

Report Parameters

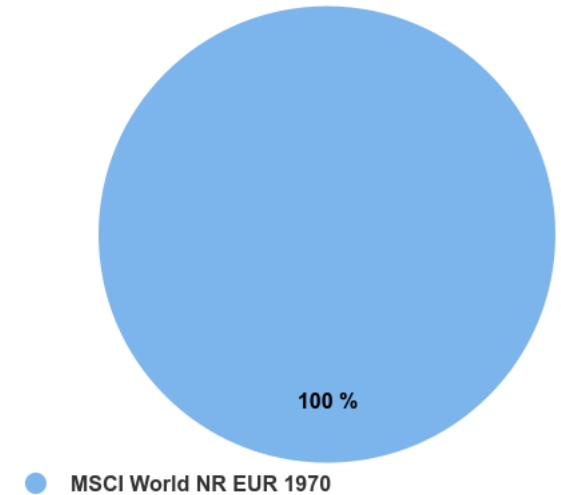
Initial Amount	\$200,000
Periodic Adjustment	Withdraw fixed percentage periodically
Withdrawal Percentage	0.50%
Frequency	Monthly
Simulation Period	25
Simulation Model	Historical Returns
Bootstrap Model	Single Year
Sequence of Return Risk	No Adjustments
Inflation Model	Parameterized Inflation
Annual Inflation Mean	2.00%
Annual Inflation Stdev	3.00%

Simulation Description

Monte Carlo simulation results for 10000 portfolios with \$200,000 initial portfolio balance using available historical returns data from Jan 1970 to Dec 2018. The historical return for the selected portfolio for this period was 8.77% mean return (6.82% CAGR) with 15.23% standard deviation of annual returns. The simulation results are based on generated nominal returns and fixed 0.50% month withdrawals. The simulated inflation model used normal distribution with 2.00% mean and 3.00% standard deviation based on the parameters. The generated inflation samples were uncorrelated with simulated asset returns. The available historical data for the simulation inputs was constrained by MSCI World NR EUR 1970 [Jan 1970 - Jun 2019].

Portfolio

Asset Class	Allocation	CAGR	Expected Annual Return	Annualized Volatility
MSCI World NR EUR 1970	100.00%	6.82%	8.07%	15.23%

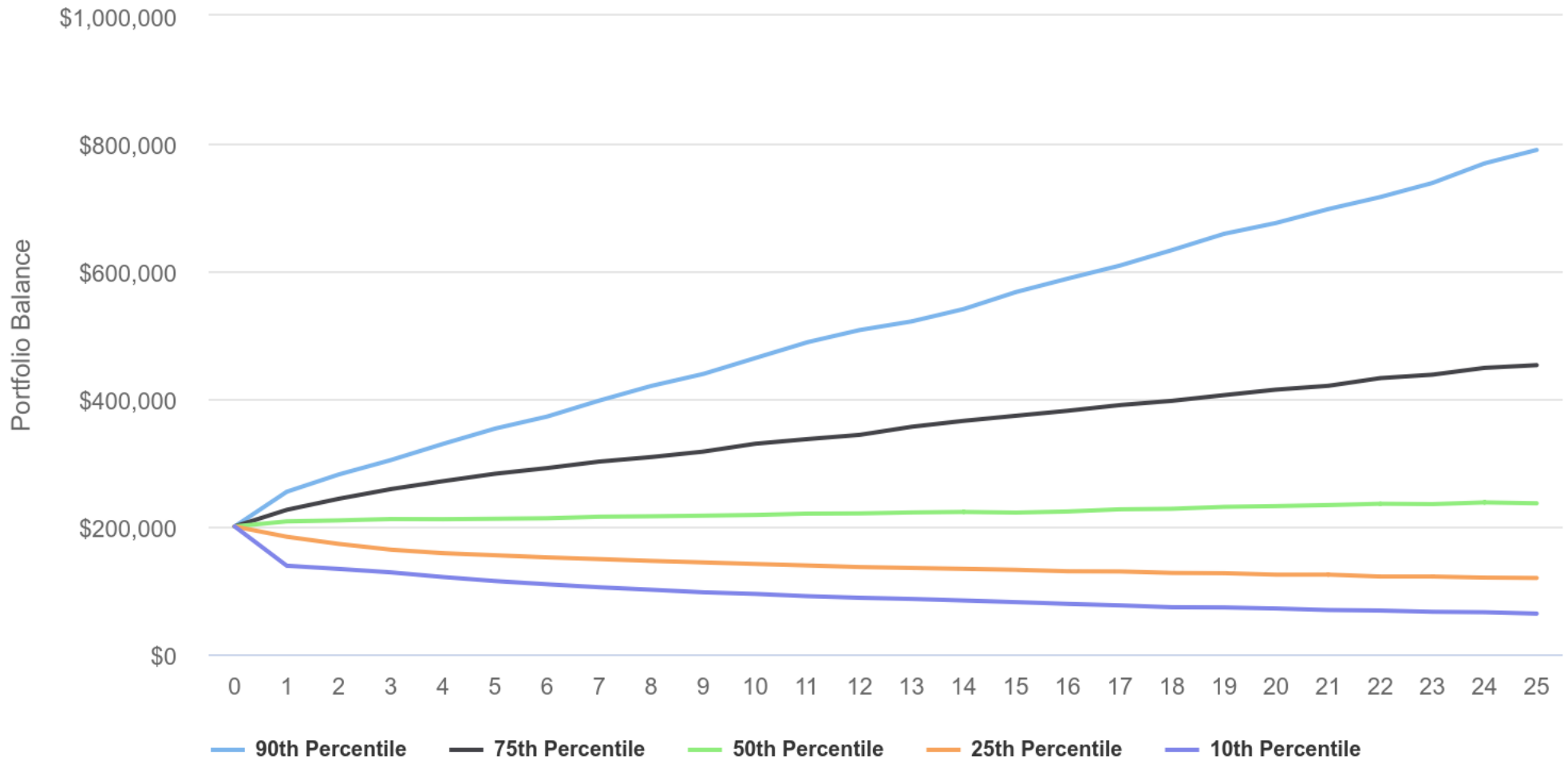


Summary Statistics

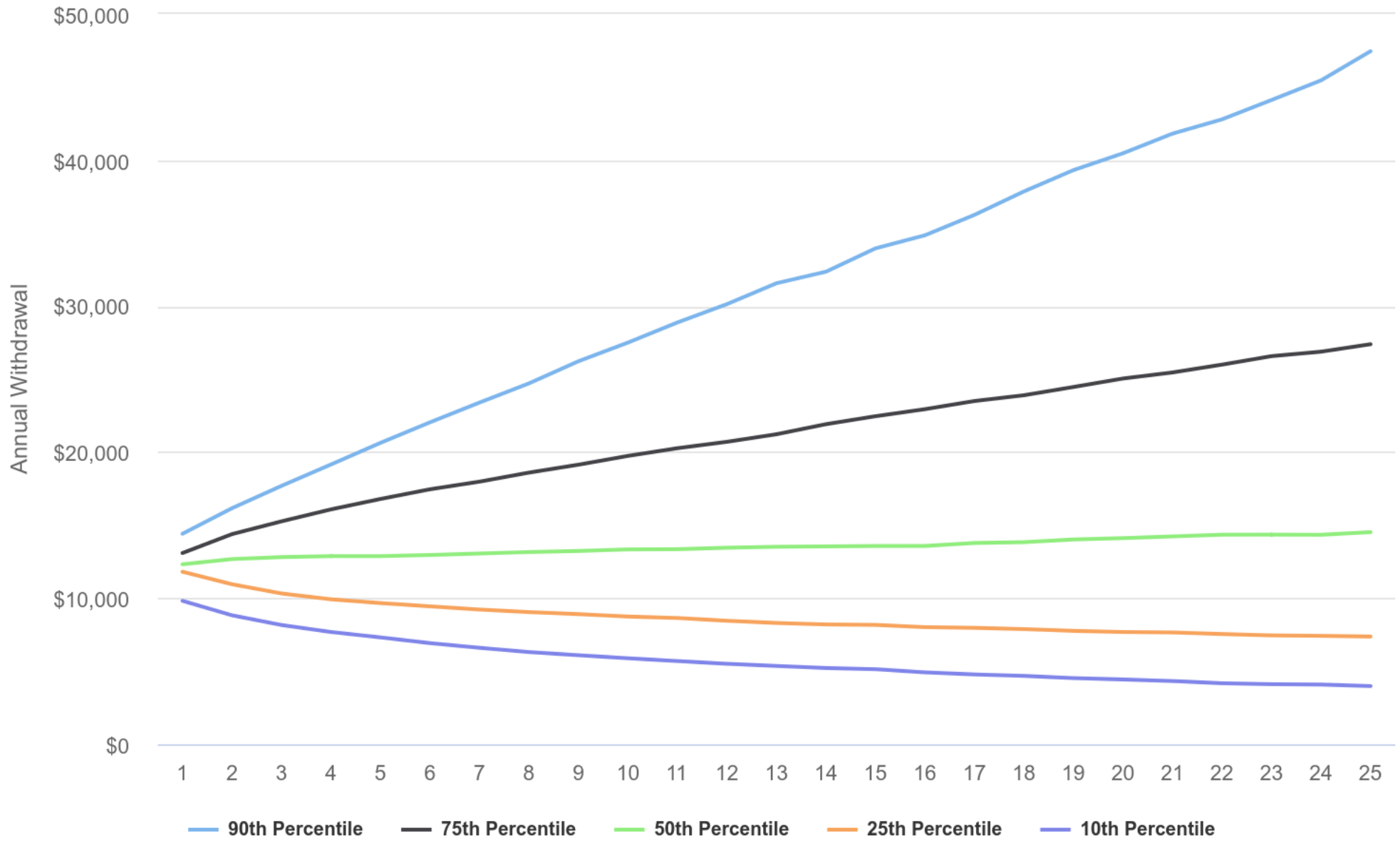
	10th Percentile	25th Percentile	50th Percentile	75th Percentile	90th Percentile
Time Weighted Rate of Return (nominal)	1.44%	4.03%	6.91%	9.73%	12.20%
Time Weighted Rate of Return (real)	-0.69%	1.93%	4.81%	7.61%	10.01%
Portfolio End Balance (nominal)	\$63,491	\$119,299	\$236,300	\$452,690	\$789,786
Portfolio End Balance (real)	\$38,208	\$73,086	\$146,989	\$283,389	\$492,501
Maximum Drawdown	-83.46%	-73.98%	-62.18%	-49.92%	-41.54%
Maximum Drawdown Excluding Cashflows	-67.91%	-58.45%	-47.59%	-39.02%	-34.37%
Safe Withdrawal Rate	3.19%	4.61%	6.67%	9.41%	12.14%
Perpetual Withdrawal Rate	0.00%	1.97%	4.67%	7.14%	9.17%

10000 portfolios out of 10000 simulated portfolios (100.00%) survived all withdrawals.

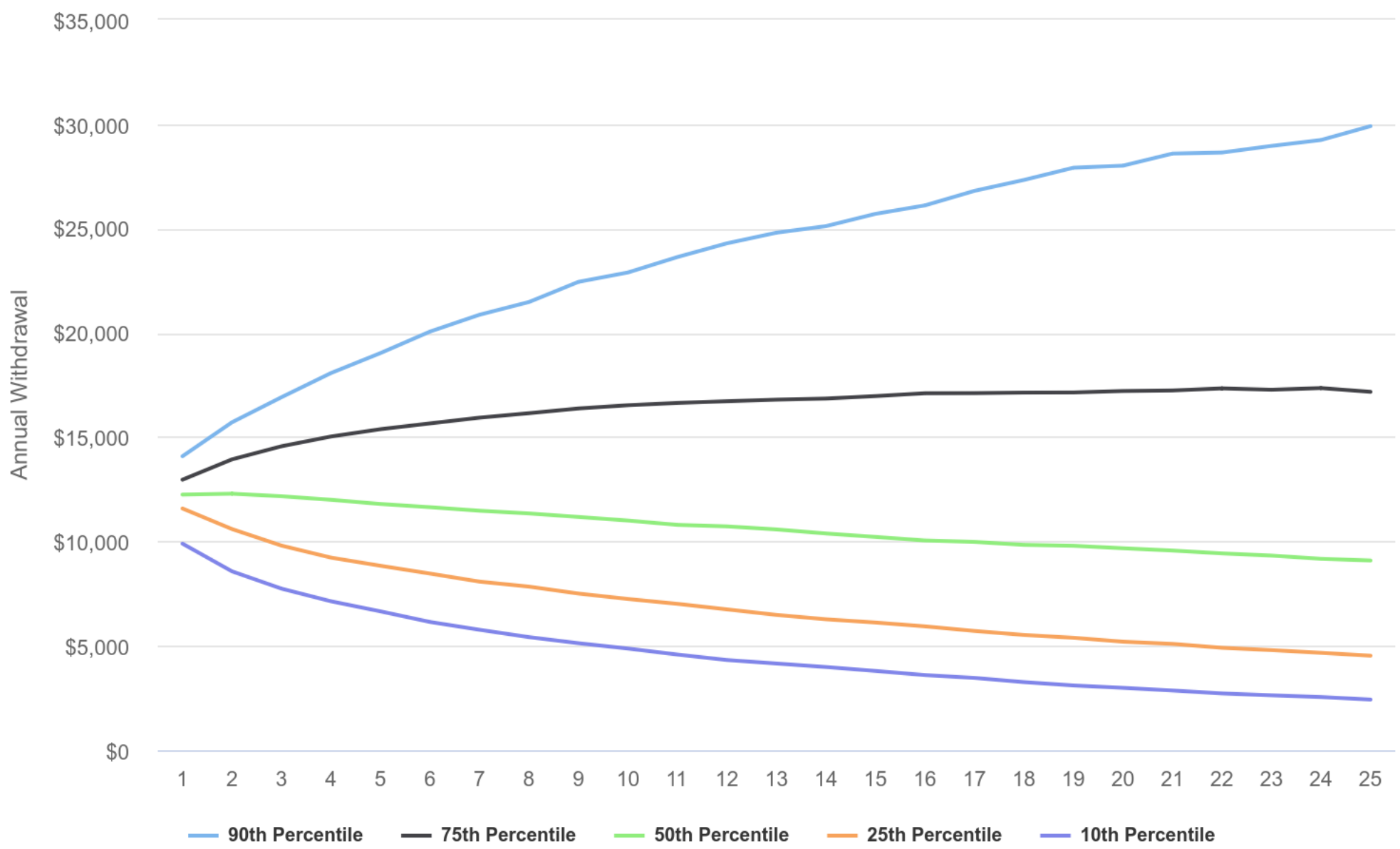
Simulated Portfolio Balances



Simulated Annual Withdrawals (nominal)



Simulated Annual Withdrawals (in present dollars)



Portfolio Balances (nominal)

Year	10th Percentile Balance	25th Percentile Balance	50th Percentile Balance	75th Percentile Balance	90th Percentile Balance	Portfolio Success
1	\$138,469	\$183,838	\$207,951	\$226,029	\$254,360	100.00%
2	\$133,470	\$172,646	\$209,456	\$243,428	\$281,448	100.00%
3	\$128,054	\$163,622	\$211,641	\$258,497	\$304,018	100.00%
4	\$120,804	\$158,130	\$211,421	\$270,951	\$329,316	100.00%
5	\$114,502	\$154,860	\$212,088	\$282,549	\$353,314	100.00%
6	\$109,425	\$151,528	\$212,789	\$291,447	\$372,151	100.00%
7	\$104,706	\$148,861	\$215,206	\$301,611	\$397,175	100.00%
8	\$100,848	\$146,031	\$215,935	\$308,688	\$420,130	100.00%
9	\$96,845	\$143,684	\$216,906	\$317,268	\$438,926	100.00%
10	\$94,327	\$141,236	\$218,015	\$329,602	\$463,853	100.00%
11	\$90,783	\$138,889	\$220,065	\$336,844	\$488,639	100.00%
12	\$88,288	\$136,437	\$220,418	\$343,455	\$507,678	100.00%
13	\$86,487	\$134,945	\$221,919	\$356,145	\$521,213	100.00%
14	\$84,020	\$133,605	\$222,727	\$365,441	\$540,578	100.00%
15	\$81,492	\$132,117	\$221,680	\$373,395	\$567,112	100.00%
16	\$78,683	\$129,733	\$223,464	\$381,249	\$588,324	100.00%
17	\$76,410	\$129,477	\$226,855	\$390,134	\$608,724	100.00%
18	\$73,407	\$127,239	\$227,668	\$396,806	\$632,965	100.00%
19	\$73,109	\$126,829	\$230,690	\$405,738	\$658,427	100.00%
20	\$71,509	\$124,475	\$231,897	\$414,331	\$675,425	100.00%
21	\$69,083	\$124,543	\$233,470	\$420,304	\$697,105	100.00%
22	\$68,281	\$121,545	\$235,537	\$432,388	\$716,060	100.00%
23	\$66,284	\$121,548	\$234,981	\$437,733	\$738,094	100.00%
24	\$65,655	\$119,859	\$237,648	\$448,425	\$768,743	100.00%
25	\$63,491	\$119,299	\$236,300	\$452,690	\$789,786	100.00%

Portfolio Balances (inflation adjusted)

Year	10th Percentile Balance	25th Percentile Balance	50th Percentile Balance	75th Percentile Balance	90th Percentile Balance	Portfolio Success
1	\$138,412	\$180,293	\$202,758	\$223,641	\$251,552	100.00%
2	\$129,007	\$165,842	\$201,589	\$235,426	\$271,106	100.00%
3	\$120,125	\$154,021	\$199,125	\$244,708	\$288,422	100.00%
4	\$110,416	\$145,991	\$195,198	\$251,863	\$306,485	100.00%
5	\$103,306	\$140,064	\$192,026	\$256,416	\$323,104	100.00%
6	\$96,306	\$134,512	\$189,014	\$260,069	\$335,700	100.00%
7	\$90,434	\$129,677	\$186,666	\$264,895	\$350,063	100.00%
8	\$85,700	\$124,872	\$183,645	\$267,042	\$363,300	100.00%
9	\$80,877	\$120,007	\$181,829	\$269,689	\$371,719	100.00%
10	\$76,666	\$116,356	\$178,478	\$273,936	\$383,217	100.00%
11	\$72,297	\$112,039	\$176,439	\$274,750	\$393,100	100.00%
12	\$68,944	\$108,484	\$174,376	\$275,094	\$406,173	100.00%
13	\$65,919	\$104,041	\$171,648	\$278,545	\$409,107	100.00%
14	\$63,376	\$100,975	\$169,026	\$278,938	\$417,318	100.00%
15	\$59,833	\$98,011	\$165,797	\$281,730	\$428,000	100.00%
16	\$57,450	\$94,511	\$163,983	\$281,308	\$432,545	100.00%
17	\$54,383	\$92,192	\$162,208	\$281,046	\$443,675	100.00%
18	\$51,576	\$89,336	\$161,140	\$280,647	\$456,150	100.00%
19	\$49,363	\$86,500	\$159,109	\$279,719	\$467,036	100.00%
20	\$47,653	\$84,058	\$156,687	\$281,976	\$461,613	100.00%
21	\$45,470	\$81,756	\$154,925	\$282,299	\$469,905	100.00%
22	\$43,914	\$79,263	\$153,559	\$284,014	\$471,176	100.00%
23	\$42,313	\$77,769	\$149,985	\$284,239	\$475,205	100.00%
24	\$40,619	\$74,832	\$149,579	\$283,157	\$485,748	100.00%
25	\$38,208	\$73,086	\$146,989	\$283,389	\$492,501	100.00%

Portfolio Cashflows (nominal)

Year	10th Percentile Cashflow	25th Percentile Cashflow	50th Percentile Cashflow	75th Percentile Cashflow	90th Percentile Cashflow
1	-\$9,813	-\$11,806	-\$12,318	-\$13,088	-\$14,408
2	-\$8,822	-\$10,950	-\$12,673	-\$14,383	-\$16,158
3	-\$8,159	-\$10,319	-\$12,810	-\$15,258	-\$17,688
4	-\$7,678	-\$9,918	-\$12,875	-\$16,078	-\$19,154
5	-\$7,310	-\$9,660	-\$12,873	-\$16,791	-\$20,634
6	-\$6,918	-\$9,438	-\$12,954	-\$17,454	-\$22,042
7	-\$6,596	-\$9,217	-\$13,053	-\$17,975	-\$23,393
8	-\$6,305	-\$9,042	-\$13,155	-\$18,597	-\$24,707
9	-\$6,088	-\$8,903	-\$13,227	-\$19,139	-\$26,224
10	-\$5,880	-\$8,737	-\$13,336	-\$19,741	-\$27,503
11	-\$5,688	-\$8,638	-\$13,352	-\$20,269	-\$28,881
12	-\$5,501	-\$8,447	-\$13,450	-\$20,705	-\$30,136
13	-\$5,355	-\$8,298	-\$13,517	-\$21,223	-\$31,565
14	-\$5,212	-\$8,195	-\$13,545	-\$21,913	-\$32,355
15	-\$5,133	-\$8,167	-\$13,571	-\$22,458	-\$33,954
16	-\$4,915	-\$8,011	-\$13,572	-\$22,940	-\$34,851
17	-\$4,774	-\$7,964	-\$13,777	-\$23,499	-\$36,249
18	-\$4,673	-\$7,880	-\$13,832	-\$23,895	-\$37,855
19	-\$4,521	-\$7,756	-\$14,016	-\$24,461	-\$39,313
20	-\$4,428	-\$7,680	-\$14,107	-\$25,041	-\$40,466
21	-\$4,321	-\$7,648	-\$14,226	-\$25,454	-\$41,810
22	-\$4,171	-\$7,540	-\$14,343	-\$25,991	-\$42,789
23	-\$4,105	-\$7,447	-\$14,348	-\$26,573	-\$44,113
24	-\$4,080	-\$7,415	-\$14,338	-\$26,877	-\$45,457
25	-\$3,976	-\$7,369	-\$14,519	-\$27,389	-\$47,453

Portfolio Cashflows (inflation adjusted)

Year	10th Percentile Cashflow	25th Percentile Cashflow	50th Percentile Cashflow	75th Percentile Cashflow	90th Percentile Cashflow
1	-\$9,893	-\$11,579	-\$12,245	-\$12,960	-\$14,083
2	-\$8,567	-\$10,592	-\$12,287	-\$13,934	-\$15,711
3	-\$7,737	-\$9,800	-\$12,166	-\$14,561	-\$16,913
4	-\$7,132	-\$9,223	-\$11,995	-\$15,029	-\$18,070
5	-\$6,649	-\$8,834	-\$11,794	-\$15,379	-\$19,028
6	-\$6,141	-\$8,460	-\$11,641	-\$15,656	-\$20,058
7	-\$5,767	-\$8,075	-\$11,472	-\$15,932	-\$20,864
8	-\$5,414	-\$7,834	-\$11,341	-\$16,145	-\$21,474
9	-\$5,123	-\$7,501	-\$11,174	-\$16,373	-\$22,440
10	-\$4,866	-\$7,241	-\$11,000	-\$16,528	-\$22,891
11	-\$4,578	-\$7,009	-\$10,794	-\$16,637	-\$23,631
12	-\$4,317	-\$6,743	-\$10,721	-\$16,720	-\$24,288
13	-\$4,150	-\$6,478	-\$10,576	-\$16,795	-\$24,796
14	-\$3,981	-\$6,268	-\$10,381	-\$16,848	-\$25,110
15	-\$3,794	-\$6,114	-\$10,217	-\$16,965	-\$25,699
16	-\$3,595	-\$5,930	-\$10,045	-\$17,102	-\$26,105
17	-\$3,459	-\$5,710	-\$9,978	-\$17,108	-\$26,802
18	-\$3,258	-\$5,518	-\$9,835	-\$17,134	-\$27,325
19	-\$3,097	-\$5,382	-\$9,792	-\$17,140	-\$27,910
20	-\$2,984	-\$5,195	-\$9,674	-\$17,208	-\$28,009
21	-\$2,855	-\$5,090	-\$9,563	-\$17,234	-\$28,588
22	-\$2,716	-\$4,902	-\$9,426	-\$17,334	-\$28,637
23	-\$2,626	-\$4,791	-\$9,322	-\$17,270	-\$28,954
24	-\$2,543	-\$4,662	-\$9,167	-\$17,350	-\$29,238
25	-\$2,421	-\$4,524	-\$9,087	-\$17,169	-\$29,901

Asset Correlations

Name	MSCI World NR EUR 1970	Inflation
MSCI World NR EUR 1970	1.00	-0.07
Inflation	-0.07	1.00

Asset correlations are based on monthly returns from Jan 1970 to Dec 2018

Expected Annual Return

Percentile	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
10th Percentile	-26.47%	-8.47%	-5.01%	-1.49%	0.03%	0.88%	1.44%
25th Percentile	-2.38%	-0.67%	0.90%	2.57%	3.30%	3.71%	4.03%
50th Percentile	10.42%	8.22%	7.45%	7.12%	6.93%	6.99%	6.91%
75th Percentile	20.02%	15.68%	13.80%	11.64%	10.71%	10.14%	9.73%
90th Percentile	35.06%	22.11%	19.00%	15.52%	13.84%	12.86%	12.20%

Annual Return Probabilities

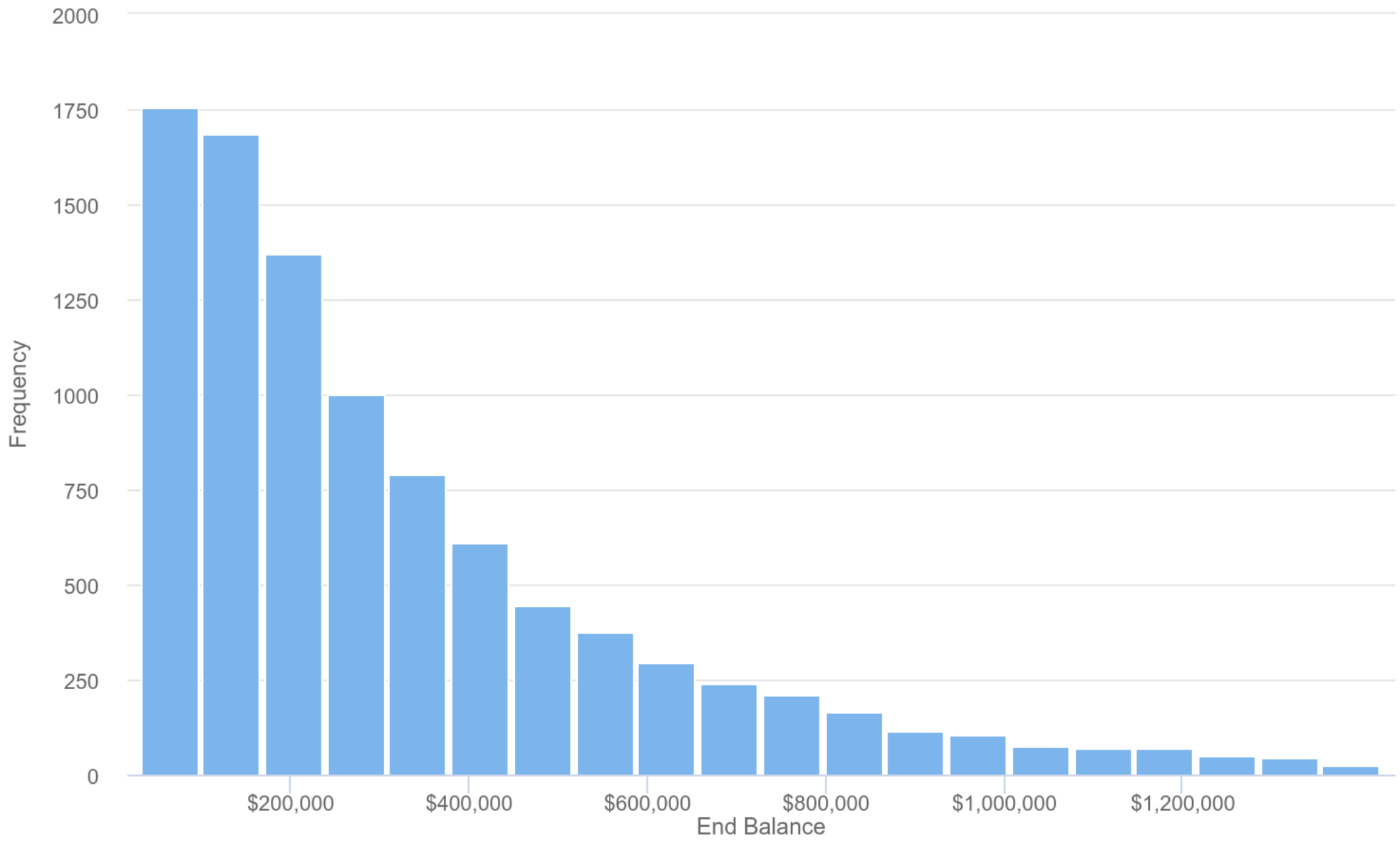
Return	1 Year	3 Years	5 Years	10 Years	15 Years	20 Years	25 Years
>= 0.00%	71.98%	73.47%	78.07%	85.29%	90.12%	92.83%	94.65%
>= 2.50%	65.52%	67.34%	69.49%	75.38%	79.34%	82.54%	84.85%
>= 5.00%	63.36%	60.06%	59.76%	62.41%	63.75%	65.87%	67.26%
>= 7.50%	57.27%	52.43%	49.74%	47.70%	46.20%	45.56%	44.47%
>= 10.00%	51.23%	43.63%	39.41%	33.49%	29.50%	25.87%	23.03%
>= 12.50%	39.32%	34.90%	29.77%	20.66%	15.59%	11.51%	8.69%

Loss Probabilities

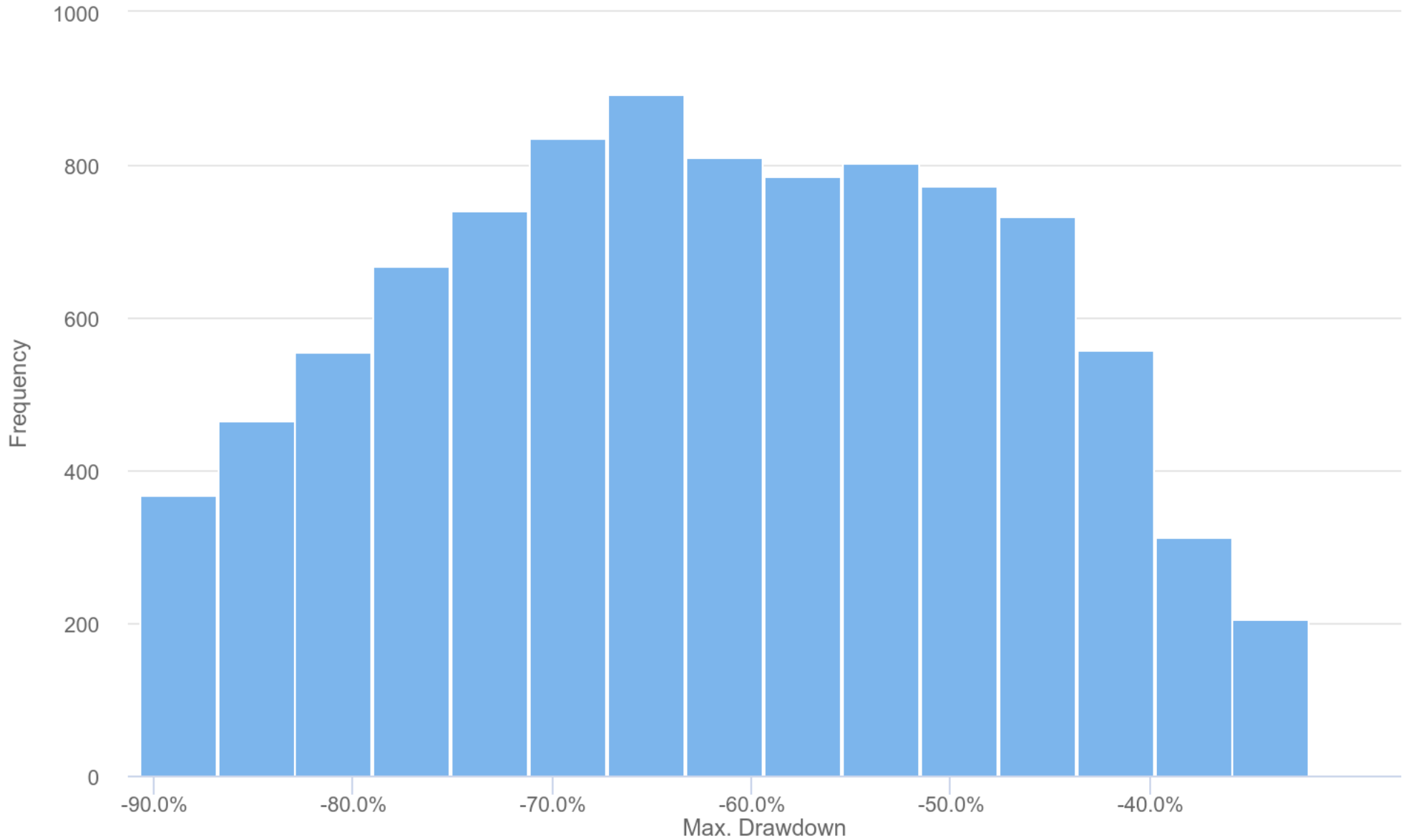
Loss	Loss Probability Excluding Cashflows		Loss Probability Including Cashflows	
	Within Time Period	End of Time Period	Within Time Period	End of Time Period
>= 2.50%	69.62%	5.15%	89.69%	42.08%
>= 5.00%	64.32%	4.96%	87.84%	41.16%
>= 7.50%	55.98%	4.76%	85.17%	40.10%
>= 10.00%	51.49%	4.52%	80.49%	39.10%
>= 12.50%	44.95%	4.26%	77.16%	38.02%
>= 15.00%	42.61%	4.08%	75.13%	37.00%
>= 17.50%	40.40%	3.78%	72.43%	35.95%
>= 20.00%	37.29%	3.60%	70.38%	34.96%
>= 22.50%	34.30%	3.38%	67.93%	33.85%
>= 25.00%	32.17%	3.16%	65.36%	32.61%
>= 27.50%	30.22%	2.95%	63.37%	31.42%
>= 30.00%	27.60%	2.74%	61.39%	30.10%
>= 32.50%	24.65%	2.47%	59.29%	28.87%
>= 35.00%	21.04%	2.30%	56.33%	27.58%
>= 37.50%	18.69%	2.16%	53.47%	26.48%
>= 40.00%	15.90%	2.10%	50.62%	25.19%

Loss is measured against the original portfolio balance.

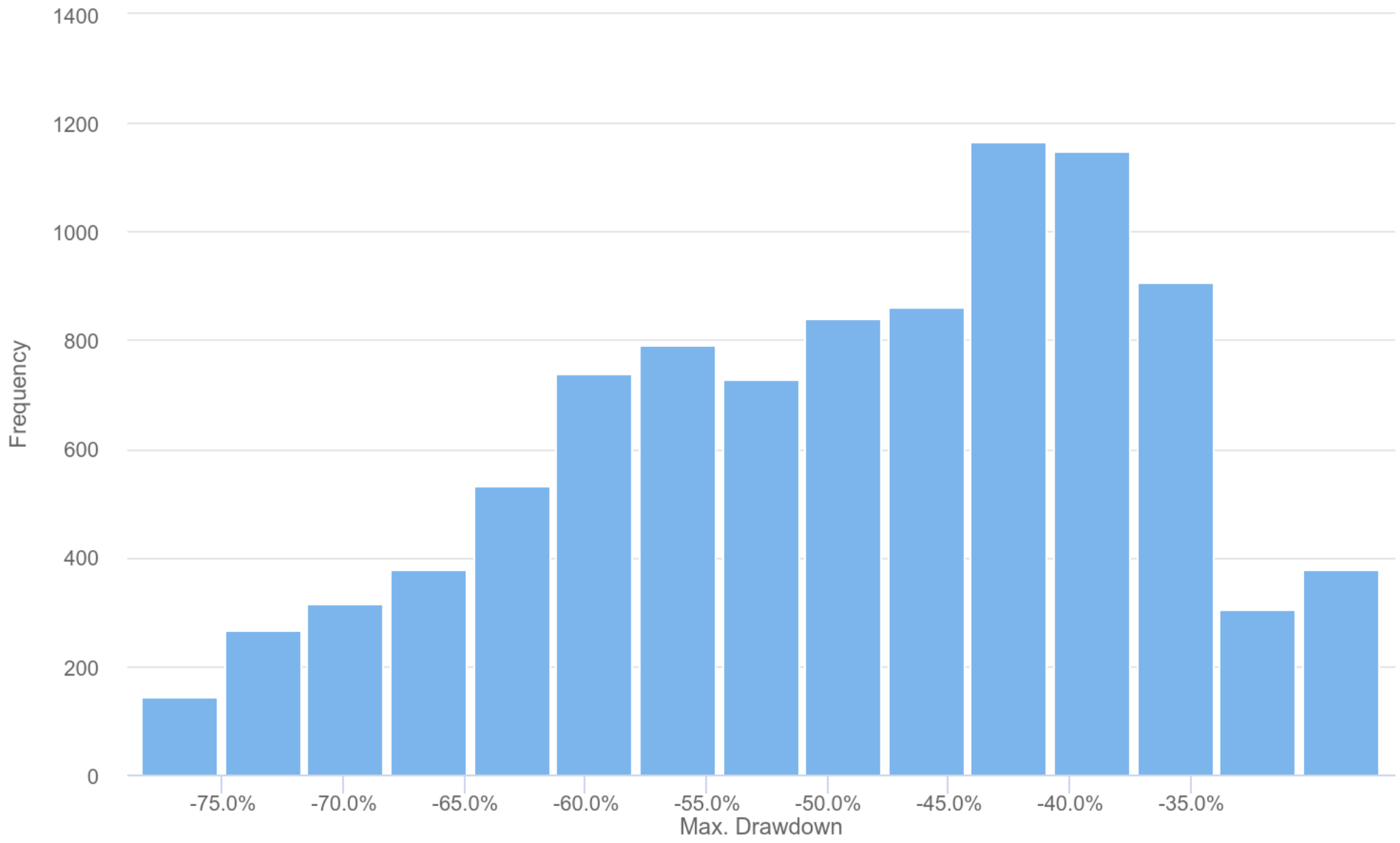
Portfolio End Balance Histogram (95% of results)



Maximum Drawdown Histogram Including Cashflows (95% of results)



Maximum Drawdown Histogram Excluding Cashflows (95% of results)



Disclosures:

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