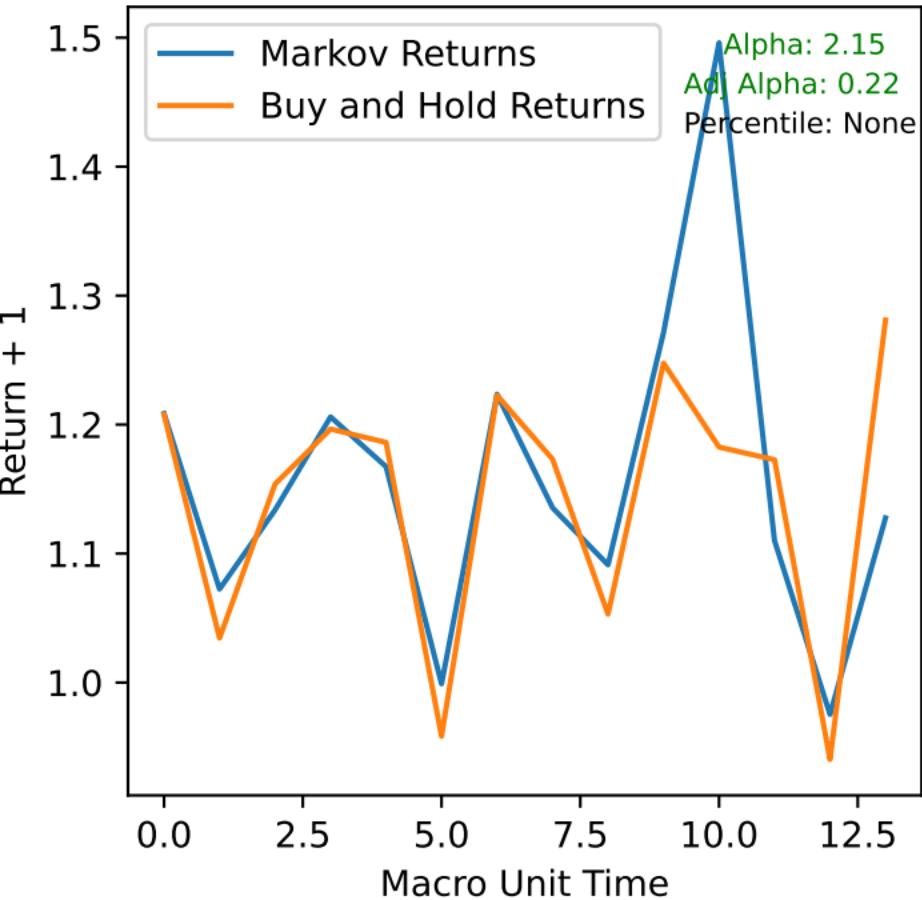
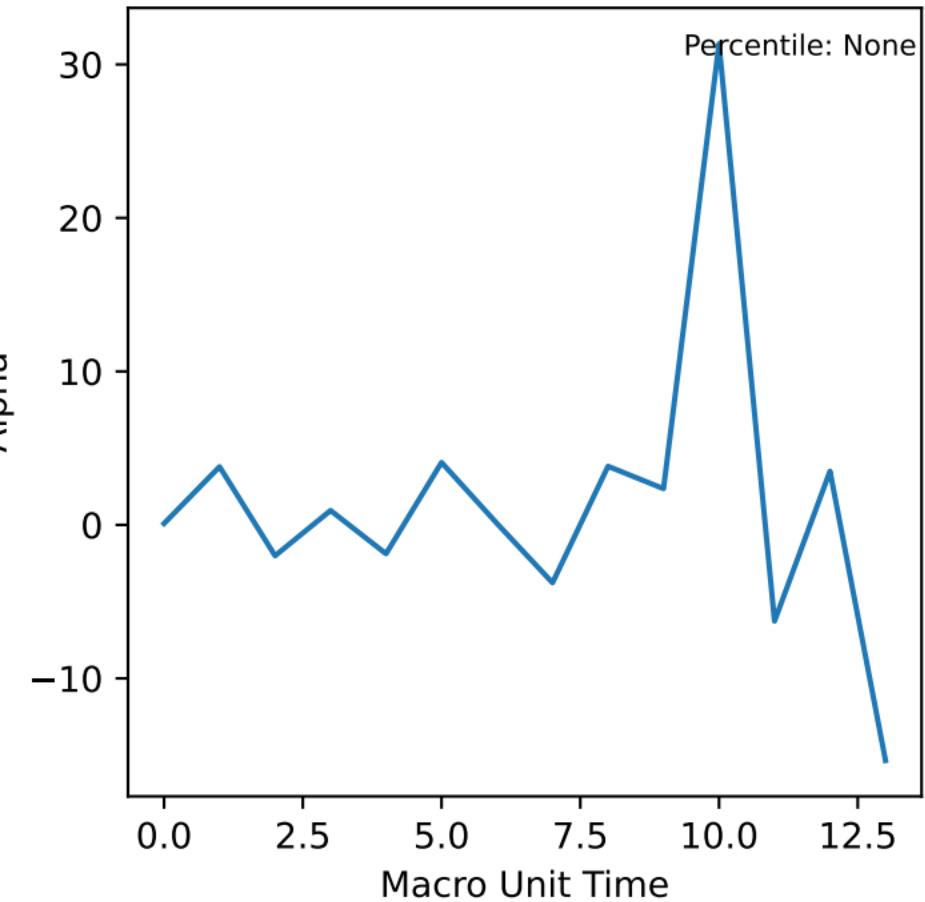


SPY Return per Macro Unit Time



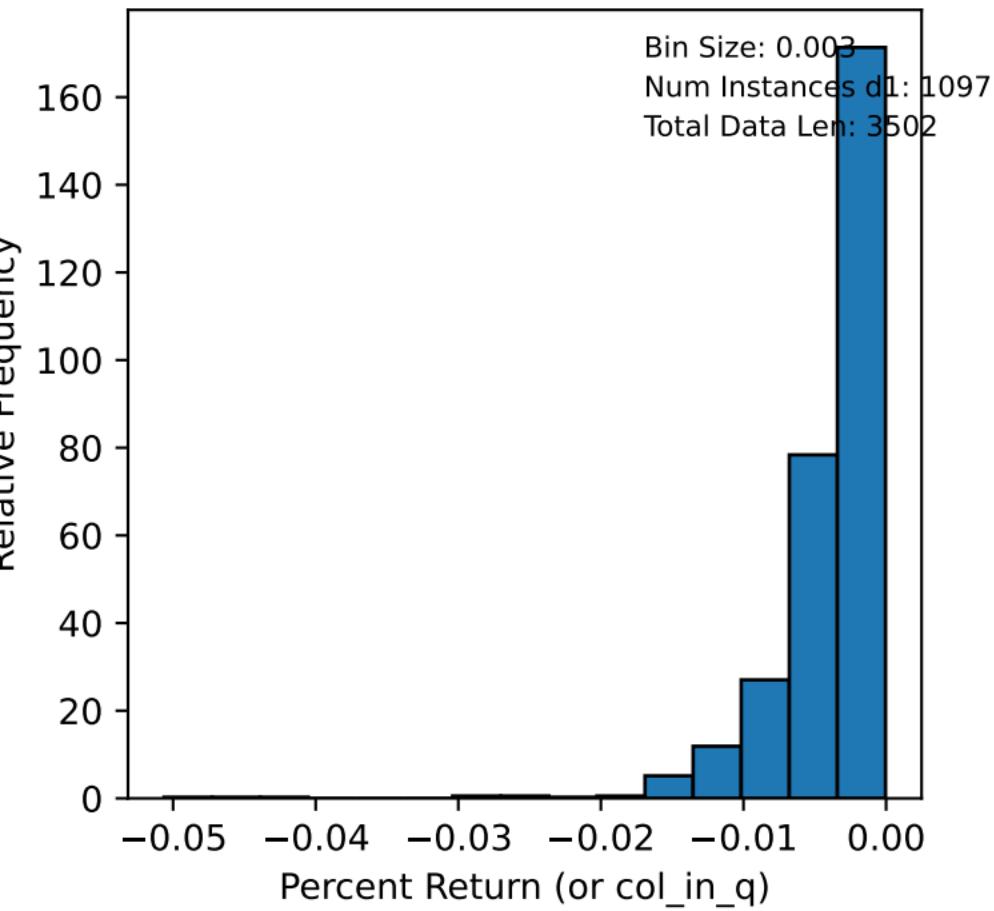
SPY Alpha per Macro Unit Time



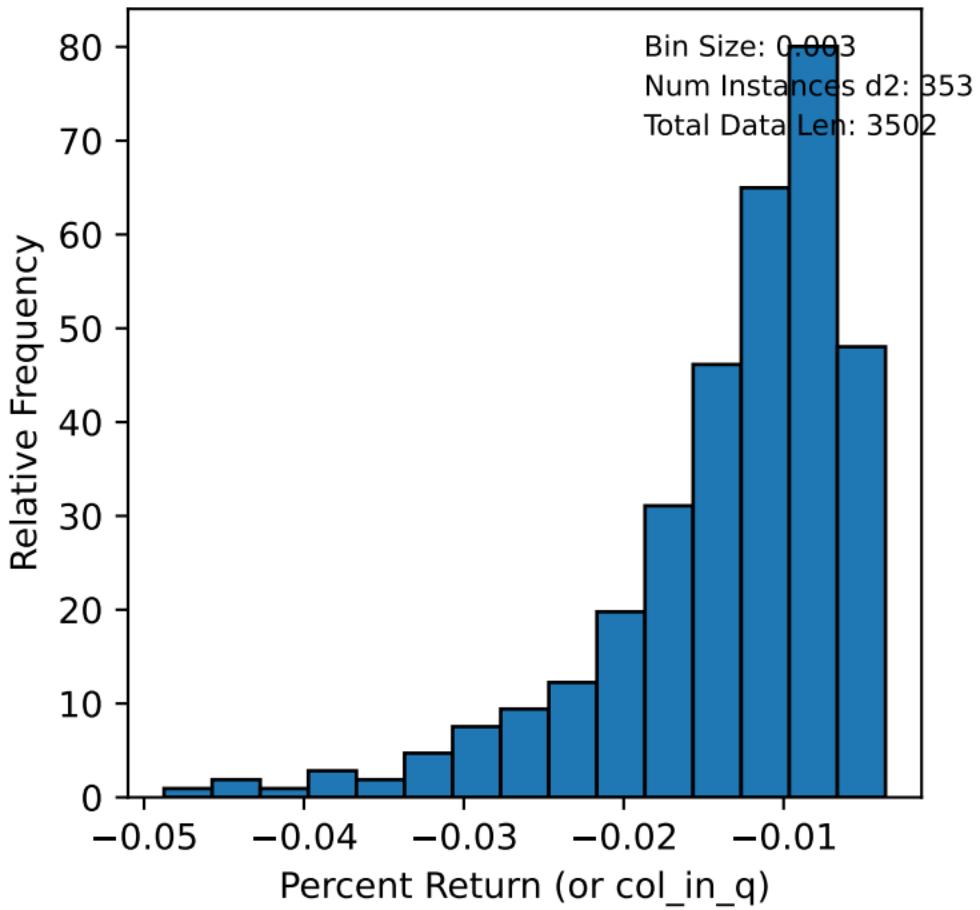
SPY Transition Probability Matrix

	d1	d2	d3	d4	g1	g2	g3	g4
d1	28.3	27.5	26.8	18.8	33.8	35.8	29.1	16.7
d2	10.7	13.0	12.4	6.2	8.8	8.9	15.2	16.7
d3	3.1	5.1	1.0	6.2	1.9	3.1	2.5	0.0
d4	0.6	0.3	2.1	6.2	0.2	0.0	2.5	0.0
g1	38.1	32.6	30.9	25.0	40.4	37.4	39.2	66.7
g2	16.4	18.4	22.7	25.0	12.6	13.9	8.9	0.0
g3	2.5	3.1	4.1	12.5	2.1	1.0	2.5	0.0
g4	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0

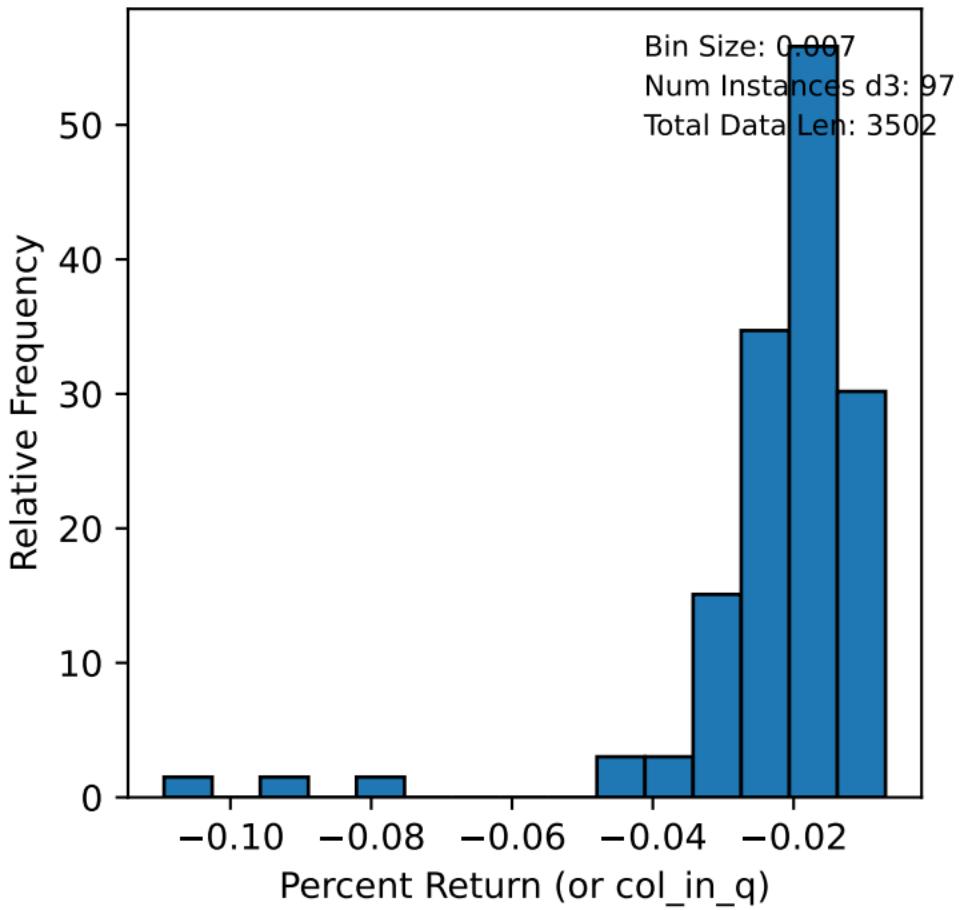
State Return Distribution for State d1



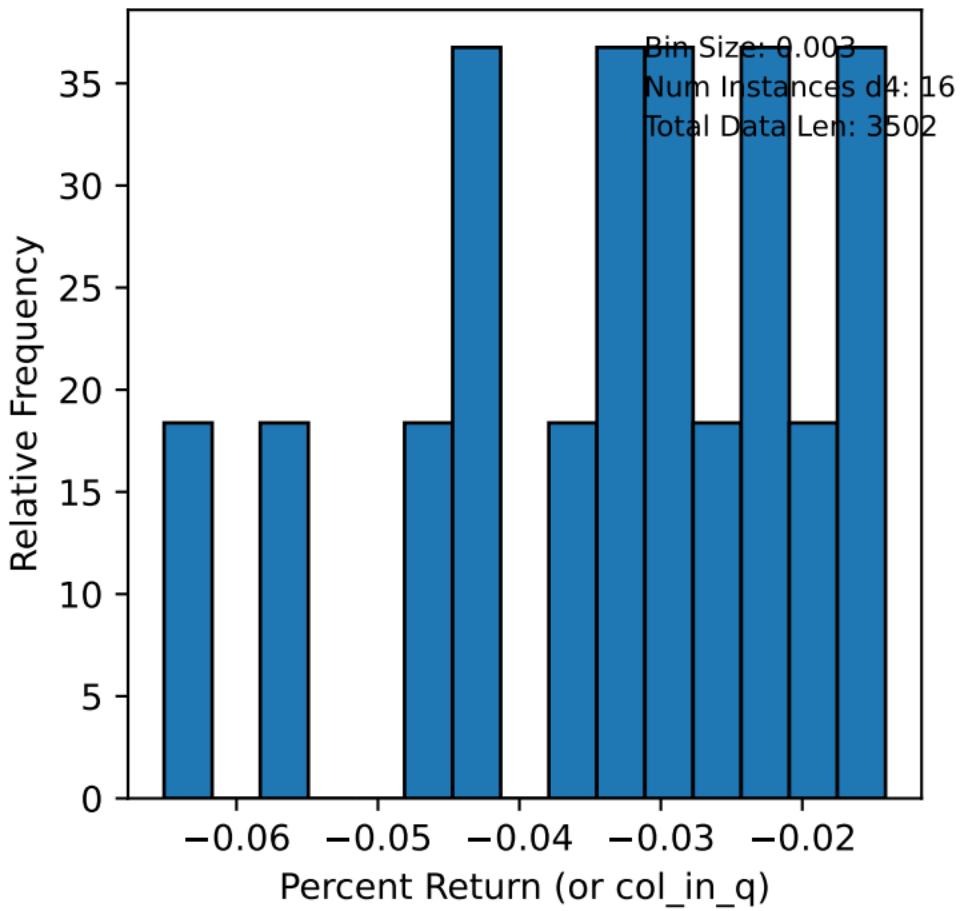
State Return Distribution for State d2



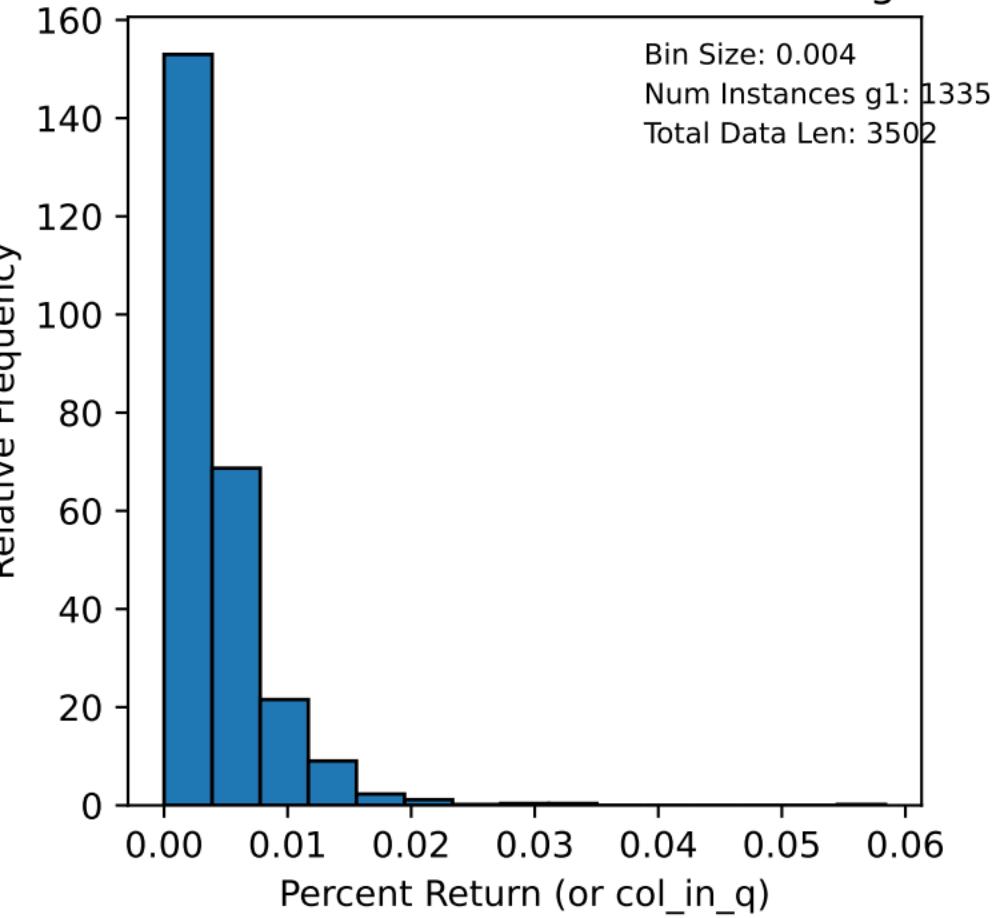
State Return Distribution for State d3



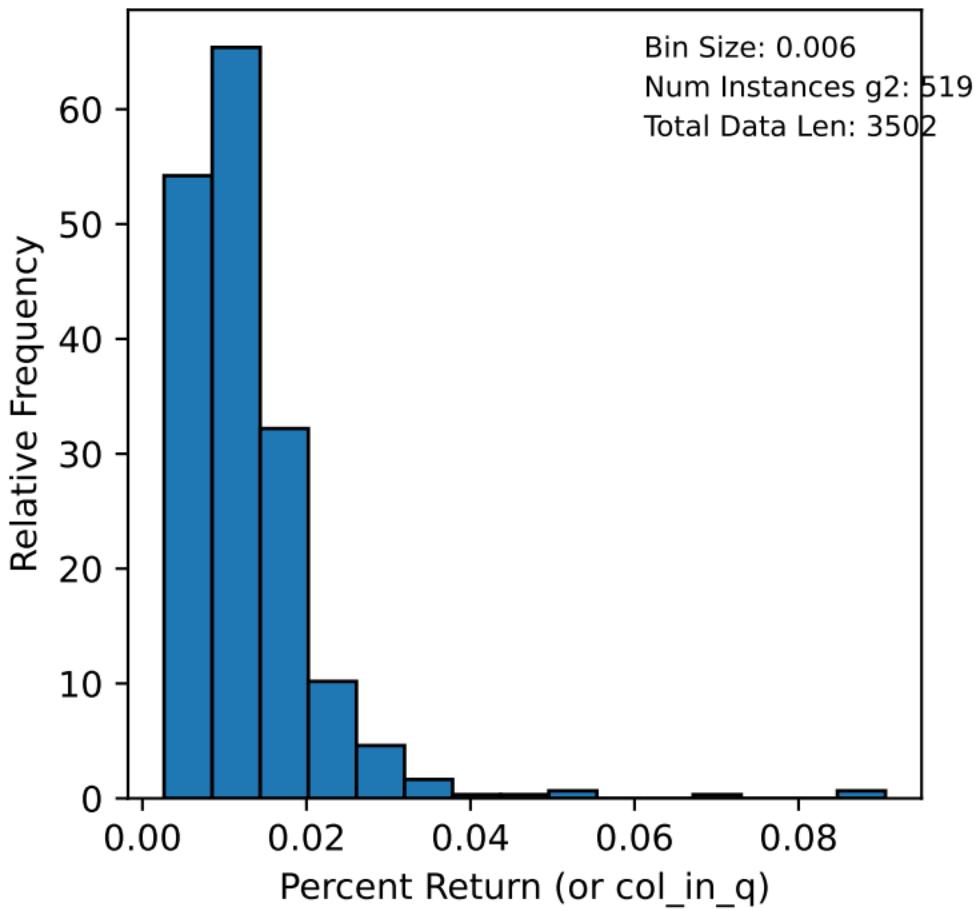
State Return Distribution for State d4



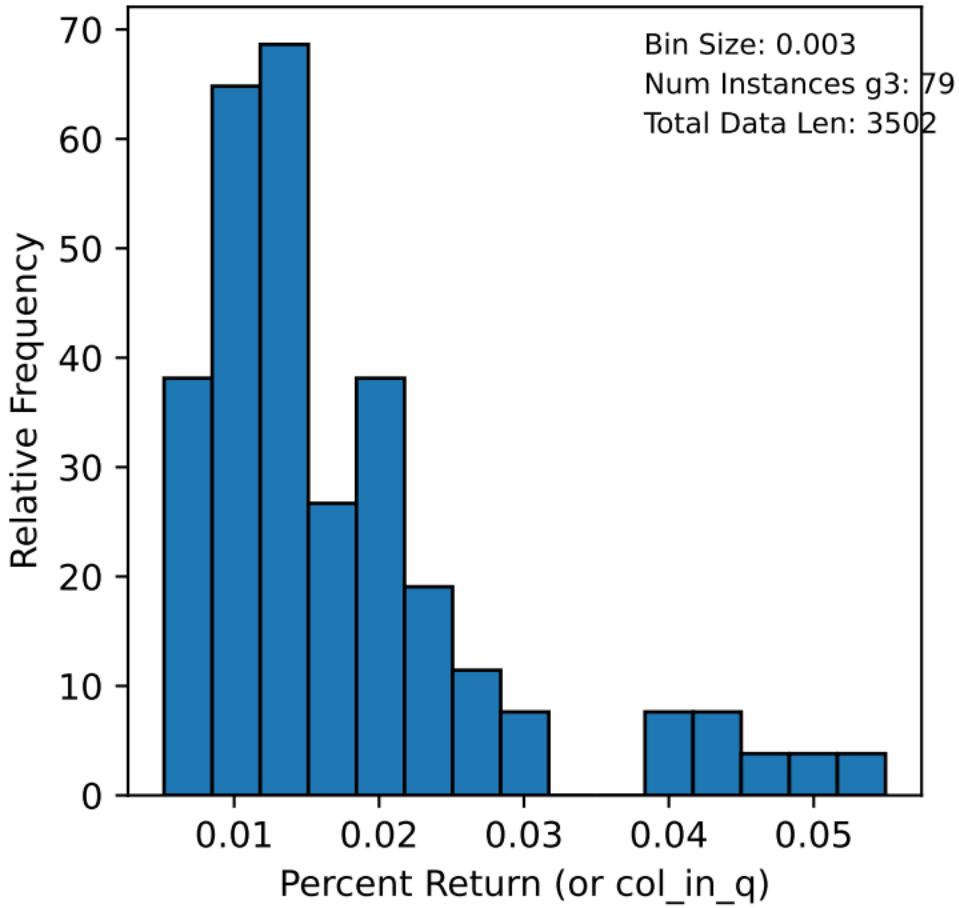
State Return Distribution for State g1



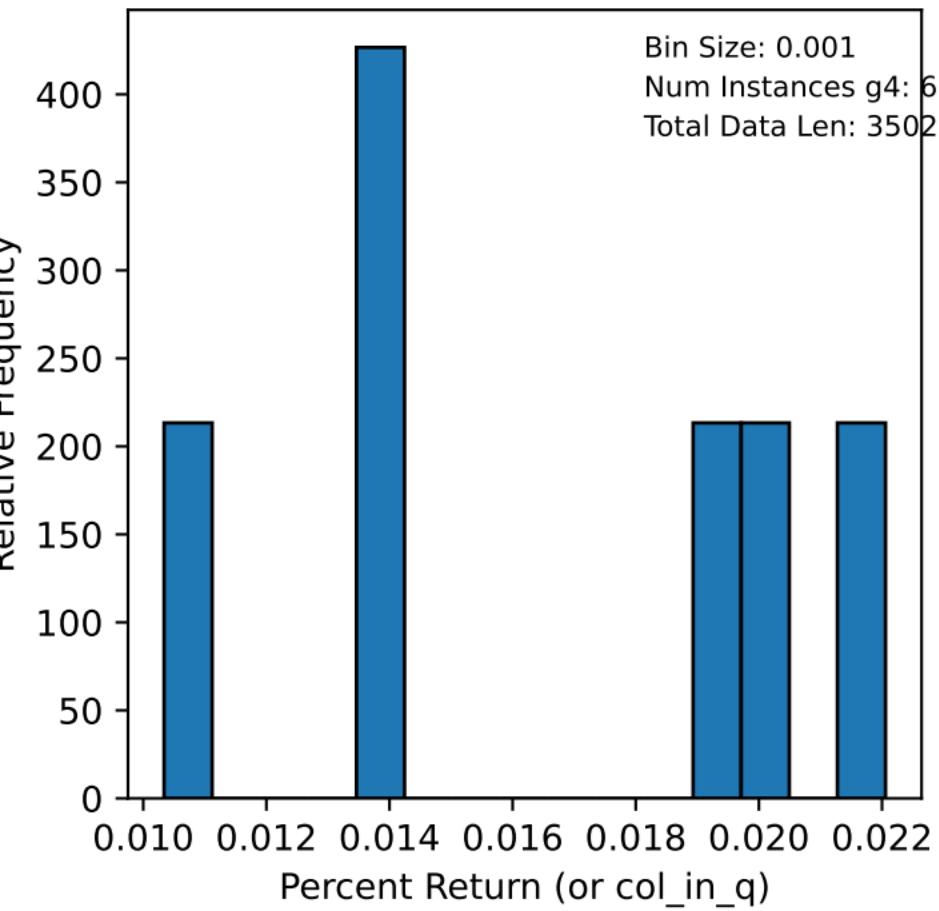
State Return Distribution for State g2



State Return Distribution for State g3



State Return Distribution for State g4



SPY normal_cov_map

	Adj Close	CO_20	CMP_20	Close	EMA_20	High	Low	Lower_Band	MACD	Open	RSI_20	SMA_20	STD_1=20	Stochastic_Oscillator_D	Stochastic_Oscillator_K	Upper_Band	Volume	daily_return	state_nominal	volume_change
0	-0.3	33.9	13.7	-0.1	36.6	-1.1	-0.7	6.4	nan	-1.5	90.5	18.8	-2.9	nan	nan	1.3	-16.9	29.9	100.0	-29.7

SPY type1_cov_map

	Adj Close	CCI_20	CMP_20	Close	EMA_20	High	Low	Lower_Band	MACD	Open	RSI_20	SMA_20	STD_1=20	Stochastic_Oscillator_D	Stochastic_Oscillator_K	Upper_Band	Volume	daily_return	state_nominal	volume_change
0	-0.3	33.8	13.7	-0.1	36.4	-1.1	-0.7	6.3	nan	-1.5	90.1	18.7	-2.9	nan	nan	1.3	-16.8	79.6	99.6	-29.6

SPY type2_cov_map

	Adj Close	CCI_20	CMP_20	Close	EMA_20	High	Low	Lower_Band	MACD	Open	RSI_20	SMA_20	STD_1=20	Stochastic_Oscillator_D	Stochastic_Oscillator_K	Upper_Band	Volume	daily_return	state_nominal	volume_change
0	8.0	35.0	16.4	8.3	37.5	8.0	8.1	-3.7	nan	7.8	13.3	20.4	6.1	nan	nan	8.5	-0.9	79.9	100.0	-28.0