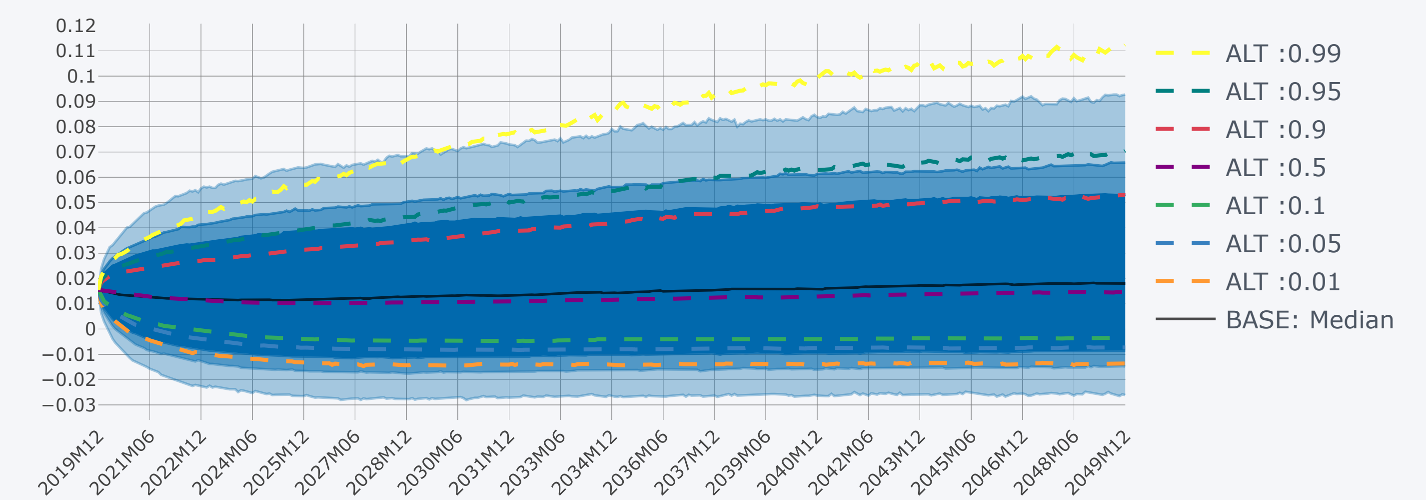
Simulated Data in Percentiles : US Treasury 1 Month Yield - Coupon



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

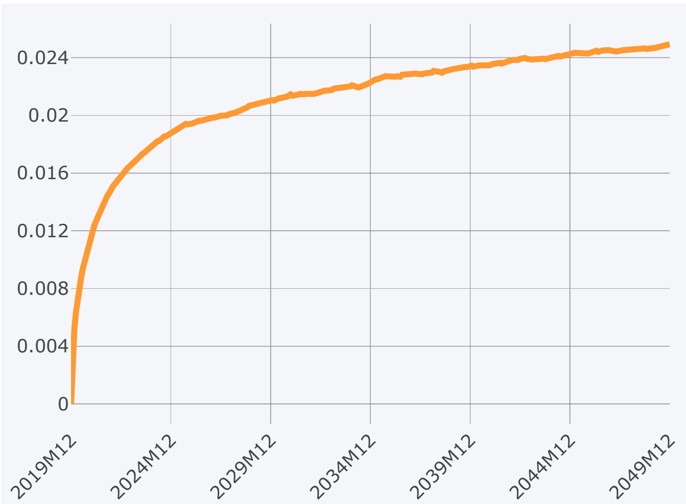
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

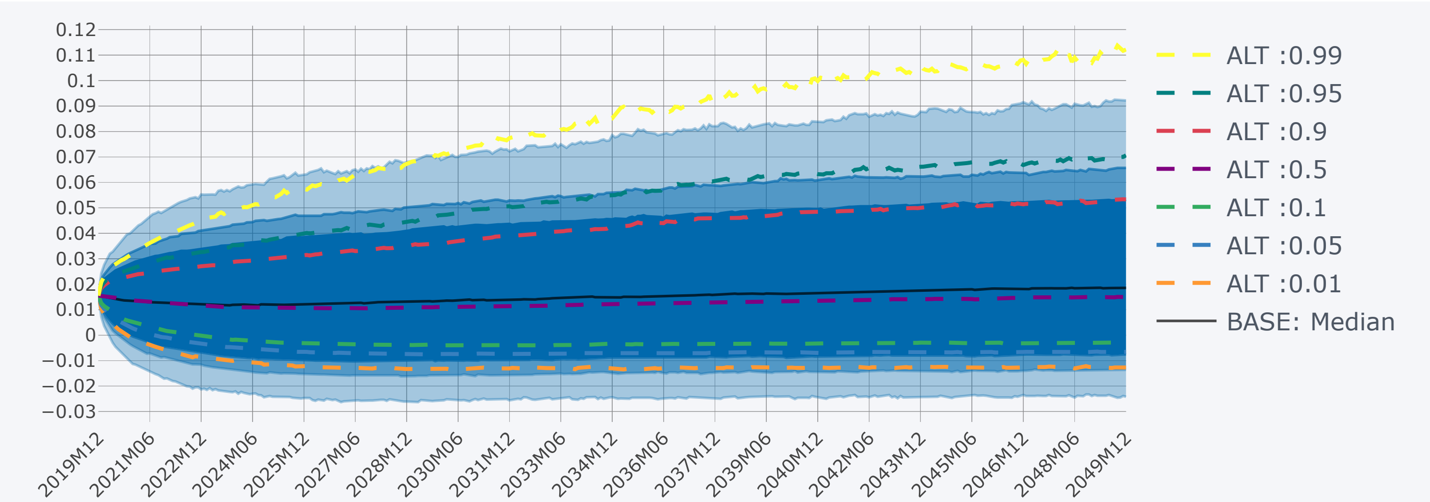
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0134	0.0207	0.0138	0.0209
std	0.0117	0.0249	0.0074	0.0257
min	-0.0266	-0.0459	-0.0104	-0.0256
1%	-0.0124	-0.0261	-0.0021	-0.0136
5%	-0.0052	-0.0148	0.0023	-0.0073
10%	-0.0014	-0.0085	0.0046	-0.0034
50%	0.0132	0.018	0.0136	0.0146
90%	0.0285	0.0532	0.0234	0.0529
95%	0.0328	0.0658	0.0264	0.0704
99%	0.0416	0.0927	0.0323	0.1123
max	0.0671	0.1666	0.0477	0.2535

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.

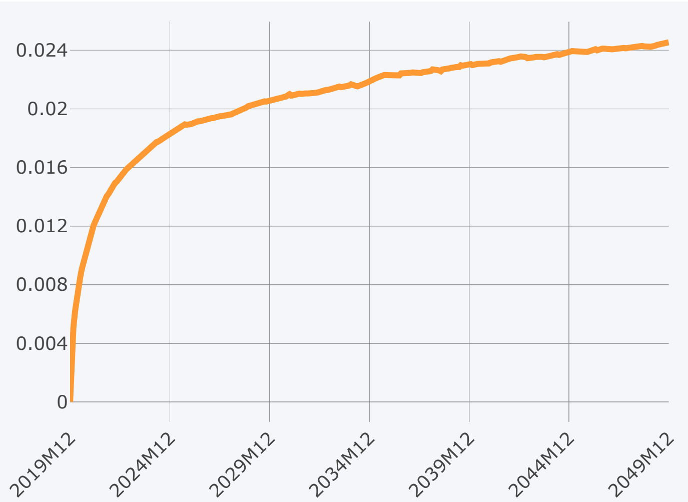
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

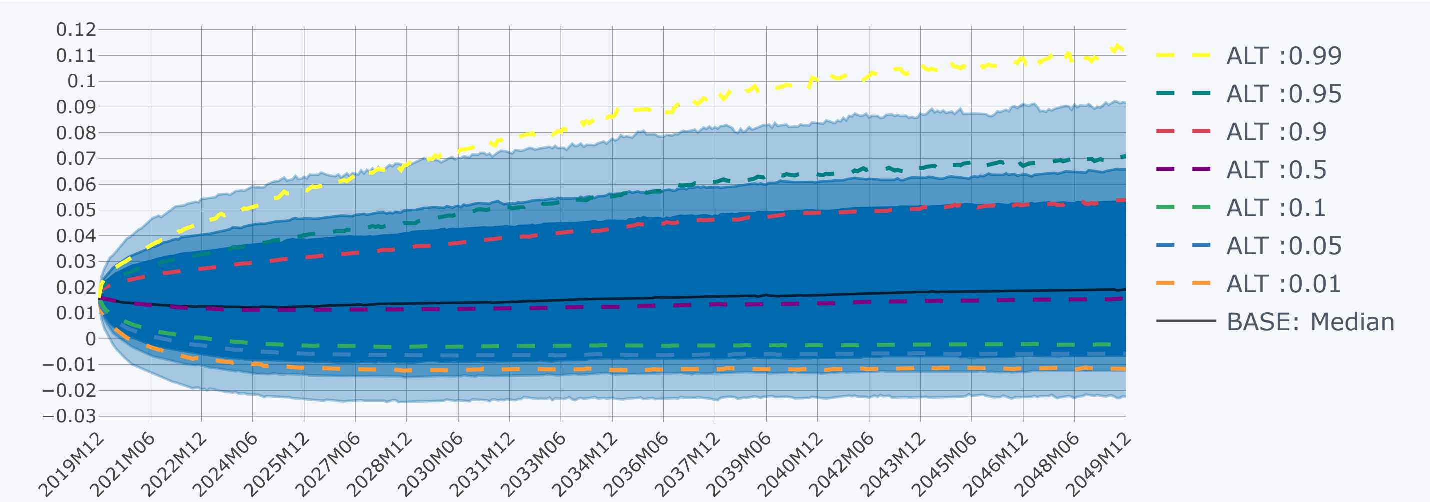
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0138	0.0213	0.014	0.0214
std	0.0113	0.0245	0.0072	0.0256
min	-0.0247	-0.0451	-0.0094	-0.025
1%	-0.0113	-0.0242	-0.0014	-0.0127
5%	-0.0043	-0.0136	0.0027	-0.0066
10%	-0.0005	-0.0076	0.005	-0.0028
50%	0.0135	0.0186	0.0137	0.015
90%	0.0285	0.0532	0.0233	0.0533
95%	0.0327	0.0657	0.0263	0.0706
99%	0.0411	0.0922	0.0324	0.1122
max	0.0669	0.1681	0.0475	0.2544

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.

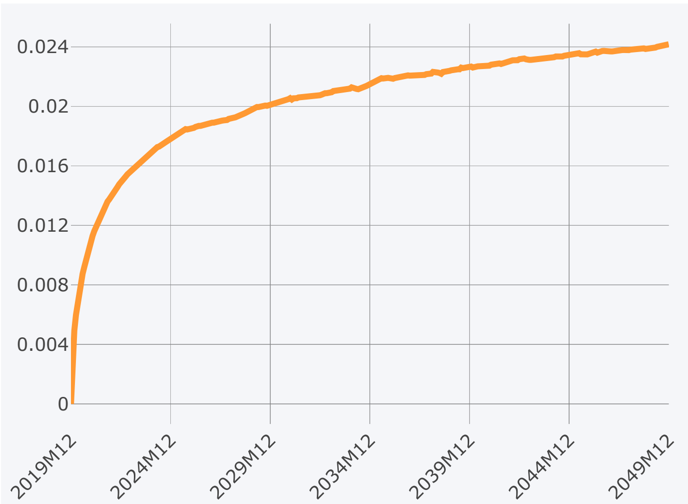
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

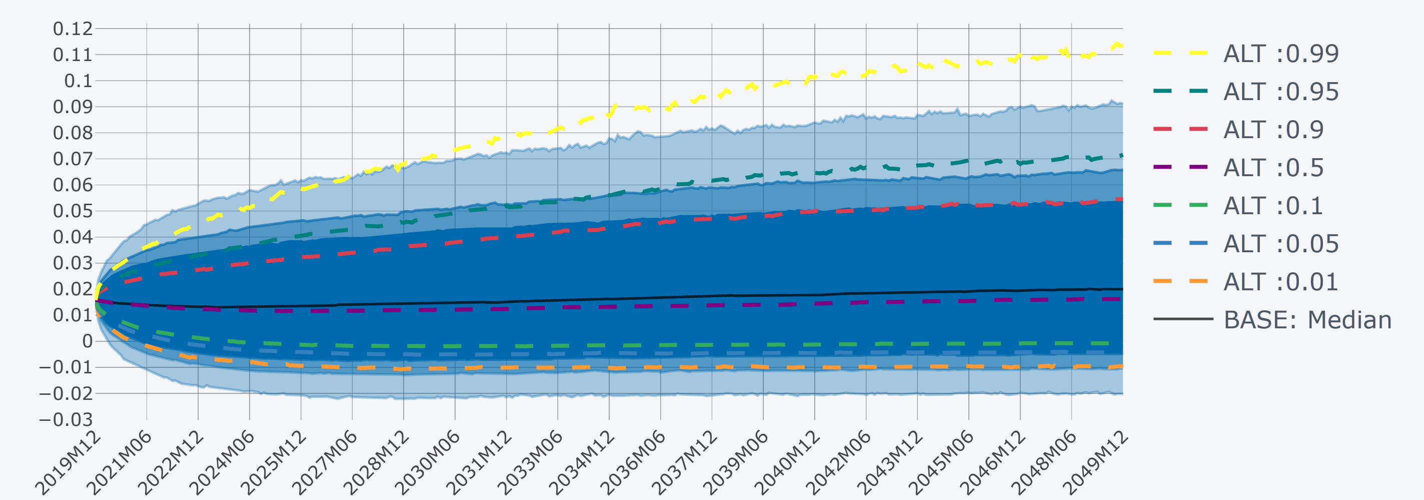
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0141	0.0218	0.0142	0.0219
std	0.0109	0.0242	0.007	0.0255
min	-0.0229	-0.0438	-0.0083	-0.024
1%	-0.0101	-0.0225	-0.0007	-0.0116
5%	-0.0033	-0.0124	0.0032	-0.0057
10%	0.0004	-0.0065	0.0055	-0.002
50%	0.0139	0.0192	0.0139	0.0154
90%	0.0284	0.0533	0.0233	0.0539
95%	0.0325	0.0657	0.0263	0.0709
99%	0.0407	0.0916	0.0322	0.1126
max	0.0661	0.1691	0.0471	0.2552

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.

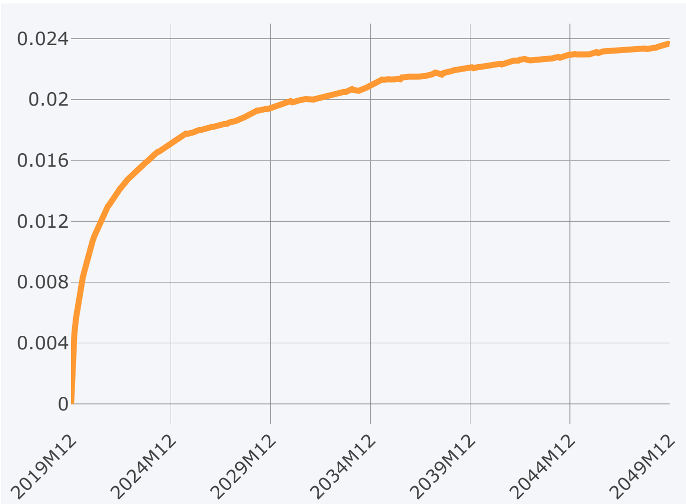
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

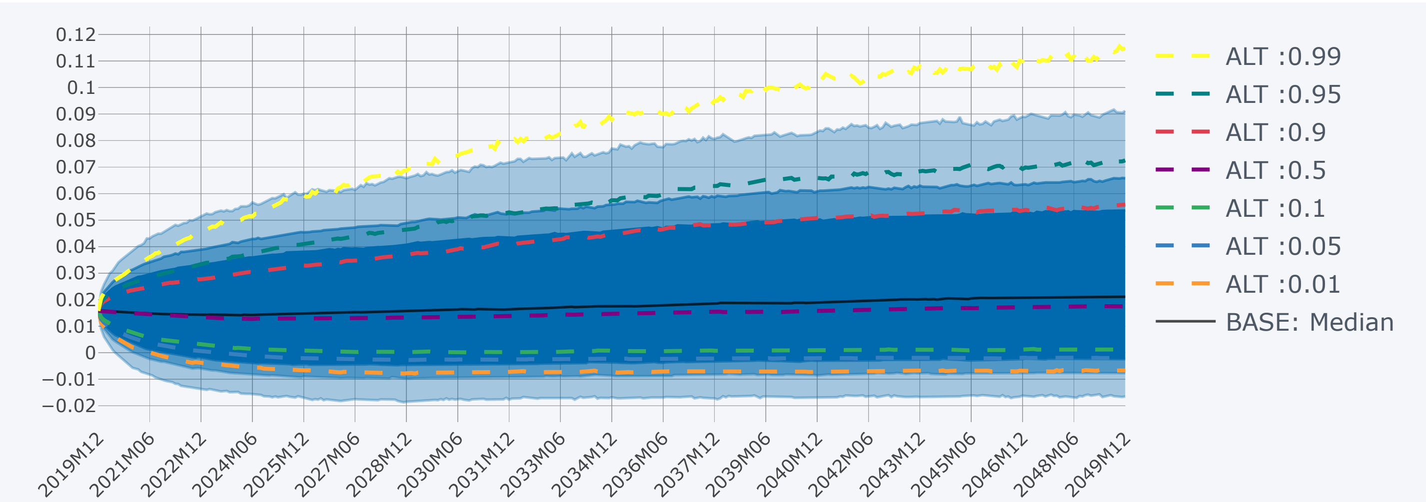
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0146	0.0227	0.0146	0.0228
std	0.0104	0.0236	0.0068	0.0254
min	-0.0211	-0.041	-0.007	-0.022
1%	-0.0083	-0.0202	0.0002	-0.0097
5%	-0.0019	-0.0105	0.0041	-0.0044
10%	0.0016	-0.0048	0.0063	-0.0008
50%	0.0144	0.02	0.0143	0.0162
90%	0.0281	0.0535	0.0234	0.0545
95%	0.0322	0.0658	0.0263	0.0716
99%	0.0401	0.0913	0.032	0.1135
max	0.0644	0.1698	0.0464	0.2559

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.

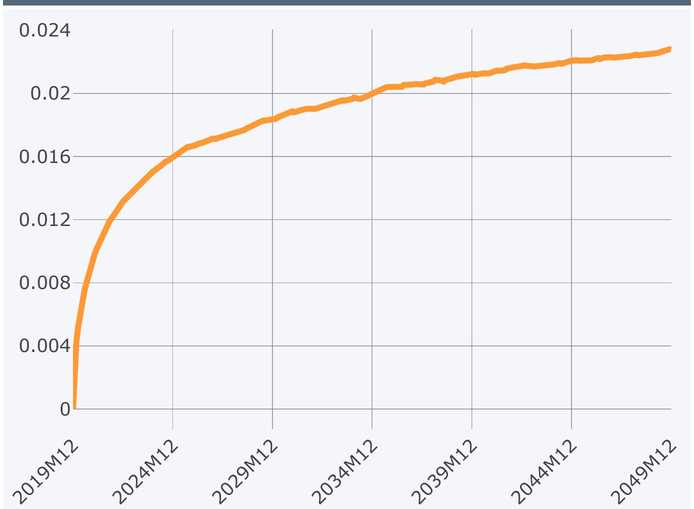
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

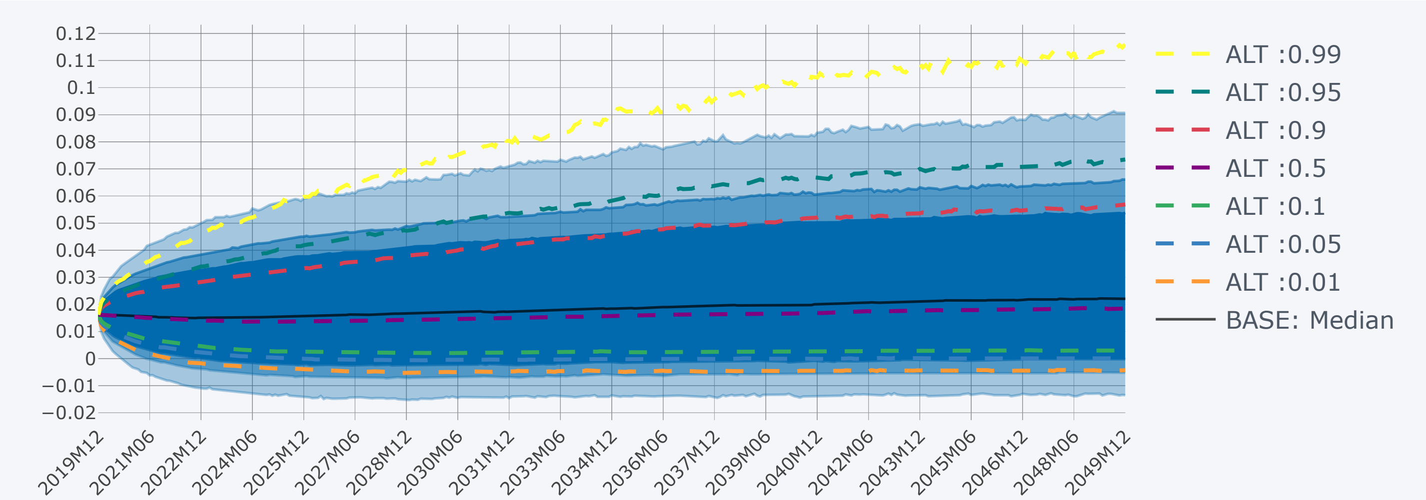
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0154	0.024	0.0153	0.0243
std	0.0095	0.0228	0.0064	0.0251
min	-0.0177	-0.0356	-0.0048	-0.018
1%	-0.0057	-0.0165	0.002	-0.0067
5%	0.0002	-0.0077	0.0056	-0.002
10%	0.0034	-0.0024	0.0075	0.0012
50%	0.0152	0.0211	0.0149	0.0175
90%	0.0278	0.0536	0.0236	0.0559
95%	0.0313	0.0658	0.0263	0.0725
99%	0.0386	0.0912	0.032	0.1149
max	0.0609	0.1699	0.0452	0.2564

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.

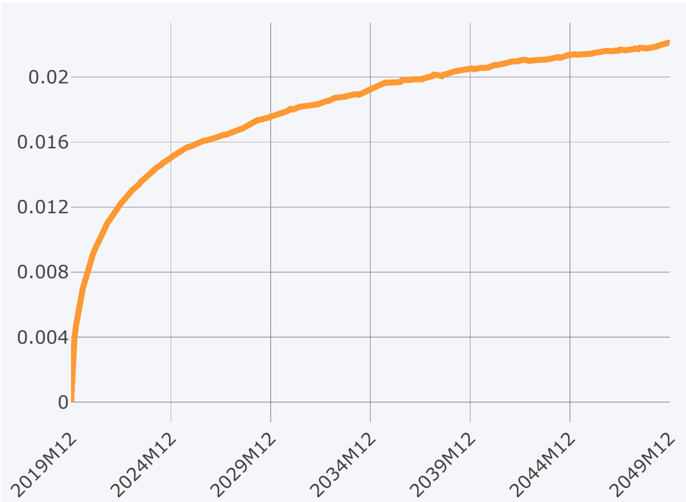
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

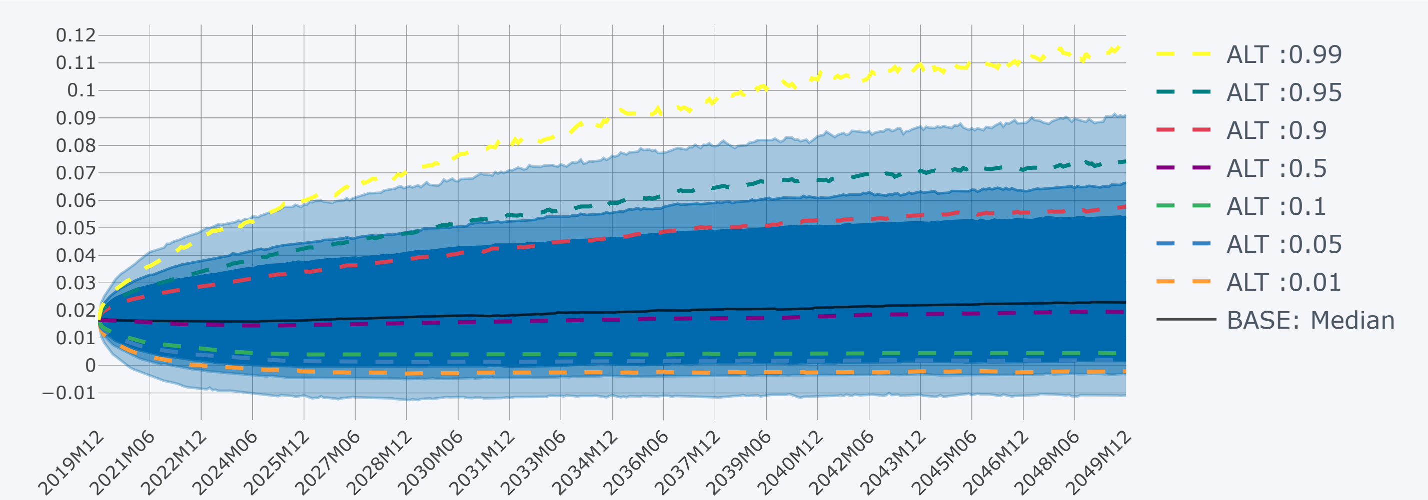
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.016	0.0251	0.0159	0.0255
std	0.0088	0.0221	0.0061	0.0249
min	-0.0147	-0.0309	-0.0028	-0.0145
1%	-0.0033	-0.0135	0.0036	-0.0043
5%	0.0021	-0.0052	0.0068	0.0001
10%	0.0049	-0.0002	0.0085	0.003
50%	0.0158	0.0221	0.0154	0.0185
90%	0.0273	0.0538	0.0238	0.0569
95%	0.0308	0.0661	0.0266	0.0735
99%	0.0373	0.0907	0.0319	0.1159
max	0.058	0.1697	0.0456	0.2565

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.

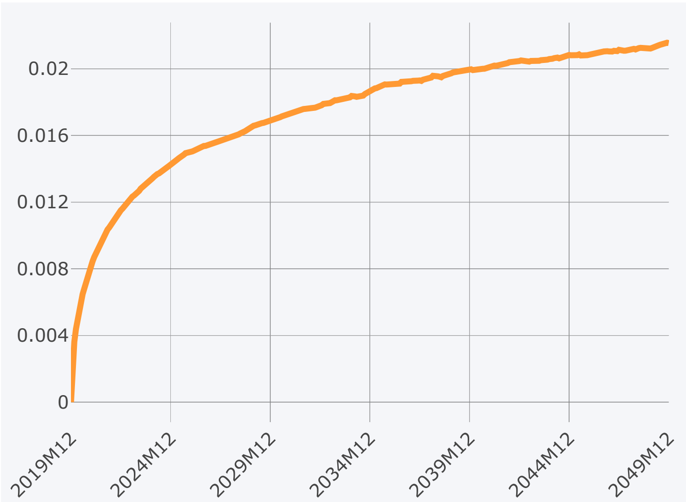
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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	0.0165	0.0266
std	0.0082	0.0215	0.0058	0.0246
min	-0.0121	-0.0269	-0.001	-0.0114
1%	-0.0013	-0.0109	0.005	-0.0021
5%	0.0037	-0.0032	0.0079	0.0019
10%	0.0063	0.0016	0.0094	0.0045
50%	0.0163	0.0229	0.016	0.0194
90%	0.0271	0.054	0.0241	0.0577
95%	0.0303	0.0664	0.0268	0.0742
99%	0.0364	0.0911	0.032	0.1167
max	0.0556	0.1695	0.046	0.2563

Cross Sectional Volatility Over Time : BASE



US Treasury 5 Year Yield - Coupon
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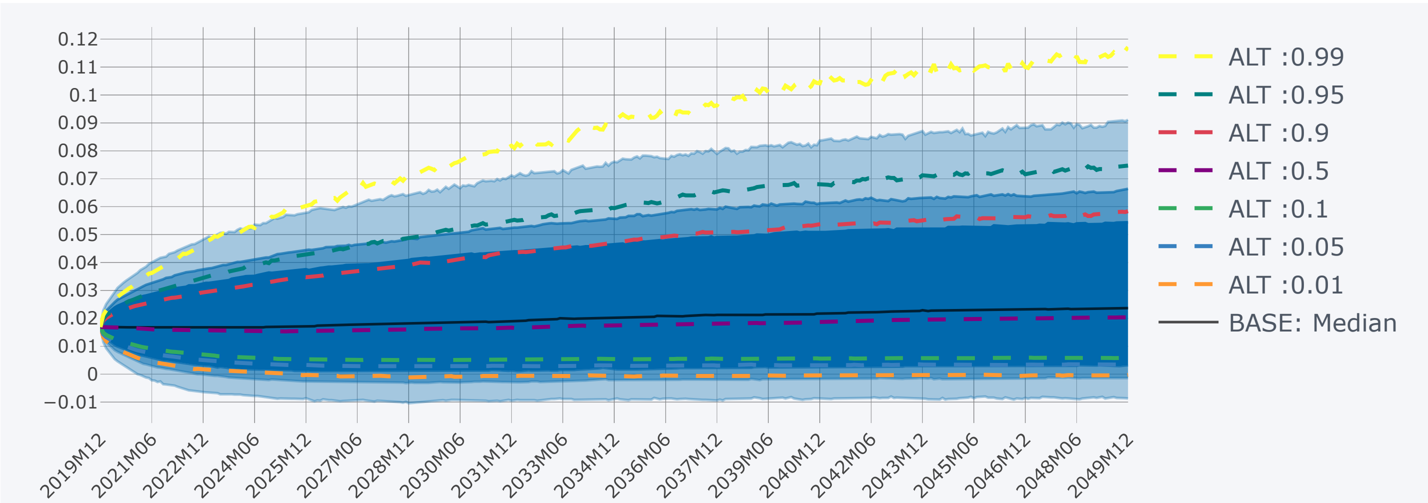
Validation Report

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.

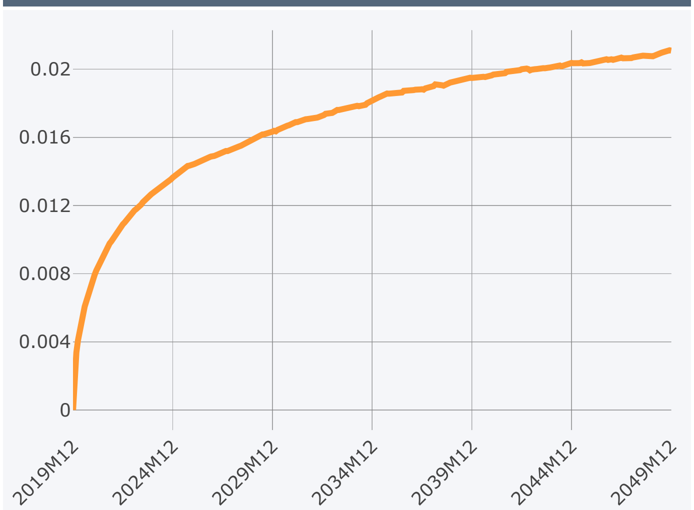
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

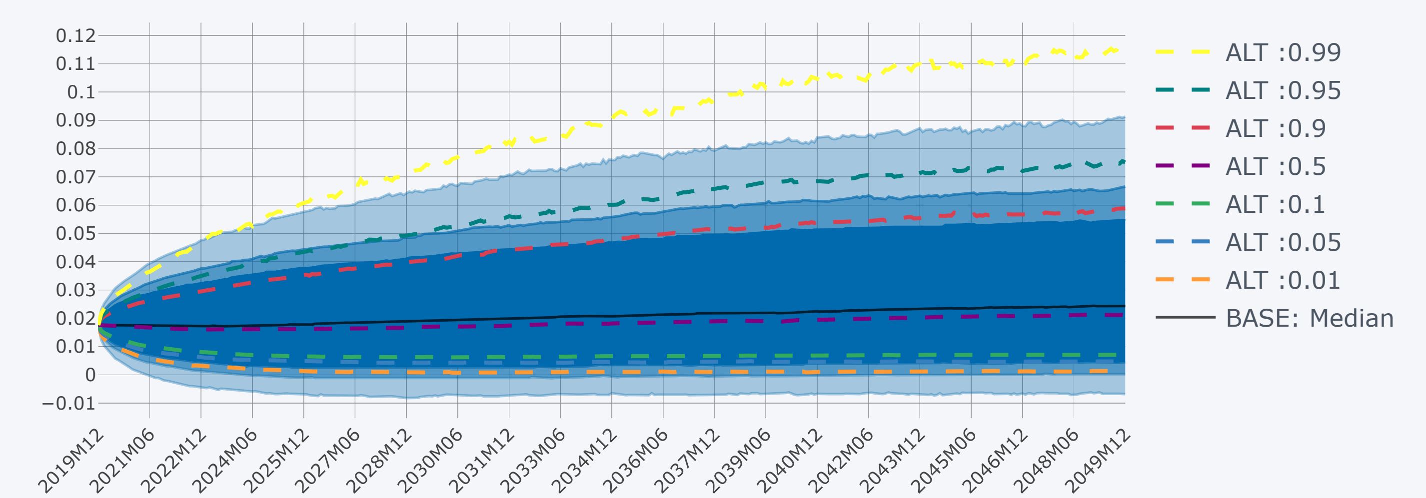
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0171	0.0268	0.017	0.0276
std	0.0077	0.0211	0.0056	0.0244
min	-0.0098	-0.0233	0.0006	-0.0087
1%	0.0005	-0.0087	0.0061	-0.0002
5%	0.005	-0.0014	0.0088	0.0034
10%	0.0074	0.0032	0.0103	0.0059
50%	0.0168	0.0237	0.0165	0.0204
90%	0.0269	0.0544	0.0244	0.0584
95%	0.03	0.0664	0.027	0.0747
99%	0.0357	0.0911	0.0321	0.1172
max	0.0535	0.1692	0.0464	0.2559

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.

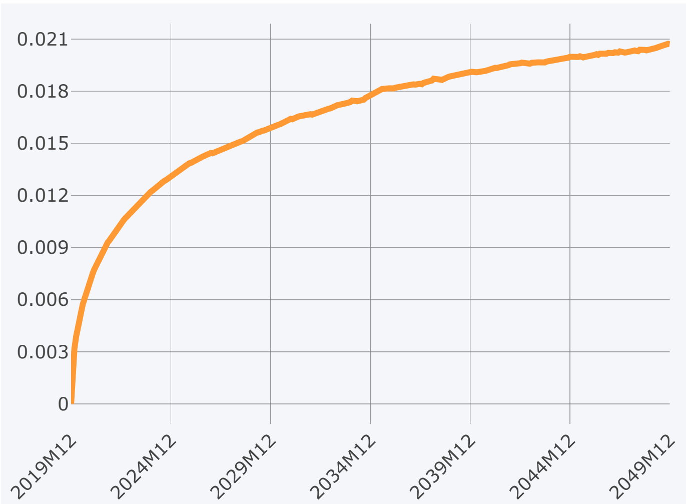
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

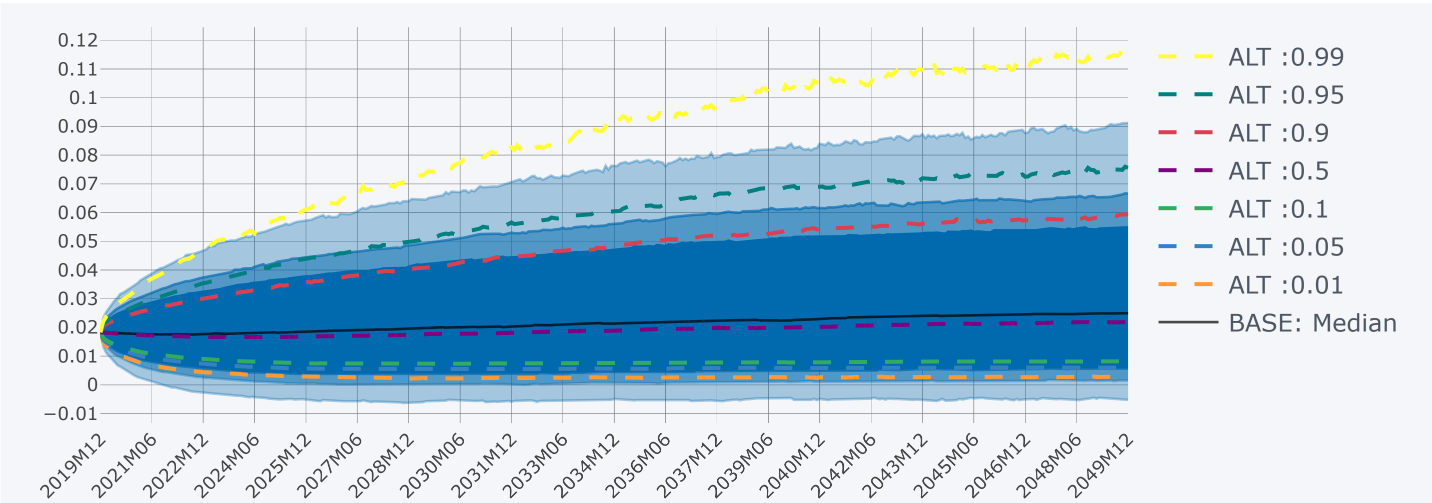
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0176	0.0276	0.0176	0.0284
std	0.0073	0.0207	0.0054	0.0242
min	-0.0077	-0.0202	0.0021	-0.0063
1%	0.0019	-0.0068	0.0072	0.0014
5%	0.0061	0.0002	0.0098	0.0048
10%	0.0084	0.0045	0.0111	0.0071
50%	0.0173	0.0243	0.017	0.0211
90%	0.0269	0.0545	0.0247	0.0589
95%	0.0298	0.0666	0.0272	0.0752
99%	0.0351	0.0913	0.0322	0.1175
max	0.0518	0.1689	0.0467	0.2554

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.

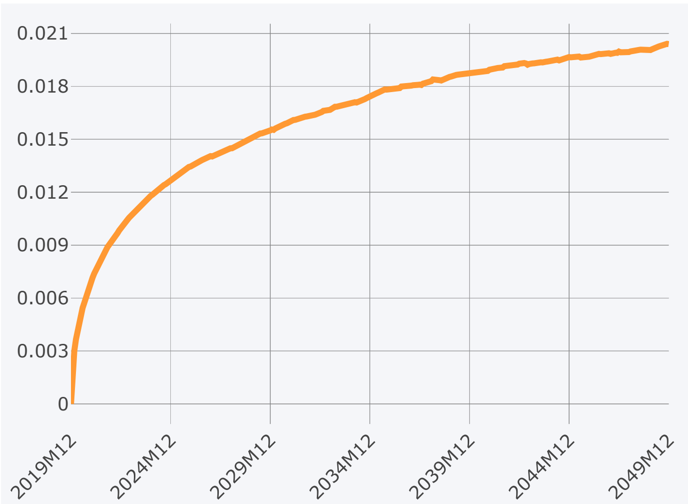
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

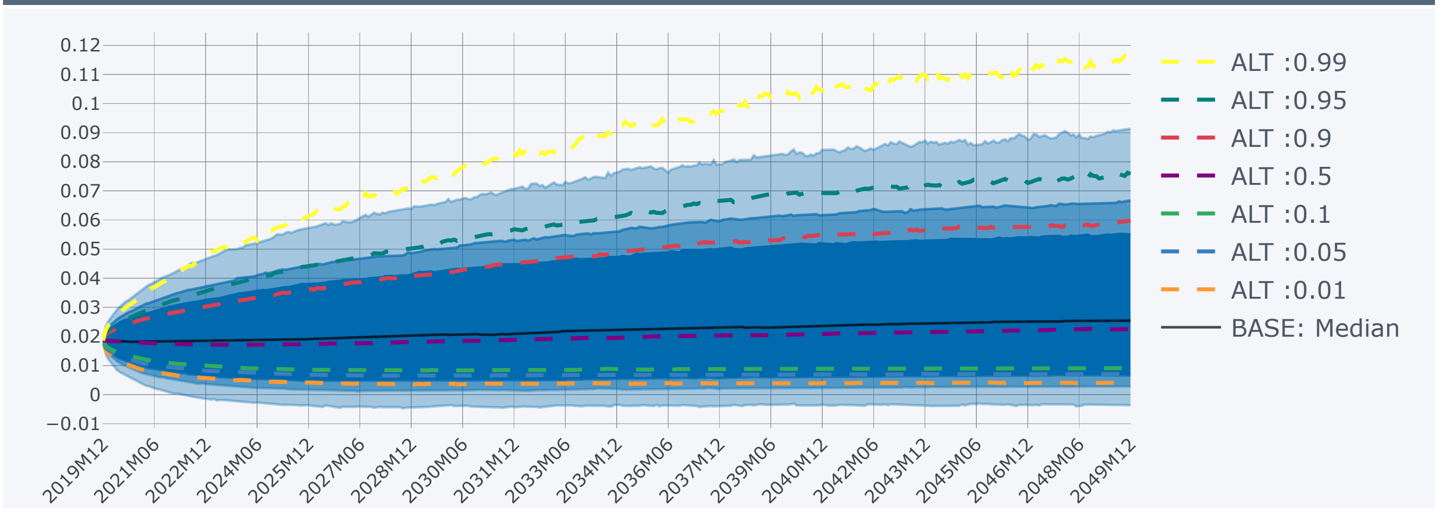
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.018	0.0282	0.0181	0.0291
std	0.0069	0.0204	0.0052	0.0239
min	-0.0059	-0.0174	0.0033	-0.0042
1%	0.0032	-0.0052	0.0082	0.0029
5%	0.0072	0.0015	0.0105	0.006
10%	0.0093	0.0057	0.0119	0.0082
50%	0.0178	0.0249	0.0175	0.0219
90%	0.027	0.0548	0.025	0.0594
95%	0.0297	0.0666	0.0275	0.0756
99%	0.0348	0.0912	0.0325	0.1176
max	0.0504	0.1686	0.0469	0.2549

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.

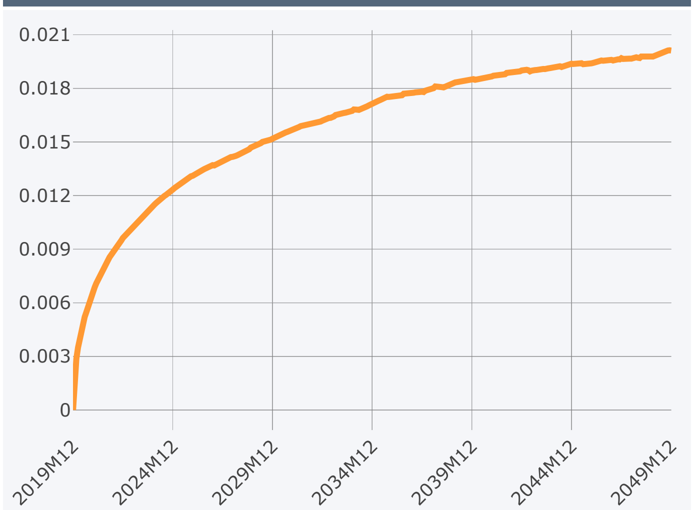
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

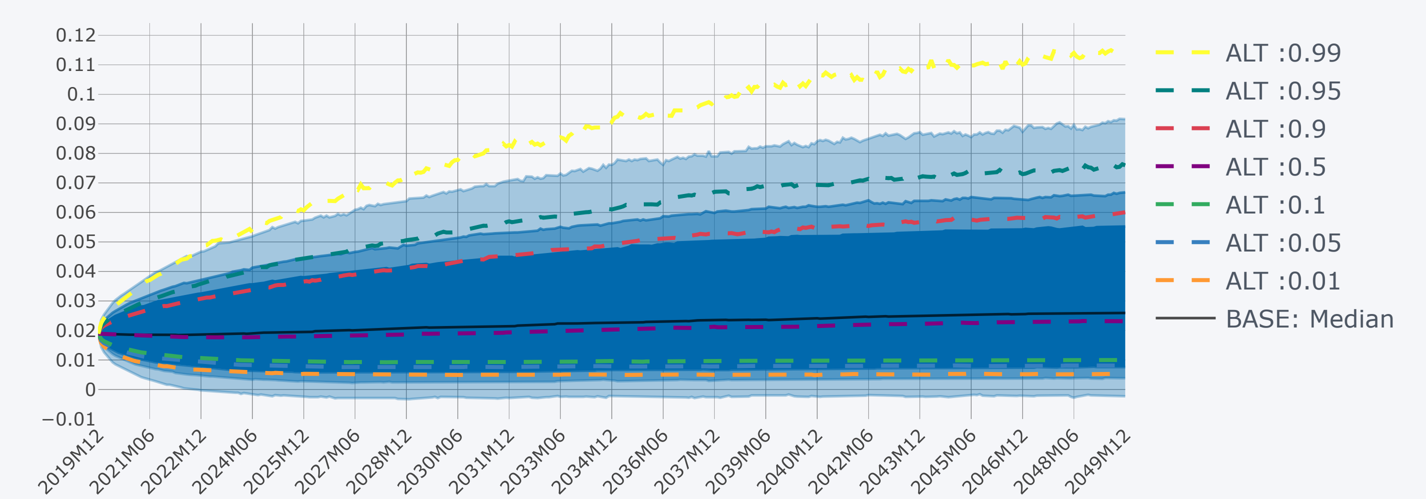
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0184	0.0289	0.0185	0.0298
std	0.0066	0.0201	0.0051	0.0237
min	-0.0043	-0.015	0.0045	-0.0023
1%	0.0044	-0.0037	0.0091	0.0041
5%	0.0081	0.0028	0.0113	0.0071
10%	0.0101	0.0066	0.0125	0.0091
50%	0.0182	0.0254	0.0179	0.0225
90%	0.027	0.055	0.0252	0.0598
95%	0.0297	0.0667	0.0278	0.0758
99%	0.0347	0.0914	0.0327	0.1175
max	0.0492	0.1684	0.0471	0.2542

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.

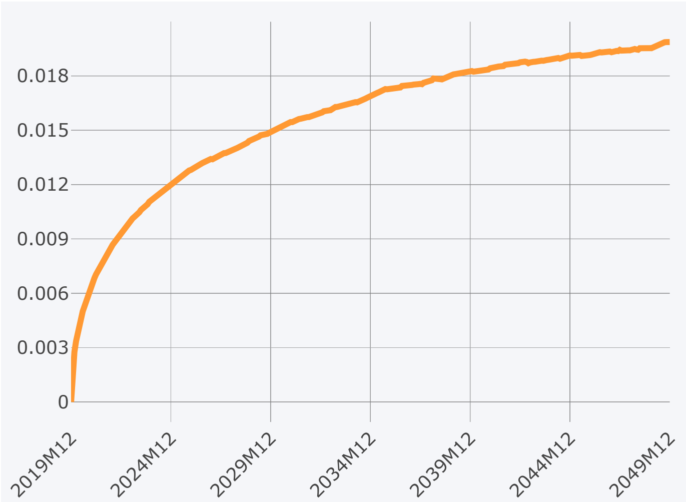
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

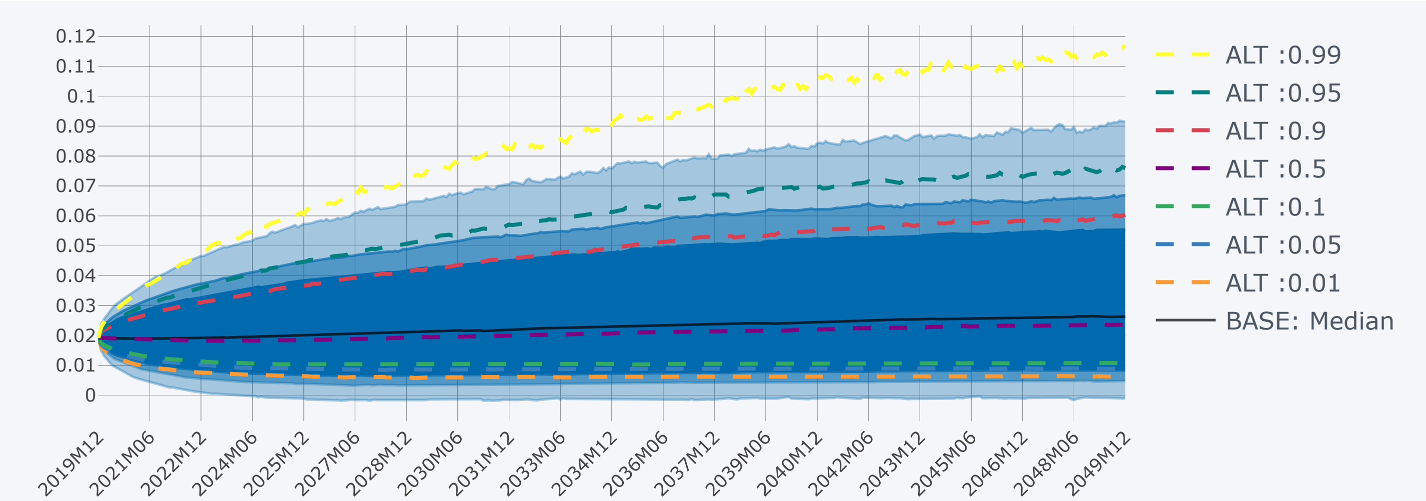
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0189	0.0294	0.0189	0.0303
std	0.0064	0.0199	0.005	0.0235
min	-0.0029	-0.0128	0.0056	-0.0006
1%	0.0053	-0.0023	0.0099	0.0053
5%	0.0089	0.0038	0.0119	0.0081
10%	0.0109	0.0076	0.0131	0.01
50%	0.0186	0.0259	0.0183	0.0231
90%	0.0272	0.0552	0.0256	0.0601
95%	0.0297	0.0668	0.028	0.0759
99%	0.0347	0.0916	0.0329	0.1174
max	0.0481	0.1681	0.0473	0.2536

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.

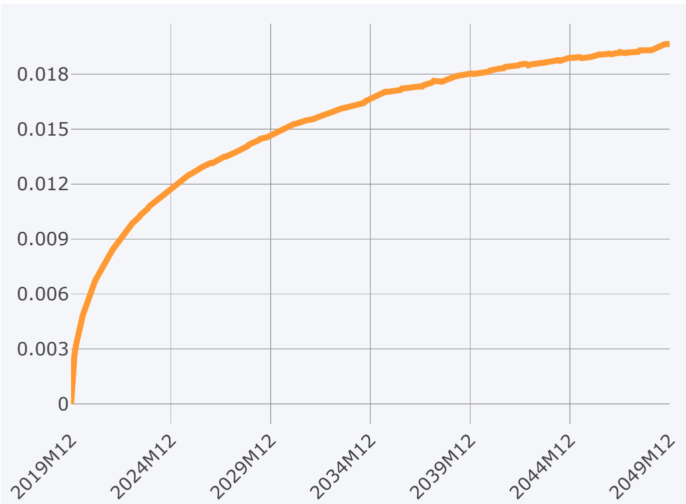
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

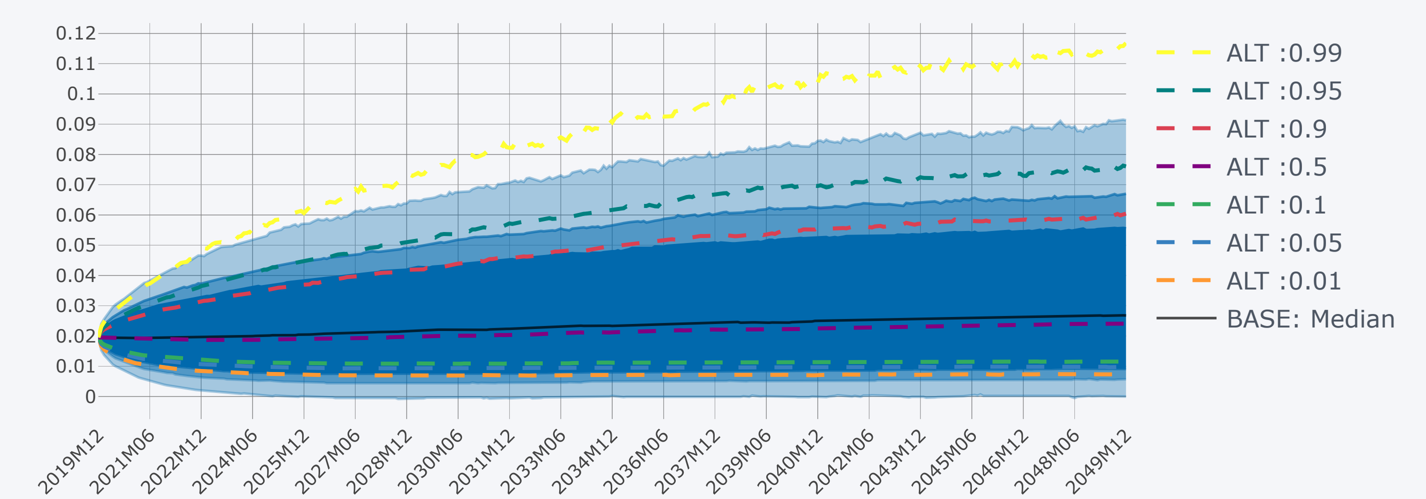
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0192	0.0299	0.0194	0.0309
std	0.0062	0.0196	0.0049	0.0233
min	-0.0016	-0.0109	0.0065	0.0009
1%	0.0062	-0.001	0.0106	0.0064
5%	0.0097	0.0048	0.0126	0.009
10%	0.0115	0.0083	0.0137	0.0108
50%	0.0189	0.0263	0.0187	0.0236
90%	0.0273	0.0554	0.0258	0.0603
95%	0.0297	0.0669	0.0282	0.076
99%	0.0346	0.0915	0.033	0.1171
max	0.0473	0.1678	0.0474	0.2529

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.

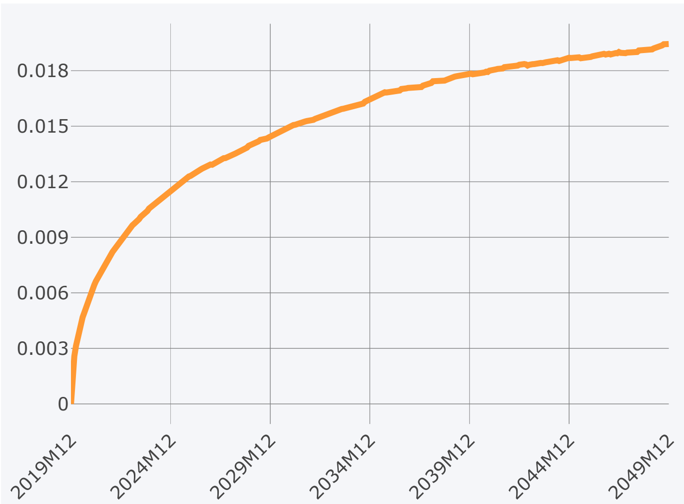
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

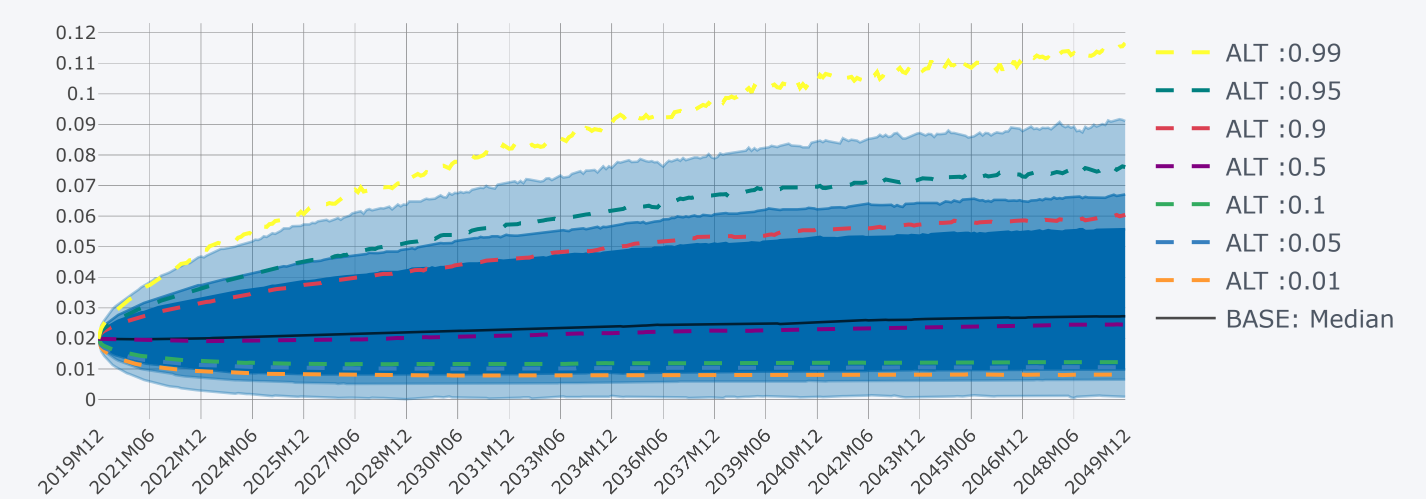
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0196	0.0303	0.0198	0.0313
std	0.006	0.0194	0.0048	0.023
min	-0.0004	-0.0092	0.0074	0.0022
1%	0.0071	0	0.0113	0.0073
5%	0.0103	0.0057	0.0132	0.0098
10%	0.0122	0.0091	0.0142	0.0115
50%	0.0193	0.0268	0.0191	0.0241
90%	0.0274	0.0556	0.0261	0.0604
95%	0.0298	0.067	0.0284	0.076
99%	0.0346	0.0913	0.0332	0.1168
max	0.0465	0.1675	0.0475	0.2523

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.

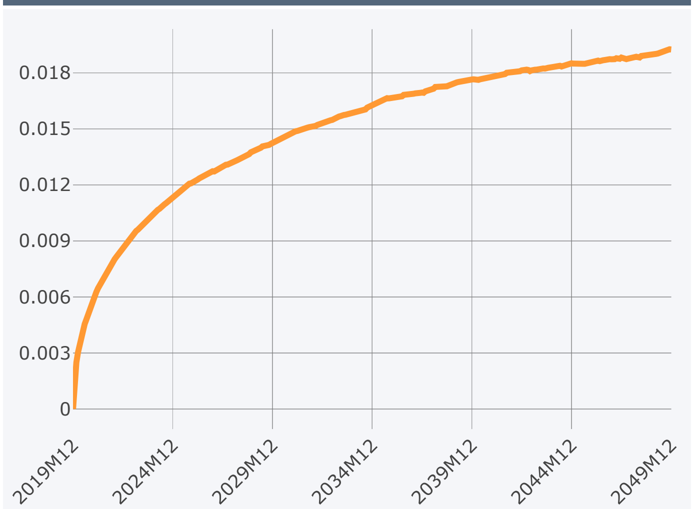
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

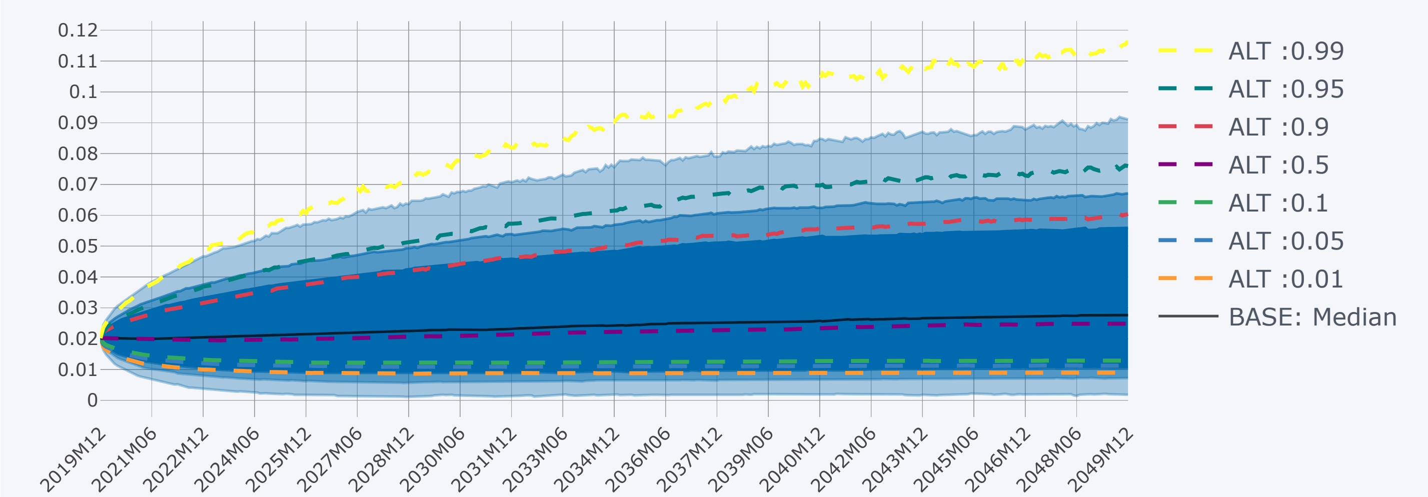
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.02	0.0308	0.0201	0.0317
std	0.0058	0.0193	0.0047	0.0228
min	0.0007	-0.0076	0.0083	0.0034
1%	0.0078	0.0009	0.0119	0.0082
5%	0.011	0.0065	0.0137	0.0106
10%	0.0127	0.0098	0.0147	0.0122
50%	0.0197	0.0272	0.0195	0.0245
90%	0.0276	0.0557	0.0264	0.0604
95%	0.03	0.0671	0.0286	0.076
99%	0.0346	0.0911	0.0333	0.1166
max	0.0459	0.1673	0.0476	0.2517

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.

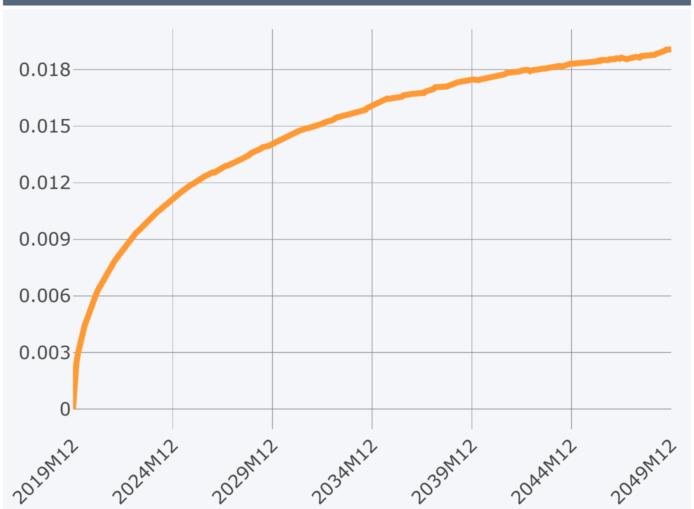
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

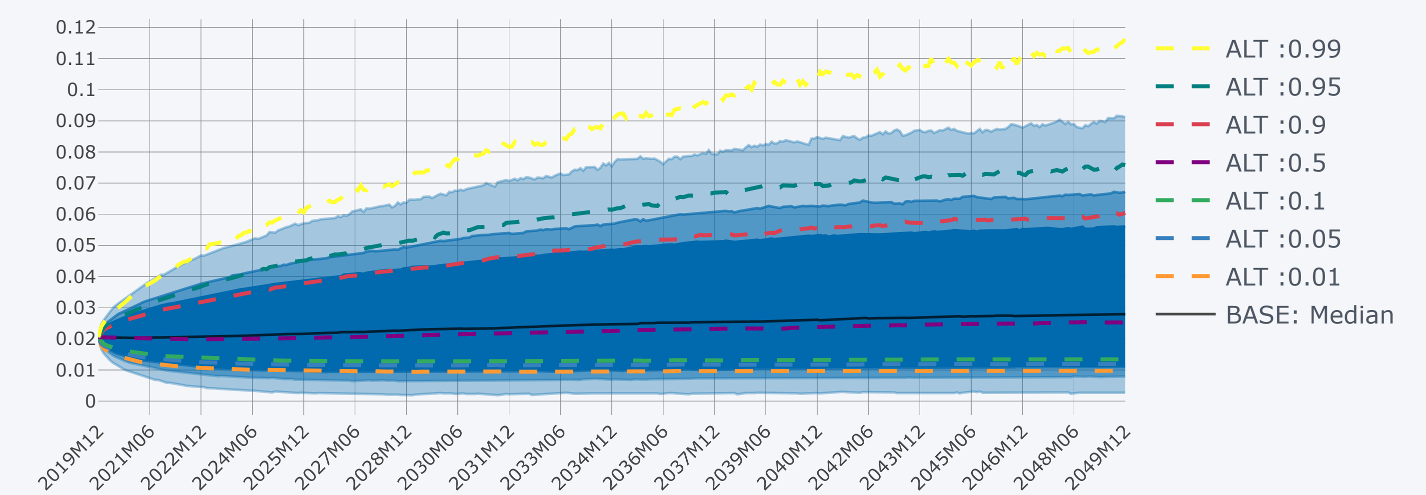
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0203	0.0311	0.0205	0.0321
std	0.0057	0.0191	0.0046	0.0226
min	0.0017	-0.0062	0.009	0.0046
1%	0.0085	0.0018	0.0125	0.009
5%	0.0115	0.0072	0.0142	0.0112
10%	0.0132	0.0105	0.0152	0.0129
50%	0.02	0.0276	0.0198	0.0249
90%	0.0277	0.0559	0.0266	0.0604
95%	0.0301	0.0671	0.0288	0.076
99%	0.0347	0.0911	0.0335	0.1165
max	0.0454	0.167	0.0476	0.2511

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.

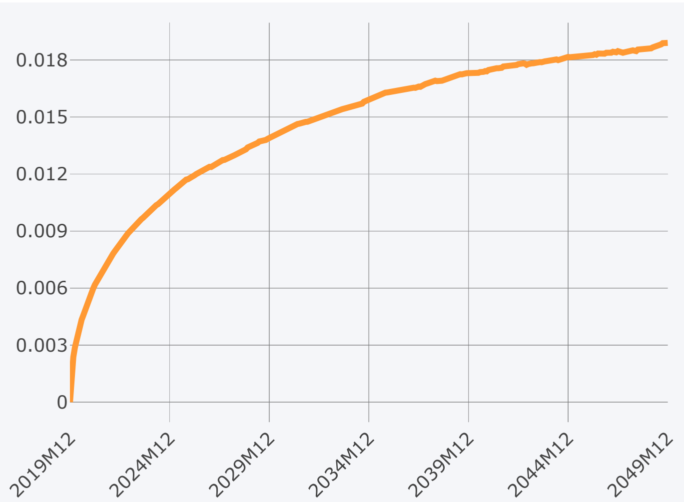
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

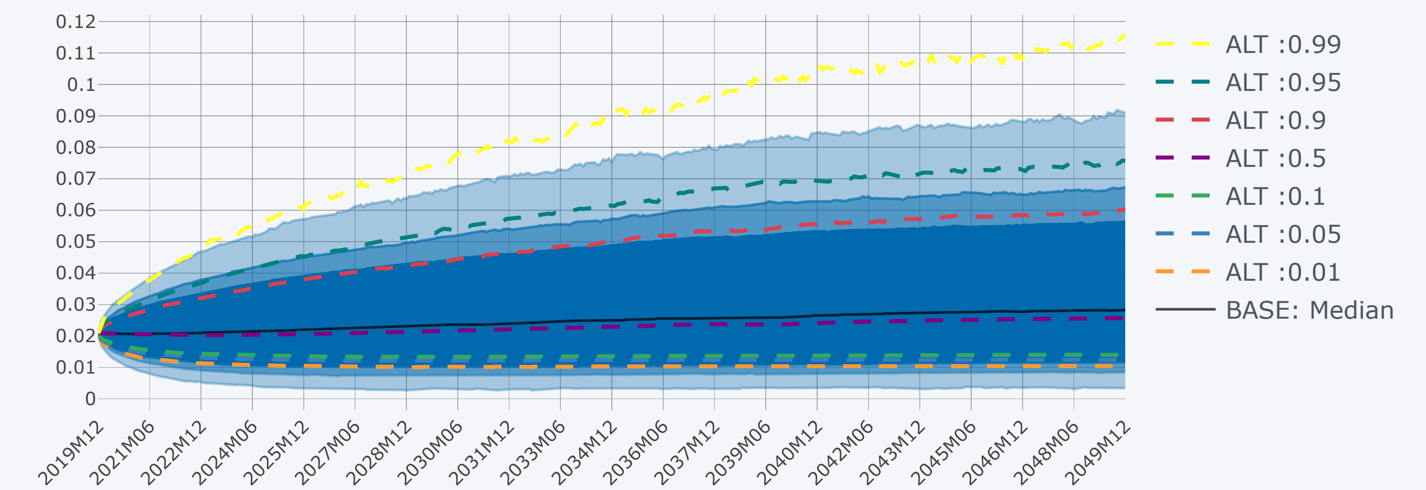
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0207	0.0315	0.0208	0.0324
std	0.0056	0.0189	0.0045	0.0223
min	0.0026	-0.0049	0.0098	0.0056
1%	0.009	0.0027	0.0131	0.0097
5%	0.0121	0.0079	0.0147	0.0119
10%	0.0137	0.011	0.0157	0.0134
50%	0.0203	0.0279	0.0202	0.0252
90%	0.0279	0.0561	0.0268	0.0604
95%	0.0302	0.0672	0.029	0.0758
99%	0.0347	0.0911	0.0337	0.1163
max	0.0449	0.1667	0.0476	0.2506

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.

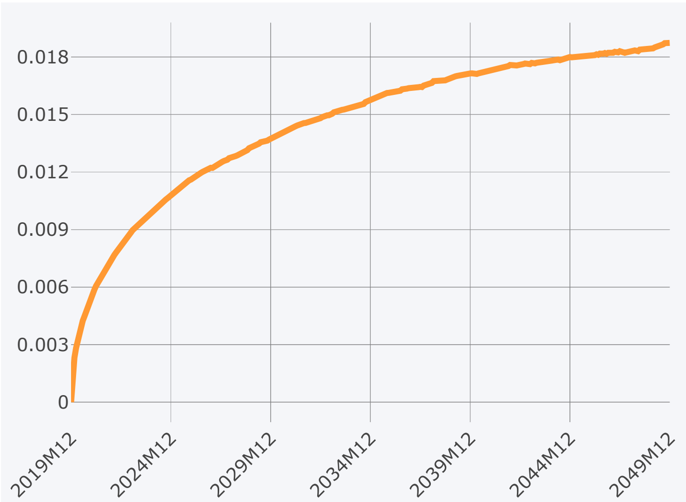
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

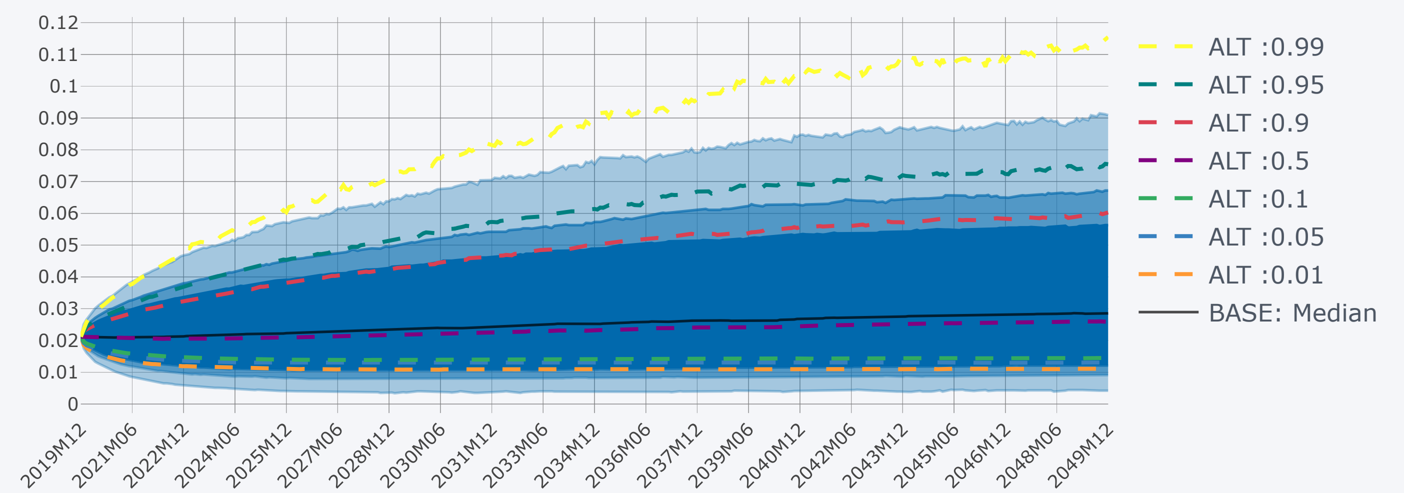
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.021	0.0318	0.0211	0.0327
std	0.0054	0.0187	0.0044	0.0221
min	0.0034	-0.0038	0.0104	0.0065
1%	0.0096	0.0034	0.0136	0.0104
5%	0.0126	0.0085	0.0152	0.0125
10%	0.0142	0.0116	0.0161	0.014
50%	0.0206	0.0282	0.0205	0.0255
90%	0.0281	0.0562	0.027	0.0604
95%	0.0304	0.0673	0.0292	0.0757
99%	0.0347	0.091	0.0338	0.1159
max	0.0445	0.1665	0.0476	0.25

Cross Sectional Volatility Over Time : BASE



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.

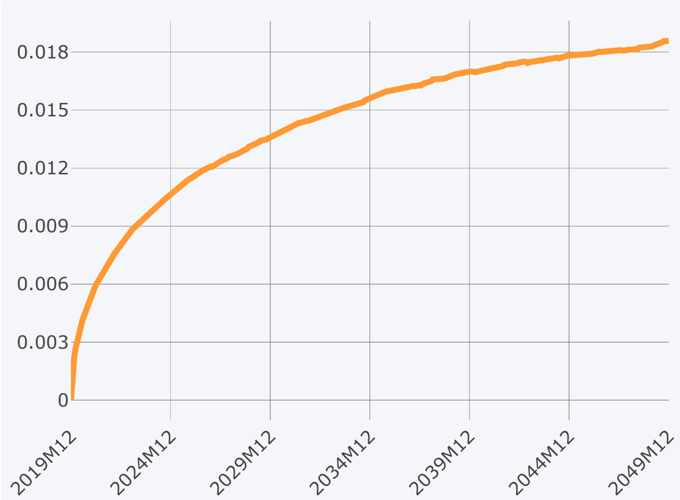
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

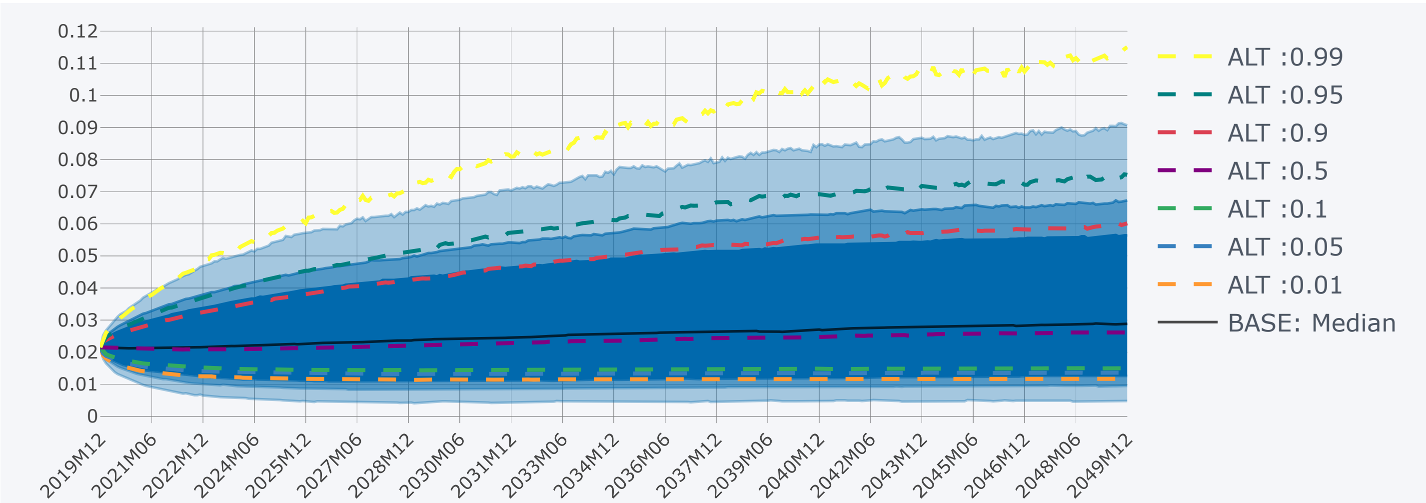
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0213	0.0321	0.0215	0.0329
std	0.0053	0.0186	0.0043	0.0219
min	0.0042	-0.0027	0.0111	0.0074
1%	0.0102	0.0042	0.0141	0.0111
5%	0.013	0.0091	0.0156	0.0131
10%	0.0146	0.0121	0.0165	0.0145
50%	0.0209	0.0285	0.0208	0.0259
90%	0.0283	0.0563	0.0272	0.0603
95%	0.0305	0.0672	0.0293	0.0755
99%	0.0348	0.0909	0.034	0.1155
max	0.0446	0.1662	0.0476	0.2496

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.

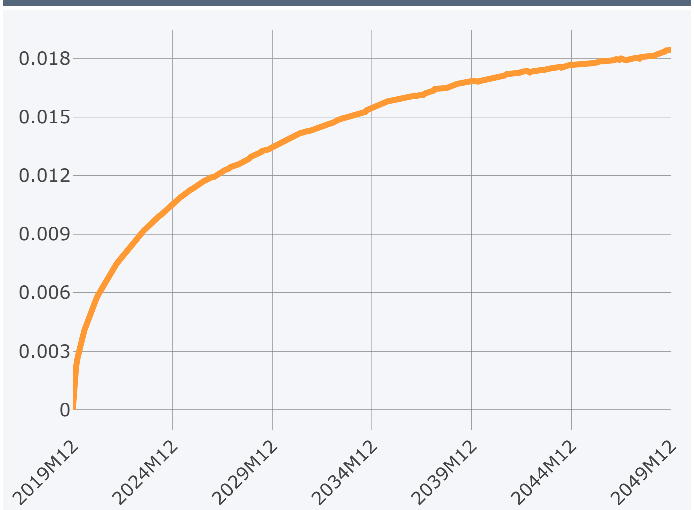
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

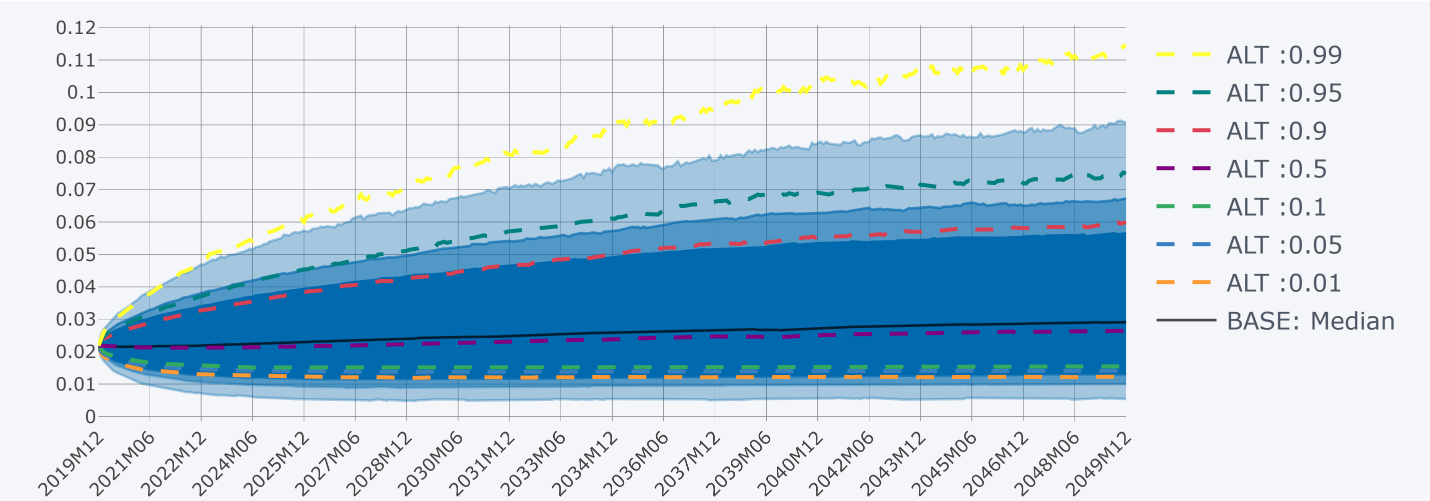
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0216	0.0324	0.0217	0.0332
std	0.0053	0.0184	0.0042	0.0217
min	0.005	-0.0017	0.0116	0.0082
1%	0.0107	0.0048	0.0146	0.0117
5%	0.0135	0.0095	0.016	0.0136
10%	0.015	0.0126	0.0169	0.015
50%	0.0212	0.0288	0.0211	0.0262
90%	0.0285	0.0564	0.0274	0.0601
95%	0.0307	0.0673	0.0295	0.0752
99%	0.0349	0.0907	0.034	0.1151
max	0.0448	0.166	0.0476	0.2491

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.

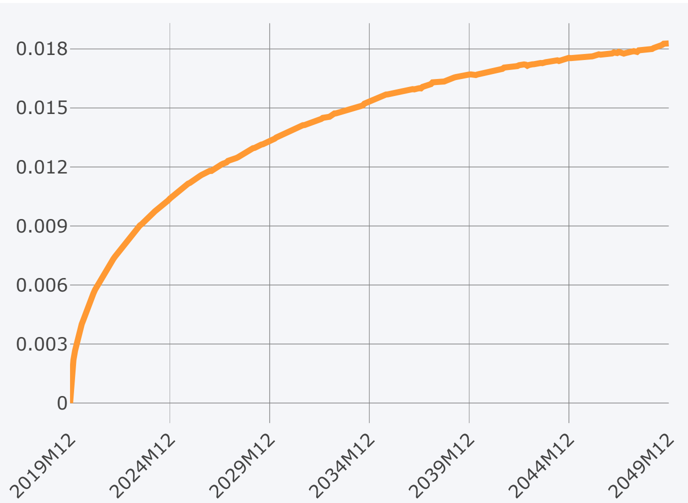
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

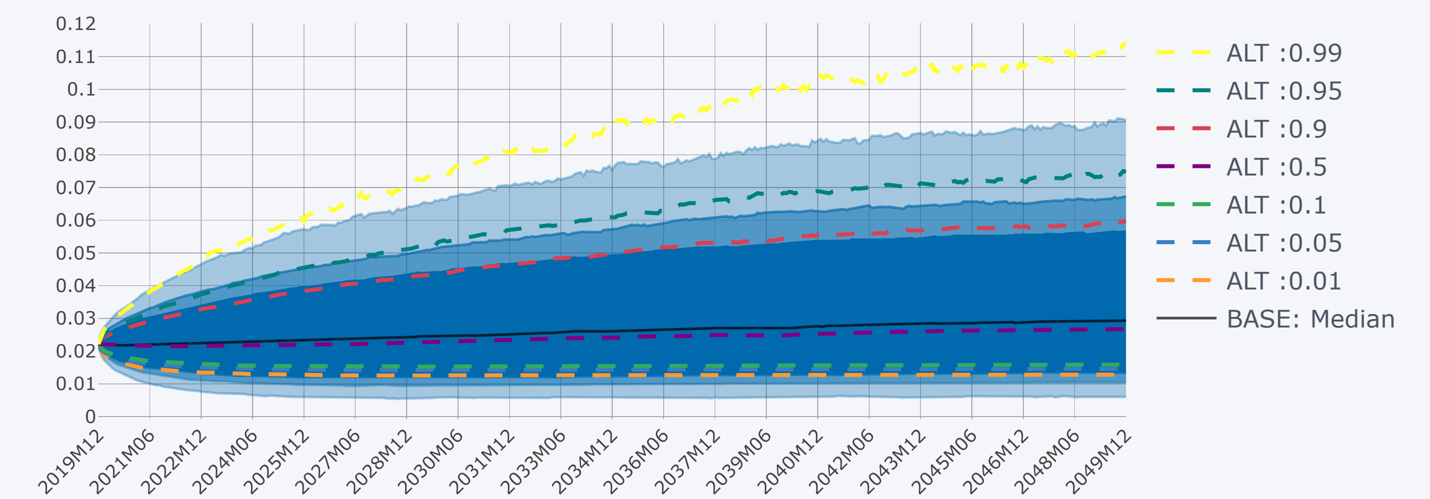
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0218	0.0326	0.022	0.0334
std	0.0052	0.0183	0.0042	0.0215
min	0.0056	-0.0008	0.0122	0.0089
1%	0.0112	0.0054	0.015	0.0123
5%	0.0139	0.01	0.0164	0.0141
10%	0.0154	0.013	0.0173	0.0155
50%	0.0215	0.0291	0.0214	0.0264
90%	0.0286	0.0565	0.0276	0.06
95%	0.0308	0.0673	0.0296	0.075
99%	0.035	0.0906	0.0341	0.1146
max	0.0449	0.1657	0.0475	0.2487

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.

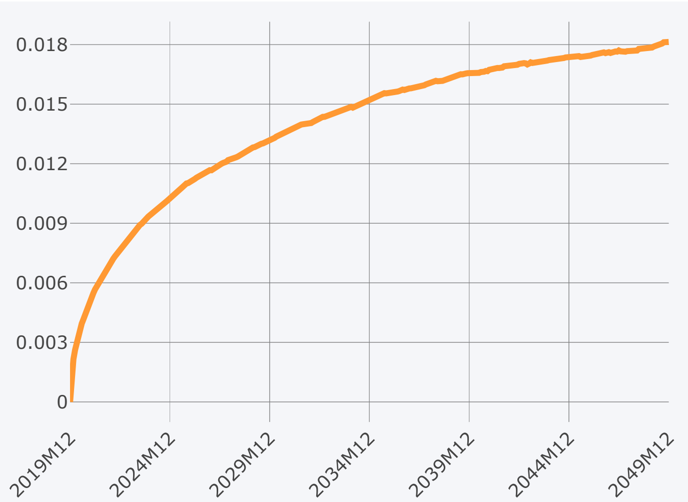
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

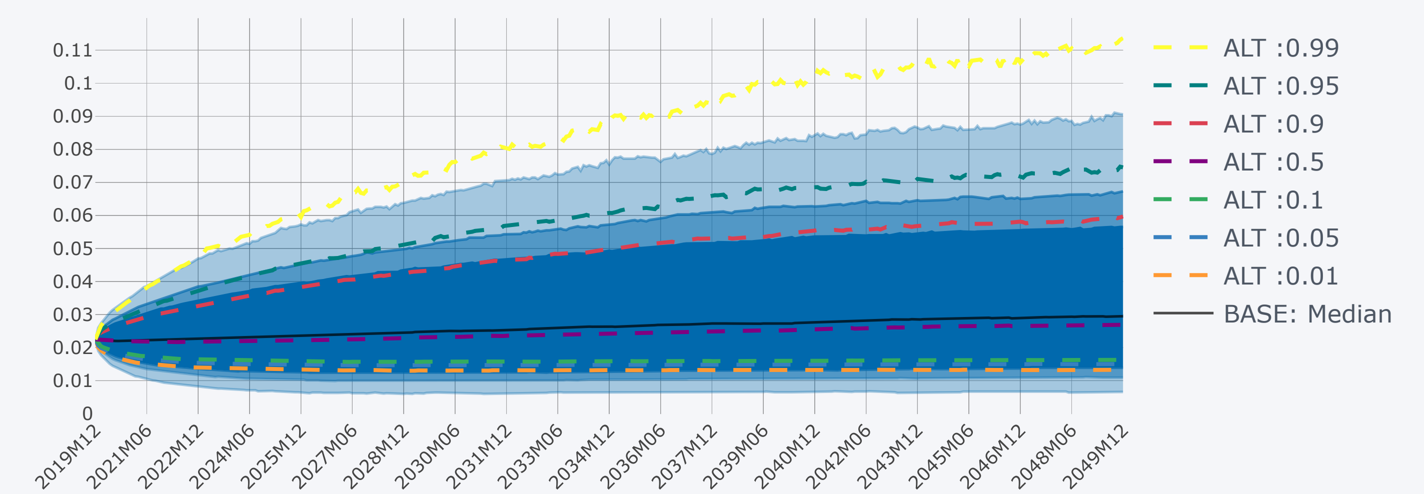
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0221	0.0328	0.0223	0.0336
std	0.0051	0.0181	0.0041	0.0213
min	0.0063	0.0001	0.0127	0.0096
1%	0.0116	0.006	0.0155	0.0128
5%	0.0143	0.0104	0.0168	0.0146
10%	0.0158	0.0134	0.0176	0.0159
50%	0.0218	0.0293	0.0217	0.0267
90%	0.0288	0.0565	0.0277	0.0599
95%	0.0309	0.0673	0.0298	0.0748
99%	0.035	0.0906	0.0342	0.1141
max	0.0449	0.1655	0.0474	0.2483

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.

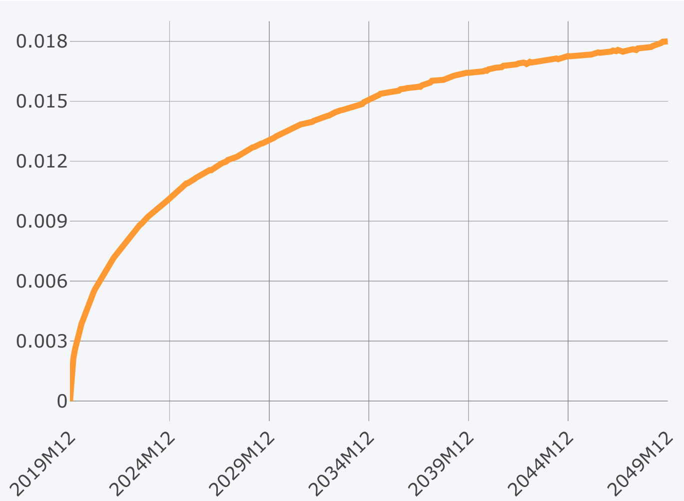
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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	0.0225	0.0337
std	0.005	0.018	0.004	0.021
min	0.0069	0.0009	0.0132	0.0102
1%	0.012	0.0066	0.0159	0.0133
5%	0.0147	0.0109	0.0171	0.015
10%	0.0162	0.0139	0.018	0.0163
50%	0.022	0.0295	0.0219	0.0269
90%	0.0289	0.0565	0.0279	0.0597
95%	0.0311	0.0673	0.0299	0.0745
99%	0.0351	0.0906	0.0342	0.1137
max	0.045	0.1653	0.0474	0.248

Cross Sectional Volatility Over Time : BASE



US Treasury 21 Year Yield - Coupon
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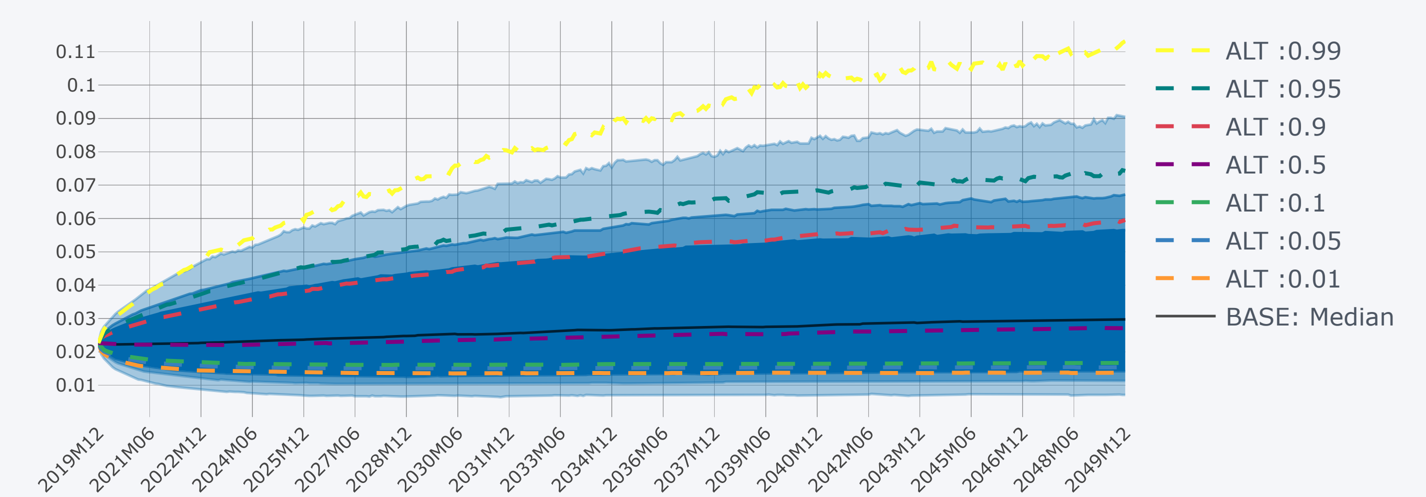
Validation Report

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.

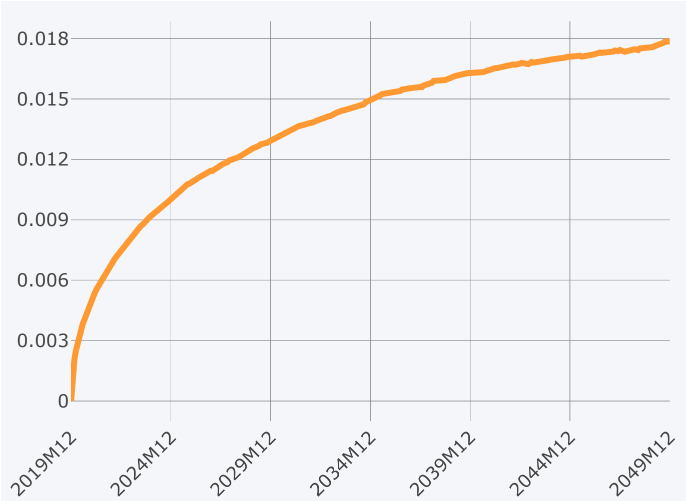
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

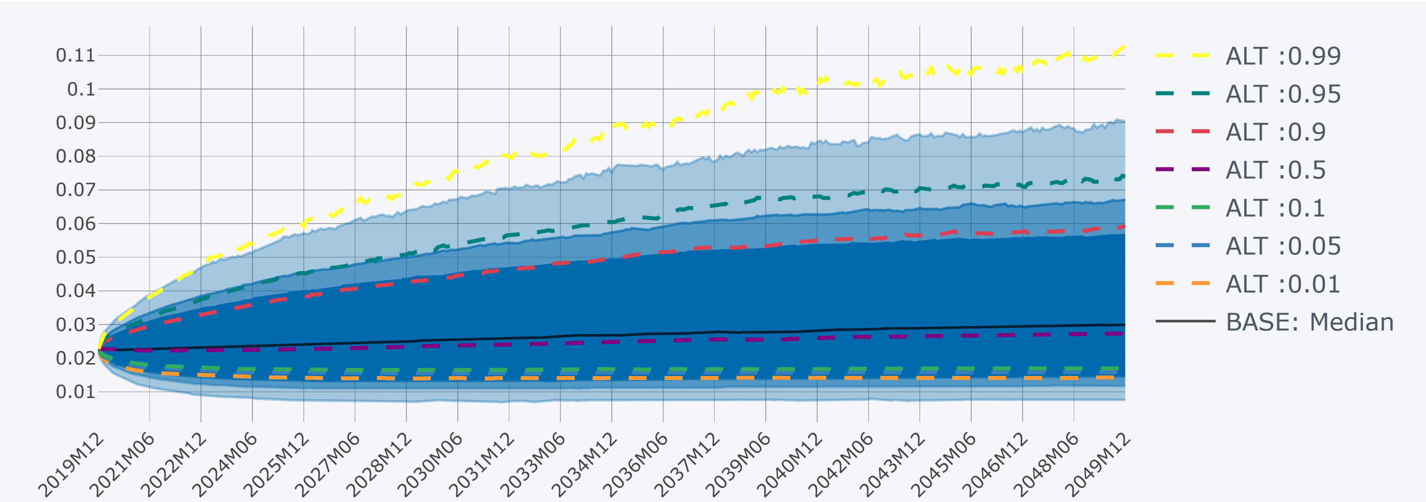
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0226	0.0333	0.0228	0.0339
std	0.0049	0.0179	0.004	0.0208
min	0.0074	0.0016	0.0137	0.0108
1%	0.0124	0.0071	0.0162	0.0138
5%	0.015	0.0113	0.0175	0.0154
10%	0.0165	0.0142	0.0183	0.0167
50%	0.0222	0.0297	0.0222	0.0271
90%	0.0291	0.0565	0.028	0.0596
95%	0.0312	0.0672	0.03	0.0743
99%	0.0351	0.0905	0.0343	0.1132
max	0.0451	0.1651	0.0473	0.2476

Cross Sectional Volatility Over Time : BASE



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.

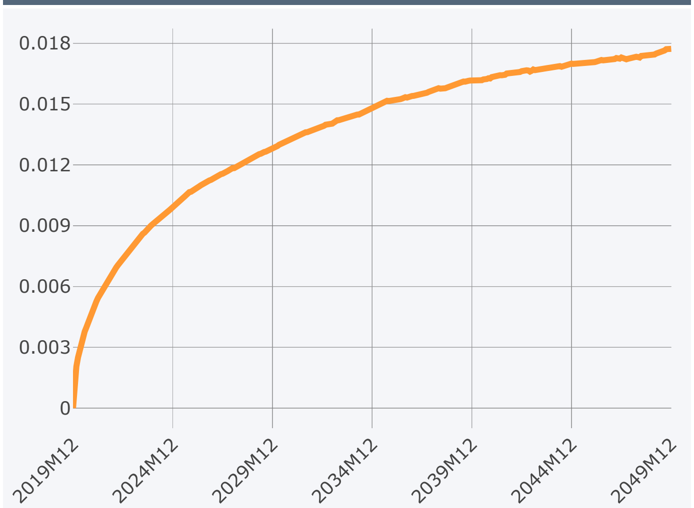
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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	0.023	0.034
std	0.0049	0.0177	0.0039	0.0207
min	0.008	0.0023	0.0141	0.0114
1%	0.0128	0.0076	0.0166	0.0142
5%	0.0153	0.0117	0.0178	0.0158
10%	0.0168	0.0146	0.0186	0.017
50%	0.0225	0.0299	0.0224	0.0273
90%	0.0292	0.0565	0.0281	0.0594
95%	0.0313	0.0671	0.0301	0.074
99%	0.0352	0.0904	0.0344	0.1127
max	0.0451	0.1649	0.0472	0.2473

Cross Sectional Volatility Over Time : BASE



US Treasury 23 Year Yield - Coupon

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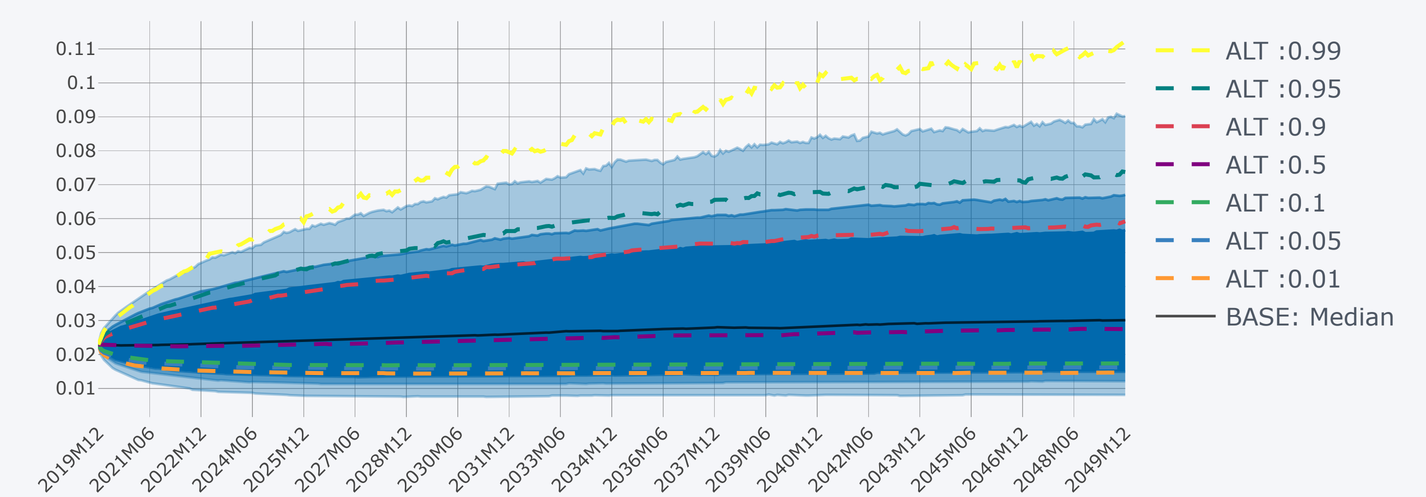
2019 Q4

Validation Report

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.

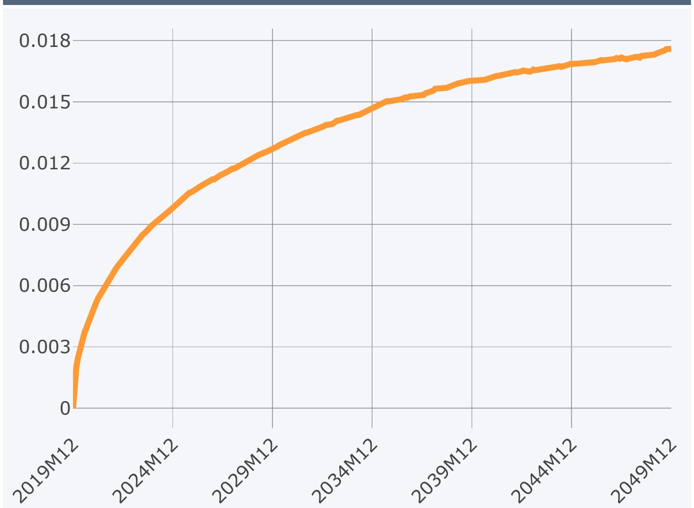
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

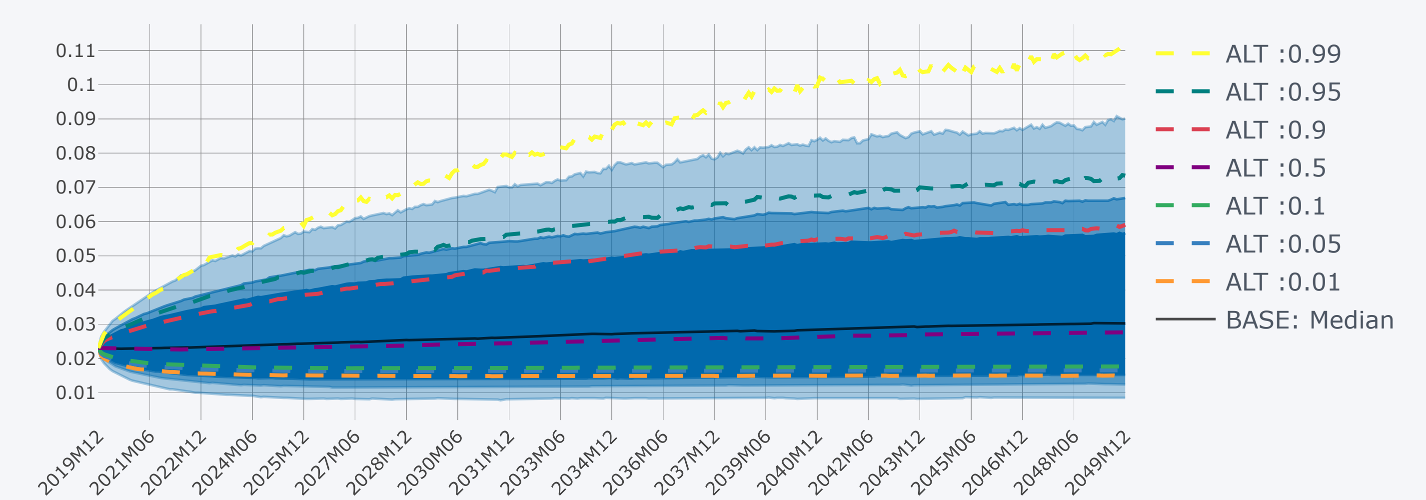
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.023	0.0336	0.0232	0.0341
std	0.0048	0.0176	0.0038	0.0205
min	0.0085	0.003	0.0145	0.0119
1%	0.0132	0.0081	0.0169	0.0146
5%	0.0157	0.0121	0.0181	0.0162
10%	0.0171	0.0149	0.0189	0.0174
50%	0.0227	0.0301	0.0226	0.0275
90%	0.0293	0.0566	0.0283	0.0592
95%	0.0314	0.067	0.0302	0.0737
99%	0.0352	0.0902	0.0344	0.1123
max	0.0451	0.1647	0.0471	0.2471

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.

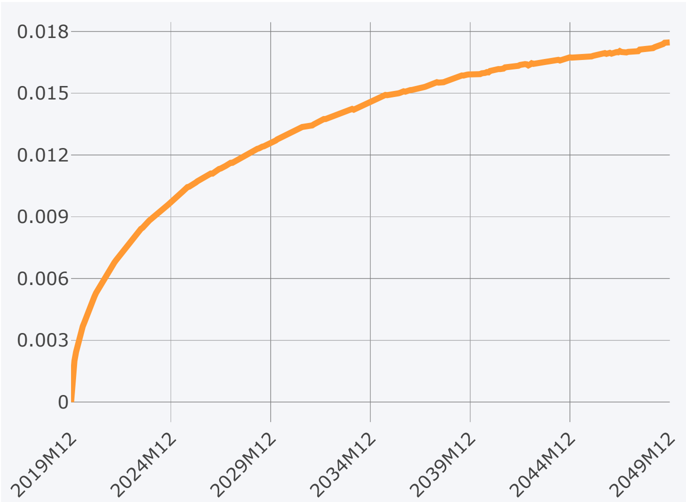
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

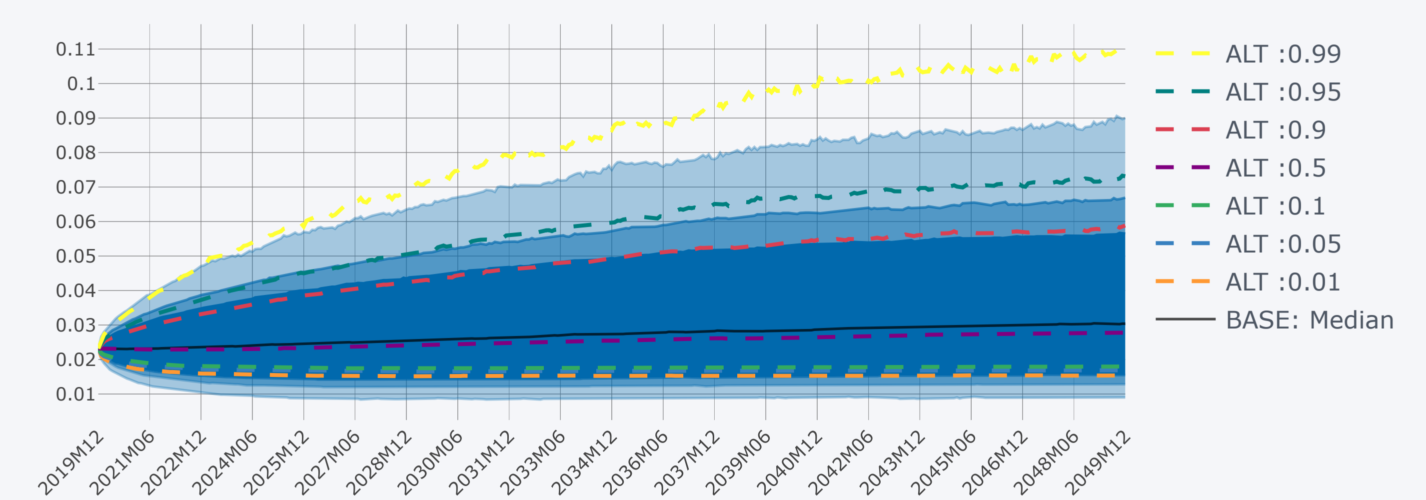
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0232	0.0338	0.0234	0.0342
std	0.0047	0.0175	0.0038	0.0203
min	0.0089	0.0036	0.0149	0.0124
1%	0.0135	0.0085	0.0172	0.015
5%	0.016	0.0124	0.0184	0.0165
10%	0.0174	0.0152	0.0191	0.0177
50%	0.0229	0.0302	0.0228	0.0276
90%	0.0295	0.0566	0.0284	0.0591
95%	0.0315	0.0669	0.0303	0.0734
99%	0.0353	0.0901	0.0344	0.1119
max	0.0452	0.1645	0.047	0.2468

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.

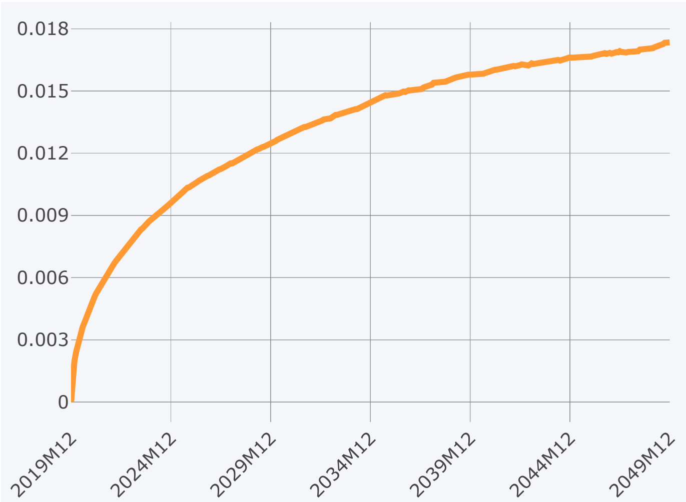
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

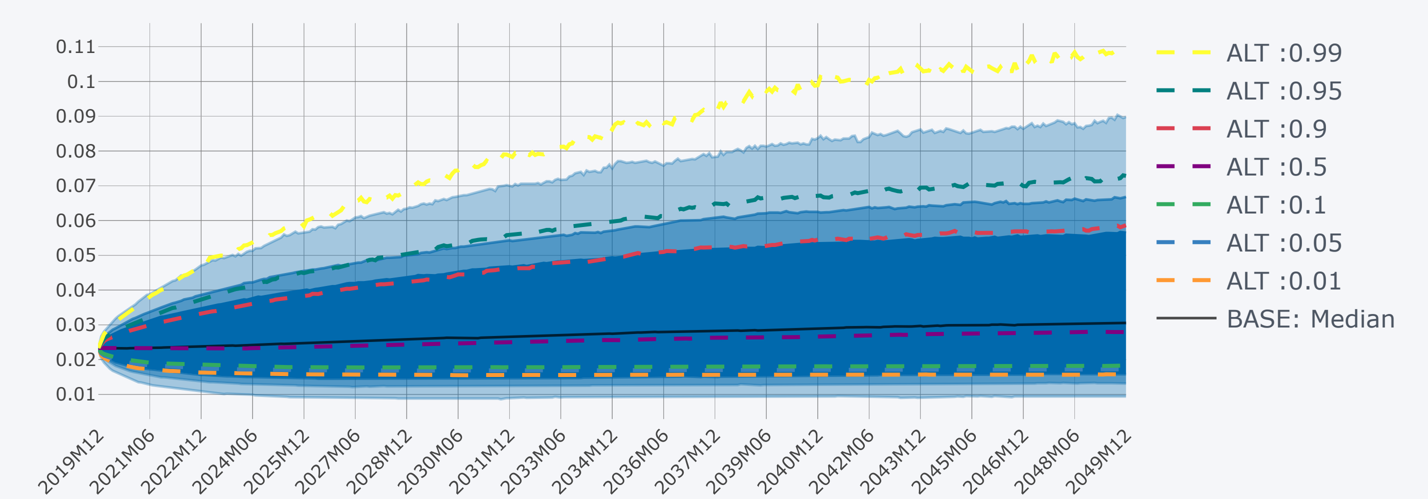
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0234	0.0339	0.0236	0.0343
std	0.0047	0.0173	0.0037	0.0201
min	0.0094	0.0042	0.0153	0.0128
1%	0.0138	0.009	0.0175	0.0154
5%	0.0163	0.0128	0.0187	0.0169
10%	0.0176	0.0155	0.0194	0.018
50%	0.0231	0.0304	0.023	0.0278
90%	0.0296	0.0565	0.0285	0.0589
95%	0.0316	0.0669	0.0304	0.0731
99%	0.0354	0.09	0.0344	0.1114
max	0.0452	0.1644	0.0468	0.2466

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.

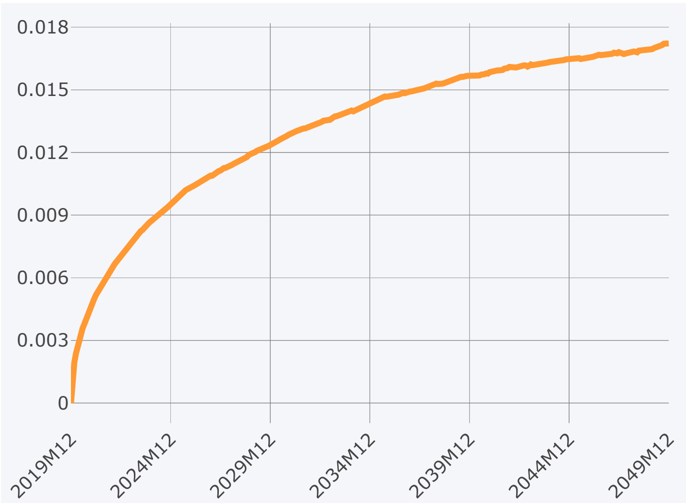
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

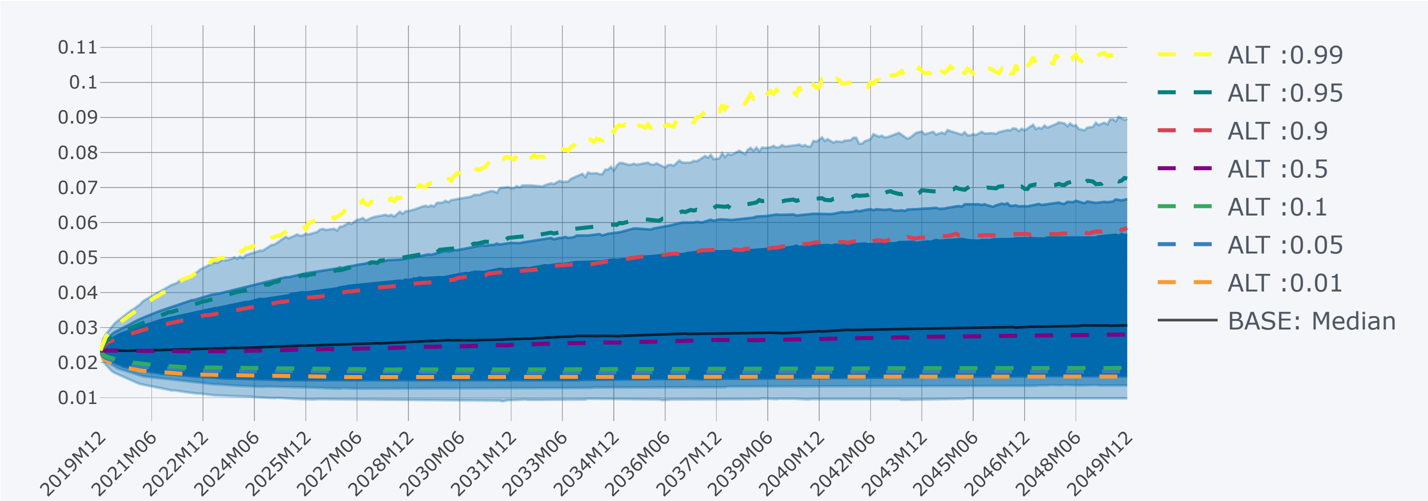
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0236	0.034	0.0238	0.0344
std	0.0046	0.0172	0.0036	0.0199
min	0.0098	0.0048	0.0156	0.0133
1%	0.0141	0.0094	0.0178	0.0157
5%	0.0165	0.0131	0.0189	0.0172
10%	0.0179	0.0158	0.0197	0.0183
50%	0.0233	0.0306	0.0232	0.0279
90%	0.0297	0.0565	0.0286	0.0587
95%	0.0317	0.0668	0.0305	0.0728
99%	0.0354	0.0898	0.0345	0.111
max	0.0452	0.1642	0.0467	0.2463

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.

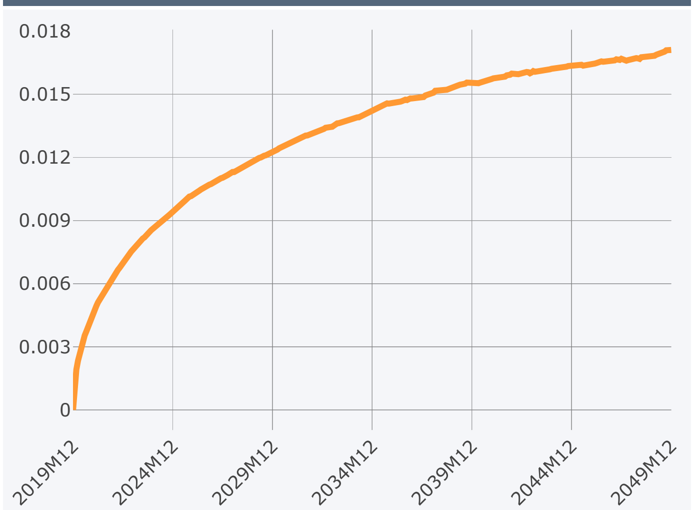
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

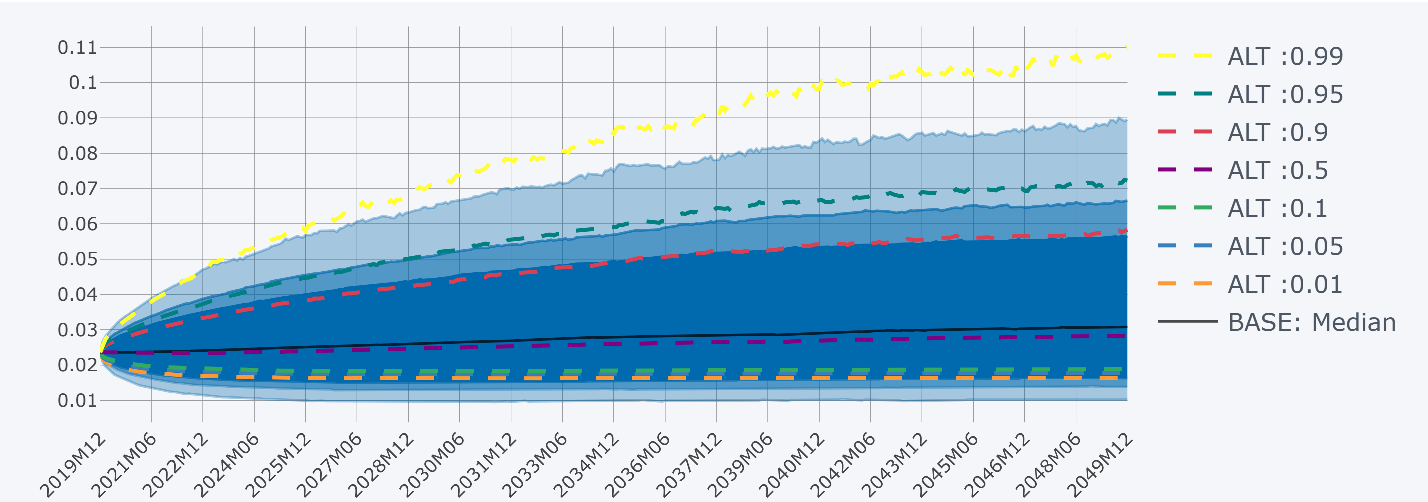
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0238	0.0342	0.0239	0.0345
std	0.0046	0.0171	0.0036	0.0198
min	0.0102	0.0053	0.0159	0.0137
1%	0.0144	0.0098	0.0181	0.0161
5%	0.0168	0.0135	0.0192	0.0175
10%	0.0181	0.0161	0.0199	0.0186
50%	0.0234	0.0307	0.0234	0.028
90%	0.0298	0.0565	0.0287	0.0585
95%	0.0318	0.0667	0.0306	0.0725
99%	0.0355	0.0896	0.0345	0.1106
max	0.0452	0.164	0.0466	0.2461

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.

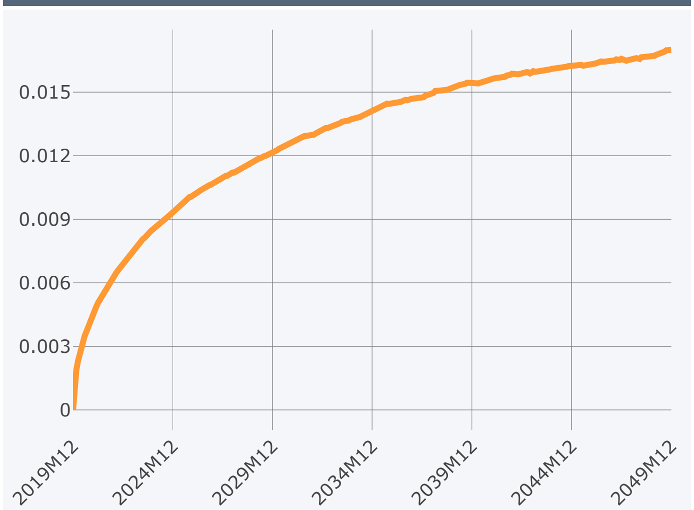
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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	0.0241	0.0346
std	0.0045	0.017	0.0035	0.0196
min	0.0106	0.0058	0.0163	0.0141
1%	0.0148	0.0102	0.0183	0.0164
5%	0.0171	0.0138	0.0194	0.0178
10%	0.0184	0.0163	0.0201	0.0188
50%	0.0236	0.0308	0.0235	0.0281
90%	0.0299	0.0565	0.0288	0.0583
95%	0.0319	0.0666	0.0306	0.0723
99%	0.0355	0.0895	0.0346	0.1103
max	0.0452	0.1639	0.0465	0.2459

Cross Sectional Volatility Over Time : BASE



US Treasury 29 Year Yield - Coupon
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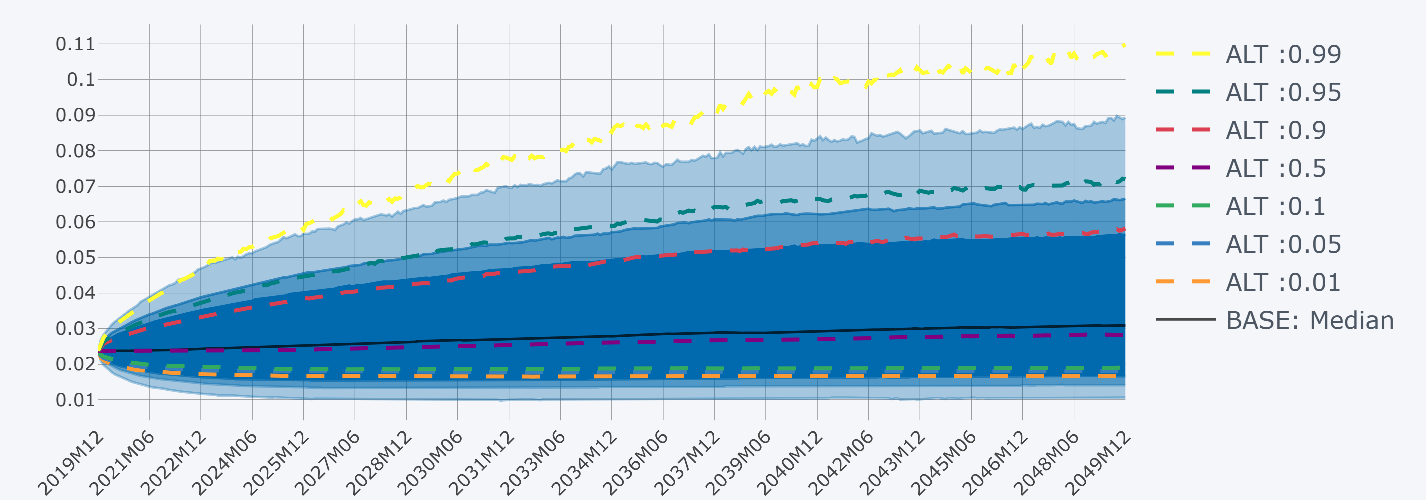
Validation Report

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.

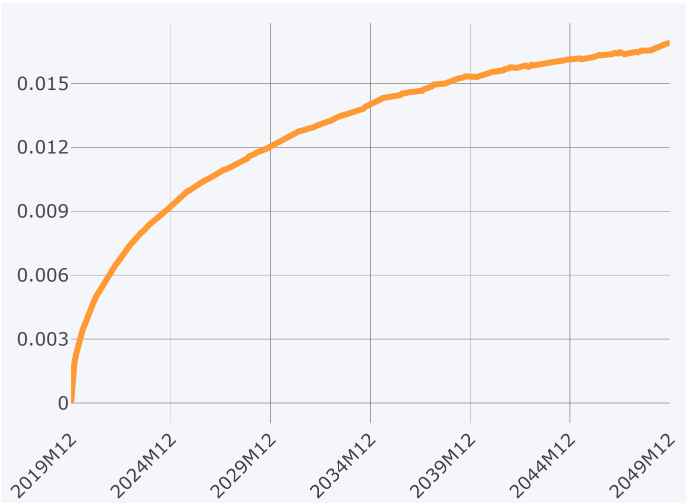
Percentiles Plotted :1%, 5%, 10%, 50%, 90%, 95%, 99%

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

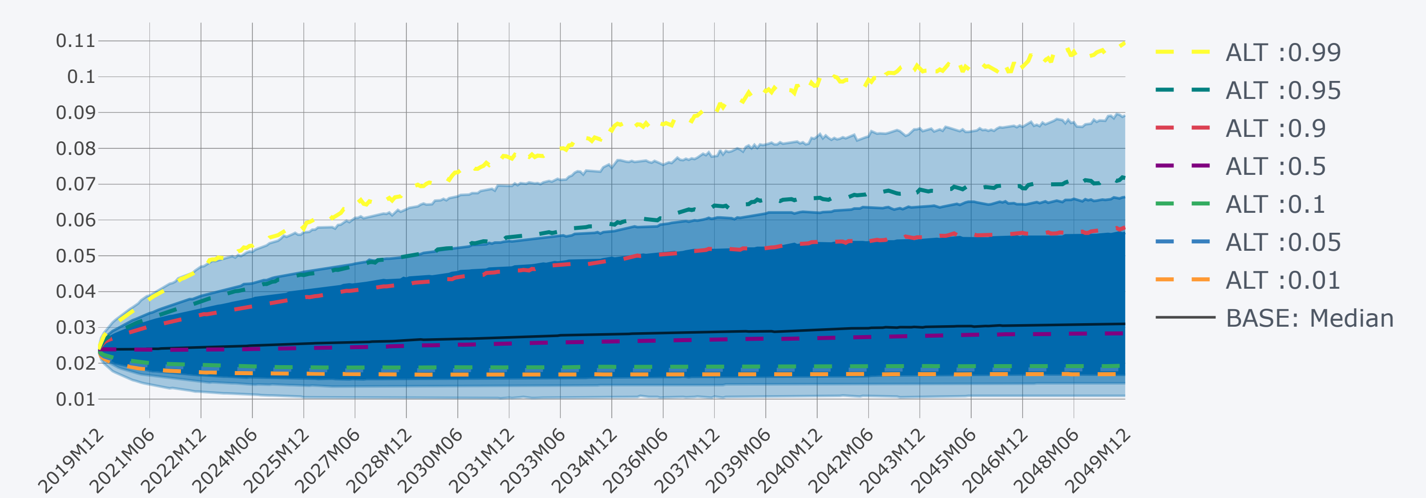
Simulation Summary

	BASE: 2020M12	BASE: 2049M12	ALT :2020M12	ALT :2049M12
mean	0.0241	0.0344	0.0242	0.0346
std	0.0045	0.0169	0.0035	0.0195
min	0.011	0.0063	0.0166	0.0144
1%	0.015	0.0106	0.0186	0.0167
5%	0.0173	0.0141	0.0196	0.0181
10%	0.0186	0.0166	0.0203	0.0191
50%	0.0238	0.0309	0.0237	0.0282
90%	0.03	0.0564	0.0289	0.0581
95%	0.0319	0.0665	0.0307	0.072
99%	0.0356	0.0893	0.0346	0.1099
max	0.0452	0.1638	0.0464	0.2458

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	0.0244	0.0347
std	0.0044	0.0168	0.0034	0.0193
min	0.0113	0.0067	0.0168	0.0148
1%	0.0153	0.0109	0.0188	0.017
5%	0.0175	0.0144	0.0199	0.0183
10%	0.0188	0.0168	0.0205	0.0193
50%	0.0239	0.031	0.0238	0.0283
90%	0.0301	0.0564	0.029	0.058
95%	0.032	0.0664	0.0307	0.0717
99%	0.0356	0.0892	0.0346	0.1095
max	0.0452	0.1636	0.0463	0.2456

Cross Sectional Volatility Over Time : BASE