF	15,355

Value Line February 2021

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

Morning Star Data ending 2020

## DATA INPUT

WASHINGTON STATE DEPARTM

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

Instructions: Data entered on this page

					Projected (Next Year) 2021											
Guideline Companies	Operating Margin	Net Profit (\$Mil)	Income Tax Rate	Return on Shareholder Equity	Revenues Per Share	Cash Flow Per Share	Earnings Per Share	Gross Equipment Per Share	Load Factor	% Net Profit Margin	Dividends Per Share	Bk Value Per Share	Common Shares	Net Operating Revenues	Operating Margin	Net Profit (\$Mil)
Name	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL	VL
Alaska Air Group, Inc.	NMF	(530)	NMF	NMF	42.00	(0.80)	(4.25)	81.90	70.0%	NMF	-	23.20	125,000,000	5,250	NMF	(530)
Allegiant Travel Co	NMF	(149)	NMF	NMF	85.35	16.95	4.75	166.75	70.0%	5.6%	-	45.75	16,400,000	1,400	17.0%	78
American Airlines Group	NMF	(9,511)	NMF	NMF	40.80	(4.15)	(7.50)	80.00	75.0%	NMF	-	(12.00)	625,000,000	25,500	NMF	(4,690)
Delta Air Lines, Inc.	19.3%	(6,839)	NMF	NMF	39.95	(6.95)	(2.85)	65.00	50.0%	NMF	-	1.40	638,000,000	25,500	NMF	(1,800)
Hawaiian Holdings, Inc.	NMF	(551)	NMF	NMF	31.00	(1.90)	(5.00)	63.35	70.0%	NMF	-	12.00	50,000,000	1,550	NMF	(250)
JetBlue Airways Corp.	NMF	(1,576)	NMF	NMF	15.50	(0.55)	(2.30)	37.35	68.0%	NMF	-	11.30	310,000,000	4,800	NMF	(715)
Southwest Airlines Co.	NMF	(3,512)	NMF	NMF	24.00	1.15	(1.00)	48.00	65.0%	NMF	-	15.00	600,000,000	14,400	5.0%	(600)
Spirit Airlines	NMF	(710)	NMF	NMF	27.00	1.15	(2.00)			NMF	-	24.50	100,000,000	2,700	NMF	(200)
United Continental Holding, Inc	NMF	(7,703)	NMF	NMF	79.30	(1.45)	(10.25)	160.00	70.0%	NMF	-	12.40	290,000,000	23,000	NMF	(2,975)

Value Line February 2021

The harmonic mean is the preferable m

high data points are given greater weig

The harmonic mean, on the other hand,

Morning Star Data ending 2020

# DATA INPUT

WASHINGTON STATE DEPARTM

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

Instructions: Data entered on this page

			Longer Term Forecasts											Income Statement		
			Dividends Per Share			Earnings Per Share			Revenue Per Share							
Guideline Companies	Return on Shareholder Equity	All Dividends to Net Profits	2022	2025	% Annual Change	2022	2025	% Annual Change	2022	2025	% Annual Change	Return on Shareholder Equity	Retained to Common Equity	Operating Income	Current Assets	PP & E Gross
Name	VL	VL	VL	VL		VL	VL		VL	VL		VL	VL	M*/10K	M*/10K	M*/10K
Alaska Air Group, Inc.	0.0%	0.0%	NIL	NIL	#VALUE!	3.30	6.45	14.34%	58.40	71.20	4.04%	17.00%	17.00%	(1,775,000,000)	4,066,000,000	9,742,000,000
Allegiant Travel Co	10.5%	0.0%	NIL	NIL	#VALUE!	9.80	18.00	12.93%	99.10	126.20	4.95%	29.50%	29.50%	(280,985,000)	943,633,000	2,648,857,000
American Airlines Group	0.0%	0.0%	Nil	NIL	#VALUE!	1.75	3.50	14.87%	60.80	75.20	4.34%	10.00%	NMF	(10,421,000,000)	18,821,000,000	48,456,000,000
Delta Air Lines, Inc.	0.0%	0.0%	NIL	1.50	#VALUE!	4.25	8.00	13.49%	59.55	83.05	6.88%	35.00%	28.50%	(12,469,000,000)	17,404,000,000	44,040,000,000
Hawaiian Holdings, Inc.	0.0%	0.0%	Nil	NIL	#VALUE!	1.25	4.50	29.20%	46.00	58.90	5.07%	25.00%	25.00%	(647,611,000)	1,118,478,000	2,979,549,000
JetBlue Airways Corp.	0.0%	0.0%	NIL	NIL	0.00%	0.85	2.00	18.66%	22.20	26.65	3.72%	13.00%	13.00%	(1,714,000,000)	3,345,000,000	10,676,000,000
Southwest Airlines Co.	0.0%	0.0%	NIL	NIL	#VALUE!	2.50	4.50	12.47%	32.50	40.00	4.24%	19.00%	19.00%	(3,816,000,000)	15,173,000,000	27,574,000,000
Spirit Airlines	0.0%	0.0%	NIL	NIL	0.00%	3.30	4.50	6.40%	34.00	42.00	4.32%	15.00%	15.00%	(507,762,000)	2,355,980,000	4,511,798,000
United Continental Holding, Inc	0.0%	0.0%	NIL	NIL	0.00%	2.35	10.50	34.90%	117.25	157.90	6.13%	37.50%	37.50%	(6,357,000,000)	14,800,000,000	47,895,000,000

TTM DATA UPDATE

Value Line February 2021

The harmonic mean is the preferable m

high data points are given greater weig

The harmonic mean, on the other hand,

Morning Star Data ending 2020

## DATA INPUT

WASHINGTON STATE DEPARTM

2021 ASSESSMENT YEAR

PASSENGER AIRLINES

Instructions: Data entered on this page

Guideline Companies	Balance Sheet				Cash Flow Statement	Other Financials			
	PP & E Net	Intangibles (excl. GW)	Current Liabilities Total	Long Term Debt Less Current Maturities	Depreciation & Amortization	Carrying Value Debt	Fair Value Debt	Current Maturity Long Term Debt	Aircraft Rental Expense
	M* / 10K	M*10K	10K/M*	10-K/M*	M*	10-K	10-K	10K	10-K
Alaska Air Group, Inc.	6,211,000,000	107,000,000	4,293,000,000	2,357,000,000	420,000,000	3,495,000,000	1,991,000,000	1,138,000,000	299,000,000
Allegiant Travel Co	2,050,311,000	-	689,345,000	1,441,777,000	176,267,000	1,555,637,000	1,191,008,000	217,234,000	-
American Airlines Group	31,699,000,000	2,029,000,000	16,569,000,000	29,796,000,000	2,370,000,000	32,021,000,000	30,454,000,000	2,797,000,000	1,341,000,000
Delta Air Lines, Inc.	26,529,000,000	6,011,000,000	15,927,000,000	27,425,000,000	2,312,000,000	27,974,000,000	29,800,000,000	1,732,000,000	399,000,000
Hawaiian Holdings, Inc.	2,085,030,000	13,500,000	1,004,548,000	1,034,805,000	151,665,000	1,171,349,000	1,054,410,000	115,019,000	103,890,000
JetBlue Airways Corp.	7,788,000,000	-	2,674,000,000	4,413,000,000	535,000,000	4,800,000,000	4,930,000,000	450,000,000	85,000,000
Southwest Airlines Co.	15,831,000,000	295,000,000	7,506,000,000	10,111,000,000	1,255,000,000	9,998,000,000	12,232,000,000	220,000,000	161,000,000
Spirit Airlines	3,831,568,000	-	1,342,022,000	3,066,635,000	278,588,000	3,580,500,000	3,859,800,000	384,197,000	196,359,000
United Continental Holding, Inc	31,466,000,000	2,838,000,000	12,725,000,000	24,836,000,000	2,488,000,000	26,747,000,000	27,441,000,000	1,911,000,000	198,000,000

Value Line February 2021

The harmonic mean is the preferable m  
high data points are given greater weigl

The harmonic mean, on the other hand,  
Morning Star Data ending 2020



**2021 Multi Stage Dividend Growth Model Using FCFE**

Airline Industry

Assumptions:	3.80%	GDP
	-6.3	Median Industry PE
	0.0%	Target Dividend Payout Ratio
	0.0%	Target ROE

Alaska Air Group  
ALK

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-10.17			-52.00
	2021	-58.21%	0.00%	#DIV/0!	#DIV/0!	-4.25	#DIV/0!		#DIV/0!
	2022	-62.94%	4.25%	-3996.27%	4096.27%	-1.58	-64.52		-64.52
Stage 1	2023	-169.84%	8.50%	2860.96%	-2760.96%	1.10	-30.37		-30.37
	2024	243.18%	12.75%	555.77%	-455.77%	3.78	-17.21		-17.21
	2025	70.86%	17.00%	337.93%	-237.93%	6.45	-15.35		-15.35
	2026	57.45%	13.60%	323.80%	-223.80%	10.16	-22.73		-22.73
	2027	44.04%	10.20%	300.24%	-200.24%	14.63	-29.29		-29.29
Stage 2	2028	30.62%	6.80%	253.12%	-153.12%	19.11	-29.26		-29.26
	2029	17.21%	3.40%	111.76%	-11.76%	22.40	-2.63		-2.63
	2030	3.80%	0.00%	#DIV/0!	#DIV/0!	23.25	#DIV/0!	-152.55	#DIV/0!
Stage 3	11+	3.80%	0.00%	#DIV/0!	#DIV/0!	24.13	#DIV/0!		

price = 52.00

Ke = #VALUE!

Allegiant Travel Co  
ALGT

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-9.33			-189.24
	2021	-150.91%	10.50%	664.16%	-564.16%	4.75	-26.80		-26.80
	2022	69.74%	15.25%	269.41%	-169.41%	8.06	-13.66		-13.66
Stage 1	2023	41.09%	20.00%	145.60%	-45.60%	11.38	-5.19		-5.19
	2024	29.12%	24.75%	91.12%	8.88%	14.69	1.30		1.30
	2025	22.55%	29.50%	63.74%	36.26%	18.00	6.53		6.53
	2026	18.80%	23.60%	63.78%	36.22%	21.38	7.75		7.75
	2027	15.05%	17.70%	63.85%	36.15%	24.60	8.89		8.89
Stage 2	2028	11.30%	11.80%	63.99%	36.01%	27.38	9.86		9.86
	2029	7.55%	5.90%	64.41%	35.59%	29.45	10.48		10.48
	2030	3.80%	0.00%	#DIV/0!	#DIV/0!	30.57	#DIV/0!	-200.60	#DIV/0!
Stage 3	11+	3.80%	0.00%	#DIV/0!	#DIV/0!	31.73	#DIV/0!		

price = 189.24

Ke = #VALUE!

American Airlines Group  
AAL

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-19.66			-15.77
	2021	-61.85%	0.00%	#DIV/0!	#DIV/0!	-7.50	#DIV/0!		#DIV/0!
	2022	-36.67%	#VALUE!	#VALUE!	#VALUE!	-4.75	#VALUE!		#VALUE!
Stage 1	2023	-57.89%	#VALUE!	#VALUE!	#VALUE!	-2.00	#VALUE!		#VALUE!
	2024	-137.50%	#VALUE!	#VALUE!	#VALUE!	0.75	#VALUE!		#VALUE!
	2025	366.67%	wa	#VALUE!	#VALUE!	3.50	#VALUE!		#VALUE!
	2026	294.09%	#VALUE!	#VALUE!	#VALUE!	13.79	#VALUE!		#VALUE!
	2027	221.52%	#VALUE!	#VALUE!	#VALUE!	44.35	#VALUE!		#VALUE!
Stage 2	2028	148.95%	#VALUE!	#VALUE!	#VALUE!	110.40	#VALUE!		#VALUE!
	2029	76.37%	#VALUE!	#VALUE!	#VALUE!	194.72	#VALUE!		#VALUE!
	2030	3.80%	#VALUE!	#VALUE!	#VALUE!	202.12	#VALUE!	-1326.31	#VALUE!
Stage 3	11+	3.80%	0.00%	#DIV/0!	#DIV/0!	209.80	#DIV/0!		

price = 15.77

Ke = #VALUE!

Delta Air Lines Inc  
DAL

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-10.76			-40.21
	2021	-73.51%	0.00%	#DIV/0!	#DIV/0!	-2.85	#DIV/0!		#DIV/0!
	2022	-95.18%	8.75%	-22545.45%	22645.45%	-0.14	-31.14		-31.14
Stage 1	2023	-1972.73%	17.50%	601.94%	-501.94%	2.58	-12.93		-12.93
	2024	105.34%	26.25%	195.43%	-95.43%	5.29	-5.05		-5.05
	2025	51.30%	35.00%	119.43%	-19.43%	8.00	-1.55		-1.55
	2026	41.80%	28.00%	115.36%	-15.36%	11.34	-1.74		-1.74
	2027	32.30%	21.00%	108.57%	-8.57%	15.01	-1.29		-1.29
Stage 2	2028	22.80%	14.00%	95.00%	5.00%	18.43	0.92		0.92
	2029	13.30%	7.00%	54.29%	45.71%	20.88	9.55		9.55

price = 40.21

	2030	10	3.80%	0.00%	#DIV/0!	#DIV/0!	21.67	#DIV/0!	-142.23	#DIV/0!
Stage 3		11+	3.80%	0.00%	#DIV/0!	#DIV/0!	22.50	#DIV/0!		

Ke = #VALUE!

Hawaiian Holdings Inc  
HA

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-11.96			-17.70
	2021	1	-58.19%	0.00%	#DIV/0!	#DIV/0!	-5.00	#DIV/0!	#DIV/0!
	2022	2	-47.50%	6.25%	-1447.62%	1547.62%	-2.63	-40.63	-40.63
Stage 1	2023	3	-90.48%	12.50%	-7600.00%	7700.00%	-0.25	-19.25	-19.25
	2024	4	-950.00%	18.75%	596.08%	-496.08%	2.13	-10.54	-10.54
	2025	5	111.76%	25.00%	360.69%	-260.69%	4.50	-11.73	-11.73
	2026	6	90.17%	20.00%	342.89%	-242.89%	8.56	-20.79	-20.79
	2027	7	68.58%	15.00%	313.24%	-213.24%	14.43	-30.76	-30.76
Stage 2	2028	8	46.99%	10.00%	253.93%	-153.93%	21.20	-32.64	-32.64
	2029	9	25.39%	5.00%	76.00%	24.00%	26.59	6.38	6.38
	2030	10	3.80%	0.00%	#DIV/0!	#DIV/0!	27.60	#DIV/0!	-181.11
Stage 3		11+	3.80%	0.00%	#DIV/0!	#DIV/0!	28.65	#DIV/0!	

price = 17.70

Ke = #VALUE!

JetBlue Airways Corp  
JBLU

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-5.68			-14.54
	2021	1	-59.51%	0.00%	#DIV/0!	#DIV/0!	-2.30	#DIV/0!	#DIV/0!
	2022	2	-46.74%	3.25%	-2700.16%	2800.16%	-1.23	-34.30	-34.30
Stage 1	2023	3	-87.76%	6.50%	-11025.64%	11125.64%	-0.15	-16.69	-16.69
	2024	4	-716.67%	9.75%	1191.96%	-1091.96%	0.93	-10.10	-10.10
	2025	5	116.22%	13.00%	721.02%	-621.02%	2.00	-12.42	-12.42
	2026	6	93.73%	10.40%	685.09%	-585.09%	3.87	-22.67	-22.67
	2027	7	71.25%	7.80%	625.21%	-525.21%	6.64	-34.85	-34.85
Stage 2	2028	8	48.77%	5.20%	505.45%	-405.45%	9.87	-40.02	-40.02
	2029	9	26.28%	2.60%	146.15%	-46.15%	12.47	-5.75	-5.75
	2030	10	3.80%	0.00%	#DIV/0!	#DIV/0!	12.94	#DIV/0!	-84.91
Stage 3		11+	3.80%	0.00%	#DIV/0!	#DIV/0!	13.43	#DIV/0!	

price = 14.54

Ke = #VALUE!

Southwest Airlines Co  
LUV

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-6.22			-46.61
	2021	1	-83.92%	0.00%	#DIV/0!	#DIV/0!	-1.00	#DIV/0!	#DIV/0!
	2022	2	-137.50%	4.75%	7719.30%	-7619.30%	0.38	-28.57	-28.57
Stage 1	2023	3	366.67%	9.50%	827.07%	-727.07%	1.75	-12.72	-12.72
	2024	4	78.57%	14.25%	308.77%	-208.77%	3.13	-6.52	-6.52
	2025	5	44.00%	19.00%	189.26%	-89.26%	4.50	-4.02	-4.02
	2026	6	35.96%	15.20%	183.68%	-83.68%	6.12	-5.12	-5.12
	2027	7	27.92%	11.40%	174.39%	-74.39%	7.83	-5.82	-5.82
Stage 2	2028	8	19.88%	7.60%	155.79%	-55.79%	9.38	-5.23	-5.23
	2029	9	11.84%	3.80%	100.00%	0.00%	10.49	0.00	0.00
	2030	10	3.80%	0.00%	#DIV/0!	#DIV/0!	10.89	#DIV/0!	-71.47
Stage 3		11+	3.80%	0.00%	#DIV/0!	#DIV/0!	11.31	#DIV/0!	

price = 46.61

Ke = #VALUE!

Spirit Airlines Co  
SAVE

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-8.25			-24.45
	2021	1	-75.76%	0.00%	#DIV/0!	#DIV/0!	-2.00	#DIV/0!	#DIV/0!
	2022	2	-81.25%	3.75%	-11555.56%	11655.56%	-0.38	-43.71	-43.71
Stage 1	2023	3	-433.33%	7.50%	1733.33%	-1633.33%	1.25	-20.42	-20.42
	2024	4	130.00%	11.25%	502.42%	-402.42%	2.88	-11.57	-11.57
	2025	5	56.52%	15.00%	306.52%	-206.52%	4.50	-9.29	-9.29
	2026	6	45.98%	12.00%	295.28%	-195.28%	6.57	-12.83	-12.83
	2027	7	35.43%	9.00%	276.54%	-176.54%	8.90	-15.71	-15.71
Stage 2	2028	8	24.89%	6.00%	239.07%	-139.07%	11.11	-15.45	-15.45
	2029	9	14.34%	3.00%	126.67%	-26.67%	12.70	-3.39	-3.39
	2030	10	3.80%	0.00%	#DIV/0!	#DIV/0!	13.19	#DIV/0!	-86.54

price = 24.45

Stage 3	11+	3.80%	0.00%	#DIV/0!	#DIV/0!	13.69	#DIV/0!		
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Ke = #VALUE!

United Continental Holdings  
UAL

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Terminal Value	Cash Flow
Historic	0		NMF	#DIV/0!	#DIV/0!	-27.57			-43.25
	2021	1	-62.82%	0.00%	#DIV/0!	#DIV/0!	-10.25	#DIV/0!	#DIV/0!
	2022	2	-50.61%	9.38%	-1093.00%	1193.00%	-5.06	-60.40	-60.40
Stage 1	2023	3	-102.47%	18.75%	22133.33%	-22033.33%	0.13	-27.54	-27.54
	2024	4	4150.00%	28.13%	347.19%	-247.19%	5.31	-13.13	-13.13
	2025	5	97.65%	37.50%	210.34%	-110.34%	10.50	-11.59	-11.59
	2026	6	78.88%	30.00%	200.36%	-100.36%	18.78	-18.85	-18.85
	2027	7	60.11%	22.50%	183.73%	-83.73%	30.07	-25.18	-25.18
Stage 2	2028	8	41.34%	15.00%	150.46%	-50.46%	42.50	-21.45	-21.45
	2029	9	22.57%	7.50%	50.67%	49.33%	52.10	25.70	25.70
	2030	10	3.80%	0.00%	#DIV/0!	#DIV/0!	54.08	#DIV/0!	-354.84
Stage 3	11+	3.80%	0.00%	#DIV/0!	#DIV/0!	56.13	#DIV/0!		

price = 43.25

Ke = #VALUE!

source: Value Line

**2021 Multi Stage Ke Estimate Using Residual Income Model**  
**Airline Industry**

<b>Assumptions:</b>	6.18%	<b>Sustainable Growth Rate</b>
	76.9%	<b>Target Dividend Payout Ratio</b>
	22.3%	<b>Target ROE</b>

Alaska Air Group  
 ALK

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0			0.00%	100.00%	-10.17		-52.00	price = 52.00
	2021	-58.21%	0.00%	0.00%	100.00%	-4.25	-4.25	-4.25	
	2022	-62.94%	4.25%	0.00%	100.00%	-1.58	-1.58	-1.58	
<b>Stage 1</b>	2023	-169.84%	8.50%	0.00%	100.00%	1.10	1.10	1.10	
	2024	243.18%	12.75%	555.77%	-455.77%	3.78	-17.21	-17.21	
	2025	70.86%	17.00%	340.73%	-240.73%	6.45	-15.53	-15.53	
	2026	57.92%	18.07%	249.01%	-149.01%	10.19	-15.18	-15.18	
	2027	44.99%	19.13%	167.52%	-67.52%	14.77	-9.97	-9.97	
<b>Stage 2</b>	2028	32.05%	20.20%	94.63%	5.37%	19.50	1.05	1.05	
	2029	19.12%	21.27%	29.05%	70.95%	23.23	16.48	16.48	
	2030	6.18%	22.33%	27.67%	72.33%	24.67	17.84	17.84	
<b>Stage 3</b>	2031	6.18%	22.33%	27.67%	72.33%	26.19	18.94	18.94	
	2032	6.18%	22.33%	27.67%	72.33%	27.81	20.11	20.11	
	2219	199	6.18%	22.33%	27.67%	2,056,827.48	1,487,784.67	1,487,784.67	
	2220	200	6.18%	22.33%	27.67%	2,183,913.71	1,579,711.17	1,579,711.17	
								<b>13.35%</b>	

Allegiant Travel Co  
 ALGT

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0			0.00%	100.00%	-9.33		-189.24	price = 189.24
	2021	-150.91%	10.50%	0.00%	100.00%	4.75	4.75	4.75	
	2022	69.74%	15.25%	269.41%	-169.41%	8.06	-13.66	-13.66	
<b>Stage 1</b>	2023	41.09%	20.00%	145.60%	-45.60%	11.38	-5.19	-5.19	
	2024	29.12%	24.75%	91.12%	8.88%	14.69	1.30	1.30	
	2025	22.55%	29.50%	65.35%	34.65%	18.00	6.24	6.24	
	2026	19.28%	28.07%	57.02%	42.98%	21.47	9.23	9.23	
	2027	16.00%	26.63%	47.79%	52.21%	24.91	13.00	13.00	
<b>Stage 2</b>	2028	12.73%	25.20%	37.51%	62.49%	28.08	17.54	17.54	
	2029	9.45%	23.77%	26.00%	74.00%	30.73	22.74	22.74	
	2030	6.18%	22.33%	27.67%	72.33%	32.63	23.60	23.60	
<b>Stage 3</b>	2031	6.18%	22.33%	27.67%	72.33%	34.65	25.06	25.06	
	2032	6.18%	22.33%	27.67%	72.33%	36.79	26.61	26.61	
	2219	199	6.18%	22.33%	27.67%	2,720,910.98	1,968,142.53	1,968,142.53	
	2220	200	6.18%	22.33%	27.67%	2,889,029.27	2,089,749.14	2,089,749.14	
								<b>11.46%</b>	

American Airlines Group  
 AAL

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0			0.00%	100.00%	-19.66		-15.77	price = 15.77
	2021	-61.85%	0.00%	0.00%	100.00%	-7.50	-7.50	-7.50	
	2022	-36.67%	2.50%	0.00%	100.00%	-4.75	-4.75	-4.75	
<b>Stage 1</b>	2023	-57.89%	5.00%	0.00%	100.00%	-2.00	-2.00	-2.00	
	2024	-137.50%	7.50%	0.00%	100.00%	0.75	0.75	0.75	
	2025	366.67%	10.00%	2945.69%	-2845.69%	3.50	-99.60	-99.60	
	2026	294.57%	12.47%	1784.53%	-1684.53%	13.81	-232.63	-232.63	
	2027	222.47%	14.93%	1006.97%	-906.97%	44.53	-403.90	-403.90	
<b>Stage 2</b>	2028	150.37%	17.40%	449.86%	-349.86%	111.50	-390.10	-390.10	
	2029	78.28%	19.87%	31.10%	68.90%	198.78	136.95	136.95	
	2030	6.18%	22.33%	27.67%	72.33%	211.06	152.67	152.67	
<b>Stage 3</b>	2031	6.18%	22.33%	27.67%	72.33%	224.10	162.10	162.10	
	2032	6.18%	22.33%	27.67%	72.33%	237.95	172.12	172.12	
	2219	199	6.18%	22.33%	27.67%	17,599,923.53	12,730,720.80	12,730,720.80	
	2220	200	6.18%	22.33%	27.67%	18,687,378.80	13,517,320.21	13,517,320.21	
								<b>16.27%</b>	

Delta Air Lines Inc  
 DAL

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0			0.00%	100.00%	-10.76		-40.21	price = 40.21
	2021	-73.51%	0.00%	0.00%	100.00%	-2.85	-2.85	-2.85	
	2022	-95.18%	8.75%	0.00%	100.00%	-0.14	-0.14	-0.14	
<b>Stage 1</b>	2023	#####	17.50%	0.00%	100.00%	2.58	2.58	2.58	
	2024	105.34%	26.25%	195.43%	-95.43%	5.29	-5.05	-5.05	
	2025	51.30%	35.00%	120.79%	-20.79%	8.00	-1.66	-1.66	
	2026	42.28%	32.47%	102.42%	-2.42%	11.38	-0.28	-0.28	
	2027	33.25%	29.93%	80.94%	19.06%	15.17	2.89	2.89	
<b>Stage 2</b>	2028	24.23%	27.40%	55.49%	44.51%	18.84	8.39	8.39	
	2029	15.20%	24.87%	24.85%	75.15%	21.71	16.31	16.31	
	2030	6.18%	22.33%	27.67%	72.33%	23.05	16.67	16.67	

<b>Stage 3</b>	2031	11	6.18%	22.33%	27.67%	72.33%	24.47	17.70	17.70
	2032	12	6.18%	22.33%	27.67%	72.33%	25.98	18.79	18.79
	2219	199	6.18%	22.33%	27.67%	72.33%	1,921,855.61	1,390,154.17	1,390,154.17
	2220	200	6.18%	22.33%	27.67%	72.33%	2,040,602.26	1,476,048.33	1,476,048.33
									<b>17.02%</b>

Hawaiian Holdings Inc  
HA

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0			0.00%	100.00%	-11.96		-17.70	
	2021	1	-58.19%	0.00%	100.00%	-5.00	-5.00	-5.00	
	2022	2	-47.50%	6.25%	100.00%	-2.63	-2.63	-2.63	
<b>Stage 1</b>	2023	3	-90.48%	12.50%	100.00%	-0.25	-0.25	-0.25	
	2024	4	-950.00%	18.75%	100.00%	2.13	2.13	2.13	
	2025	5	111.76%	25.00%	362.59%	4.50	-11.82	-11.82	
	2026	6	90.65%	24.47%	284.18%	8.58	-15.80	-15.80	
	2027	7	69.53%	23.93%	202.28%	14.54	-14.88	-14.88	
<b>Stage 2</b>	2028	8	48.41%	23.40%	116.65%	21.59	-3.59	-3.59	
	2029	9	27.30%	22.87%	27.02%	27.48	20.05	20.05	
	2030	10	6.18%	22.33%	27.67%	29.18	21.10	21.10	
<b>Stage 3</b>	2031	11	6.18%	22.33%	27.67%	72.33%	30.98	22.41	22.41
	2032	12	6.18%	22.33%	27.67%	72.33%	32.89	23.79	23.79
	2219	199	6.18%	22.33%	27.67%	72.33%	2,432,895.81	1,759,809.76	1,759,809.76
	2220	200	6.18%	22.33%	27.67%	72.33%	2,583,218.36	1,868,544.01	1,868,544.01
									<b>18.99%</b>

price = 17.70

JetBlue Airways Corp  
JBLU

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0		NMF	0.00%	100.00%	-5.68		-14.54	
	2021	1	-59.51%	0.00%	100.00%	-2.30	-2.30	-2.30	
	2022	2	-46.74%	3.25%	100.00%	-1.23	-1.23	-1.23	
<b>Stage 1</b>	2023	3	-87.76%	6.50%	100.00%	-0.15	-0.15	-0.15	
	2024	4	-716.67%	9.75%	100.00%	0.93	0.93	0.93	
	2025	5	116.22%	13.00%	724.68%	2.00	-12.49	-12.49	
	2026	6	94.21%	14.87%	485.66%	3.88	-14.98	-14.98	
	2027	7	72.20%	16.73%	299.96%	6.69	-13.37	-13.37	
<b>Stage 2</b>	2028	8	50.19%	18.60%	151.54%	10.05	-5.18	-5.18	
	2029	9	28.19%	20.47%	30.19%	12.88	8.99	8.99	
	2030	10	6.18%	22.33%	27.67%	13.67	9.89	9.89	
<b>Stage 3</b>	2031	11	6.18%	22.33%	27.67%	72.33%	14.52	10.50	10.50
	2032	12	6.18%	22.33%	27.67%	72.33%	15.41	11.15	11.15
	2219	199	6.18%	22.33%	27.67%	72.33%	1,140,180.97	824,737.99	824,737.99
	2220	200	6.18%	22.33%	27.67%	72.33%	1,210,629.90	875,696.49	875,696.49
									<b>14.64%</b>

price = 14.54

Southwest Airlines Co  
LUV

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0		NMF	0.00%	100.00%	-6.22		-46.61	
	2021	1	-83.92%	0.00%	100.00%	-1.00	-1.00	-1.00	
	2022	2	-137.50%	4.75%	100.00%	0.38	0.38	0.38	
<b>Stage 1</b>	2023	3	366.67%	9.50%	827.07%	1.75	-12.72	-12.72	
	2024	4	78.57%	14.25%	308.77%	3.13	-6.52	-6.52	
	2025	5	44.00%	19.00%	191.77%	4.50	-4.13	-4.13	
	2026	6	36.44%	19.67%	146.80%	6.14	-2.87	-2.87	
	2027	7	28.87%	20.33%	104.79%	7.91	-0.38	-0.38	
<b>Stage 2</b>	2028	8	21.31%	21.00%	65.44%	9.60	3.32	3.32	
	2029	9	13.74%	21.67%	28.52%	10.92	7.80	7.80	
	2030	10	6.18%	22.33%	27.67%	11.59	8.38	8.38	
<b>Stage 3</b>	2031	11	6.18%	22.33%	27.67%	72.33%	12.31	8.90	8.90
	2032	12	6.18%	22.33%	27.67%	72.33%	13.07	9.45	9.45
	2219	199	6.18%	22.33%	27.67%	72.33%	966,617.35	699,192.56	699,192.56
	2220	200	6.18%	22.33%	27.67%	72.33%	1,026,342.22	742,393.92	742,393.92
									<b>11.42%</b>

price = 46.61

Spirit Airlines Co  
SAVE

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow
<b>Historic</b>	0		NMF	0.00%	100.00%	-8.25		-24.45
	2021	1	-75.76%	0.00%	100.00%	-2.00	-2.00	-2.00
	2022	2	-81.25%	3.75%	100.00%	-0.38	-0.38	-0.38
<b>Stage 1</b>	2023	3	-433.33%	7.50%	100.00%	1.25	1.25	1.25
	2024	4	130.00%	11.25%	502.42%	2.88	-11.57	-11.57

price = 24.45

	2025	5	56.52%	15.00%	309.69%	-209.69%	4.50	-9.44	-9.44
	2026	6	46.45%	16.47%	220.96%	-120.96%	6.59	-7.97	-7.97
	2027	7	36.38%	17.93%	146.74%	-46.74%	8.99	-4.20	-4.20
<b>Stage 2</b>	2028	8	26.32%	19.40%	83.75%	16.25%	11.35	1.85	1.85
	2029	9	16.25%	20.87%	29.61%	70.39%	13.20	9.29	9.29
	2030	10	6.18%	22.33%	27.67%	72.33%	14.01	10.14	10.14
<b>Stage 3</b>	2031	11	6.18%	22.33%	27.67%	72.33%	14.88	10.76	10.76
	2032	12	6.18%	22.33%	27.67%	72.33%	15.80	11.43	11.43
	2219	199	6.18%	22.33%	27.67%	72.33%	1,168,592.68	845,289.30	845,289.30
	2220	200	6.18%	22.33%	27.67%	72.33%	1,240,797.10	897,517.62	897,517.62
									<b>14.08%</b>

United Continental Holdings  
UAL

	Year	Growth Rate	ROE	Reinvestment Rate	Payout Ratio	Earnings	FCFE	Cash Flow	
<b>Historic</b>	0		NMF	0.00%	100.00%	-27.57		-43.25	price = 43.25
	2021	1	-62.82%	0.00%	100.00%	-10.25	-10.25	-10.25	
	2022	2	-50.61%	9.38%	0.00%	-5.06	-5.06	-5.06	
<b>Stage 1</b>	2023	3	-102.47%	18.75%	0.00%	0.13	0.13	0.13	
	2024	4	4150.00%	28.13%	347.19%	-247.19%	5.31	-13.13	
	2025	5	97.65%	37.50%	211.61%	-111.61%	10.50	-11.72	
	2026	6	79.35%	34.47%	177.16%	-77.16%	18.83	-14.53	
	2027	7	61.06%	31.43%	136.05%	-36.05%	30.33	-10.94	
<b>Stage 2</b>	2028	8	42.77%	28.40%	86.17%	13.83%	43.30	5.99	
	2029	9	24.47%	25.37%	24.36%	75.64%	53.90	40.77	
	2030	10	6.18%	22.33%	27.67%	72.33%	57.23	41.40	
<b>Stage 3</b>	2031	11	6.18%	22.33%	27.67%	72.33%	60.77	43.95	
	2032	12	6.18%	22.33%	27.67%	72.33%	64.52	46.67	
	2219	199	6.18%	22.33%	27.67%	72.33%	4,772,320.21	3,452,007.97	3,452,007.97
	2220	200	6.18%	22.33%	27.67%	72.33%	5,067,189.95	3,665,298.91	3,665,298.91
									<b>19.23%</b>

source: Value Line

## IMPLIED PREMIUMS FOR US MARKET

Updated January 2021

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

Year	Earnings Yield	Dividend Yield	S&P 500	Earnings *	Dividends*	Dividends + Buybacks	Change in Earnings	Change in Dividends	T.Bill Rate	T.Bond Rate	Bond-Bill	Smoothed Growth	Implied Premium (DDM)	Analyst Growth Estimate	Implied Premium (FCFE)
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	<b>71.28</b>	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%
2019	5.03%	1.82%	3230.78	162.35	58.80	150.50	9.44%	9.68%	1.55%	1.92%	0.37%	2.57%		3.96%	5.20%
2020	3.68%	1.51%	3756.07	138.12	56.70	127.78	-14.92%	-3.57%	0.09%	0.93%	0.84%	0.74%	1.65%	5.42%	4.72%

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

## Summary of Bloomberg Bond Yields by Rating

2021 S&P Monthly Bond Yields

Rating	October			November			December		
	20Y	25Y	30Y	20Y	25Y	30Y	20Y	25Y	30Y
AA	2.87	3.22	3.61	2.7	3.06	3.43	2.71	3.08	3.49
AA-	2.88	2.95	3.02	2.74	2.74	2.74	2.74	2.75	2.76
A+	2.93	2.98	2.86	2.66	2.7	2.58	2.67	2.69	2.59
A	2.92	3	3	2.59	2.62	2.62	2.7	2.67	2.67
A-	3.21	3.14	3.21	2.99	3.05	3.22	2.99	3.05	3.18
BBB+	3.46	3.34	3.28	3.07	3.02	3.03	3.02	3.02	3.12
BBB	3.86	3.75	3.87	3.53	3.48	3.67	3.44	3.44	3.63
BBB-	4.78	4.62	4.74	4.27	4.24	4.41	4.13	4.14	4.27
BB+	5.77	6.2		4.86	5.57		4.7	5.37	
BB	6.27	6.32	6.34	6.22	6.27	6.29	6.05	6.1	6.13
BB-	5.77	6.4	6.32	6.16	5.86	5.75	5.89	5.73	5.68
B+	6.47	6.73	6.75	5.72	5.77	5.79	5.55	5.6	5.63
B	7.72	7.77		9.51	9.56		8.1	8.16	
B-	5.98	N/A	N/A	5.26	N/A	N/A	5.06	N/A	N/A



