October 27 ,2025

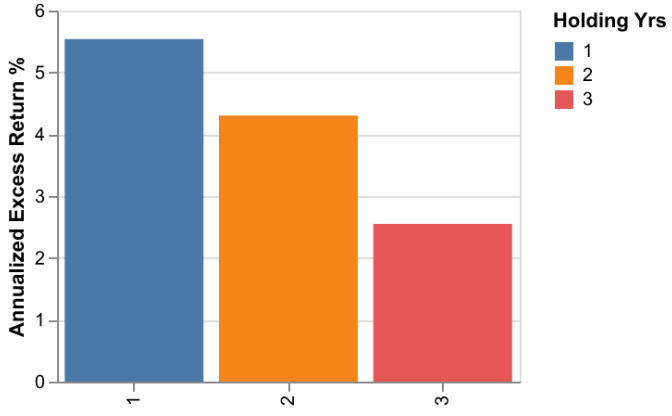
RH Alphabots India 50
Simulations

This report simulates the fund's performance from various starting points to provide deeper insight into its risk-adjusted performance. We relatively rank the Nifty 50 components performance across 4 quarters. We employ a range of visualization techniques and metrics, including histograms, box plots, Cartesian plots, distributions, and data tables for cluster and MPT (Modern Portfolio Theory) analysis. The analysis covers a full 10-year period from 2014 to 2024, which allows the model to be tested through different market conditions. The VCG (Value-Core-Growth) weight allocation uses a 40% Value, 20% Core, 40% Growth split. A total number of 325 portfolio simulations were tested.

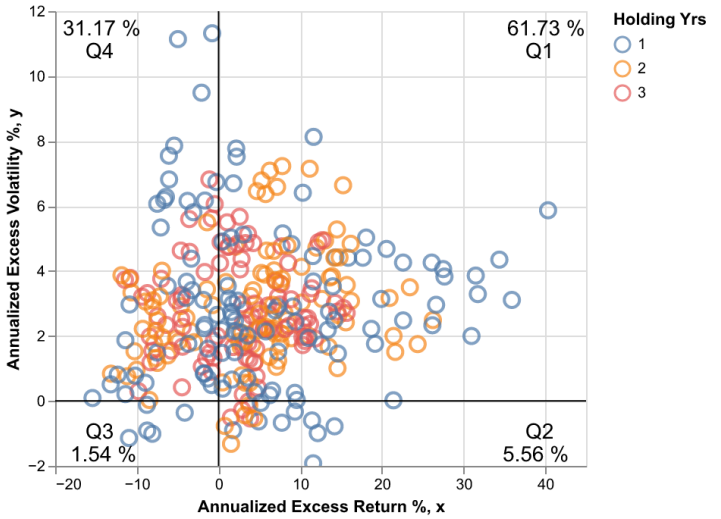
The first chart shows the average annualized excess return histograms for the different holding periods. The results indicate an average excess return of 5.54% for the 1-year period, 4.30% for the 2-year period, and 2.55% for the 3-year period, which confirms that the strategy continues to deliver positive performance even as the investment horizon lengthens. The Cartesian charts illustrate how the portfolios cluster across the four statistical quadrants based on combinations of risk and return metrics such as Annualized Excess Returns, Annualized Excess Volatility, Tracking Error, and Information Ratio.

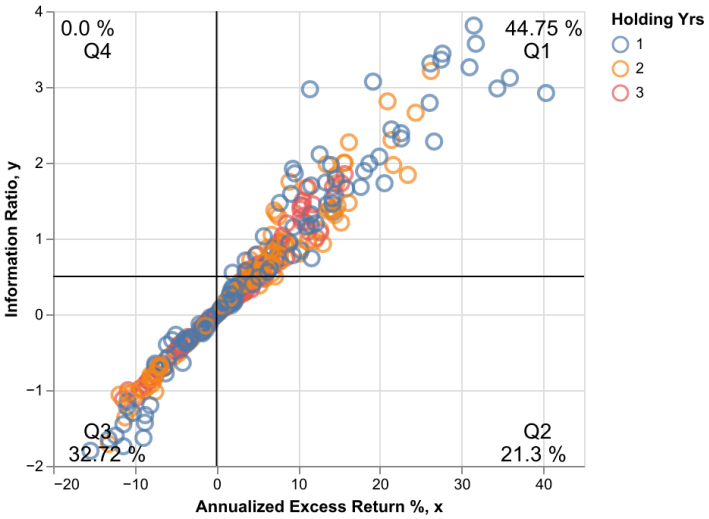
The distribution shows a clear and persistent positive skew toward the upper-right and lower-right preferred quadrants, in the Cartesian charts, indicating that a majority of portfolio simulations deliver positive excess return relative to the benchmark while maintaining controlled volatility or superior Information ratios. Because the 10-year window includes both rising and declining market conditions, the favorable clustering pattern cannot be attributed to a single market regime. Instead, it reflects structural robustness of the methodology. This is further evidenced by the consistency of results across 1-year, 2-year, and 3-year rolling horizons, where more than 65% of the simulated portfolios still land in favorable quadrants. Overall, the combination of the VCG allocation method along with respective investment horizons contribute to a high stability of risk-adjusted outcomes, confirming the durability of the approach across market cycles.

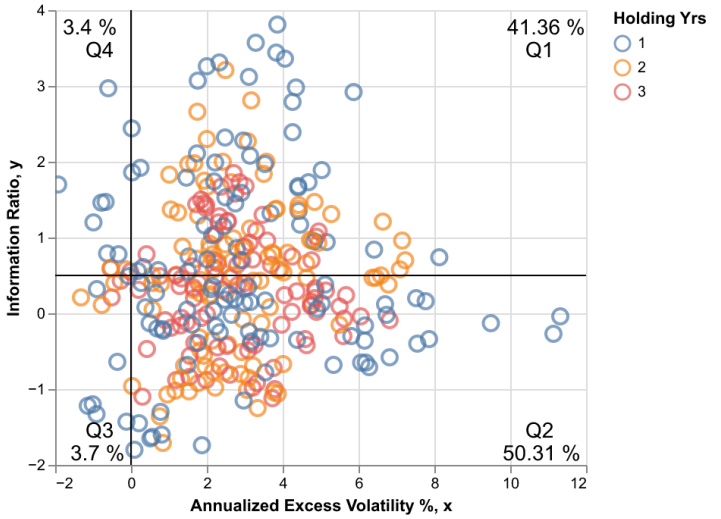
1. Average annualized excess returns histograms for various periods

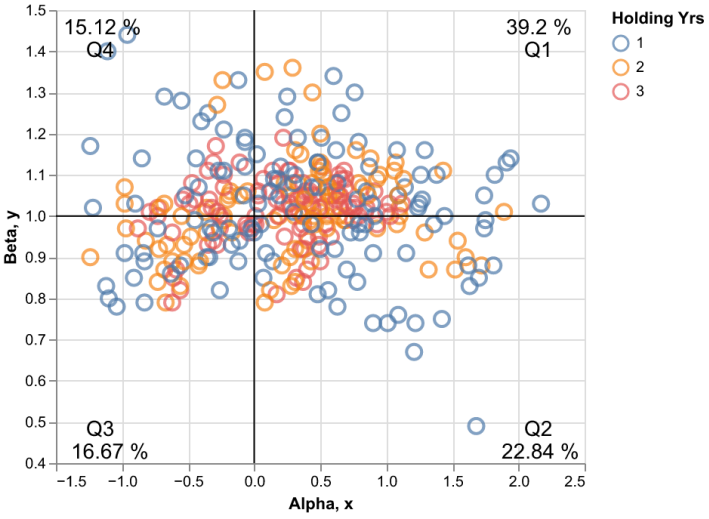


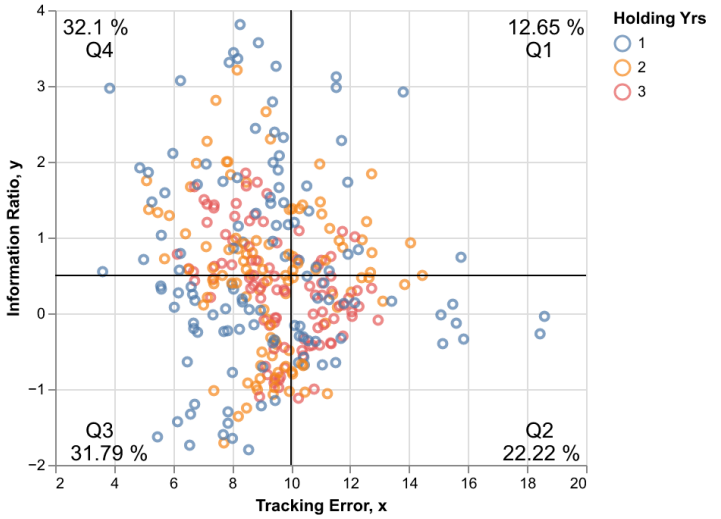
2. Cartesian plots for various statistical measures and holding periods











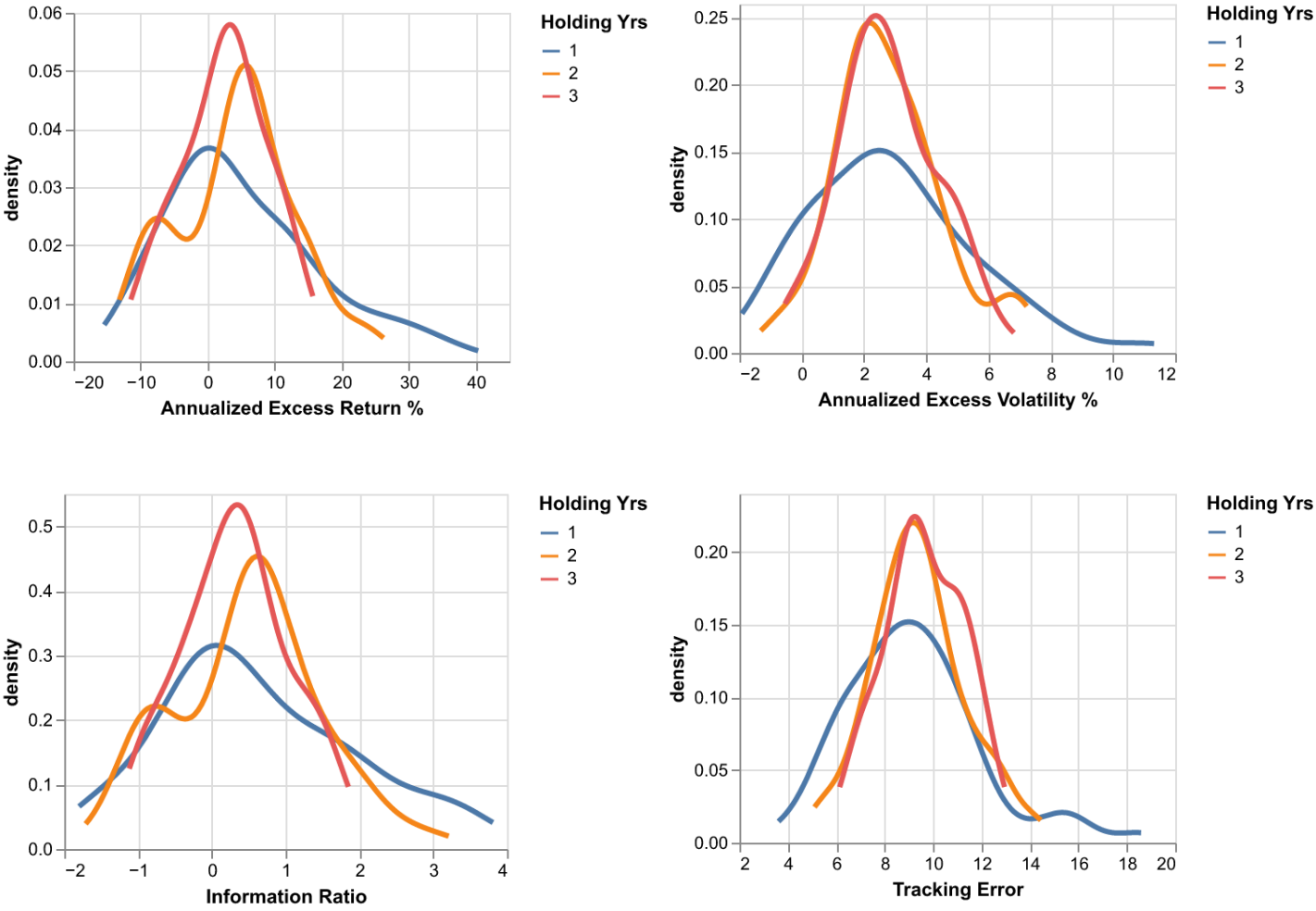
3. Cartesian Cluster Analysis

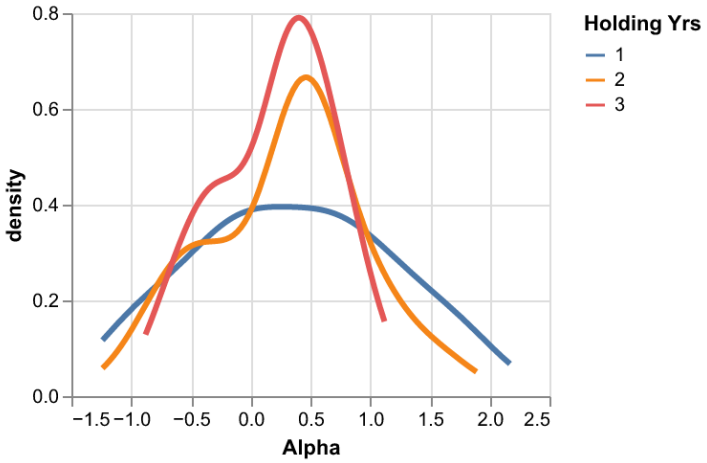
The table below carries the cluster analysis across four quadrants, highlighting positive and negative skew in the dataset, and risk-return.

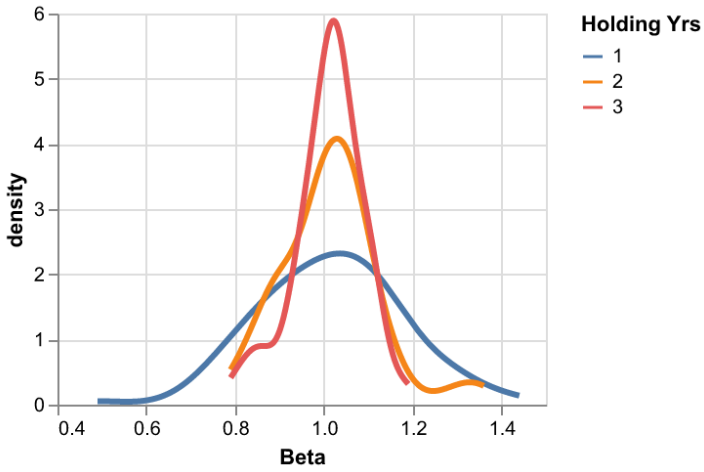
	Statistics	Q1	Q2	Q3	Q4
0	AR vs. AV	61.73%	5.56%	1.54%	31.17%
1	AR vs. IR	44.75%	21.30%	32.72%	0.00%
2	AV vs. IR	41.36%	50.31%	3.70%	3.40%
3	Alpha vs. Beta	39.20%	22.84%	16.67%	15.12%
4	TE vs. IR	12.65%	22.22%	31.79%	32.10%

4. Line Charts

The line charts below showcase the distribution of the key metrics (Annualized Excess Return, Volatility, Tracking Error, Information Ratio, Alpha, Beta) across the tested horizons.







5. Modern portfolio theory (MPT) statistics

(**AR** - Annualized Excess Returns %, **AV** - Annualized Excess Volatility %, **TE** - Tracking Error %, **IR** - Information Ratio, **A** - Alpha, **B** - Beta)

	Holding Yrs	AR	AV	IR	TE	A	B
0	1 Year	5.54	2.91	0.62	9.18	0.36	1.02
1	2 Years	4.30	2.80	0.48	9.37	0.30	1.01
2	3 Years	2.55	2.78	0.31	9.62	0.20	1.01

Bibliography

[1] Matia, Kaushik and Pal, Mukul and Stanley, H. Eugene and Salunkay, H., Scale-Dependent Price Fluctuations for the Indian Stock Market. EuroPhysics Letters, Aug 2003

[2] M. Pal, M. Shah, A. Mitroi, Temporal Changes in Shiller's Exuberance Data, SSRN, Feb 2011

[3] M. Pal, Mean Reversion Framework, SSRN, May 2015

[4] M. Pal, Markov and the Mean Reversion Framework, SSRN, May 2015

[5] M. Pal, Momentum and Reversion, Aug 2015

[6] M. Pal, What is Value, SSRN, Sep 2015

[7] M. Pal, M. Ferent, Stock Market Stationarity, SSRN, Sep 2015

[8] M. Pal, Reversion Diversion Hypothesis, SSRN, Nov 2015

[9] M. Pal, How Physics Solved your wealth problem, SSRN, Oct 2016

[10] M. Pal, Human AI, SSRN, Jul 2017

[11] M. Pal, The Size Proxy, Aug 2017

[12] M. Pal, The Beta Maths, SSRN, Mar 2017

[13] Maureen, O. Bhattacharya, A. ETFs and Systematic Risk. CFA Research Institute, Jan 2020

[14] M. Pal, [3N] model of life, SSRN, Apr 2021

[15] M. Pal, The S&P 500 Myth, SSRN, Jul 2022

[16] M. Pal, The Snowball Effect, SSRN, Jul 2022

[17] M. Pal, Mechanisms of Psychology, SSRN, Jun 2022

[18] M. Pal, The [3N] model of life, SSRN, Feb 2023

[19] M. Pal, R. Fenesi, O.D. Cigan, A.G. Berciu, R.C. Tiric, F. Pal, D. Todor, E.H. Dulf, Revolutionizing Active Investing With Machine Learning, SSRN, Jan 2024

[20] M. Pal, R.C. Tiric, F. Pal, Machine Beta, Statistical Factors, Non-Linear Mechanisms And The [3N] Methodology, SSRN, Jan 2024

AlphaBlock Research:

Mukul Pal
mukul@alphablock.org

Florina Pal
florina@alphablock.org

Bianca Bradea
bianca.bradea@alphablock.org

Ciprian Tiric
ciprian.tiric@alphablock.org

Oliviu Cigan
oliviu.cigan@alphablock.org

RIGHT HORIZONS
Guiding you in achieving your goals...

No 6, Ground Floor, Arakere, Bannerghatta Road,
Opp. British Biological, Bangalore Karnataka

rhpmscare@righthorizons.com