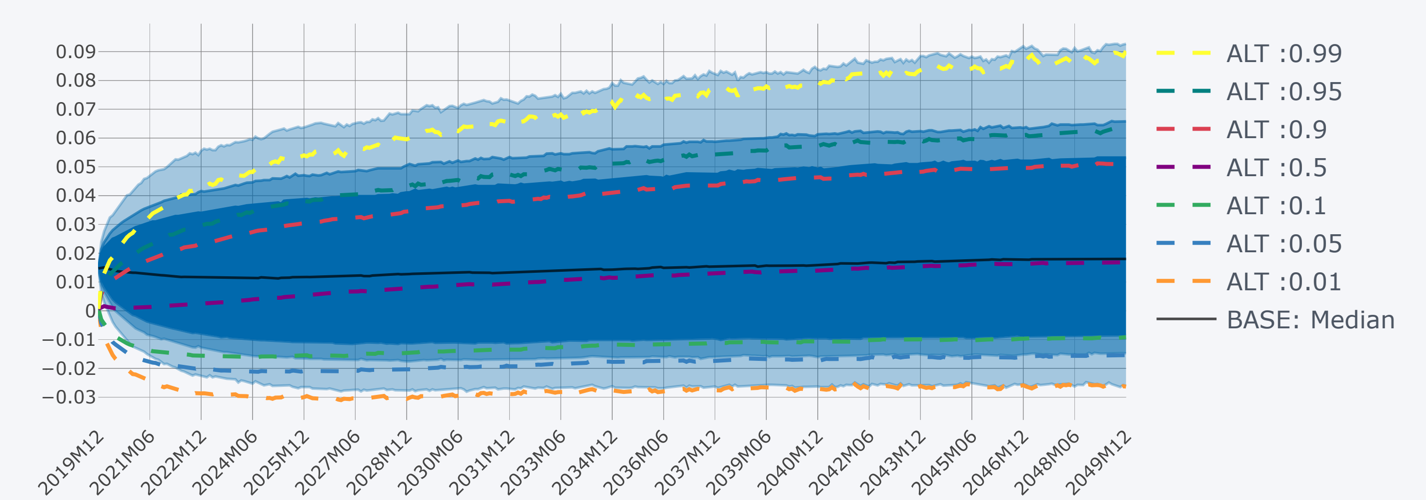
US Treasury 1 Month Yield - Coupon
Conning | Risk Solutions

2019 Q4
Validation Report

Simulated Data in Percentiles : US Treasury 1 Month Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

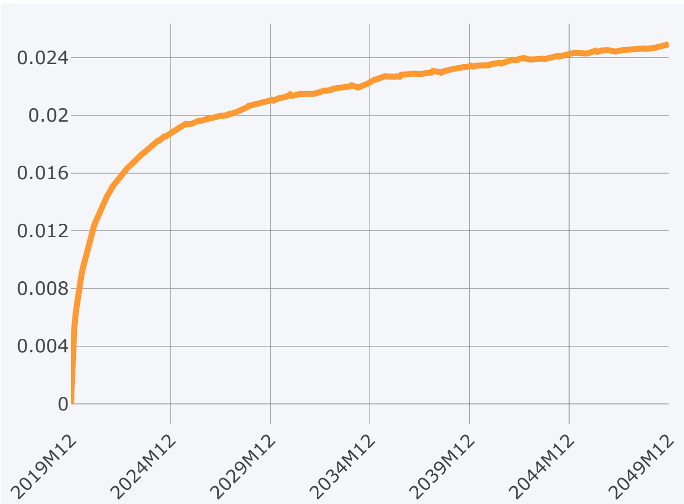
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

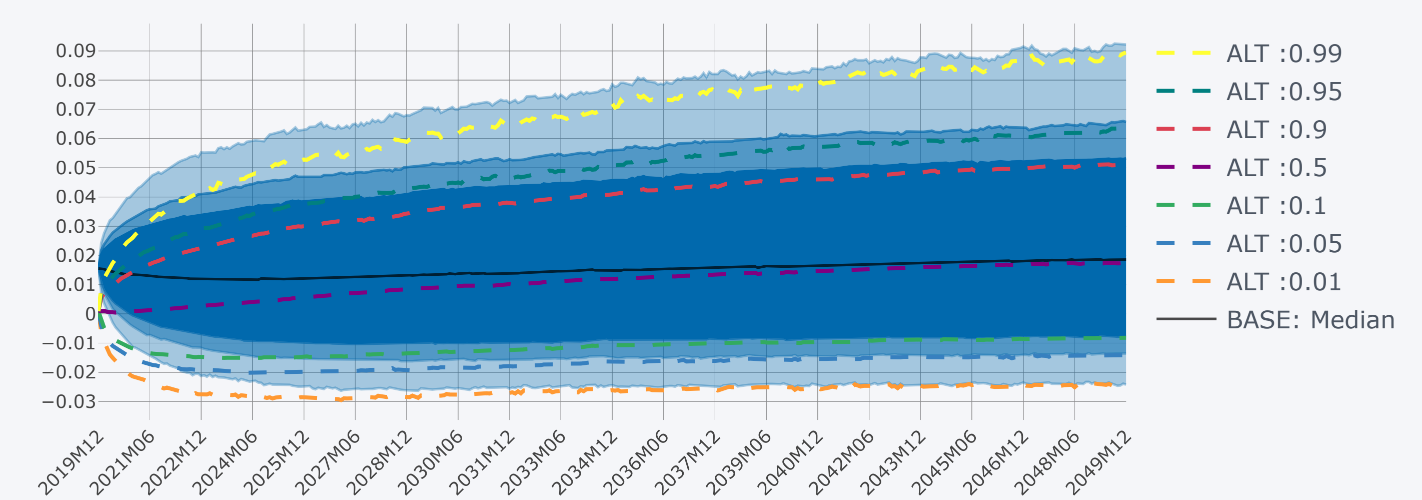
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0134	0.0207	0.0014	0.0195
std	0.0117	0.0249	0.0107	0.0244
min	-0.0266	-0.0459	-0.0343	-0.046
1%	-0.0124	-0.0261	-0.022	-0.0263
5%	-0.0052	-0.0148	-0.0157	-0.0154
10%	-0.0014	-0.0085	-0.0121	-0.0091
50%	0.0132	0.018	0.0011	0.0168
90%	0.0285	0.0532	0.0152	0.0509
95%	0.0328	0.0658	0.0192	0.0637
99%	0.0416	0.0927	0.027	0.0902
max	0.0671	0.1666	0.05	0.1608

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 3 Month Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

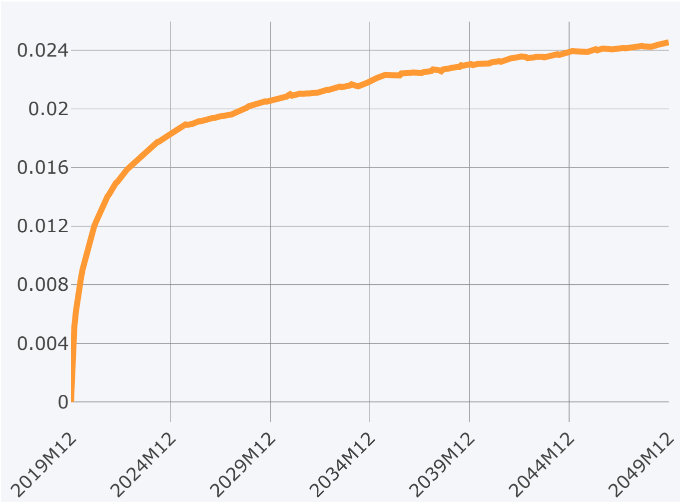
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

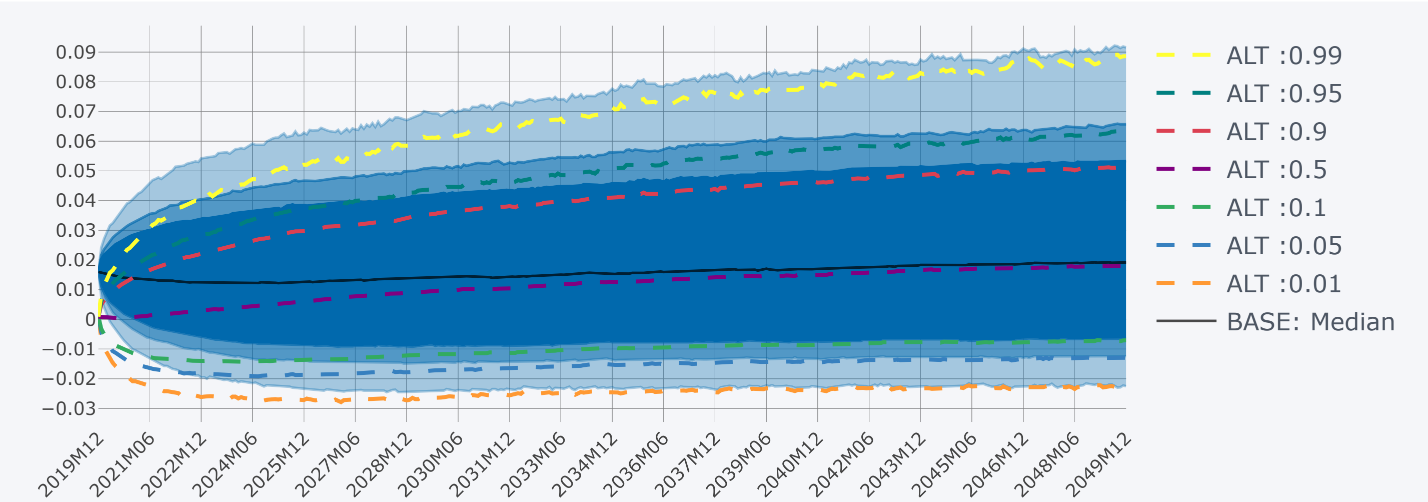
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0138	0.0213	0.0011	0.02
std	0.0113	0.0245	0.0103	0.024
min	-0.0247	-0.0451	-0.033	-0.0452
1%	-0.0113	-0.0242	-0.0214	-0.0247
5%	-0.0043	-0.0136	-0.0154	-0.0142
10%	-0.0005	-0.0076	-0.0118	-0.0082
50%	0.0135	0.0186	0.0009	0.0175
90%	0.0285	0.0532	0.0143	0.0512
95%	0.0327	0.0657	0.0183	0.0636
99%	0.0411	0.0922	0.026	0.0894
max	0.0669	0.1681	0.0491	0.1622

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 6 Month Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

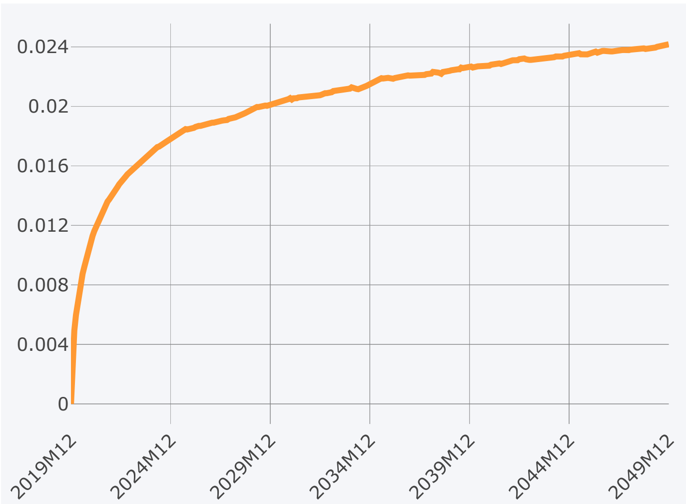
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

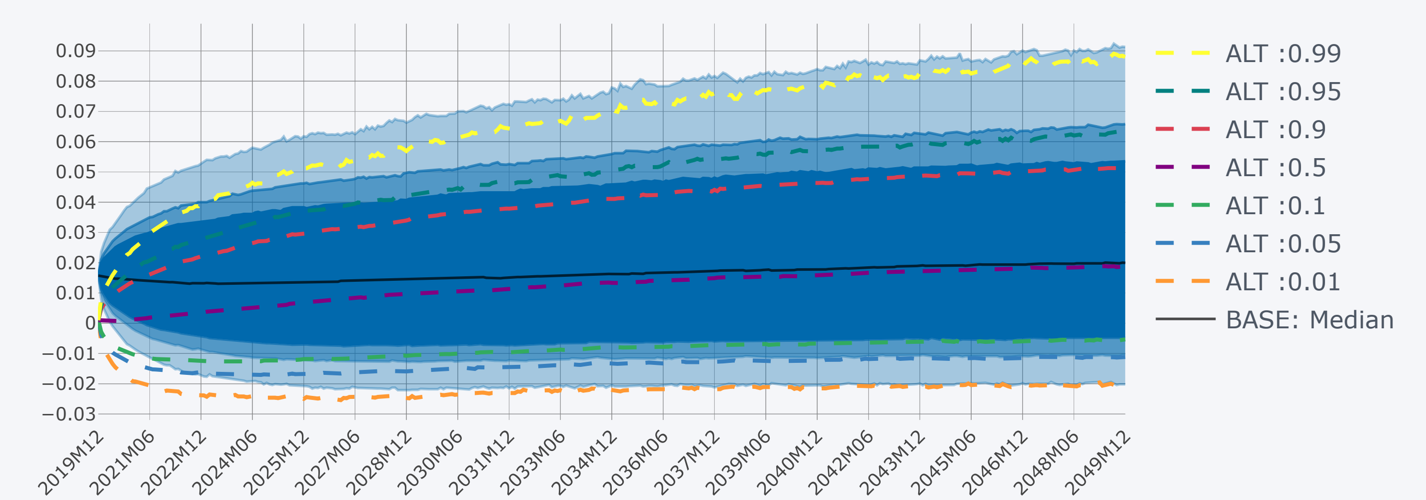
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0141	0.0218	0.0011	0.0206
std	0.0109	0.0242	0.0099	0.0236
min	-0.0229	-0.0438	-0.0314	-0.0439
1%	-0.0101	-0.0225	-0.0209	-0.0229
5%	-0.0033	-0.0124	-0.0147	-0.0129
10%	0.0004	-0.0065	-0.0114	-0.0071
50%	0.0139	0.0192	0.0008	0.018
90%	0.0284	0.0533	0.0139	0.0511
95%	0.0325	0.0657	0.0178	0.0633
99%	0.0407	0.0916	0.0252	0.0886
max	0.0661	0.1691	0.0481	0.1633

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 1 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

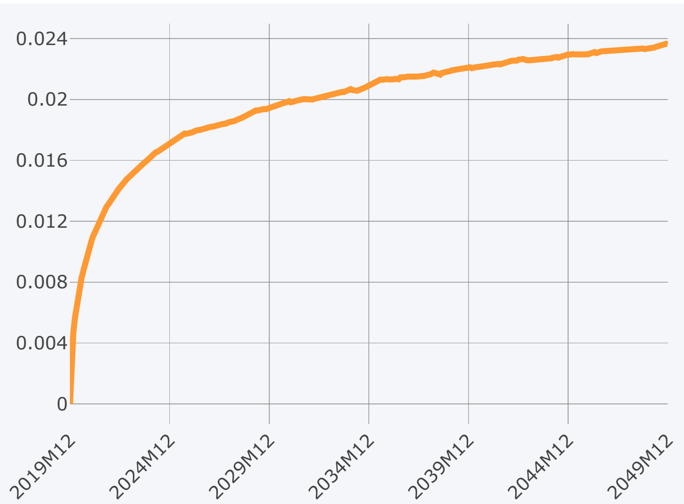
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

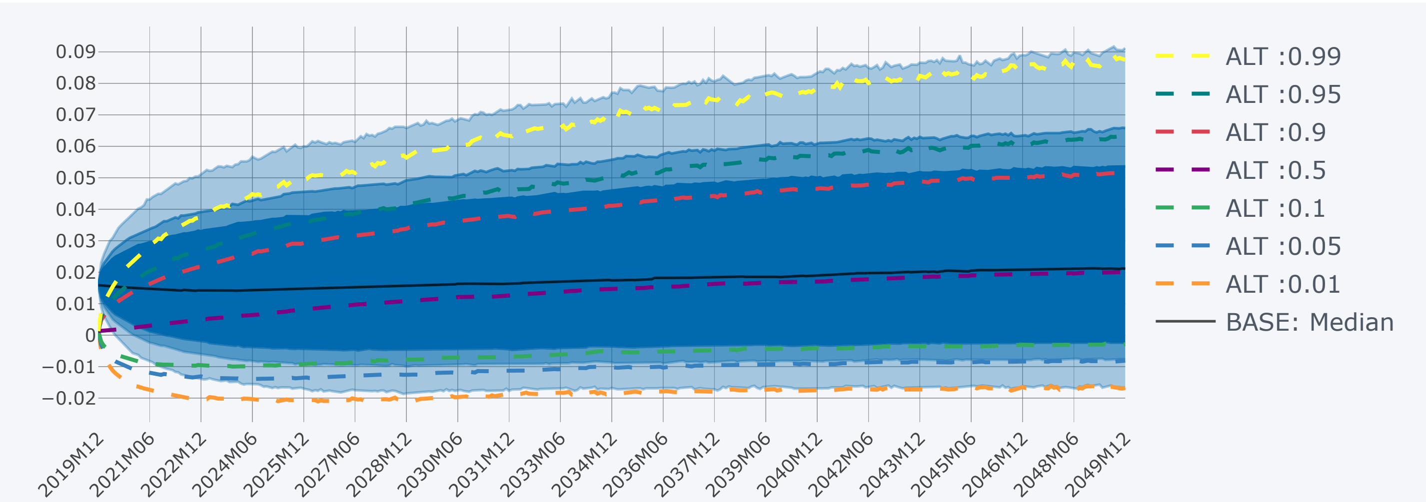
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0146	0.0227	0.0015	0.0214
std	0.0104	0.0236	0.0093	0.023
min	-0.0211	-0.041	-0.0295	-0.0411
1%	-0.0083	-0.0202	-0.0192	-0.0205
5%	-0.0019	-0.0105	-0.0134	-0.0112
10%	0.0016	-0.0048	-0.0102	-0.0053
50%	0.0144	0.02	0.0013	0.0188
90%	0.0281	0.0535	0.0136	0.0514
95%	0.0322	0.0658	0.0172	0.0633
99%	0.0401	0.0913	0.0244	0.088
max	0.0644	0.1698	0.0464	0.1639

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 2 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

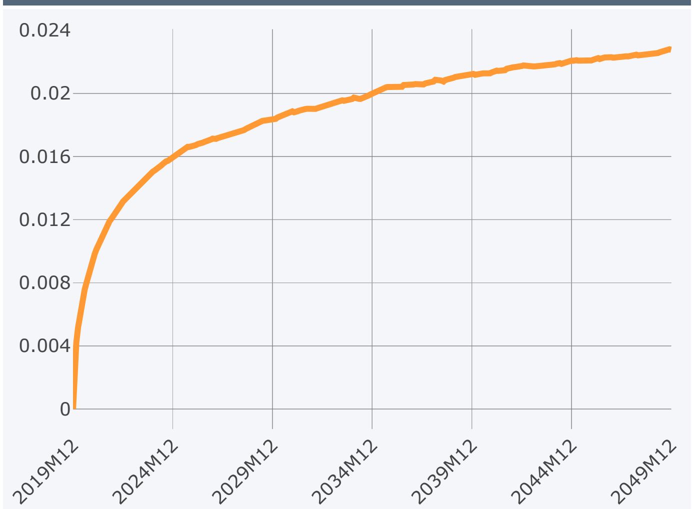
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

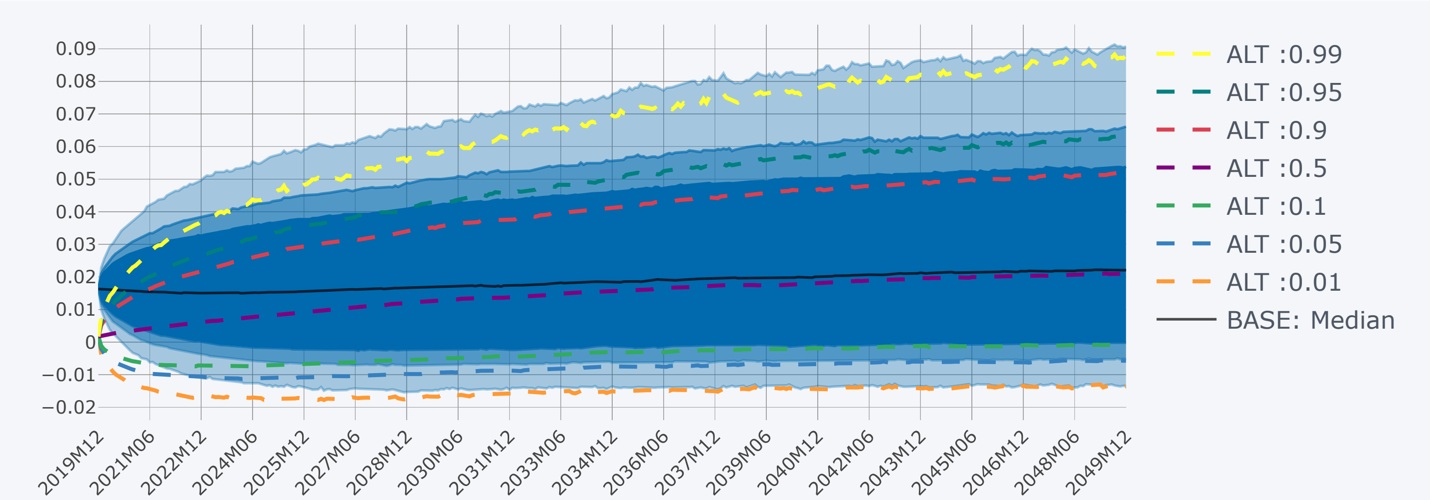
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0154	0.024	0.0027	0.0227
std	0.0095	0.0228	0.0085	0.0222
min	-0.0177	-0.0356	-0.0259	-0.0357
1%	-0.0057	-0.0165	-0.016	-0.0167
5%	0.0002	-0.0077	-0.0107	-0.0081
10%	0.0034	-0.0024	-0.0079	-0.0029
50%	0.0152	0.0211	0.0024	0.02
90%	0.0278	0.0536	0.0137	0.0515
95%	0.0313	0.0658	0.017	0.0633
99%	0.0386	0.0912	0.0235	0.0875
max	0.0609	0.1699	0.0436	0.1641

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 3 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

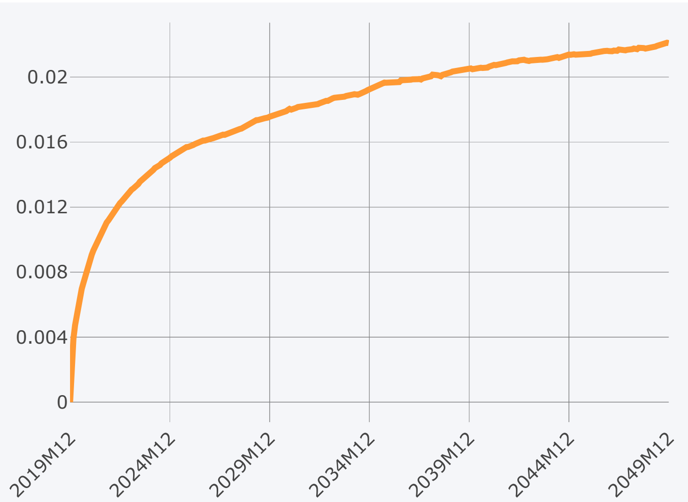
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

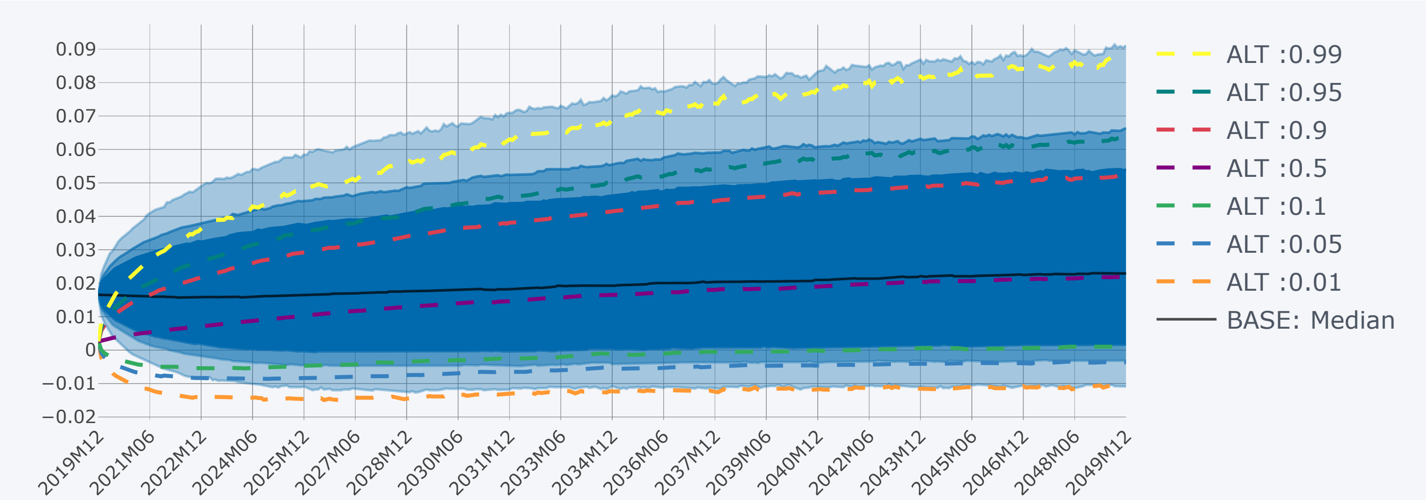
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.016	0.0251	0.0038	0.0238
std	0.0088	0.0221	0.0077	0.0215
min	-0.0147	-0.0309	-0.0225	-0.0311
1%	-0.0033	-0.0135	-0.0132	-0.0136
5%	0.0021	-0.0052	-0.0084	-0.0057
10%	0.0049	-0.0002	-0.0059	-0.0008
50%	0.0158	0.0221	0.0036	0.0209
90%	0.0273	0.0538	0.0139	0.0516
95%	0.0308	0.0661	0.017	0.0635
99%	0.0373	0.0907	0.0229	0.0879
max	0.058	0.1697	0.0415	0.1639

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 4 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

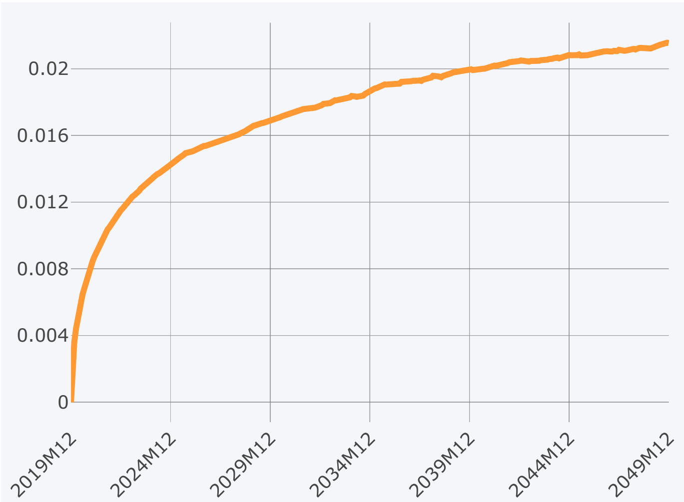
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

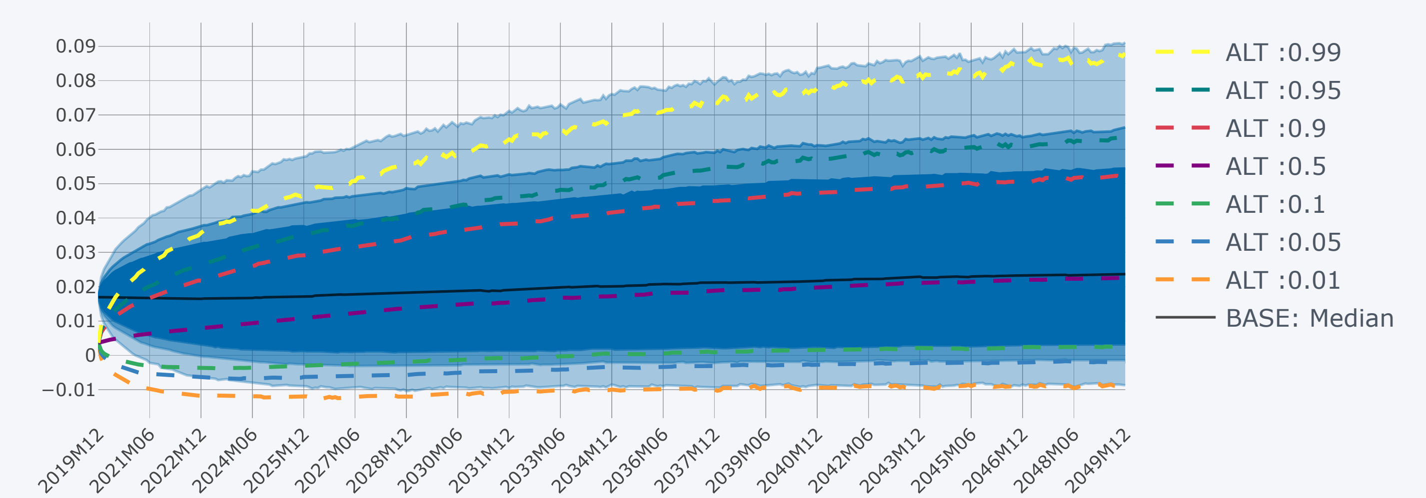
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0165	0.026	0.0049	0.0248
std	0.0082	0.0215	0.0071	0.0209
min	-0.0121	-0.0269	-0.0194	-0.027
1%	-0.0013	-0.0109	-0.0107	-0.011
5%	0.0037	-0.0032	-0.0063	-0.0037
10%	0.0063	0.0016	-0.004	0.001
50%	0.0163	0.0229	0.0047	0.0217
90%	0.0271	0.054	0.0143	0.0518
95%	0.0303	0.0664	0.017	0.0639
99%	0.0364	0.0911	0.0225	0.0872
max	0.0556	0.1695	0.0397	0.1636

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 5 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

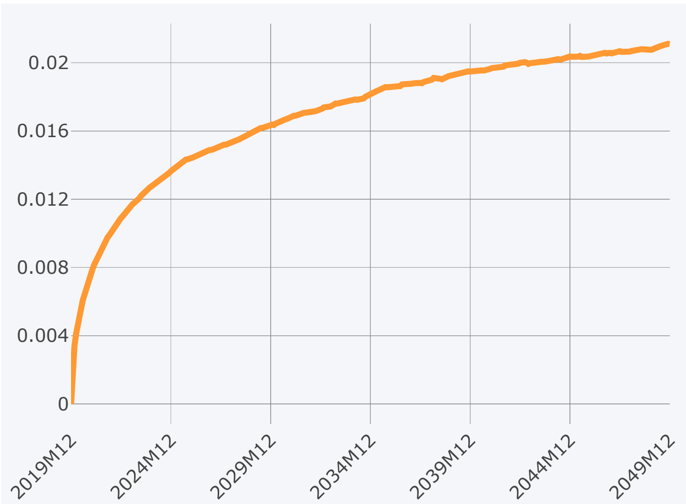
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

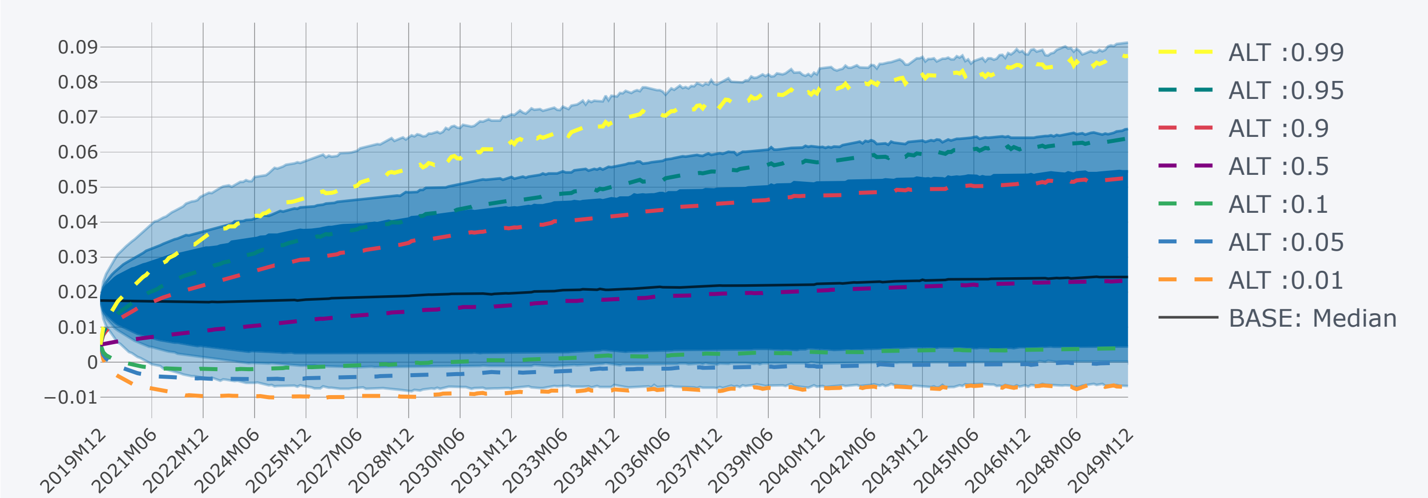
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0171	0.0268	0.0059	0.0256
std	0.0077	0.0211	0.0066	0.0204
min	-0.0098	-0.0233	-0.0167	-0.0234
1%	0.0005	-0.0087	-0.0085	-0.009
5%	0.005	-0.0014	-0.0045	-0.0017
10%	0.0074	0.0032	-0.0024	0.0027
50%	0.0168	0.0237	0.0058	0.0226
90%	0.0269	0.0544	0.0146	0.0521
95%	0.03	0.0664	0.0172	0.0639
99%	0.0357	0.0911	0.0222	0.0879
max	0.0535	0.1692	0.0382	0.1634

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 6 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

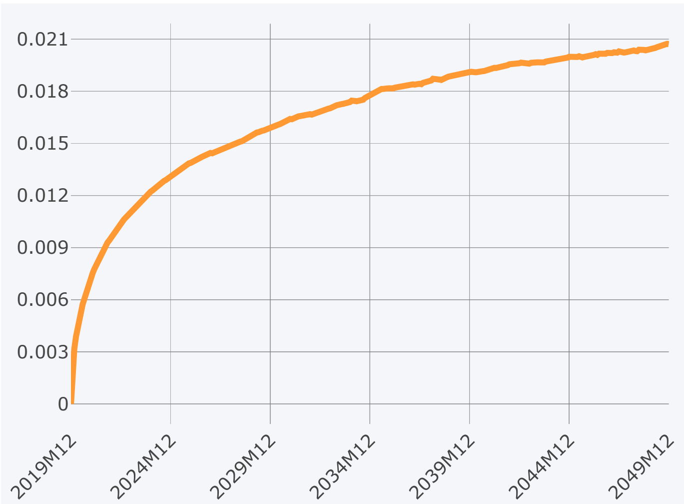
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

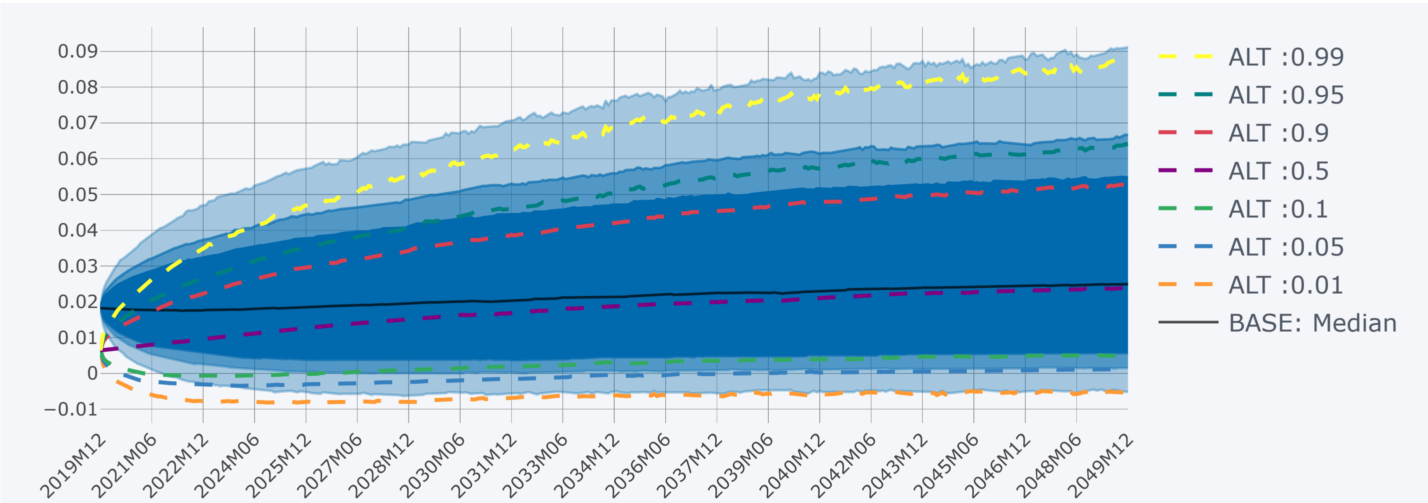
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0176	0.0276	0.0069	0.0263
std	0.0073	0.0207	0.0062	0.0201
min	-0.0077	-0.0202	-0.0143	-0.0203
1%	0.0019	-0.0068	-0.0065	-0.0071
5%	0.0061	0.0002	-0.0028	-0.0001
10%	0.0084	0.0045	-0.0009	0.004
50%	0.0173	0.0243	0.0067	0.0232
90%	0.0269	0.0545	0.0149	0.0524
95%	0.0298	0.0666	0.0174	0.0641
99%	0.0351	0.0913	0.0221	0.0875
max	0.0518	0.1689	0.037	0.1631

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 7 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

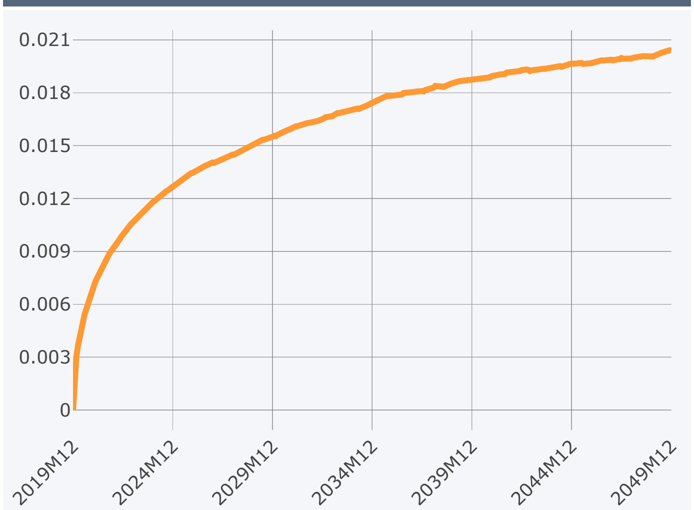
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

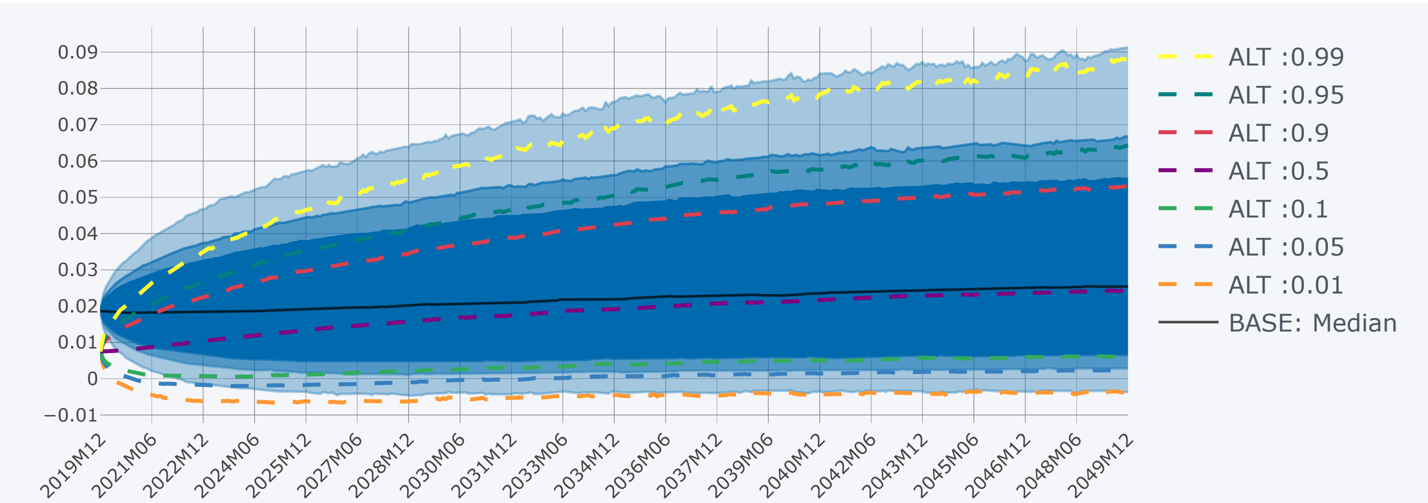
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.018	0.0282	0.0077	0.027
std	0.0069	0.0204	0.0059	0.0197
min	-0.0059	-0.0174	-0.0122	-0.0175
1%	0.0032	-0.0052	-0.0049	-0.0054
5%	0.0072	0.0015	-0.0014	0.0012
10%	0.0093	0.0057	0.0004	0.0052
50%	0.0178	0.0249	0.0075	0.0238
90%	0.027	0.0548	0.0152	0.0526
95%	0.0297	0.0666	0.0176	0.0641
99%	0.0348	0.0912	0.0221	0.0875
max	0.0504	0.1686	0.036	0.1629

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 8 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

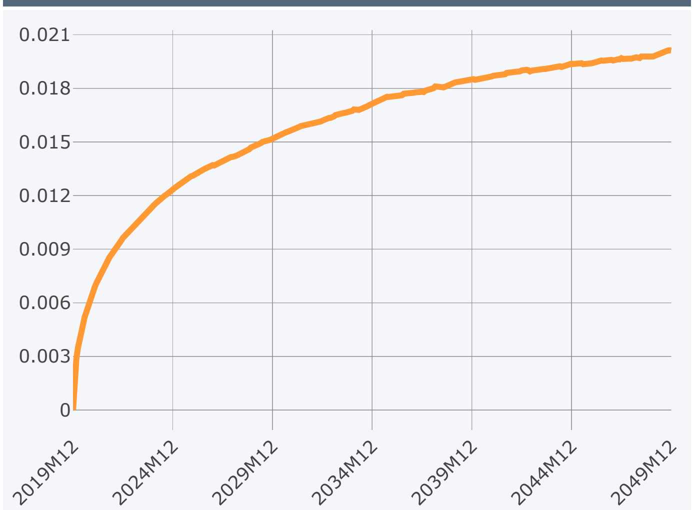
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

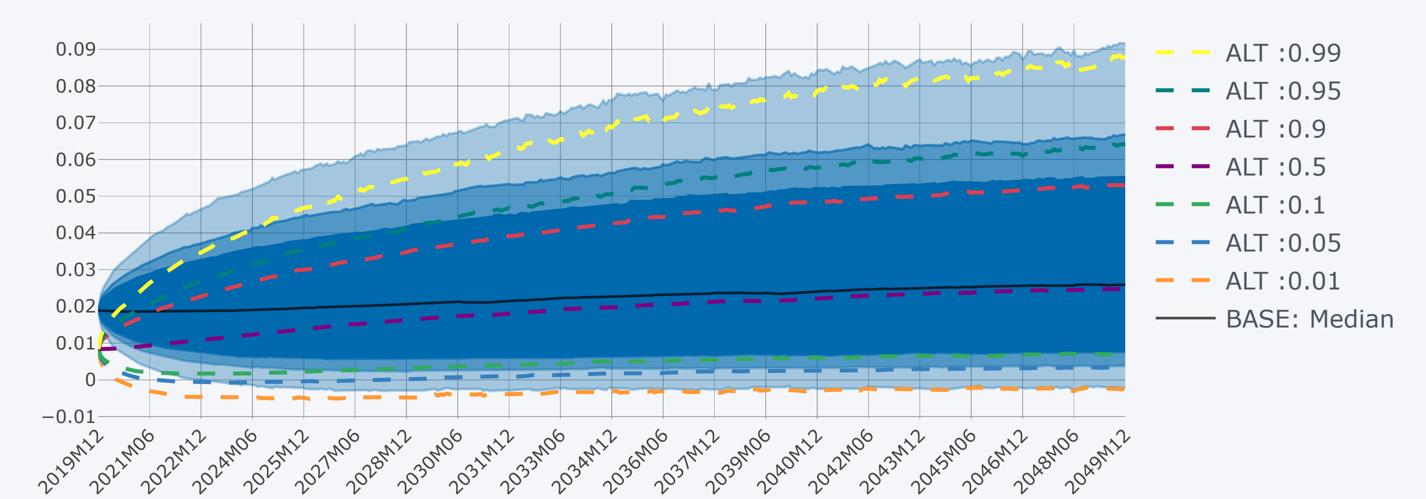
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0184	0.0289	0.0085	0.0276
std	0.0066	0.0201	0.0056	0.0194
min	-0.0043	-0.015	-0.0104	-0.0151
1%	0.0044	-0.0037	-0.0034	-0.0039
5%	0.0081	0.0028	-0.0002	0.0024
10%	0.0101	0.0066	0.0015	0.0062
50%	0.0182	0.0254	0.0082	0.0244
90%	0.027	0.055	0.0157	0.0528
95%	0.0297	0.0667	0.0179	0.0643
99%	0.0347	0.0914	0.0221	0.0879
max	0.0492	0.1684	0.0352	0.1626

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 9 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

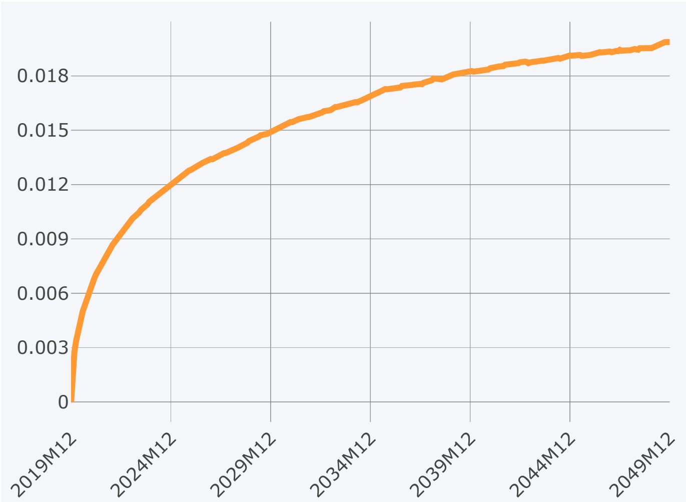
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

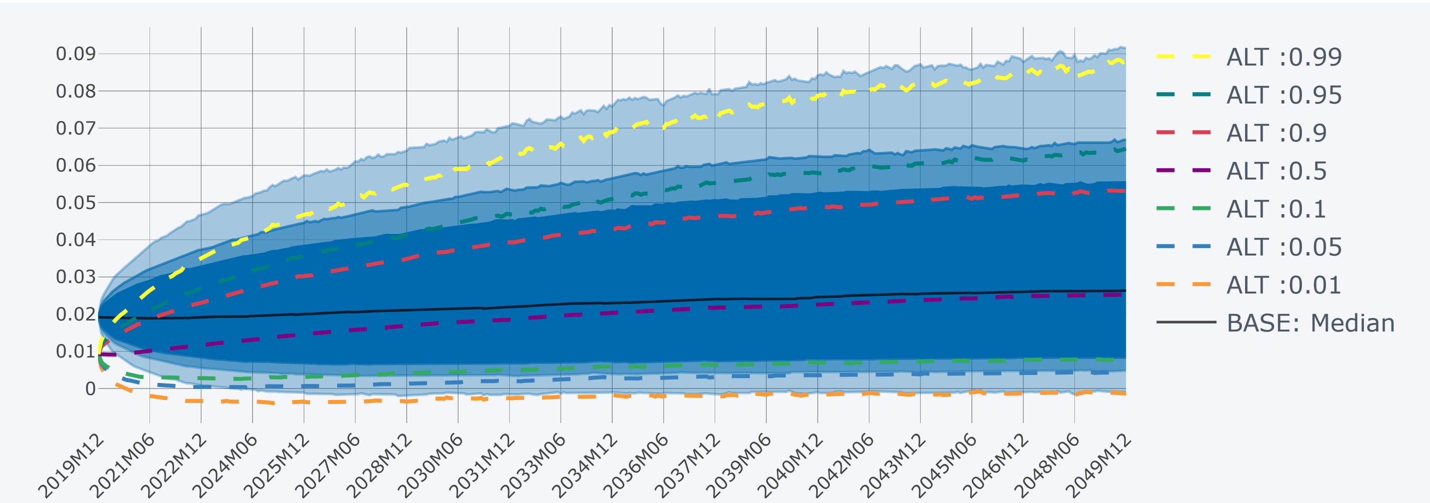
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0189	0.0294	0.0092	0.0282
std	0.0064	0.0199	0.0053	0.0192
min	-0.0029	-0.0128	-0.0087	-0.0129
1%	0.0053	-0.0023	-0.0021	-0.0026
5%	0.0089	0.0038	0.0009	0.0035
10%	0.0109	0.0076	0.0025	0.0071
50%	0.0186	0.0259	0.009	0.0249
90%	0.0272	0.0552	0.0161	0.053
95%	0.0297	0.0668	0.0182	0.0642
99%	0.0347	0.0916	0.0223	0.088
max	0.0481	0.1681	0.0345	0.1623

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 10 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

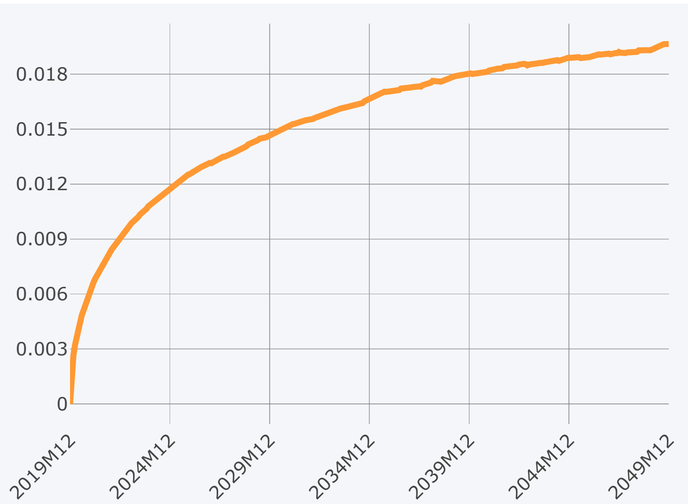
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

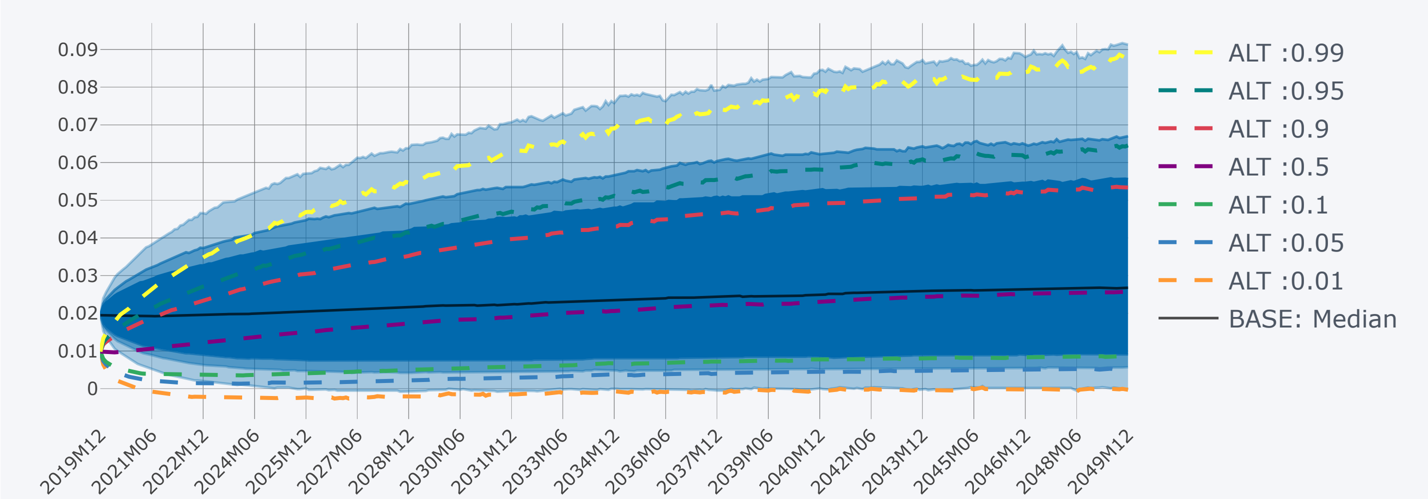
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0192	0.0299	0.0098	0.0287
std	0.0062	0.0196	0.0051	0.019
min	-0.0016	-0.0109	-0.0072	-0.011
1%	0.0062	-0.001	-0.0009	-0.0013
5%	0.0097	0.0048	0.0019	0.0045
10%	0.0115	0.0083	0.0034	0.0079
50%	0.0189	0.0263	0.0096	0.0253
90%	0.0273	0.0554	0.0164	0.0531
95%	0.0297	0.0669	0.0185	0.0645
99%	0.0346	0.0915	0.0225	0.0881
max	0.0473	0.1678	0.0339	0.162

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 11 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

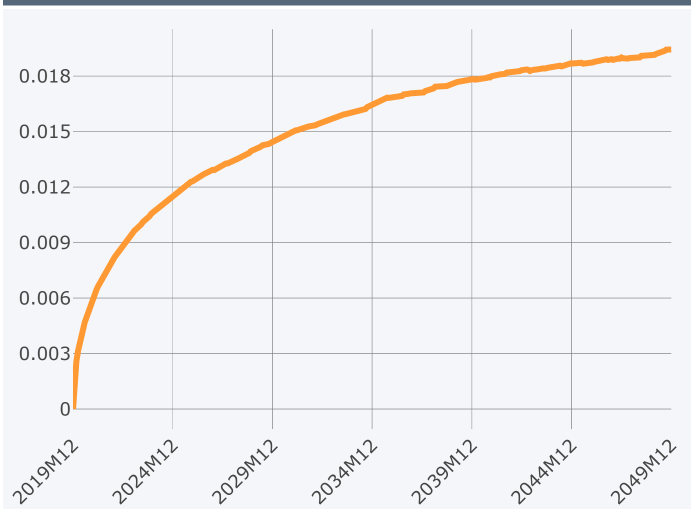
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

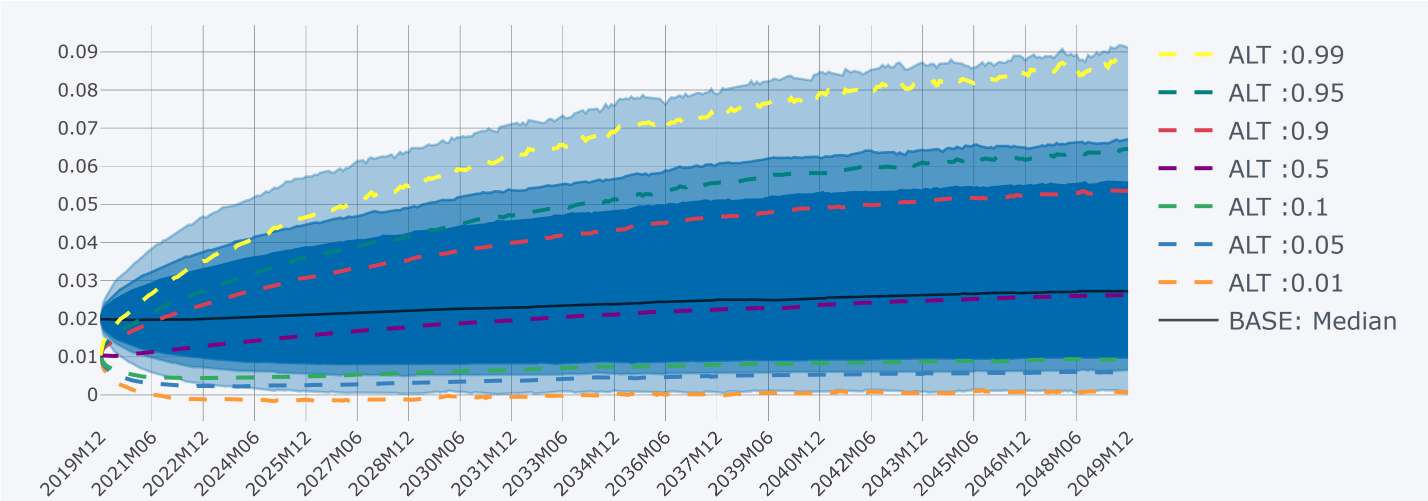
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0196	0.0303	0.0104	0.0291
std	0.006	0.0194	0.0049	0.0188
min	-0.0004	-0.0092	-0.0058	-0.0093
1%	0.0071	0	0.0002	-0.0003
5%	0.0103	0.0057	0.0028	0.0054
10%	0.0122	0.0091	0.0043	0.0086
50%	0.0193	0.0268	0.0102	0.0258
90%	0.0274	0.0556	0.0168	0.0534
95%	0.0298	0.067	0.0188	0.0645
99%	0.0346	0.0913	0.0228	0.0882
max	0.0465	0.1675	0.0335	0.1618

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 12 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

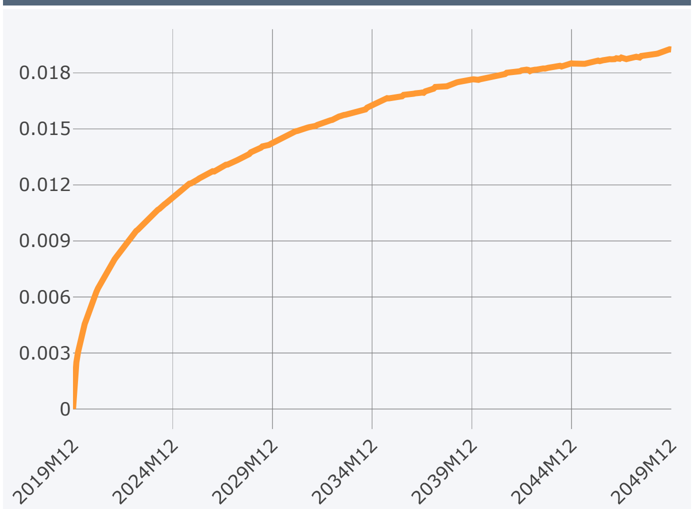
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

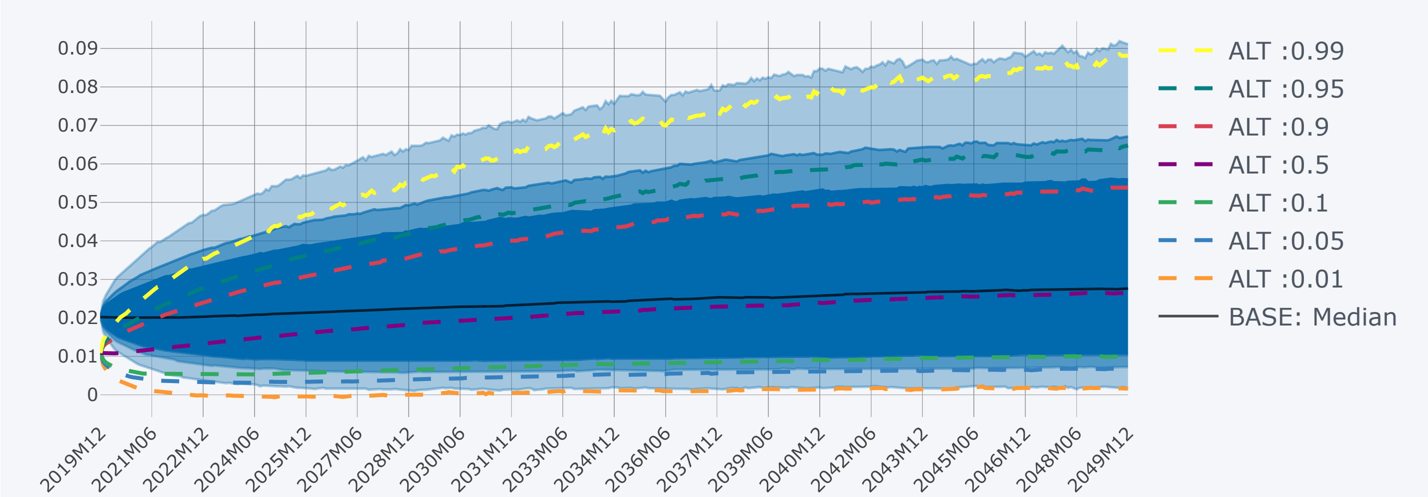
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.02	0.0308	0.011	0.0296
std	0.0058	0.0193	0.0047	0.0186
min	0.0007	-0.0076	-0.0046	-0.0077
1%	0.0078	0.0009	0.0012	0.0007
5%	0.011	0.0065	0.0037	0.0061
10%	0.0127	0.0098	0.0051	0.0093
50%	0.0197	0.0272	0.0107	0.0261
90%	0.0276	0.0557	0.0172	0.0535
95%	0.03	0.0671	0.0191	0.0646
99%	0.0346	0.0911	0.0229	0.0881
max	0.0459	0.1673	0.0331	0.1615

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 13 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

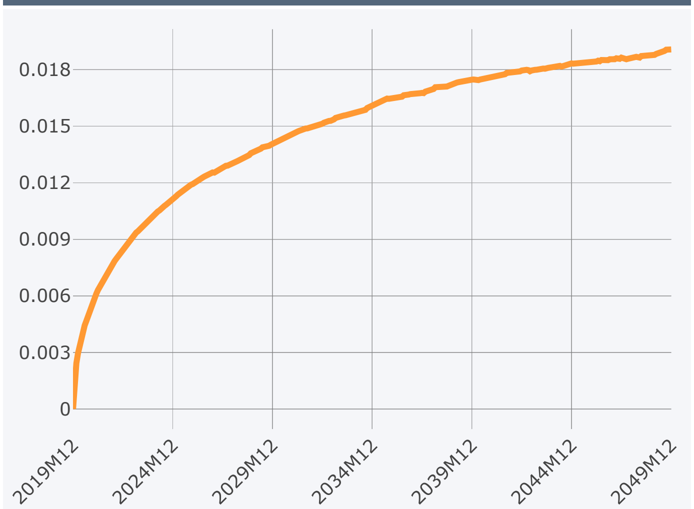
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

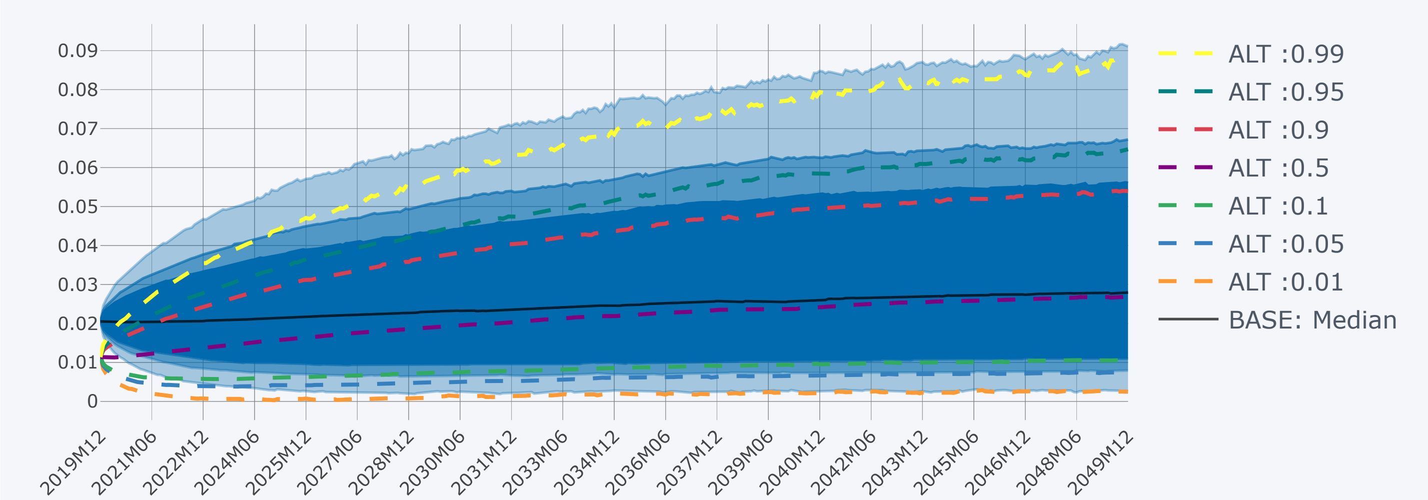
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0203	0.0311	0.0115	0.0299
std	0.0057	0.0191	0.0046	0.0184
min	0.0017	-0.0062	-0.0035	-0.0063
1%	0.0085	0.0018	0.002	0.0016
5%	0.0115	0.0072	0.0044	0.0069
10%	0.0132	0.0105	0.0058	0.0099
50%	0.02	0.0276	0.0113	0.0265
90%	0.0277	0.0559	0.0175	0.0538
95%	0.0301	0.0671	0.0194	0.0648
99%	0.0347	0.0911	0.0231	0.0881
max	0.0454	0.167	0.0328	0.1612

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 14 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

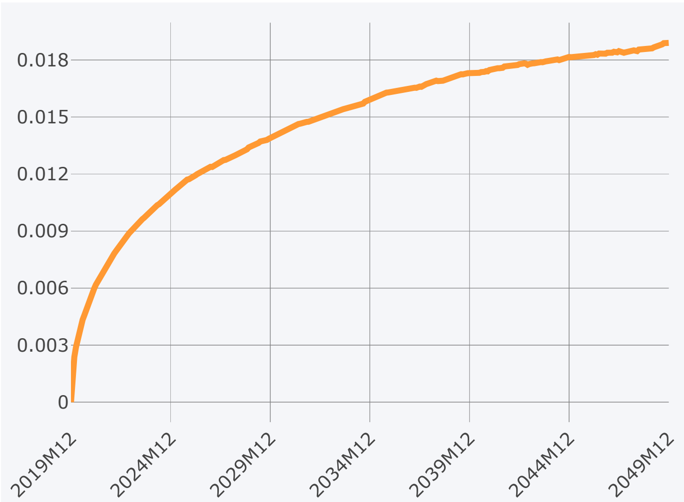
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

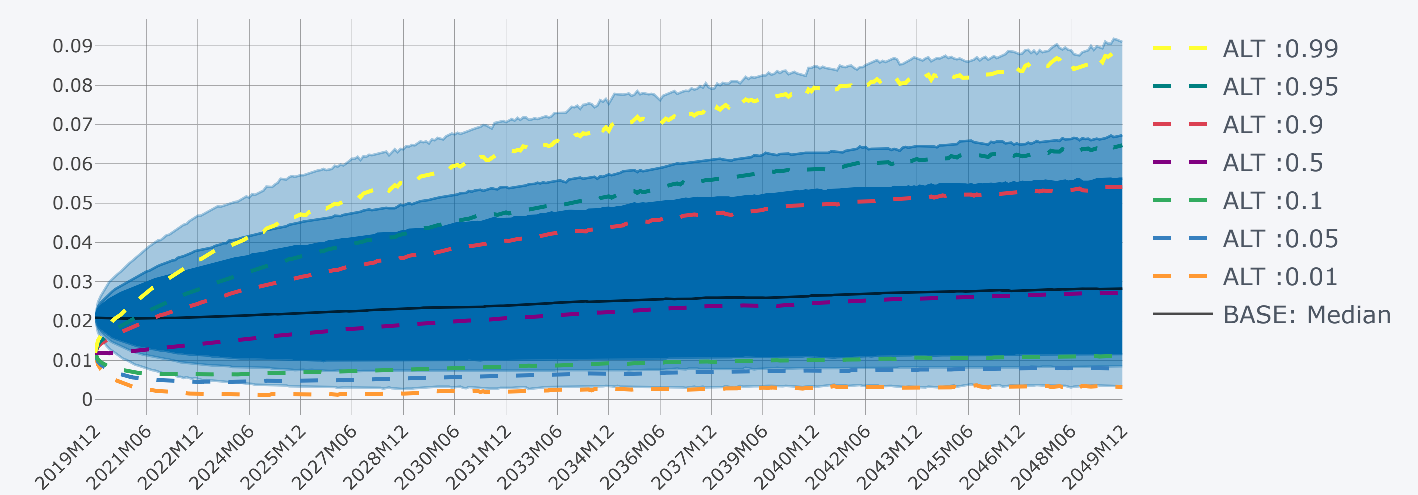
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0207	0.0315	0.012	0.0303
std	0.0056	0.0189	0.0045	0.0182
min	0.0026	-0.0049	-0.0024	-0.005
1%	0.009	0.0027	0.0028	0.0025
5%	0.0121	0.0079	0.0052	0.0075
10%	0.0137	0.011	0.0065	0.0106
50%	0.0203	0.0279	0.0118	0.0269
90%	0.0279	0.0561	0.0179	0.054
95%	0.0302	0.0672	0.0197	0.0647
99%	0.0347	0.0911	0.0234	0.0881
max	0.0449	0.1667	0.0325	0.161

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 15 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

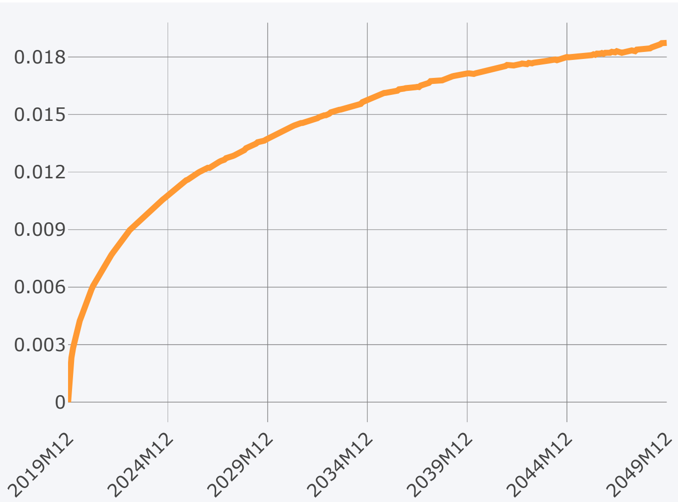
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.021	0.0318	0.0125	0.0306
std	0.0054	0.0187	0.0044	0.0181
min	0.0034	-0.0038	-0.0014	-0.0039
1%	0.0096	0.0034	0.0036	0.0033
5%	0.0126	0.0085	0.0059	0.0081
10%	0.0142	0.0116	0.0071	0.0111
50%	0.0206	0.0282	0.0122	0.0272
90%	0.0281	0.0562	0.0182	0.0541
95%	0.0304	0.0673	0.0201	0.0647
99%	0.0347	0.091	0.0237	0.0881
max	0.0445	0.1665	0.0323	0.1607

Cross Sectional Volatility Over Time : BASE



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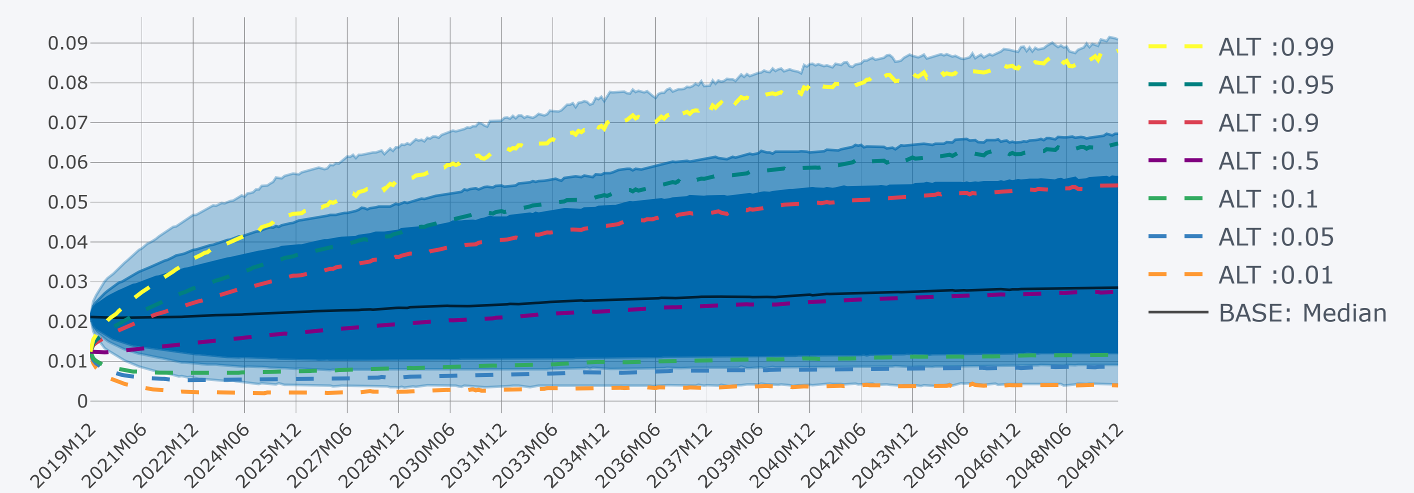
Simulated Data in Percentiles : US Treasury 16 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

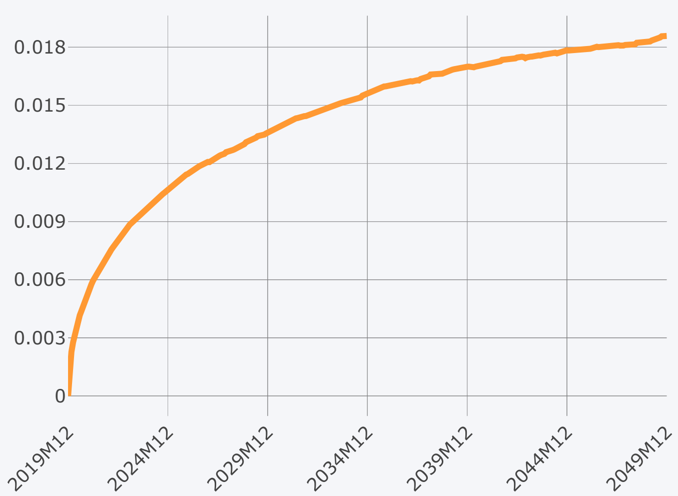
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

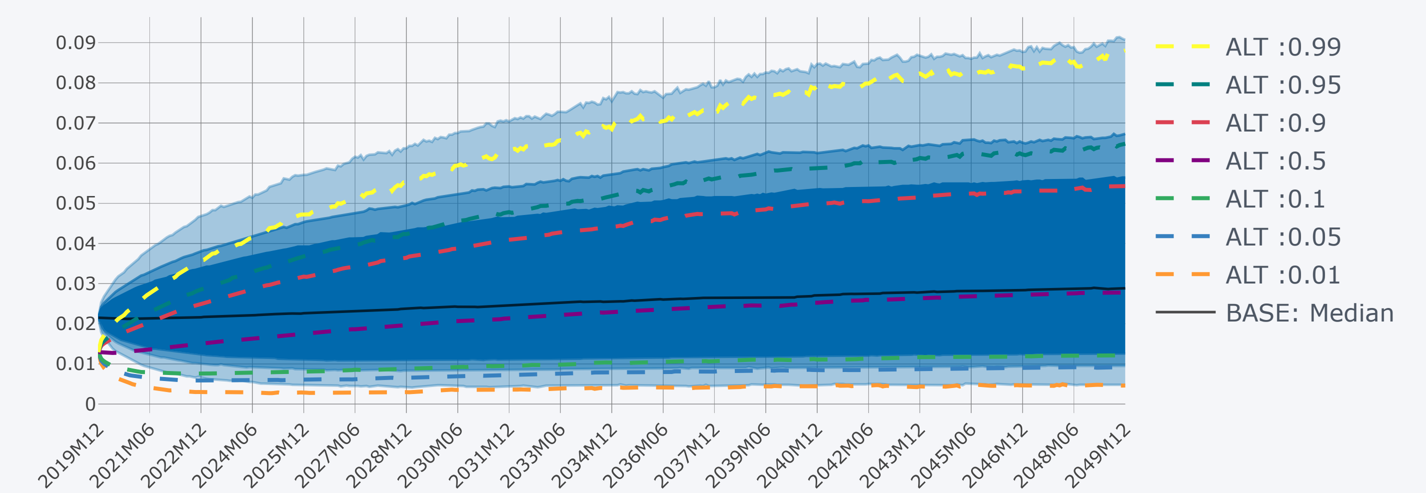
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0213	0.0321	0.013	0.0309
std	0.0053	0.0186	0.0043	0.0179
min	0.0042	-0.0027	-0.0005	-0.0028
1%	0.0102	0.0042	0.0043	0.0039
5%	0.013	0.0091	0.0065	0.0087
10%	0.0146	0.0121	0.0077	0.0116
50%	0.0209	0.0285	0.0127	0.0275
90%	0.0283	0.0563	0.0185	0.0542
95%	0.0305	0.0672	0.0204	0.0648
99%	0.0348	0.0909	0.0239	0.0881
max	0.0446	0.1662	0.0321	0.1605

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 17 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

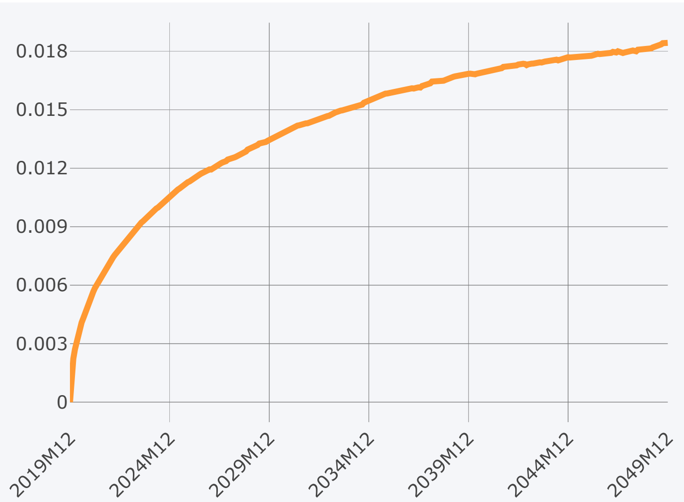
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

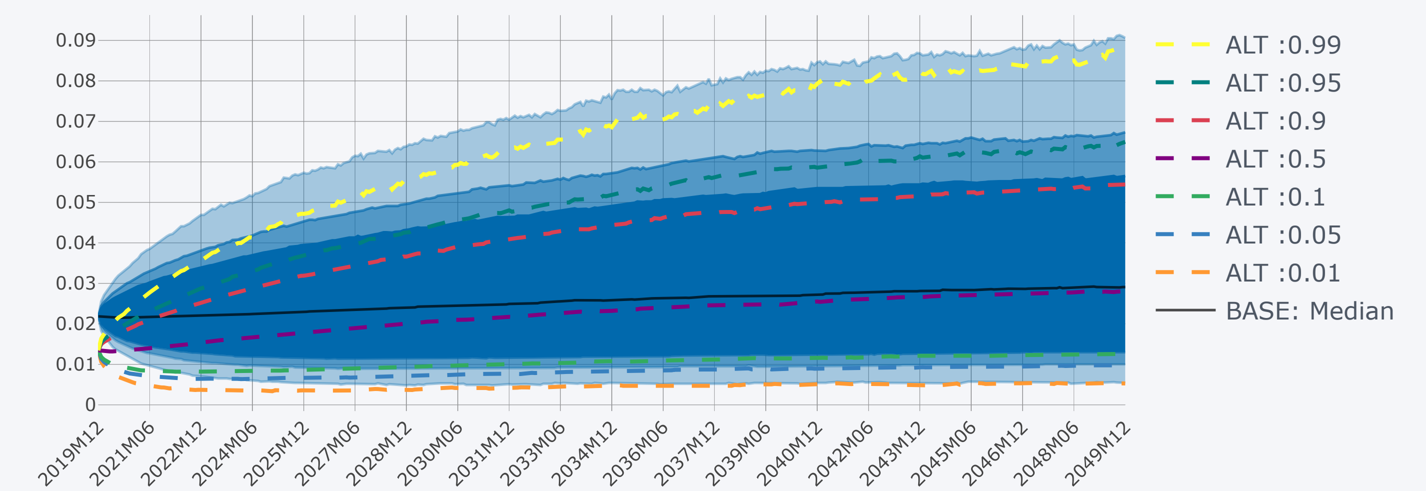
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0216	0.0324	0.0134	0.0312
std	0.0053	0.0184	0.0042	0.0178
min	0.005	-0.0017	0.0003	-0.0018
1%	0.0107	0.0048	0.0049	0.0046
5%	0.0135	0.0095	0.0071	0.0092
10%	0.015	0.0126	0.0083	0.0121
50%	0.0212	0.0288	0.0131	0.0278
90%	0.0285	0.0564	0.0189	0.0543
95%	0.0307	0.0673	0.0207	0.0648
99%	0.0349	0.0907	0.0241	0.0881
max	0.0448	0.166	0.032	0.1602

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 18 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

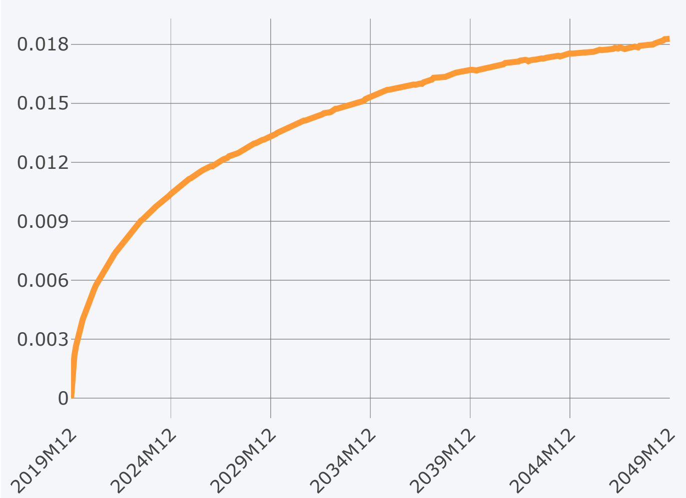
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

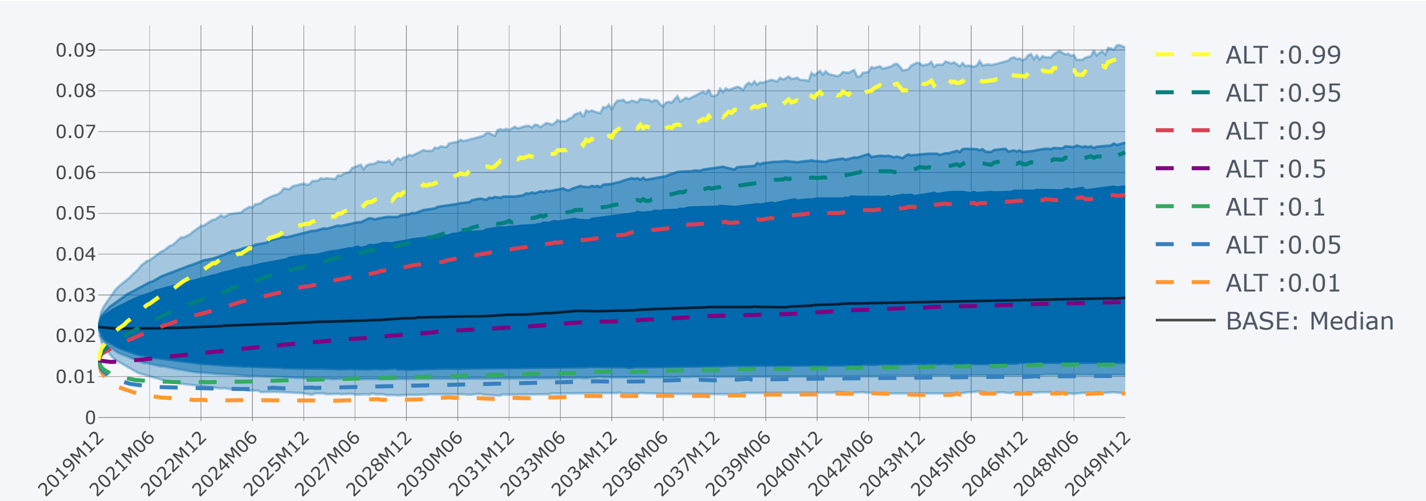
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0218	0.0326	0.0138	0.0315
std	0.0052	0.0183	0.0041	0.0176
min	0.0056	-0.0008	0.0011	-0.0009
1%	0.0112	0.0054	0.0056	0.0053
5%	0.0139	0.01	0.0076	0.0097
10%	0.0154	0.013	0.0088	0.0126
50%	0.0215	0.0291	0.0135	0.028
90%	0.0286	0.0565	0.0192	0.0544
95%	0.0308	0.0673	0.021	0.0649
99%	0.035	0.0906	0.0243	0.0879
max	0.0449	0.1657	0.0322	0.16

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 19 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

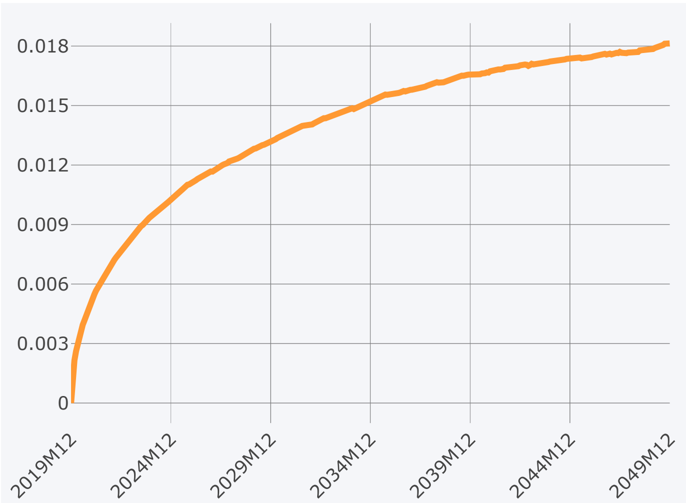
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

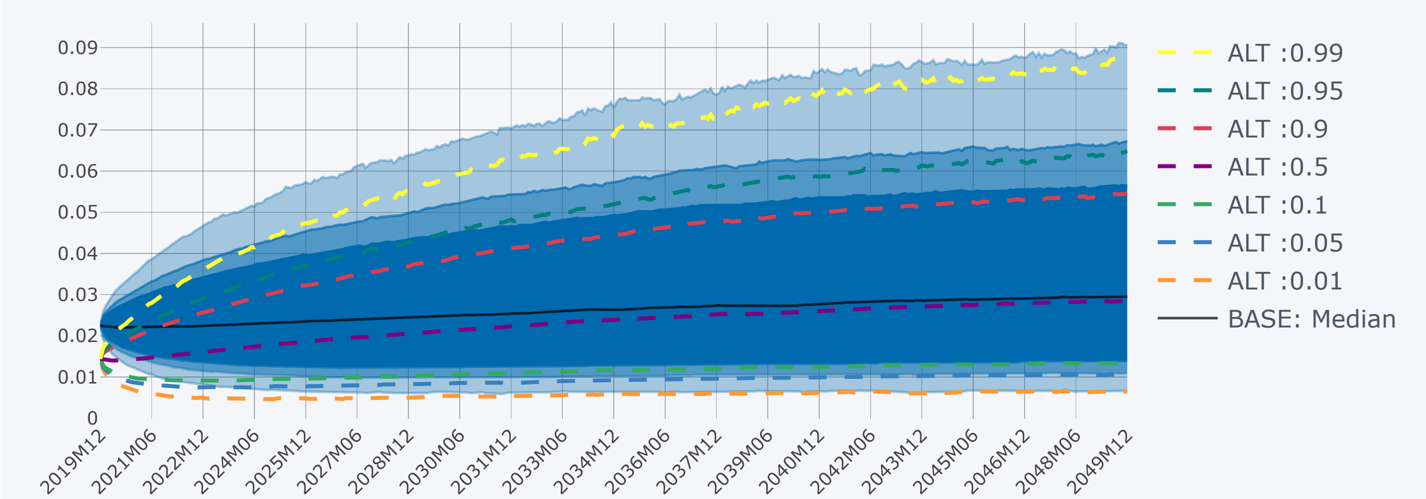
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0221	0.0328	0.0142	0.0317
std	0.0051	0.0181	0.004	0.0175
min	0.0063	0.0001	0.0018	0
1%	0.0116	0.006	0.0062	0.0059
5%	0.0143	0.0104	0.0082	0.0102
10%	0.0158	0.0134	0.0093	0.013
50%	0.0218	0.0293	0.0139	0.0283
90%	0.0288	0.0565	0.0195	0.0545
95%	0.0309	0.0673	0.0212	0.0649
99%	0.035	0.0906	0.0245	0.0877
max	0.0449	0.1655	0.0324	0.1598

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 20 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

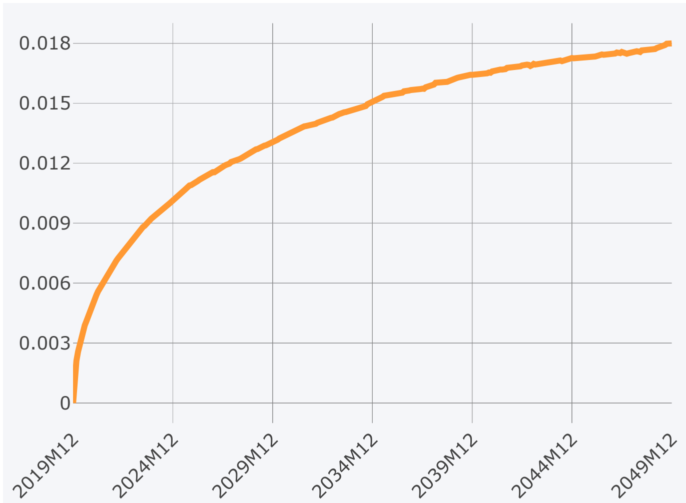
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

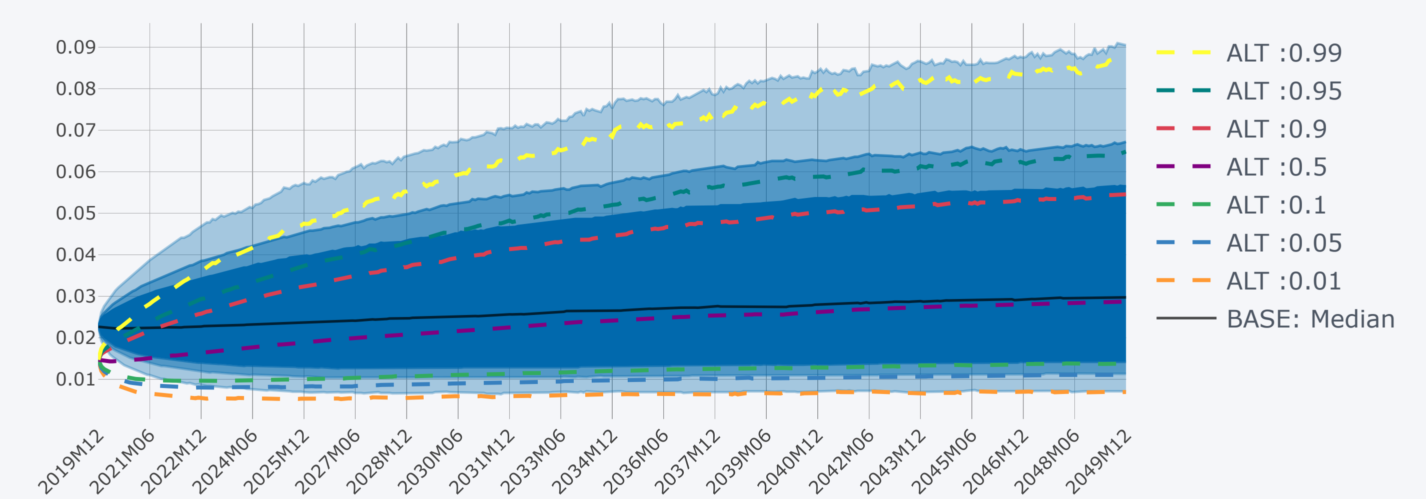
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0223	0.0331	0.0146	0.0319
std	0.005	0.018	0.0039	0.0173
min	0.0069	0.0009	0.0025	0.0008
1%	0.012	0.0066	0.0067	0.0064
5%	0.0147	0.0109	0.0086	0.0107
10%	0.0162	0.0139	0.0097	0.0134
50%	0.022	0.0295	0.0143	0.0285
90%	0.0289	0.0565	0.0198	0.0546
95%	0.0311	0.0673	0.0215	0.0649
99%	0.0351	0.0906	0.0247	0.0875
max	0.045	0.1653	0.0326	0.1595

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 21 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

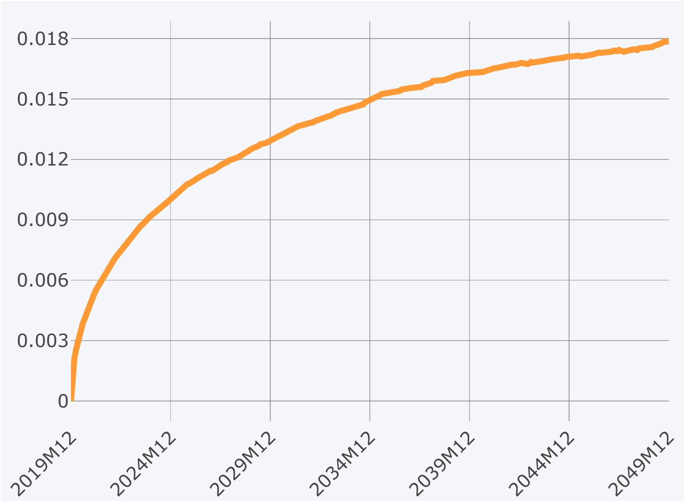
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0226	0.0333	0.0149	0.0321
std	0.0049	0.0179	0.0039	0.0172
min	0.0074	0.0016	0.0031	0.0015
1%	0.0124	0.0071	0.0072	0.0069
5%	0.015	0.0113	0.0091	0.0111
10%	0.0165	0.0142	0.0102	0.0138
50%	0.0222	0.0297	0.0146	0.0287
90%	0.0291	0.0565	0.02	0.0546
95%	0.0312	0.0672	0.0217	0.0649
99%	0.0351	0.0905	0.0249	0.0873
max	0.0451	0.1651	0.0328	0.1593

Cross Sectional Volatility Over Time : BASE



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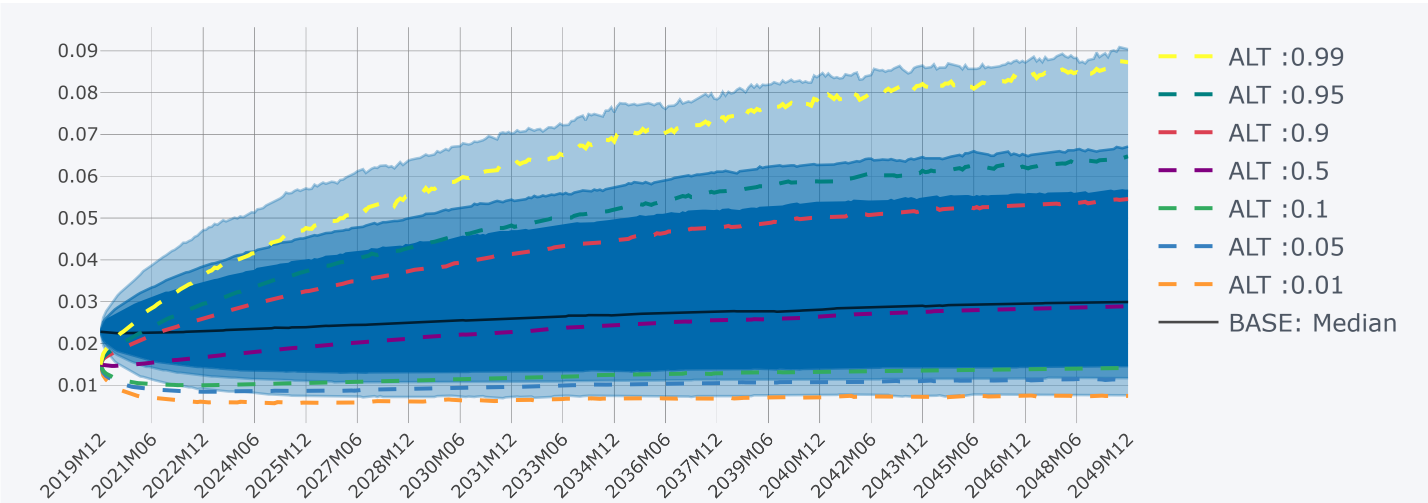
Simulated Data in Percentiles : US Treasury 22 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

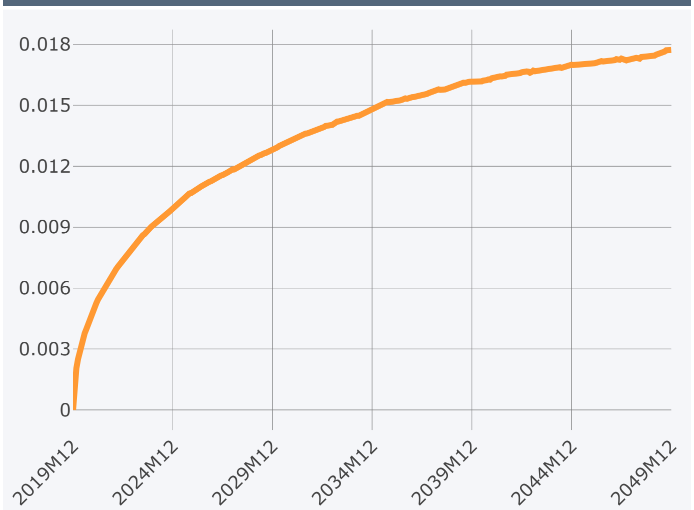
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

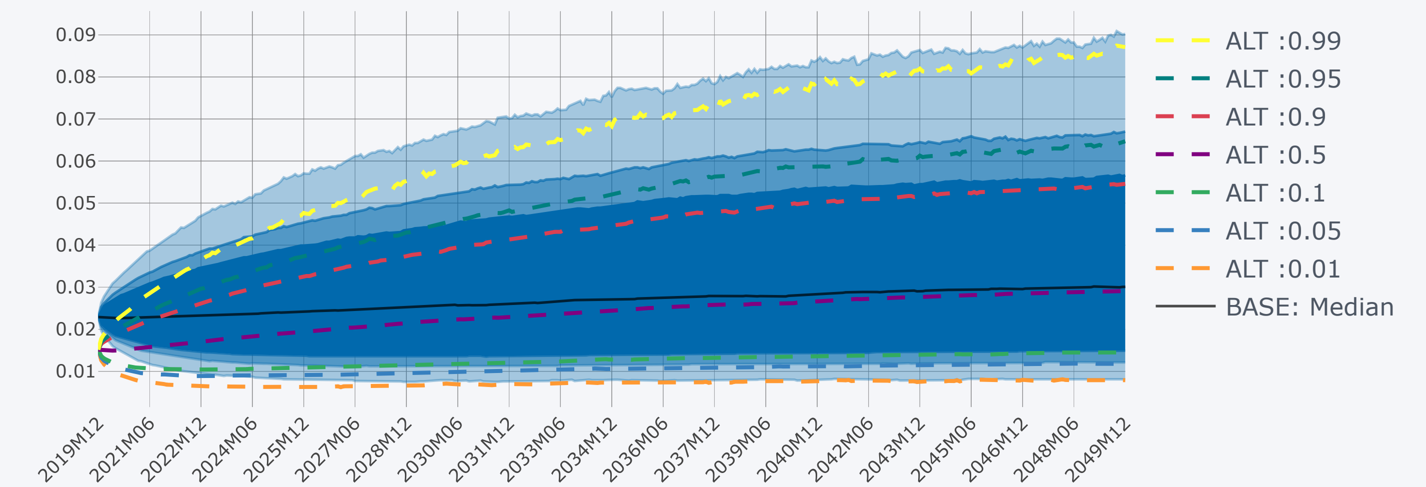
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0228	0.0334	0.0153	0.0323
std	0.0049	0.0177	0.0038	0.0171
min	0.008	0.0023	0.0037	0.0022
1%	0.0128	0.0076	0.0077	0.0075
5%	0.0153	0.0117	0.0095	0.0115
10%	0.0168	0.0146	0.0106	0.0141
50%	0.0225	0.0299	0.015	0.0289
90%	0.0292	0.0565	0.0203	0.0546
95%	0.0313	0.0671	0.0219	0.0648
99%	0.0352	0.0904	0.0251	0.0873
max	0.0451	0.1649	0.033	0.1591

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 23 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

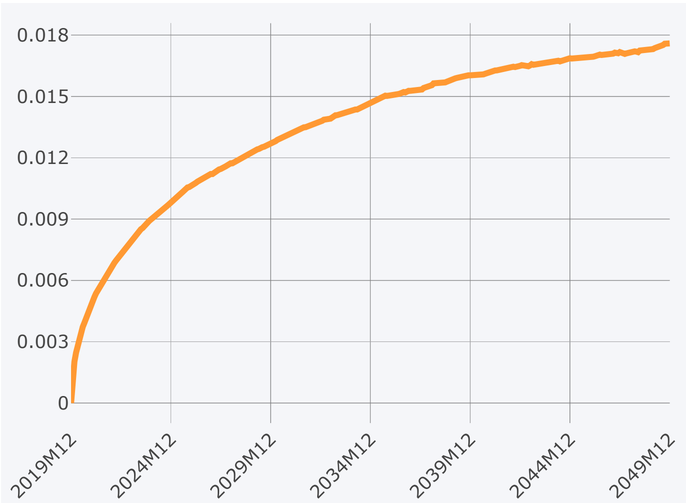
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

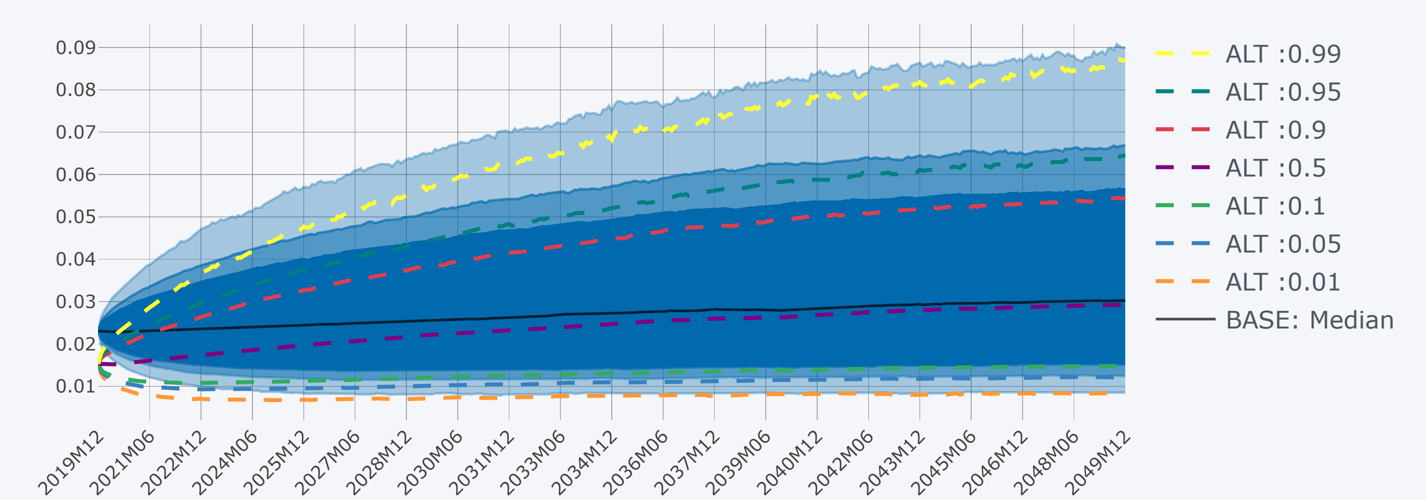
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.023	0.0336	0.0156	0.0325
std	0.0048	0.0176	0.0037	0.0169
min	0.0085	0.003	0.0043	0.0029
1%	0.0132	0.0081	0.0081	0.0079
5%	0.0157	0.0121	0.01	0.0118
10%	0.0171	0.0149	0.011	0.0145
50%	0.0227	0.0301	0.0153	0.0291
90%	0.0293	0.0566	0.0205	0.0546
95%	0.0314	0.067	0.0221	0.0647
99%	0.0352	0.0902	0.0253	0.0871
max	0.0451	0.1647	0.0331	0.1589

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 24 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

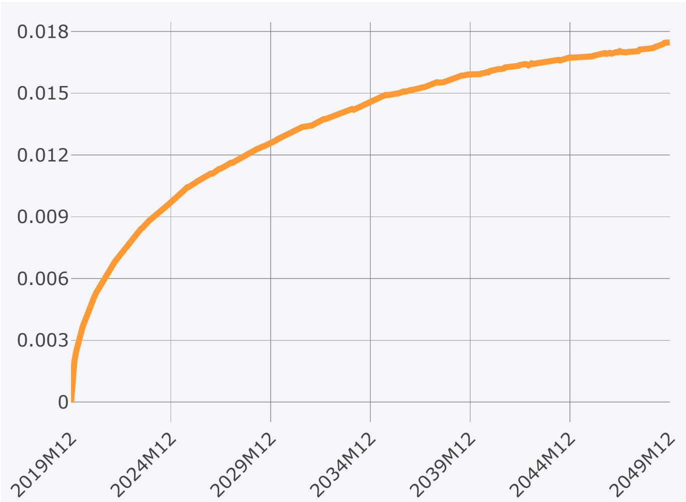
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

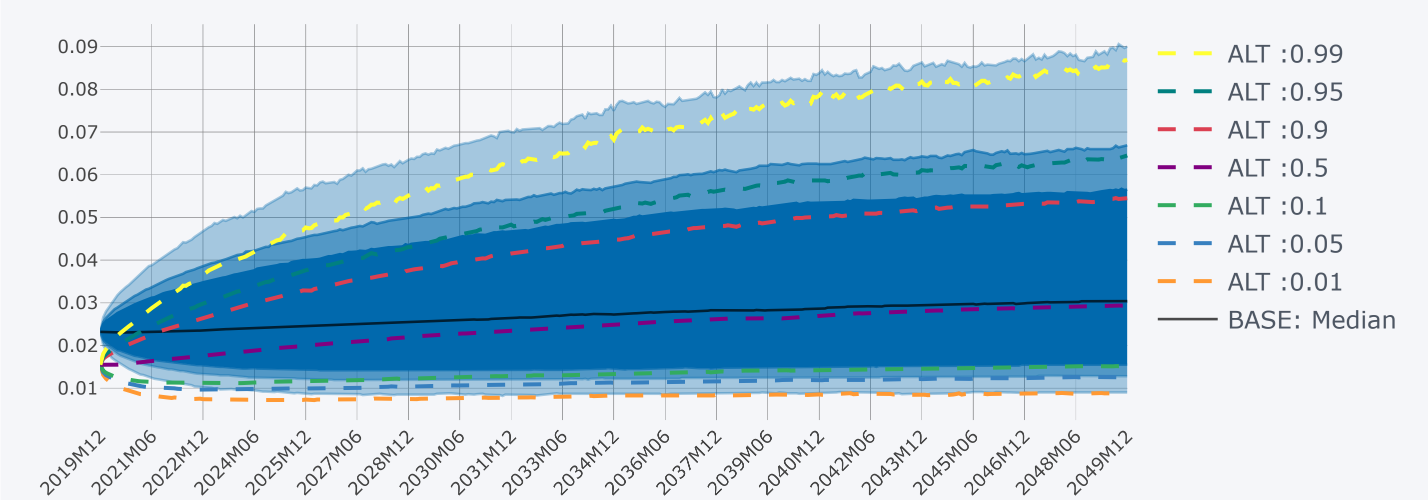
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0232	0.0338	0.0159	0.0327
std	0.0047	0.0175	0.0037	0.0168
min	0.0089	0.0036	0.0048	0.0035
1%	0.0135	0.0085	0.0085	0.0084
5%	0.016	0.0124	0.0104	0.0122
10%	0.0174	0.0152	0.0114	0.0148
50%	0.0229	0.0302	0.0156	0.0293
90%	0.0295	0.0566	0.0207	0.0545
95%	0.0315	0.0669	0.0223	0.0646
99%	0.0353	0.0901	0.0254	0.087
max	0.0452	0.1645	0.0333	0.1588

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 25 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

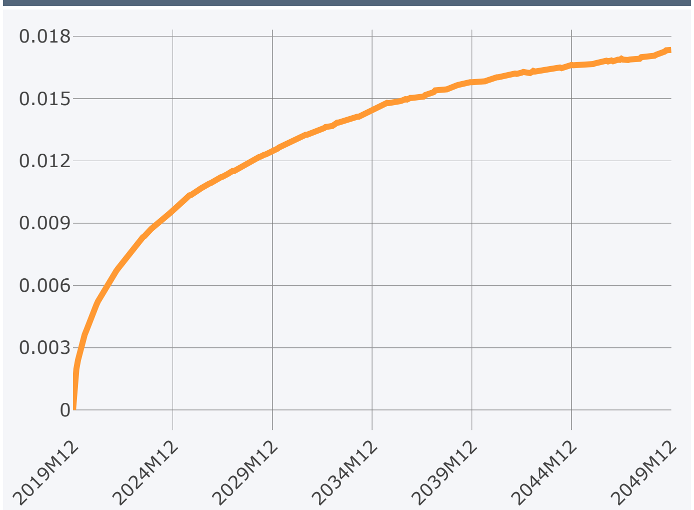
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

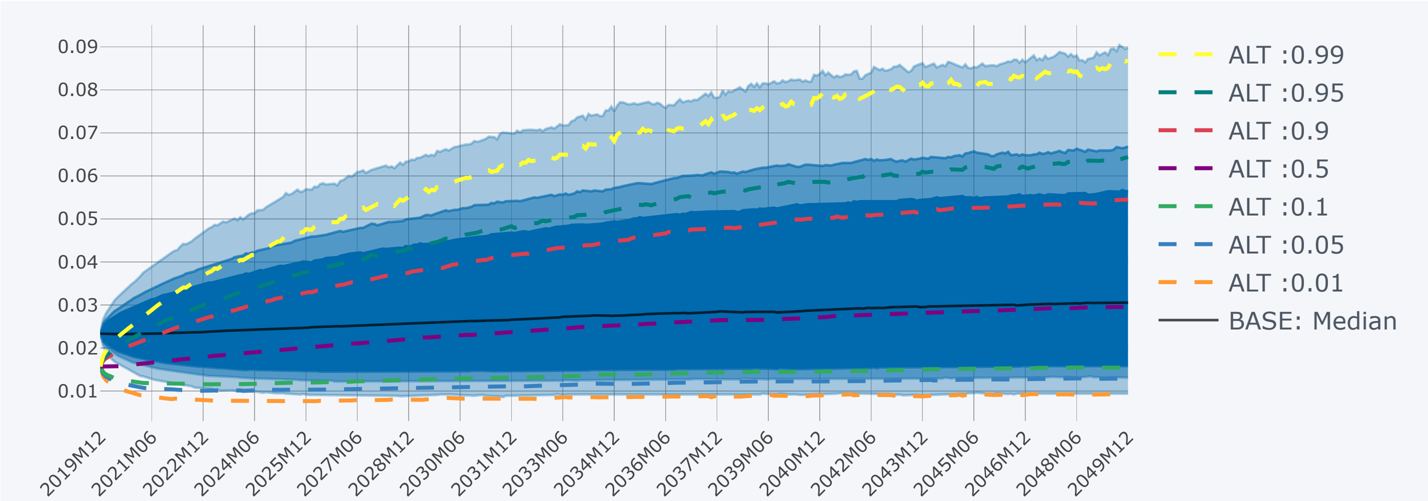
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0234	0.0339	0.0162	0.0328
std	0.0047	0.0173	0.0036	0.0167
min	0.0094	0.0042	0.0054	0.0041
1%	0.0138	0.009	0.009	0.0089
5%	0.0163	0.0128	0.0107	0.0125
10%	0.0176	0.0155	0.0117	0.0151
50%	0.0231	0.0304	0.0159	0.0294
90%	0.0296	0.0565	0.021	0.0545
95%	0.0316	0.0669	0.0226	0.0645
99%	0.0354	0.09	0.0256	0.0869
max	0.0452	0.1644	0.0334	0.1586

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 26 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

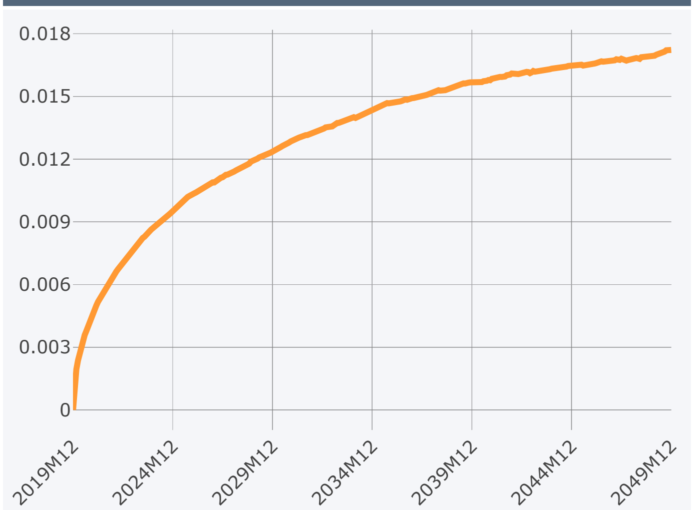
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

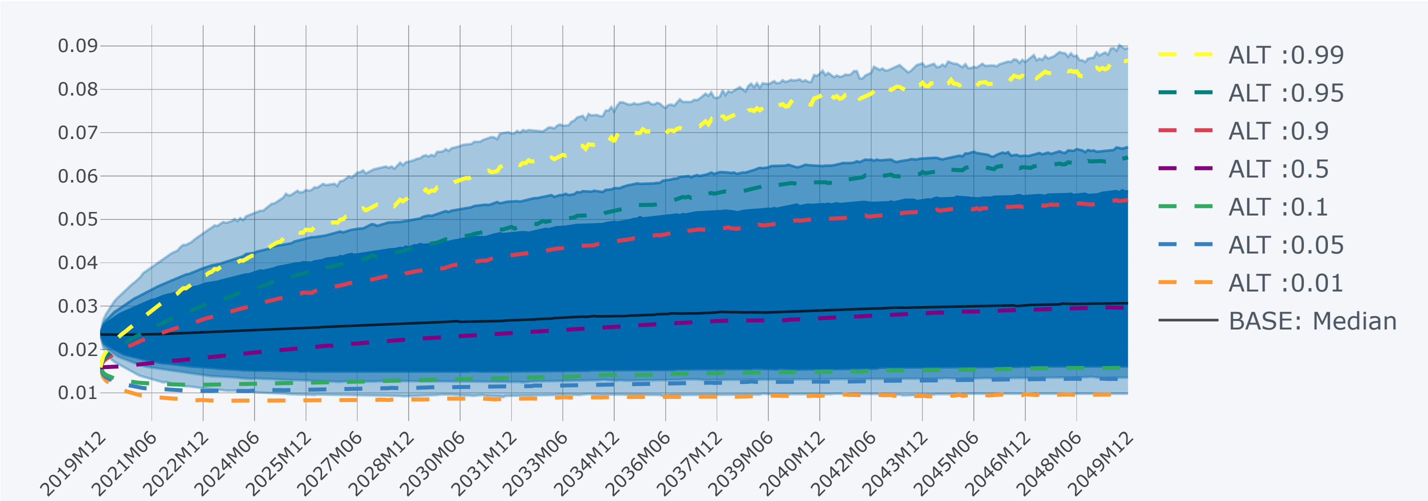
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0236	0.034	0.0165	0.0329
std	0.0046	0.0172	0.0036	0.0166
min	0.0098	0.0048	0.0059	0.0047
1%	0.0141	0.0094	0.0094	0.0093
5%	0.0165	0.0131	0.0111	0.0129
10%	0.0179	0.0158	0.0121	0.0154
50%	0.0233	0.0306	0.0162	0.0296
90%	0.0297	0.0565	0.0212	0.0545
95%	0.0317	0.0668	0.0228	0.0644
99%	0.0354	0.0898	0.0257	0.0868
max	0.0452	0.1642	0.0335	0.1584

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 27 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

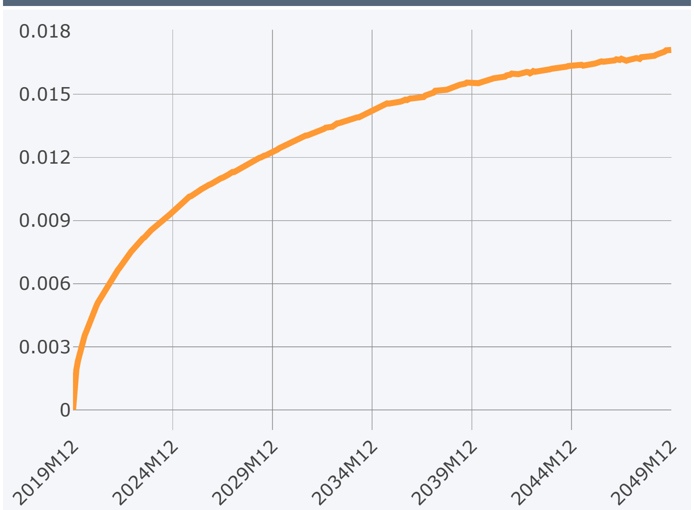
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

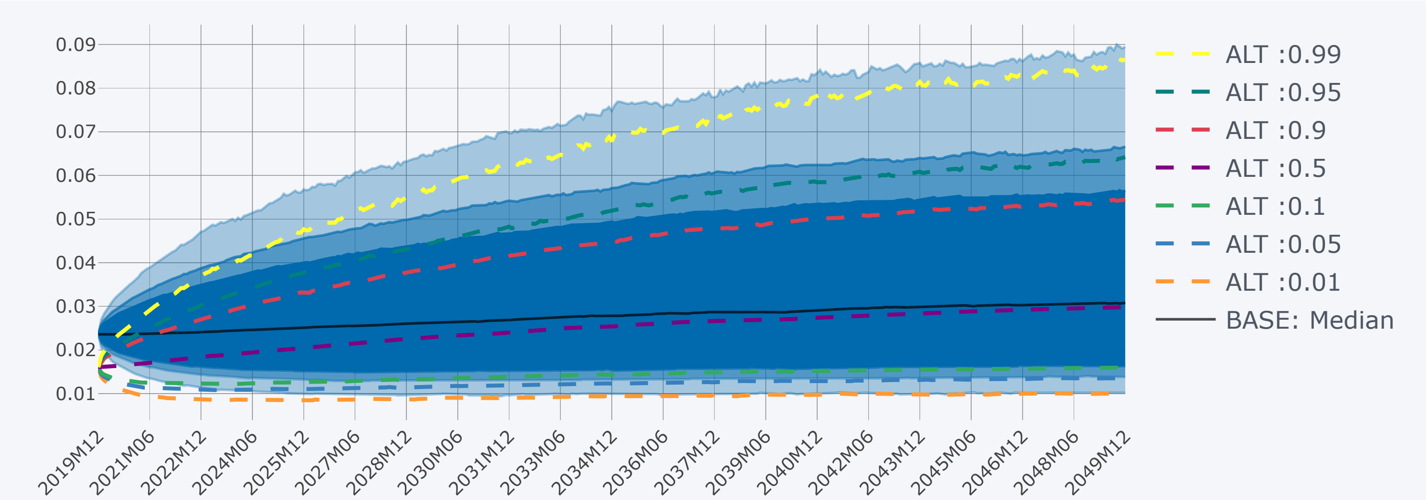
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0238	0.0342	0.0167	0.0331
std	0.0046	0.0171	0.0035	0.0164
min	0.0102	0.0053	0.0063	0.0052
1%	0.0144	0.0098	0.0097	0.0096
5%	0.0168	0.0135	0.0114	0.0132
10%	0.0181	0.0161	0.0124	0.0157
50%	0.0234	0.0307	0.0164	0.0297
90%	0.0298	0.0565	0.0214	0.0545
95%	0.0318	0.0667	0.0229	0.0643
99%	0.0355	0.0896	0.0259	0.0867
max	0.0452	0.164	0.0336	0.1583

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 28 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

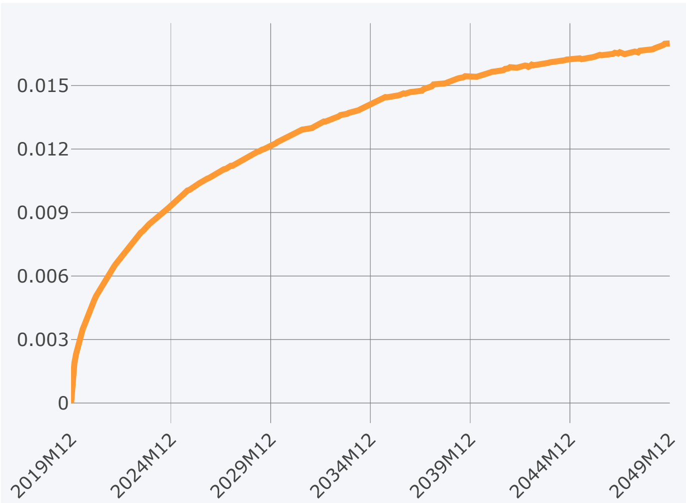
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

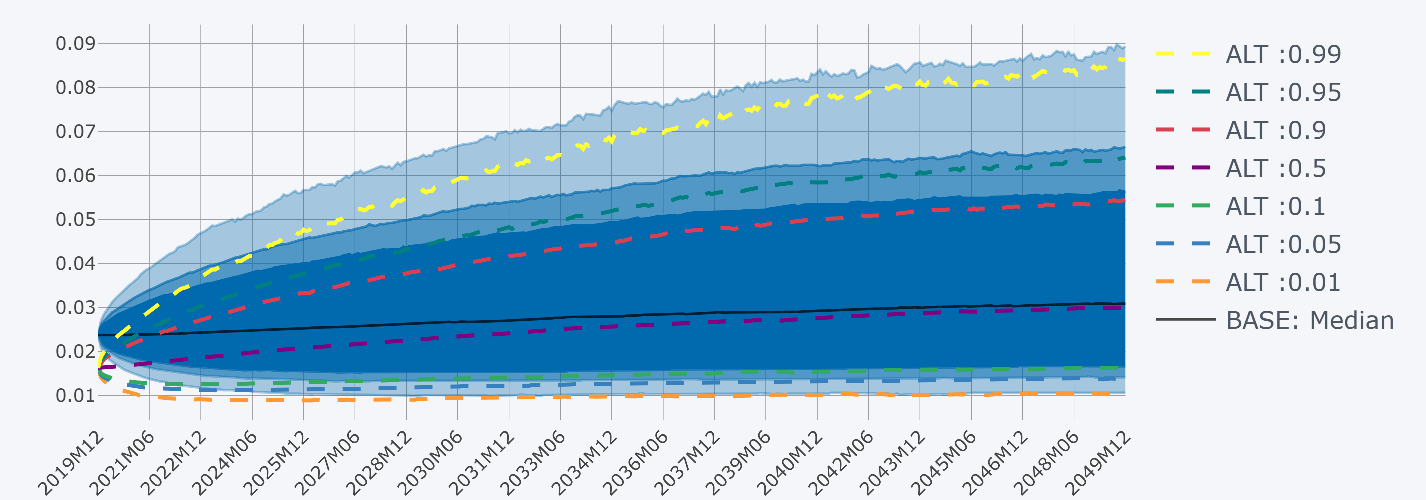
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0239	0.0343	0.017	0.0332
std	0.0045	0.017	0.0035	0.0163
min	0.0106	0.0058	0.0068	0.0057
1%	0.0148	0.0102	0.0101	0.01
5%	0.0171	0.0138	0.0118	0.0135
10%	0.0184	0.0163	0.0127	0.016
50%	0.0236	0.0308	0.0167	0.0298
90%	0.0299	0.0565	0.0216	0.0544
95%	0.0319	0.0666	0.0231	0.0642
99%	0.0355	0.0895	0.026	0.0866
max	0.0452	0.1639	0.0337	0.1581

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 29 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

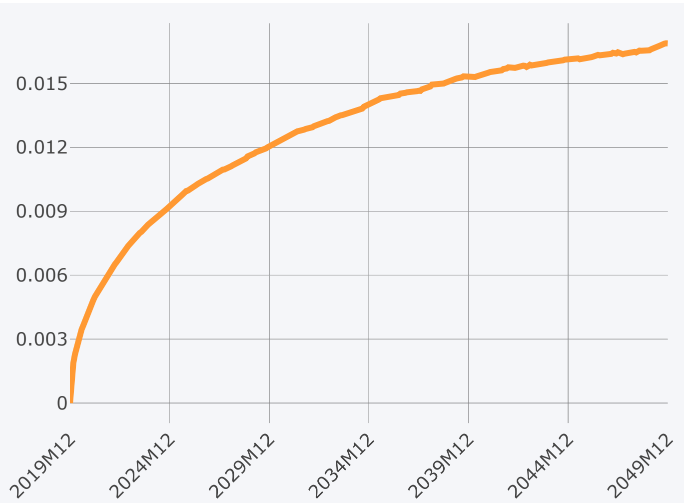
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

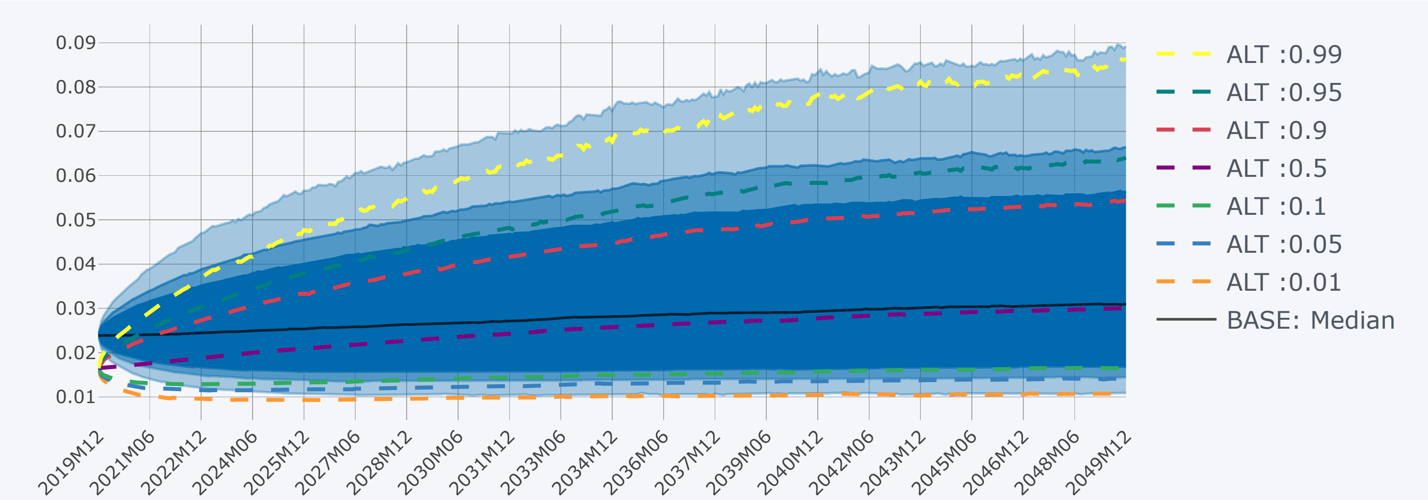
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0241	0.0344	0.0172	0.0333
std	0.0045	0.0169	0.0034	0.0162
min	0.011	0.0063	0.0072	0.0062
1%	0.015	0.0106	0.0104	0.0104
5%	0.0173	0.0141	0.0121	0.0138
10%	0.0186	0.0166	0.013	0.0162
50%	0.0238	0.0309	0.0169	0.0299
90%	0.03	0.0564	0.0217	0.0544
95%	0.0319	0.0665	0.0233	0.0641
99%	0.0356	0.0893	0.0262	0.0865
max	0.0452	0.1638	0.0338	0.158

Cross Sectional Volatility Over Time : BASE



Simulated Data in Percentiles : US Treasury 30 Year Yield - Coupon



Simulated Data: There are 360 Time Periods. Percentiles, Mean and Median are calculated across 10000 PATHS.

Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

The distributions shown are across the paths for a given time period.

Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0242	0.0345	0.0175	0.0334
std	0.0044	0.0168	0.0034	0.0161
min	0.0113	0.0067	0.0076	0.0066
1%	0.0153	0.0109	0.0108	0.0108
5%	0.0175	0.0144	0.0124	0.0141
10%	0.0188	0.0168	0.0134	0.0165
50%	0.0239	0.031	0.0172	0.03
90%	0.0301	0.0564	0.0219	0.0543
95%	0.032	0.0664	0.0234	0.064
99%	0.0356	0.0892	0.0263	0.0863
max	0.0452	0.1636	0.0339	0.1578

Cross Sectional Volatility Over Time : BASE