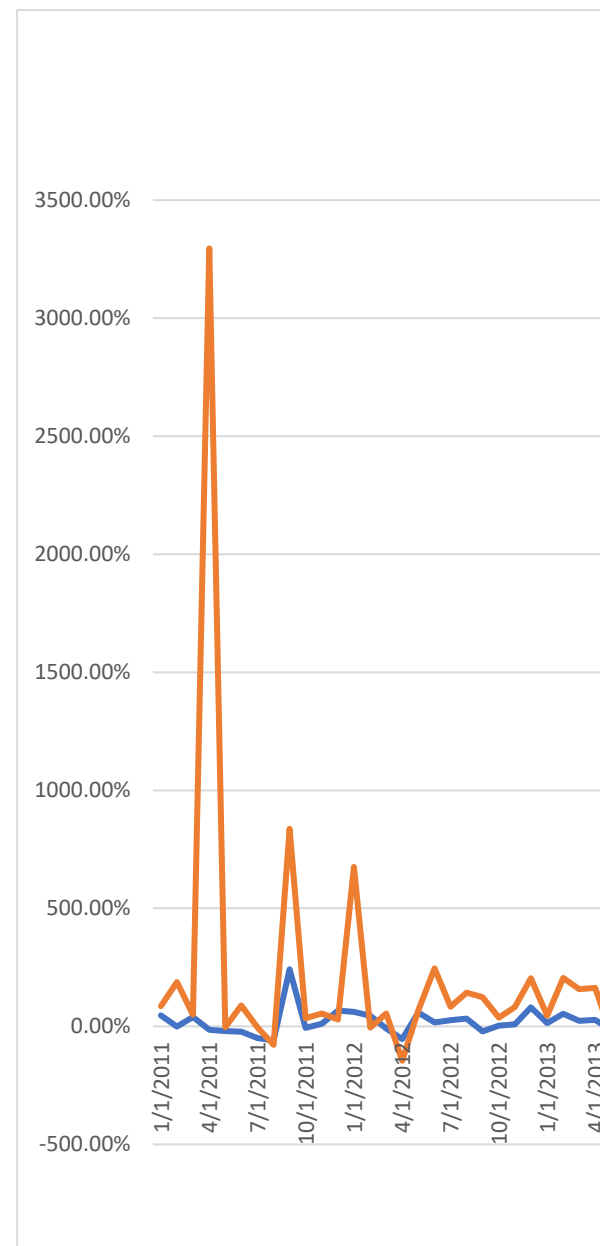


Risk and Capital Budgeting

Monthly 2011-2021

Date	S&P 500 Level	DZP Price	S&P 500 EAR	DZP EAR
1/1/2011	1286.12	16.40	S&P 500	DZP
2/1/2011	1327.22	16.87	45.86%	40.36%
3/1/2011	1325.83	18.43	-1.25%	189.02%
4/1/2011	1363.61	18.57	40.10%	9.51%
5/1/2011	1345.20	24.92	-15.05%	3310.62%
6/1/2011	1320.64	25.24	-19.84%	16.55%
7/1/2011	1292.28	26.87	-22.93%	111.90%
8/1/2011	1218.89	27.73	-50.42%	45.94%
9/1/2011	1131.42	27.25	-59.08%	-18.90%
10/1/2011	1253.30	32.03	241.33%	595.48%
11/1/2011	1246.96	32.94	-5.90%	39.96%
12/1/2011	1257.60	33.95	10.73%	43.68%
1/1/2012	1312.41	32.65	66.85%	-37.41%
2/1/2012	1365.68	38.46	61.20%	613.70%
3/1/2012	1408.47	36.30	44.81%	-50.02%
4/1/2012	1397.91	37.81	-8.64%	63.08%
5/1/2012	1310.33	30.71	-53.99%	-91.76%
6/1/2012	1362.16	30.91	59.28%	8.10%
7/1/2012	1379.32	34.14	16.21%	229.59%
8/1/2012	1406.58	35.44	26.47%	56.59%
9/1/2012	1440.67	37.70	33.29%	109.98%



10/1/2012	1412.16	40.62	-21.33%	144.78%
11/1/2012	1416.18	41.60	3.47%	33.12%
12/1/2012	1426.19	43.55	8.82%	73.28%
1/1/2013	1498.11	46.57	80.47%	123.57%
2/1/2013	1514.68	47.62	14.11%	30.68%
3/1/2013	1569.19	51.44	52.85%	152.43%
4/1/2013	1597.57	55.20	24.00%	133.16%
5/1/2013	1630.74	59.27	27.97%	134.83%
6/1/2013	1606.28	58.15	-16.59%	-20.46%
7/1/2013	1685.73	62.58	78.48%	141.34%
8/1/2013	1632.97	61.44	-31.72%	-19.80%
9/1/2013	1681.55	67.95	42.16%	234.86%
10/1/2013	1756.54	67.06	68.80%	-14.63%
11/1/2013	1805.81	69.13	39.37%	44.02%
12/1/2013	1848.36	69.65	32.24%	9.41%
1/1/2014	1782.59	70.61	-35.26%	17.85%
2/1/2014	1859.45	79.06	65.96%	288.23%
3/1/2014	1872.34	76.97	8.64%	-27.49%
4/1/2014	1883.95	74.38	7.70%	-33.68%
5/1/2014	1923.57	72.45	28.37%	-27.06%
6/1/2014	1960.23	73.09	25.43%	11.13%
7/1/2014	1930.67	72.00	-16.67%	-16.50%
8/1/2014	2003.37	75.45	55.83%	75.36%
9/1/2014	1972.29	76.96	-17.11%	26.84%
10/1/2014	2018.05	88.79	31.68%	456.14%
11/1/2014	2067.56	93.85	33.76%	94.47%
12/1/2014	2058.90	94.17	-4.91%	4.17%

<i>Bin</i>	<i>Frequency</i>
-0.80	1
-0.44	10
-0.07	23
0.29	46
0.65	31
1.01	11
1.38	4
1.74	2
2.10	0
2.47	2
2.83	0
More	1

<i>Bin</i>	<i>Frequency</i>
-0.92	1
2.18	110
5.27	14
8.36	5
11.45	0
14.55	0
17.64	0
20.73	0
23.83	0
26.92	0
30.01	0

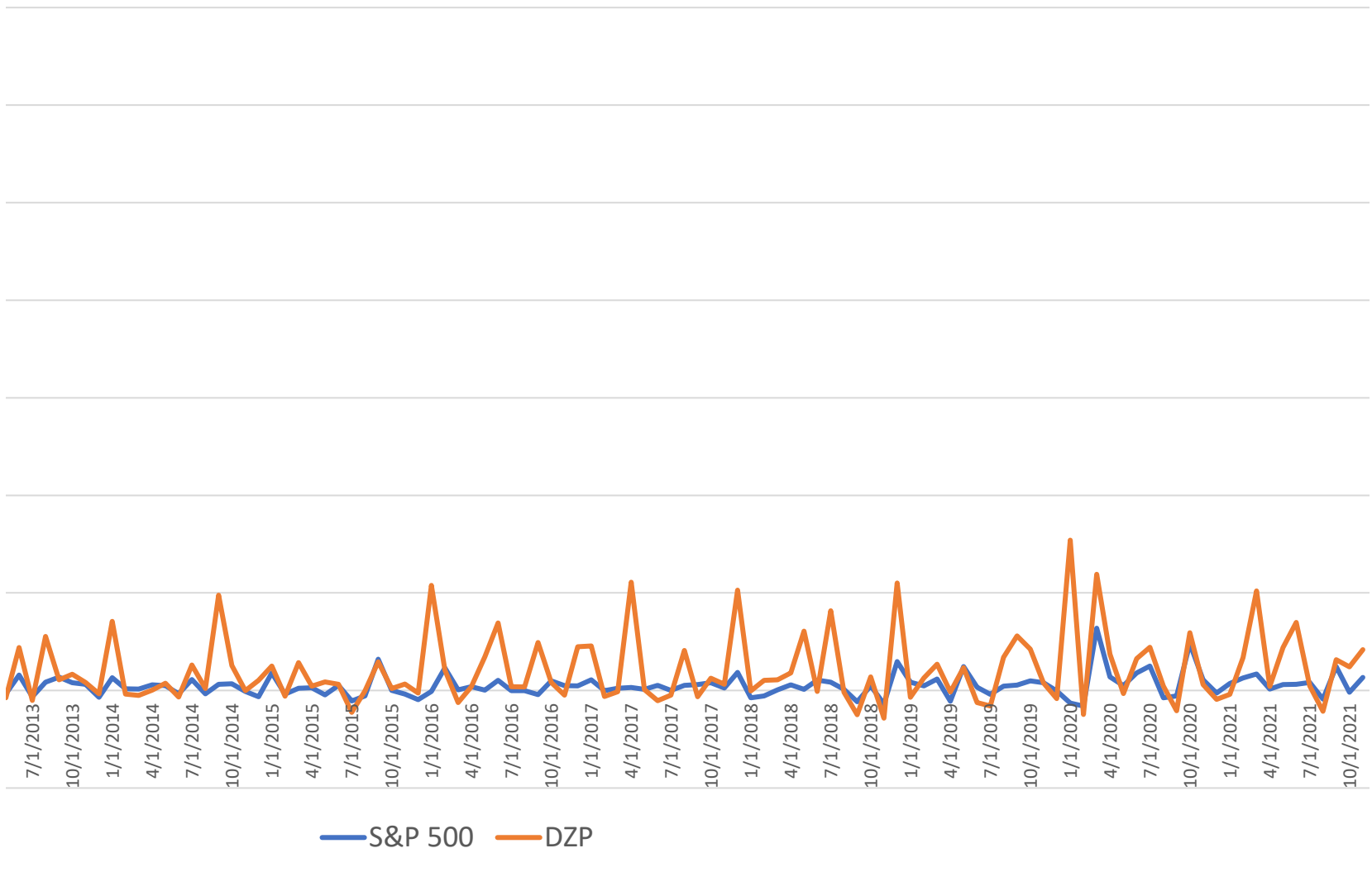
1/1/2015	1994.99	99.05	-31.50%	83.36%
2/1/2015	2104.50	101.53	89.89%	34.55%
3/1/2015	2067.89	100.55	-18.99%	-10.99%
4/1/2015	2085.51	107.85	10.72%	131.88%
5/1/2015	2107.39	108.66	13.34%	9.39%
6/1/2015	2063.11	113.40	-22.50%	66.92%
7/1/2015	2103.84	113.84	26.44%	4.76%
8/1/2015	1972.18	105.94	-53.95%	-57.81%
9/1/2015	1920.03	107.91	-27.50%	24.74%
10/1/2015	2079.36	106.67	160.29%	-12.95%
11/1/2015	2080.41	107.47	0.61%	9.38%
12/1/2015	2043.94	111.25	-19.12%	51.41%
1/1/2016	1940.24	113.93	-46.46%	33.06%
2/1/2016	1932.23	133.04	-4.84%	542.88%
3/1/2016	2059.74	131.86	115.30%	-10.14%
4/1/2016	2065.30	120.88	3.29%	-64.77%
5/1/2016	2096.96	120.88	20.03%	0.00%
6/1/2016	2098.86	131.38	1.09%	171.71%
7/1/2016	2173.60	147.30	52.18%	294.53%
8/1/2016	2170.95	149.57	-1.45%	20.14%
9/1/2016	2168.27	151.85	-1.47%	19.91%
10/1/2016	2126.15	169.24	-20.97%	267.33%
11/1/2016	2198.81	168.04	49.67%	-8.18%
12/1/2016	2238.83	159.24	24.17%	-47.56%
1/1/2017	2278.87	174.54	23.70%	200.69%
2/1/2017	2363.64	189.81	55.00%	173.58%
3/1/2017	2362.72	184.30	-0.47%	-29.78%

4/1/2017	2384.20	181.39	11.47%	-17.39%
5/1/2017	2411.80	211.72	14.81%	539.41%
6/1/2017	2423.41	211.53	5.93%	-1.07%
7/1/2017	2470.30	186.50	25.86%	-77.94%
8/1/2017	2471.65	182.26	0.66%	-24.12%
9/1/2017	2519.36	198.55	25.79%	179.35%
10/1/2017	2575.26	183.00	30.13%	-62.42%
11/1/2017	2647.58	186.16	39.42%	22.81%
12/1/2017	2673.61	188.96	12.46%	19.62%
1/1/2018	2823.81	216.85	92.69%	421.76%
2/1/2018	2713.83	222.41	-37.92%	35.50%
3/1/2018	2640.87	233.56	-27.89%	79.86%
4/1/2018	2648.05	241.73	3.31%	51.07%
5/1/2018	2705.27	251.48	29.24%	60.72%
6/1/2018	2718.37	282.17	5.97%	298.19%
7/1/2018	2816.29	262.66	52.91%	-57.67%
8/1/2018	2901.52	298.56	43.01%	365.21%
9/1/2018	2913.98	294.80	5.28%	-14.11%
10/1/2018	2711.74	268.79	-57.82%	-66.99%
11/1/2018	2760.17	277.32	23.67%	45.48%
12/1/2018	2506.85	247.99	-68.50%	-73.85%
1/1/2019	2704.10	283.73	148.16%	403.10%
2/1/2019	2784.49	250.94	42.13%	-77.09%
3/1/2019	2834.40	258.10	23.76%	40.16%
4/1/2019	2945.83	270.58	58.84%	76.24%
5/1/2019	2752.06	279.50	-55.80%	47.58%
6/1/2019	2941.76	278.28	122.53%	-5.11%

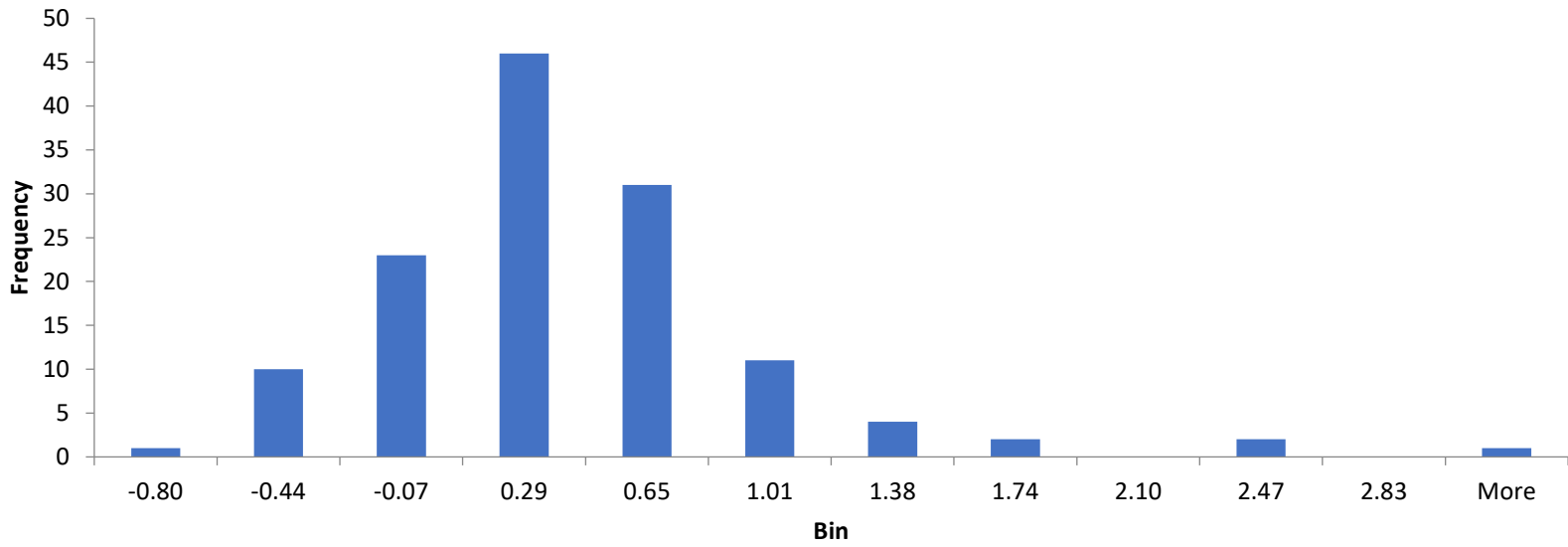
7/1/2019	2980.38	244.53	16.94%	-78.81%
8/1/2019	2926.46	226.84	-19.67%	-59.39%
9/1/2019	2976.74	244.59	22.68%	146.96%
10/1/2019	3037.56	271.62	27.47%	251.78%
11/1/2019	3140.98	294.30	49.45%	161.78%
12/1/2019	3230.78	293.78	40.25%	-2.10%
1/1/2020	3225.52	281.75	-1.94%	-39.45%
2/1/2020	2954.22	339.46	-65.16%	835.61%
3/1/2020	2584.59	324.07	-79.89%	-42.69%
4/1/2020	2912.43	361.93	319.15%	276.56%
5/1/2020	3044.31	385.84	70.14%	115.47%
6/1/2020	3100.29	369.44	24.44%	-40.62%
7/1/2020	3271.12	386.61	90.34%	72.48%
8/1/2020	3500.31	408.96	125.38%	96.29%
9/1/2020	3363.00	425.28	-38.14%	59.93%
10/1/2020	3269.96	378.32	-28.59%	-75.44%
11/1/2020	3621.63	392.57	240.67%	55.85%
12/1/2020	3756.07	383.46	54.87%	-24.55%
1/1/2021	3714.24	370.76	-12.58%	-33.25%
2/1/2021	3811.15	346.51	36.22%	-55.59%
3/1/2021	3972.89	367.79	64.67%	104.46%
4/1/2021	4181.17	422.34	84.63%	425.71%
5/1/2021	4204.11	426.87	6.79%	13.66%
6/1/2021	4297.50	466.49	30.17%	190.11%
7/1/2021	4395.26	525.49	30.99%	317.51%
8/1/2021	4522.68	516.89	40.91%	-17.96%
9/1/2021	4307.54	476.96	-44.28%	-61.89%

10/1/2021	4605.38	488.97	123.07%	34.77%
11/1/2021	4567.00	524.14	-9.55%	130.13%
12/1/2021	4766.18	564.33	66.91%	142.68%

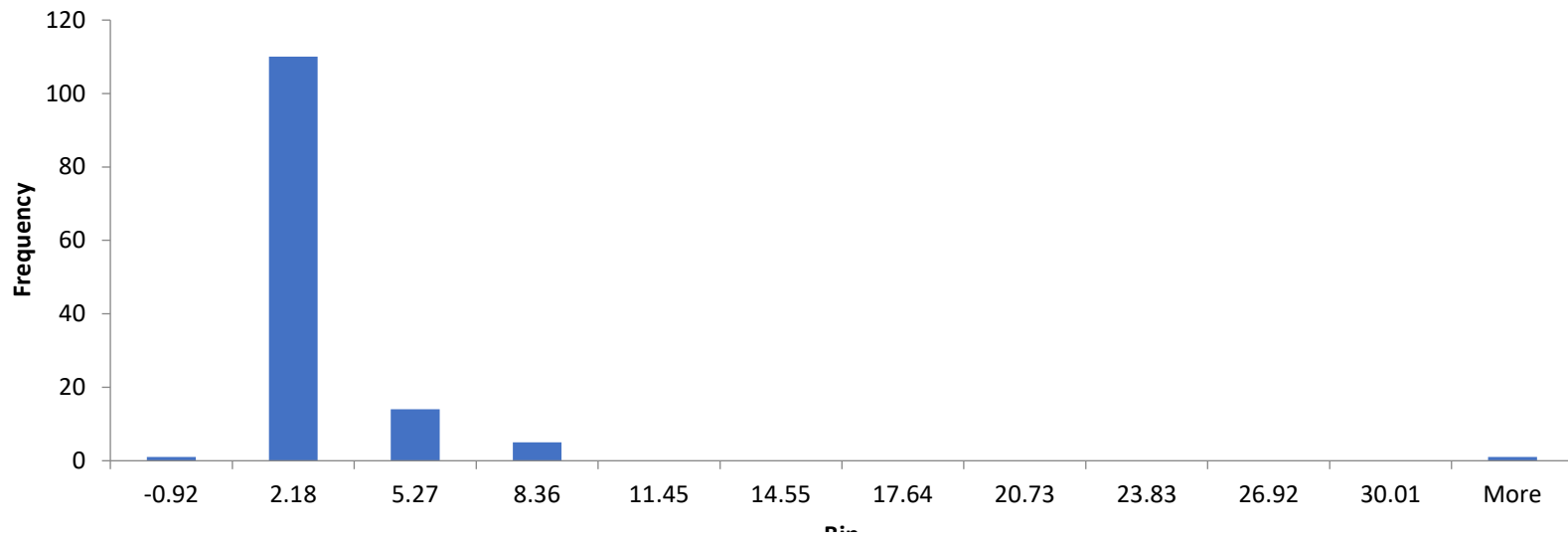
DZP vs S&P 500 Returns (2011-2021)



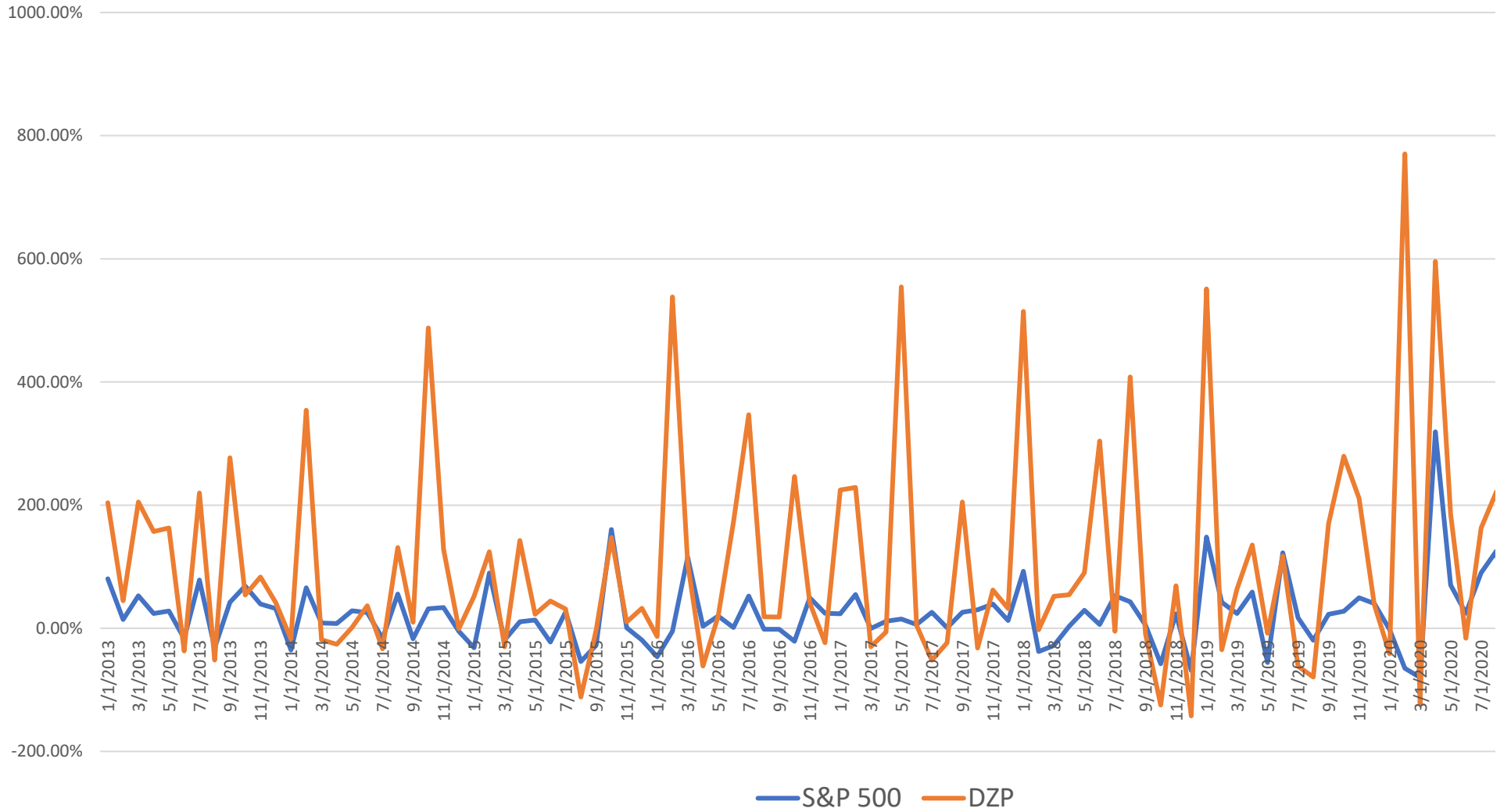
S&P 500 Returns

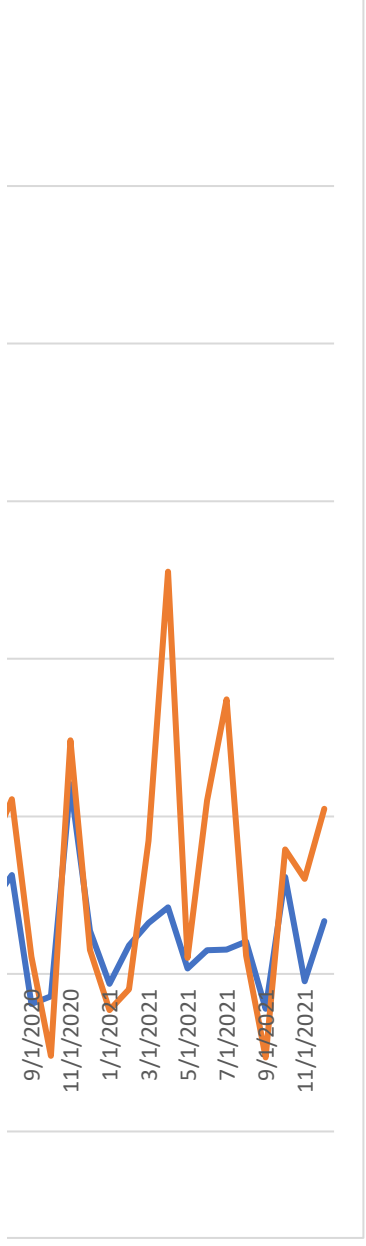


DZP Returns



DZP vs S&P 500 Returns (2013-2021)





Probability Measures

	S&P 500	DZP
Average	24.64%	109.64%
Variance	0.3386	10.4676
StDev	58.19%	323.54%
CV	2.3612	2.9510
Skewness	1.8526	7.7514
Kurtosis	6.5196	74.5181
Covariance	0.1387	
Correlation	0.0742	

Correlation	
2011	0.03
2012	0.28
2013	0.49
2014	0.51
2015	-0.10
2016	-0.19
2017	0.16
2018	0.62
2019	0.46
2020	-0.00
2021	0.38

Weighted Average

Find the portfolio return:

Item	Value	Percentage
A	12.00%	16.00%
B	7.00%	10.00%
C	8.17%	8.00%
D	4.50%	3.00%
E	12.30%	12.00%
F	6.07%	13.00%
G	-11.00%	34.00%
H	11.90%	4.00%

Total 100.00%

Weighted Average 2.41%
=SUMPRODUCT(C7:C14,D7:D14)

Item
A
B
C
D
E
F
G
H

Weigl

Value	Weight
12.00%	\$1,200.00
7.00%	\$3,400.00
8.17%	\$5,000.00
4.50%	\$523.00
12.30%	\$1,235.00
6.07%	\$2,543.00
-11.00%	\$2,000.00
11.90%	\$5,223.00

Total \$21,124.00

hted Average 7.20%

=SUMPRODUCT(H7:H14,I7:I14)/SUM(I7:I14)

Sensitivity Analysis (Data Tables)

Investment	(20,000)
Original Production	8,000
Price	5.00
Variable Costs	3.10
Fixed Costs	20,000
Growth in Production	4.00%
Depreciation	10,000
Interest Expense	3,000
Tax Rate	30.00%
Terminal Value	10,000
Discount Rate	7.00%

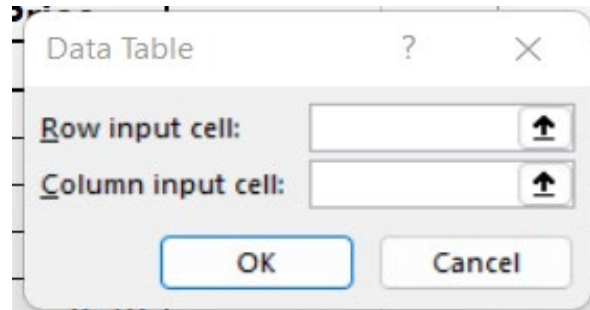
Year
Investment
Units
Revenue
Variable Costs
Gross Profit
Fixed Costs
Operating Profit
Depreciation
EBIT
Interest Expense
EBT
Taxes
Net Income
Terminal Value
CF
PV(CF)
NPV
PI
IRR

Instructions

- 1) Formula reference (=
- 2) Select Table (G6:H16
- 3) Open Data Table Wir
- 4) D6 as "Row input cell
- 5) Click OK

0	1	2	3	4	5
(20,000)					
	8,000	8,320	8,653	8,999	9,359
	40,000	41,600	43,264	44,995	46,794
	24,800	25,792	26,824	27,897	29,012
	15,200	15,808	16,440	17,098	17,782
	20,000	20,000	20,000	20,000	20,000
	(4,800)	(4,192)	(3,560)	(2,902)	(2,218)
	10,000	10,000	10,000	10,000	10,000
	(14,800)	(14,192)	(13,560)	(12,902)	(12,218)
	3,000	3,000	3,000	3,000	3,000
	(17,800)	(17,192)	(16,560)	(15,902)	(15,218)
	(5,340)	(5,158)	(4,968)	(4,771)	(4,565)
	(12,460)	(12,034)	(11,592)	(11,131)	(10,653)
					10,000
(20,000)	(12,460)	(12,034)	(11,592)	(11,131)	(653)
(20,000)	(11,645)	(10,511)	(9,462)	(8,492)	(465)

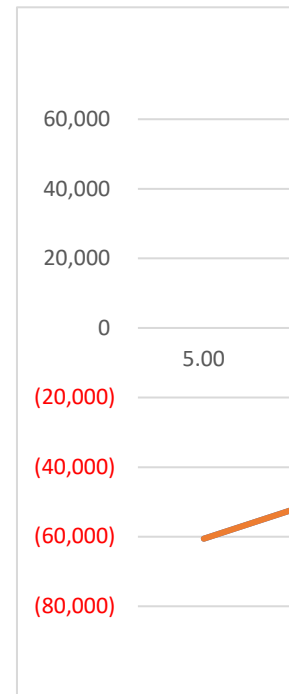
(60,576)	NO
(2.03)	NO
#NUM!	#NUM!



Project!F22) in H6

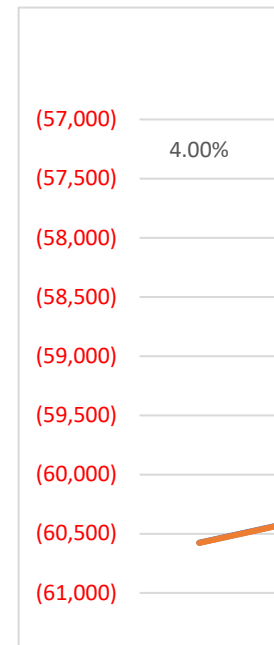
)
 ndow
 !".

NPV, PI Sensitivity to Price		
Price	NPV	PI
5.00	(60,576)	(2.03)
5.50	(48,205)	(1.41)
6.00	(35,835)	(0.79)
6.50	(23,464)	(0.17)
7.00	(11,093)	0.45
7.50	1,278	1.06
8.00	13,648	1.68
8.50	26,019	2.30
9.00	38,390	2.92
9.50	50,760	3.54
10.00	63,131	4.16



Break-Even Price (Goal Seek)	
BE Price	7.45

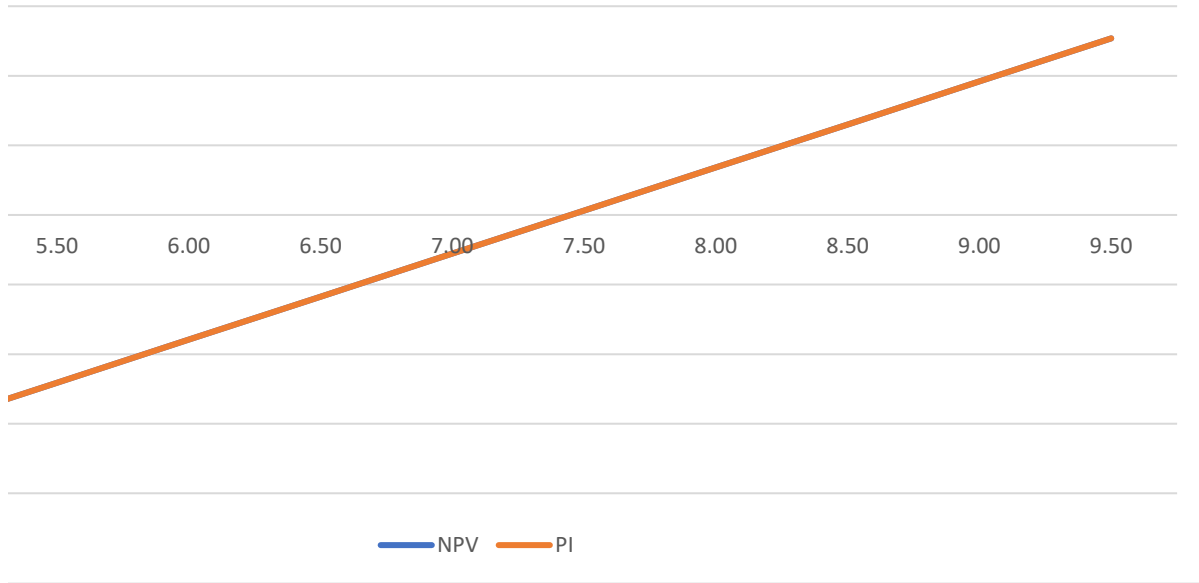
NPV, PI Sensitivity to PGrowth		
PGrow	NPV	PI
4.00%	(60,576)	(2.03)
4.25%	(60,356)	(2.02)
4.50%	(60,135)	(2.01)
4.75%	(59,913)	(2.00)
5.00%	(59,689)	(1.98)
5.25%	(59,465)	(1.97)
5.50%	(59,240)	(1.96)
5.75%	(59,013)	(1.95)
6.00%	(58,786)	(1.94)
6.25%	(58,557)	(1.93)



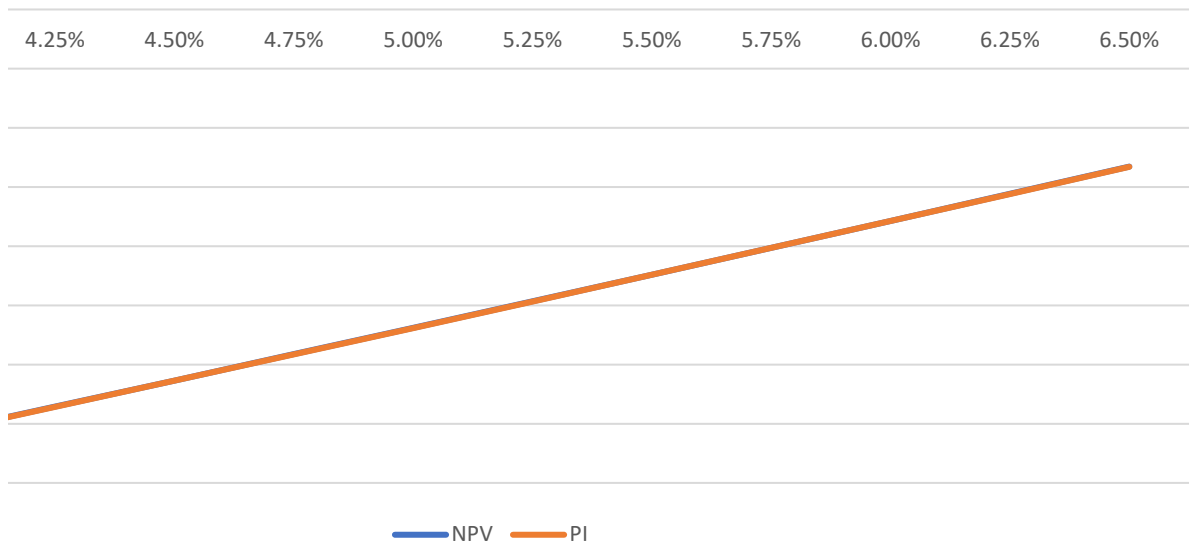
6.50%	(58,328)	(1.92)
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Break-Even Growth (Goal Seek)	
BE Grow	49.14%

NPV Sensitivity ro Price



NPV Sensitivity ro PGrowth



Monte Carlo Simulation

Using

Disc Rate N~(0.10,.05)	PV =PV(B6,10,0,-100)
10.29%	37.57
10.27%	37.62
5.42%	58.97
9.77%	39.38
10.29%	37.55
13.14%	29.09
2.25%	80.07
13.83%	27.37
7.52%	48.42
15.35%	23.98
12.49%	30.83
10.69%	36.21
-2.26%	125.66
11.41%	33.96
4.32%	65.51
9.58%	40.05
12.00%	32.20
8.01%	46.26
8.66%	43.59
13.01%	29.43
7.22%	49.82
9.29%	41.13
8.69%	43.48
18.68%	18.03
9.94%	38.78
6.75%	52.04
6.27%	54.42
17.16%	20.52

8.33%	44.94
15.79%	23.08
-3.55%	143.60
11.82%	32.73
6.87%	51.46
9.89%	38.94
15.87%	22.93
18.11%	18.94
6.75%	52.04
11.90%	32.49
9.07%	41.98
-1.52%	116.53
12.69%	30.28
5.14%	60.58
22.87%	12.75
15.13%	24.44
14.95%	24.82
-5.04%	167.78
6.63%	52.64
8.21%	45.45
13.81%	27.44
15.07%	24.57
10.13%	38.11
17.34%	20.20
15.35%	23.97
12.93%	29.65
2.37%	79.13
3.58%	70.33
12.96%	29.55
8.55%	44.04
3.82%	68.71
8.48%	44.31
0.88%	91.64
14.07%	26.81

Random Number Generator

Count 1000

	PV
Average	43.77
Variance	533.96
StDev	2310.75%
Skewness	1.83
Kurtosis	4.85

Random Number Generation

Number of Variables: 1

Number of Random Numbers: 1000

Distribution: Normal

Parameters

Mean = 0.1

Standard deviation = 0.05

Random Seed:

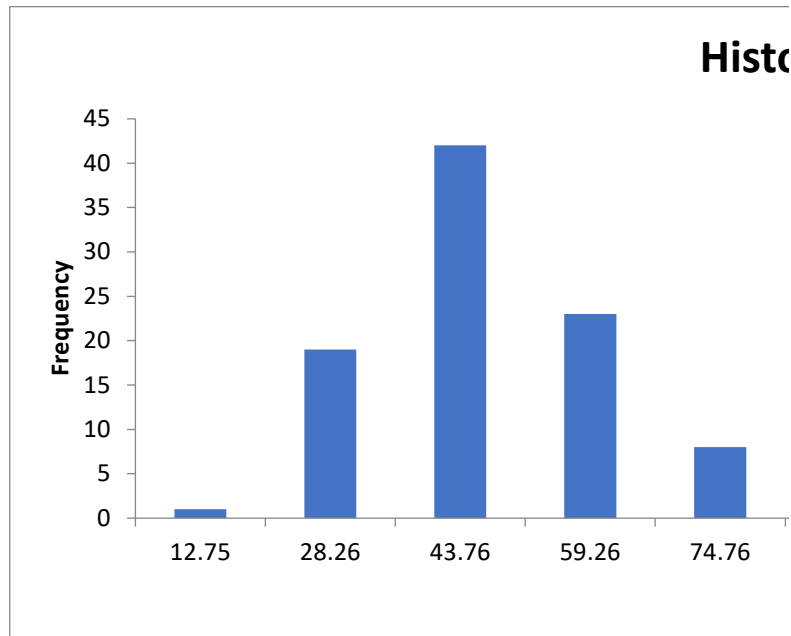
Output options

Output Range: \$B\$6

New Worksheet Ply:

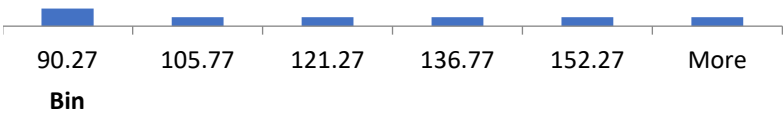
New Workbook

Bin	Frequency
12.75	1
28.26	19
43.76	42
59.26	23
74.76	8
90.27	2
105.77	1
121.27	1
136.77	1
152.27	1
More	1





ogram



Risk Adjustments

Risk-Adjusted Discount Rate

WACC	6.00%
Risk Premium	2.00%

Certainty Equivalent Approach

r_f	3.00%
-------	-------

Year	0	1	2	3
CF	(15,000)	1,500	4,000	5,500
PV(CF)	(15,000)	1,415	3,560	4,618
PV(CF) (with RP)	(15,000)	1,389	3,429	4,366

NPV	1,575	YES
PI	1.11	YES
IRR	11.33%	YES

Year	0	1	2	3
CF	(15,000)	1,500	4,000	5,500
CE Coeff. (α)	1.00	0.96	0.92	0.88
Risk-Adf. CF	(15,000)	1,440	3,680	4,840
PV(CF)	(15,000)	1,358	3,275	4,064

NPV	278	YES
PI	1.02	YES
IRR	11.33%	YES

4	5
4,500	6,000
3,564	4,484
3,308	4,083

4	5
4,500	6,000
0.84	0.80
3,780	4,800
2,994	3,587