

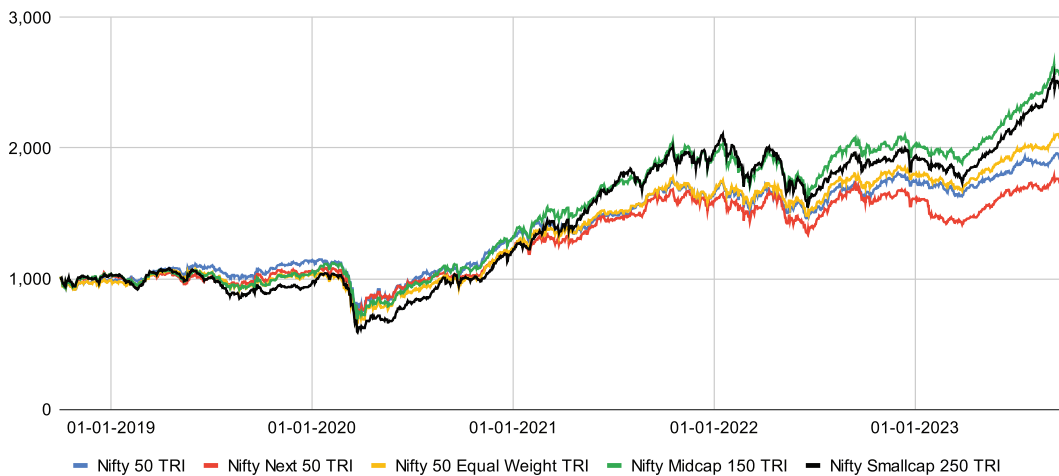
THE FACTOR FRONTIER

YOUR QUARTERLY GUIDE TO FACTOR INVESTING.

EDITION 02 | SEP 2023

Market Outlook

Market Cap Indices Performance (Last 5 Years)



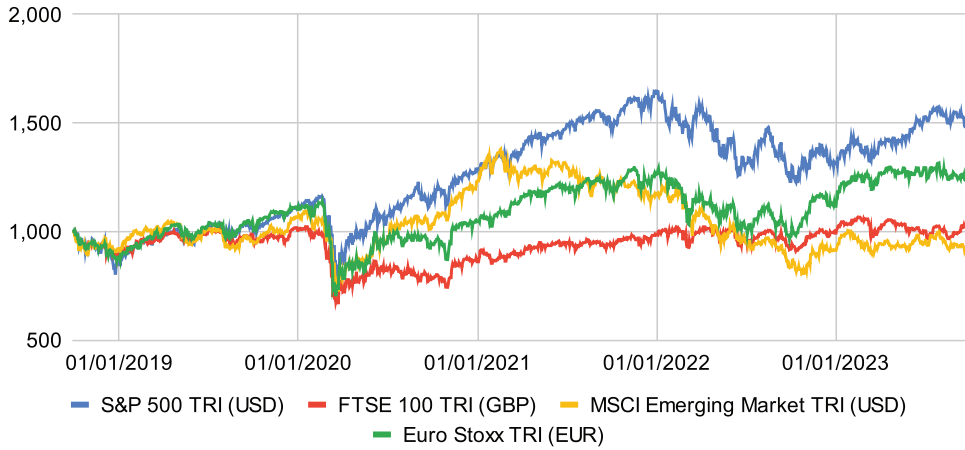
Source: CMIE

Data from 30th Sep, 2018 to 30th Sep, 2023

Markets have had a good one-year return with the smaller size firms outperforming the larger cap firms over the period. This outperformance in the medium and small cap indices was also observed in the past quarter. Over the 1-year period, the largest 100 firms represented by Nifty 50 and Nifty Next 50 Index posted 17.68% and 6.85% respectively while Nifty Midcap 150 index gave 30.67% and Nifty Smallcap 250 index posted 33.86% returns respectively. The Nifty 50 Equal Weight Index returned 20.67% during this 1-year period. Over the past quarter the Nifty 50 and Nifty Next 50 indices generated 2.7% and 3.16%, while Nifty 50 Equal Weight, Midcap and Smallcap indices gave 5.45%, 13.28% and 16.41% respectively.



Global Market Performance (Last 5 Years)

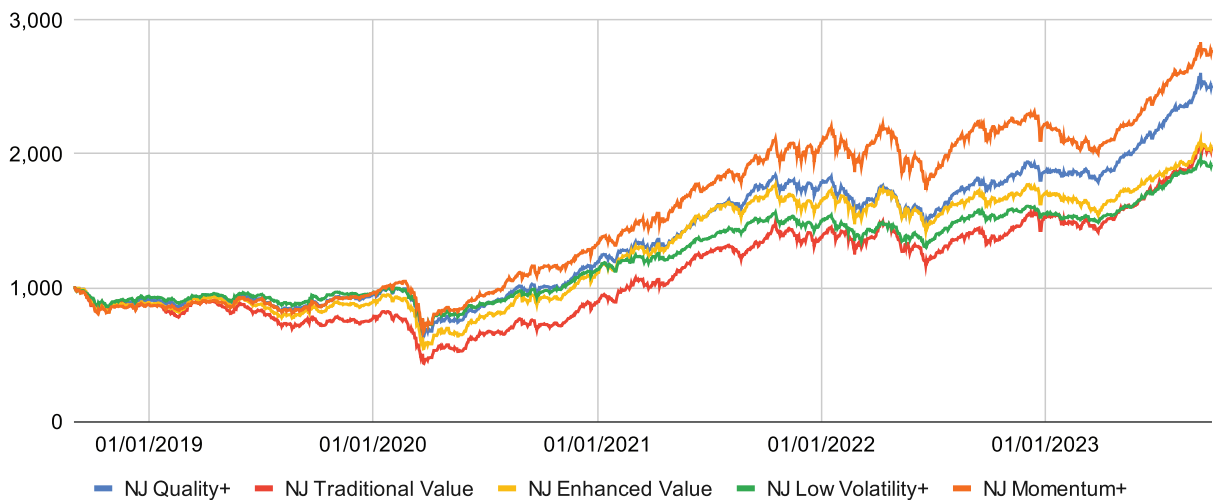


Source: Bloomberg

Data from 30th Sep,2018 to 30th Sep,2023

Globally, developed markets are having a good one year performance while the emerging markets in USD terms have generated a good positive return for the year. The S&P 500 in USD was up +19.59% for the past one year period showing a strong US market performance. The UK markets were also positive over the last one year at +10.36% in GBP home currency. The broader Emerging markets in USD currency was positive at +7.79% over the same one year time period. The Eurozone has also shown a great one year performance with the Euro Stoxx Index made of the largest European firms up +25.81% in Euros. The past quarter has also been negative for all the indices except the UK which has given a marginally positive return of +1.02%.

NJ Factor Performance (Last 5 Years)



Source: CMIE, NJ Smart Beta

Data from 30th Sep,2018 to 30th Sep,2023

The markets have posted a strong upward trend in the past quarter. Additionally, all factors exhibited strong positive performance during the quarter as well. Over a one-year period, the Nifty 50 TRI yielded a return of +17.68%. During this one-year period, all factors, Value, Quality, Low Volatility and Momentum have strongly outperformed the market index. Specifically, over the one-year time period, NJ Traditional Value Model posted a return of +54.43% while NJ Enhanced Value Model gave +27.47%, NJ Quality+ Model achieved +45.45%, while NJ Low Volatility+ Model and NJ Momentum+ Model delivered returns of +27.36% and +32.56% respectively.

Recent Point to Point Performance

Point-to-Point returns summary

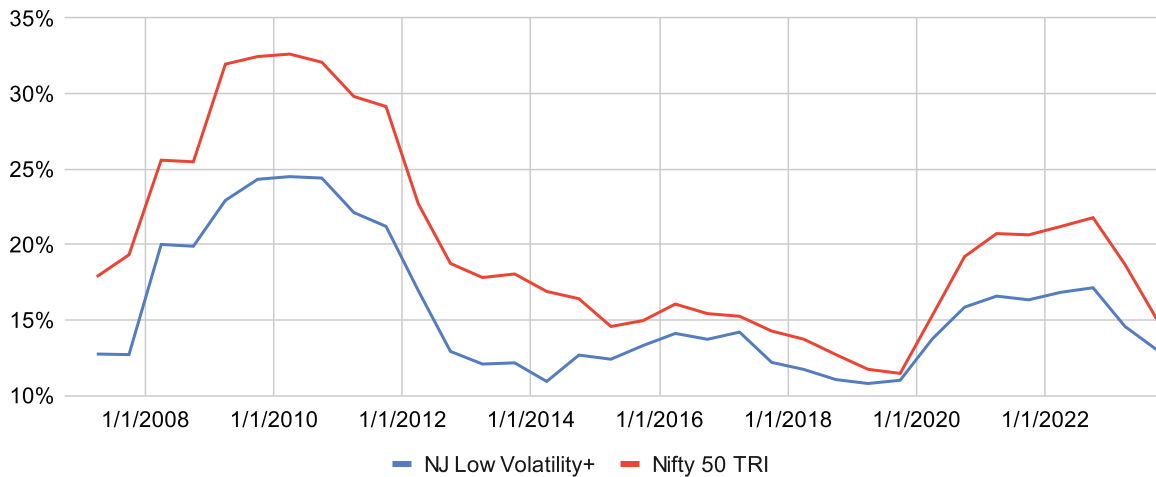
| | NJ Quality+ | NJ Enhanced Value | NJ Momentum+ | NJ Low Volatility+ | NJ Traditional Value | NIFTY 50 TRI |
|-------------------|-------------|-------------------|--------------|--------------------|----------------------|--------------|
| MTD(%) | 3.49% | 3.32% | 3.37% | 2.2% | 5.4% | 2% |
| 3M(%) | 16.6% | 12.9% | 15.03% | 11.9% | 18.76% | 3.85% |
| 6M(%) | 38.82% | 31.9% | 36.22% | 28.25% | 42.36% | 15.88% |
| YTD(%) | 34.82% | 20.92% | 25.29% | 23.93% | 34.67% | 9.43% |
| 1Y(%) | 45.45% | 27.47% | 32.56% | 27.36% | 54.43% | 17.68% |
| 3Y (ann.)(%) | 36.06% | 30.73% | 34.47% | 25.97% | 41.63% | 21.94% |
| 5Y (ann.)(%) | 22.64% | 18.19% | 26.09% | 15.79% | 18.83% | 13.76% |
| 10Y (ann.)(%) | 23.82% | 20.99% | 28.58% | 20.12% | 22.46% | 14.27% |
| All-time(ann.)(%) | 19% | 15.37% | 22.28% | 17.34% | 15.49% | 11.89% |

Data from 30th Sep, 2006 to 30th Sep, 2023

Historical Factor Trends

Historical Trends in NJ's Low Volatility+ Model

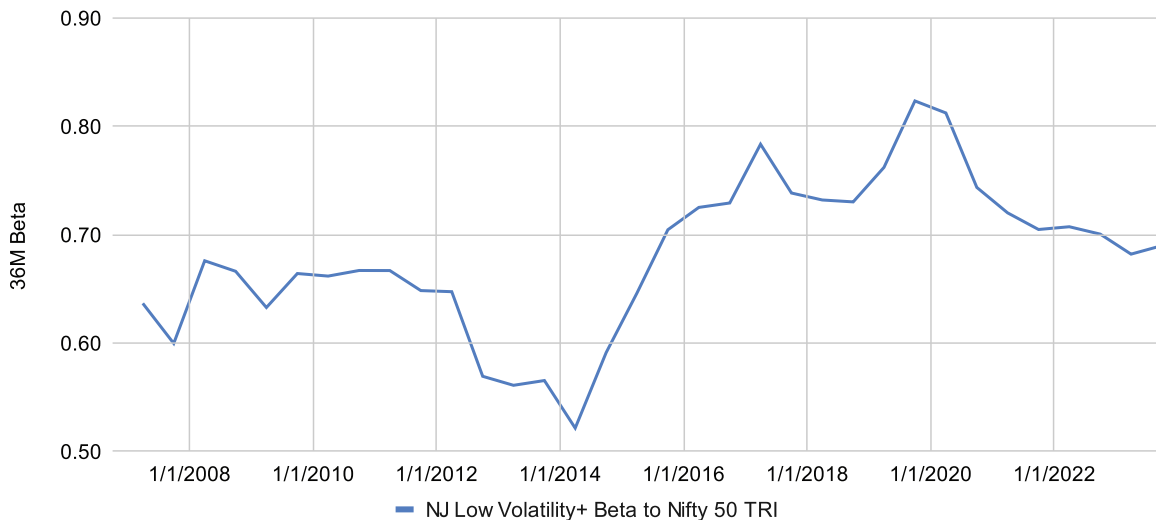
NJ Low Volatility+ vs Nifty 50 TRI: Historical 36 Month Volatility



Source: CMIE, NJ Smart Beta

Data from 31st Mar,2007 to 30th Sept,2023

NJ Low Volatility+: Historical 36 Month Beta Against Nifty 50 TRI



Source: CMIE, NJ Smart Beta

Data from 31st Mar,2007 to 30th Sept,2023

NJ Low Volatility+ and Nifty 50 TRI Parameter Averages

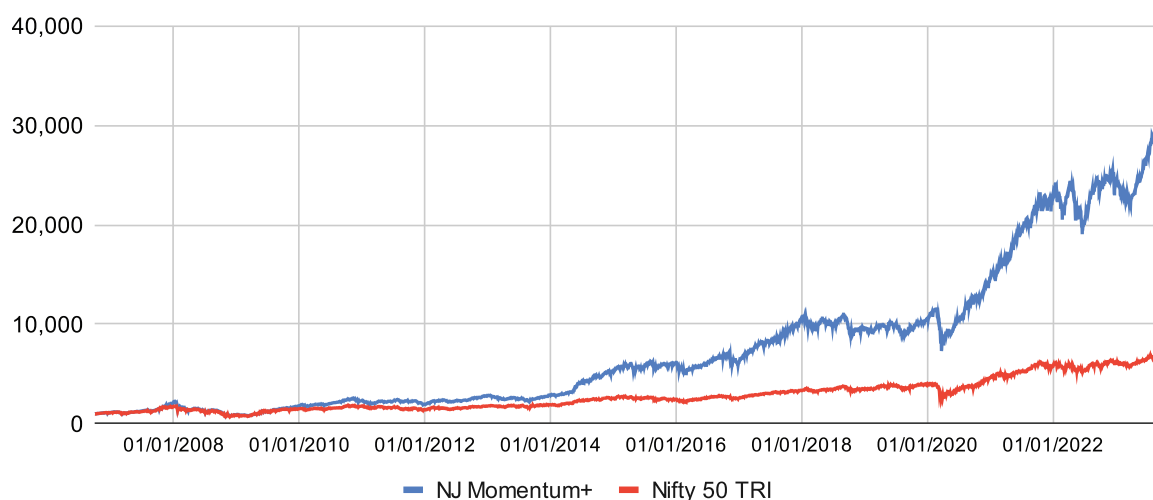
| Parameter | NJ Low Volatility+ | Nifty 50 TRI |
|----------------------------------|--------------------|--------------|
| 36M Weekly Annualised Volatility | 12.72% | 15.40% |
| 36M Weekly Beta | 0.69 | 1.0 |

As on 30th Sept 2023

On the basis of volatility parameters, NJ Low Volatility+ Model has lower volatility than Nifty 50. NJ Low Volatility+ has a lower annualised volatility than the Nifty 50 by +2.7%. Similarly, on the basis of Beta calculated over 36 months, NJ Low Volatility+ has a significantly low beta of 0.69 to the Nifty 50.

Historical Trends in NJ's Momentum+ Model

NJ Momentum+ vs Nifty 50 TRI: Cumulative Growth Chart



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 30th Sept,2023

NJ Momentum+ and Nifty 50 TRI Returns

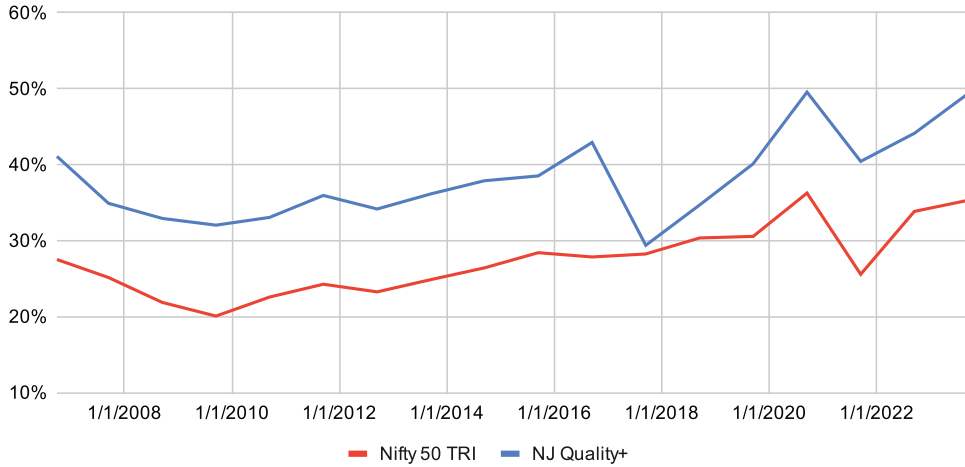
| Parameter | YTD Return | 1-Year Return | 3-Year CAGR | 5-Year CAGR | 10-Year CAGR | Since Inception CAGR |
|--------------|------------|---------------|-------------|-------------|--------------|----------------------|
| NJ Momentum+ | 25.29% | 32.56% | 34.47% | 26.09% | 28.58% | 22.28% |
| Nifty 50 TRI | 9.43% | 17.68% | 21.94% | 13.76% | 14.27% | 11.89% |

As on 30th Sep, 2023

The NJ Momentum+ Model has higher momentum metrics to the Nifty 50 Index over the medium to long term which is evident from the 3, 5 and 10 years CAGR %. NJ Momentum+ has also done better than the market index over the past 1 year and year-to-date absolute returns. The NJ Momentum+ generated 25.29% and 32.56% while the Nifty 50 Index gave 9.43% and 17.68% over the year to date and 1-year period respectively.

Historical Trends in NJ's Quality+ Model

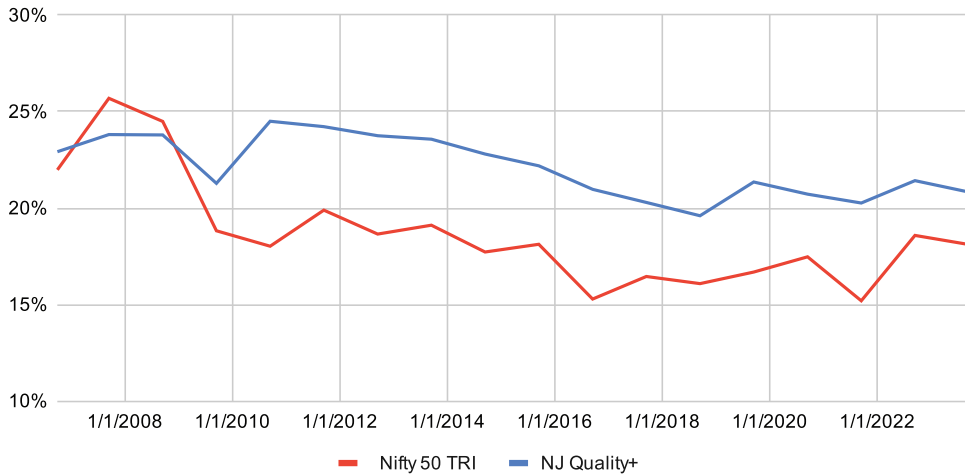
NJ Quality+ vs Nifty 50 TRI : Dividend Payout



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 15th Sept, 2023

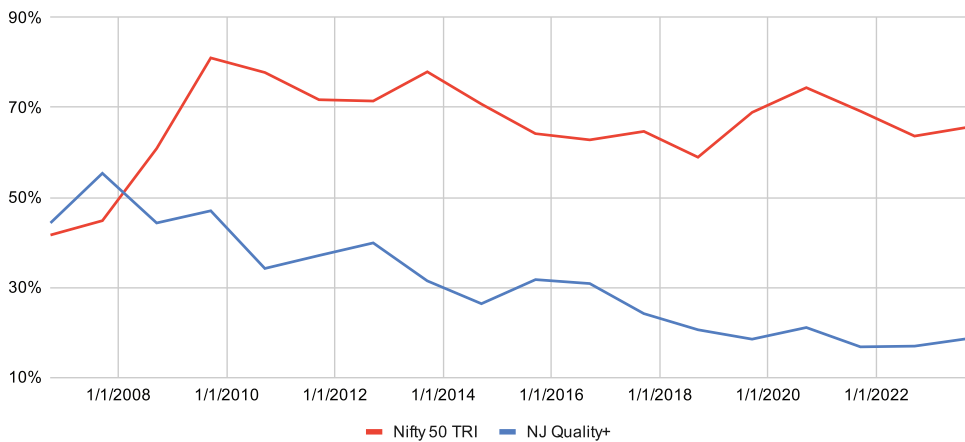
NJ Quality+ vs Nifty 50 TRI: Return on Equity



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 15th Sept, 2023

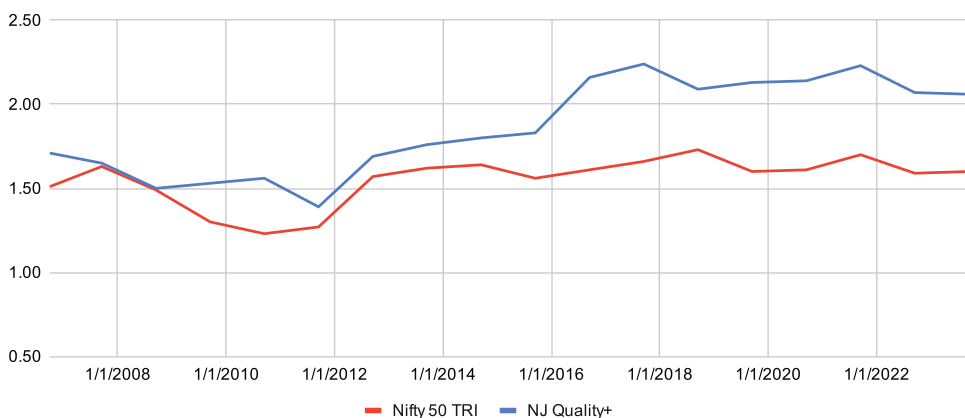
NJ Quality+ vs Nifty 50 TRI : Debt to Equity



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 15th Sept, 2023

NJ Quality+ vs Nifty 50 TRI: Current Ratio



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 15th Sept, 2023

NJ Quality+ and Nifty 50 TRI Parameter Averages

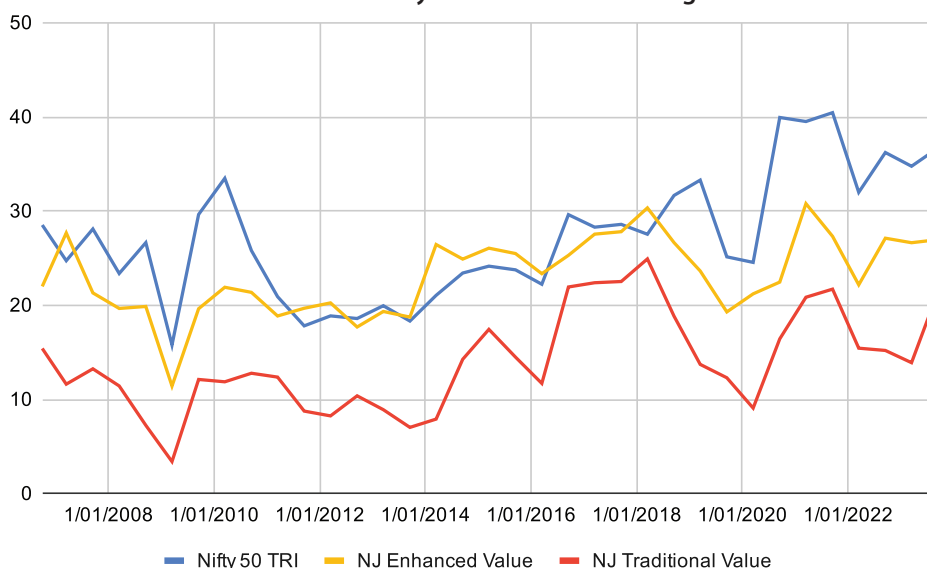
| Parameter | NJ Quality + | Nifty 50 TRI |
|-----------------|--------------|--------------|
| Dividend Payout | 49.35% | 35.31% |
| ROE | 20.83% | 18.11% |
| Debt To Equity | 18.60% | 65.63% |
| Current Ratio | 2.06 | 1.60 |

As on 30th Sep, 2023. Numbers represent simple averages of all constituents. Debt to Equity ratio is for non lending companies only

When comparing the quality parameters, the Dividend Payout of the NJ Quality+ Model is higher than that of the Nifty 50 by 14.04%. Similarly, the Return on Equity (ROE) of the NJ Quality+ Model was 2.72% higher than that of the Nifty 50. The Debt to Equity Ratio of NJ Quality+ is 18.60%, which is much lower than Nifty 50 at 65.63%. Additionally, the NJ Quality+ exhibits a higher current ratio of 2.06, while the current ratio of Nifty 50 is 1.60.

Historical Trends in NJ's Traditional Value Model

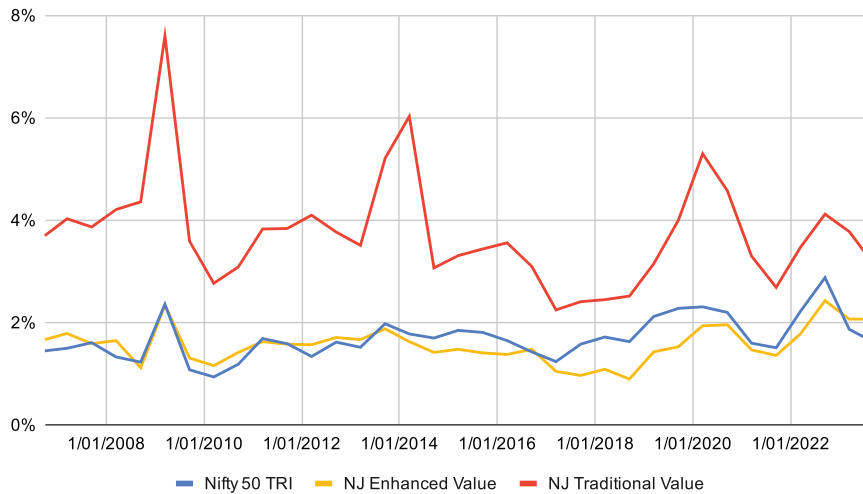
NJ Value vs Nifty 50 TRI: Price to Earnings



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 15th Sept, 2023

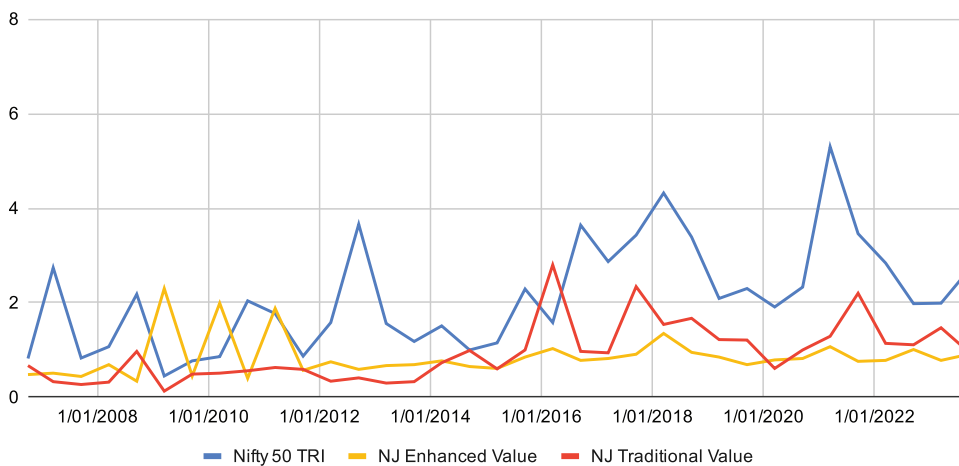
NJ Value vs Nifty 50 TRI: Dividend Yield



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 15th Sept, 2023

NJ Value vs Nifty 50 TRI: PE to Growth



Source: CMIE, NJ Smart Beta

Data from 30th Sept,2006 to 15th Sept, 2023

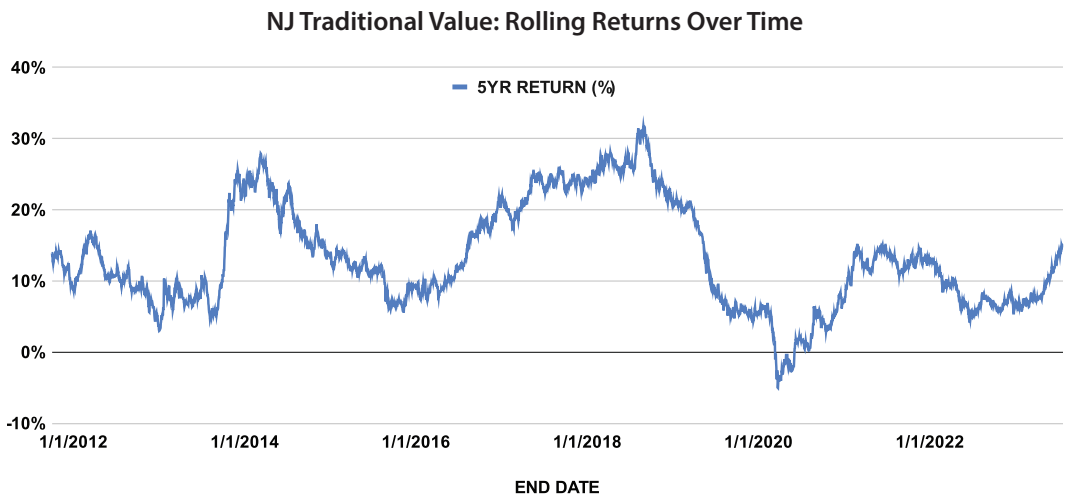
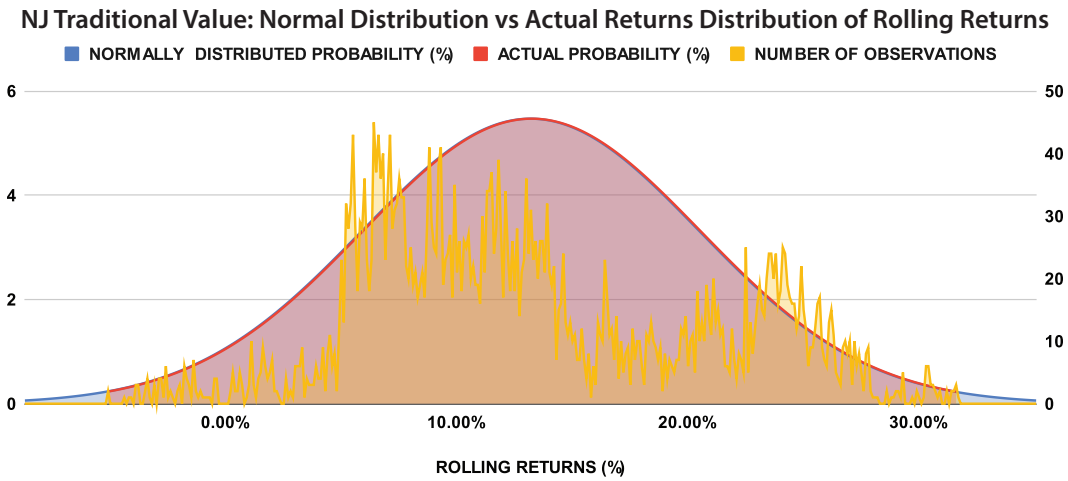
NJ Value and Nifty 50 TRI Parameter Averages

| Parameter | NJ Traditional Value | NJ Enhanced Value | Nifty 50 TRI |
|-------------------|----------------------|-------------------|--------------|
| PE to Growth | 0.95 | 0.91 | 2.7 |
| Dividend Yield | 3.14% | 2.07% | 1.62% |
| Price to Earnings | 21.47 | 26.96 | 36.70 |

As on 30th Sep, 2023. Numbers represent simple averages of all constituents. Price to Earning Ratio is for profit making companies for all three and exclude companies with PE > 1,000

Overall, Both the NJ Traditional Value Model and the NJ Enhanced Value Model have better value metrics compared to Nifty 50 Index. NJ Traditional Value has a lower PE to Growth compared to the Nifty 50 by 1.75, while NJ Enhanced Value is lower by 1.79. Similarly, both NJ Traditional Value and NJ Enhanced Value have a higher dividend yield and lower Price to Earnings ratio when compared to Nifty 50 Index.

NJ Traditional Value

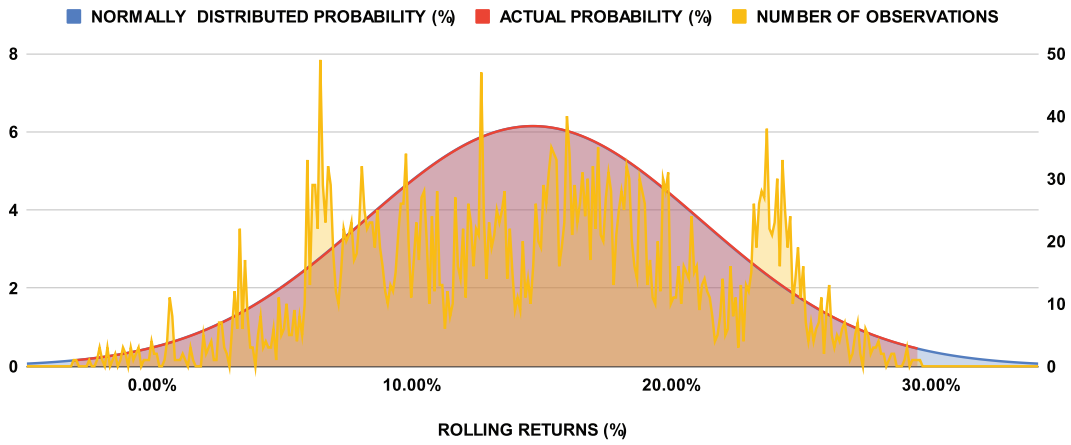


5Yr Return Distribution Summary

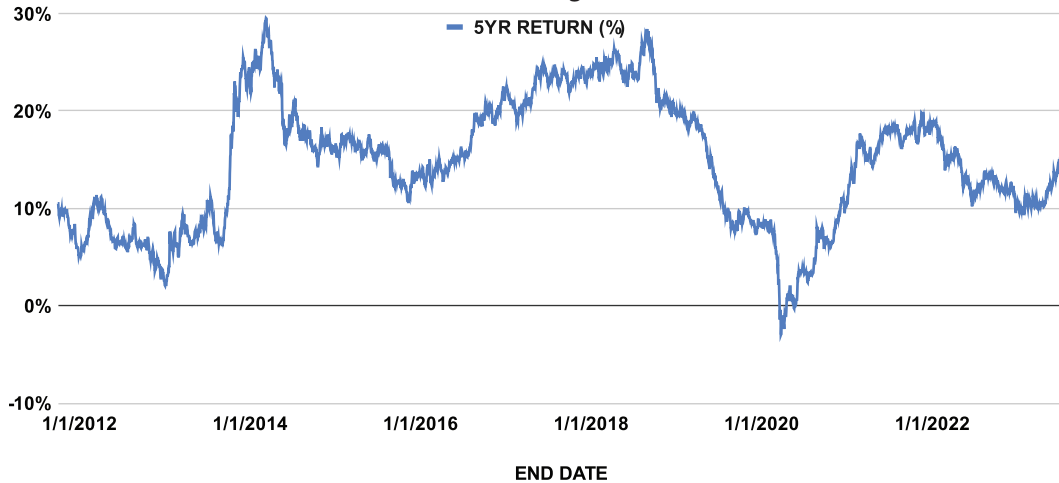
| NJ Traditional Value | |
|-------------------------------------|--------|
| Mean Return | 13.27% |
| Median Return | 11.80% |
| Std Dev Of Returns | 7.29% |
| Max Return | 31.75% |
| Min Return | -5.07% |
| Negative Observation (%) | 1.92% |
| % Of Observations Between 0% & 10% | 37.69% |
| % Of Observations Between 10% & 15% | 26.95% |
| % Of Observations Between 15% & 20% | 10.02% |
| % Of Observations Between 20% & 30% | 22.61% |
| % Of Observations >= 30% Return | 0.81% |
| Total Observations | 4,312 |

Data from 30th Sep, 2006 to 30th Sep, 2023

NJ Enhanced Value: Normal Distribution vs Actual Returns Distribution of Rolling Returns



NJ Enhanced Value: Rolling Returns Over Time

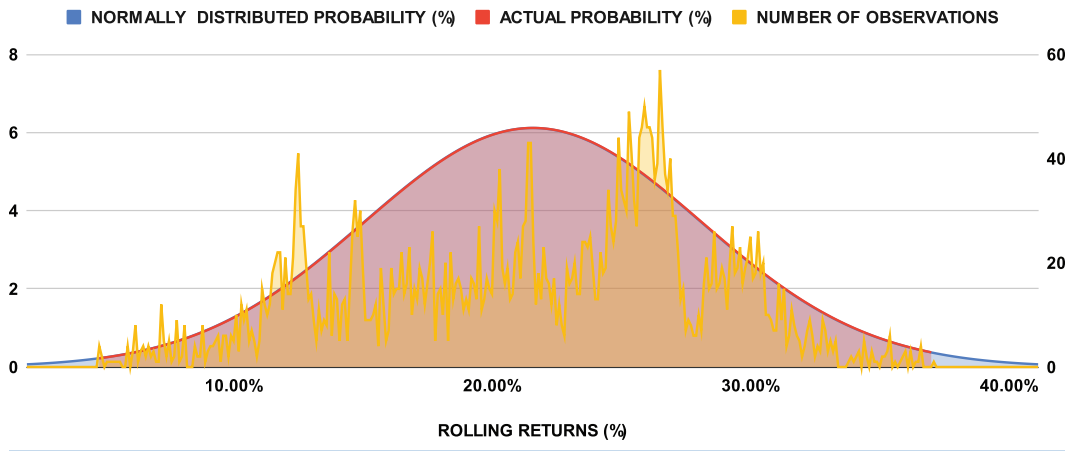


5Yr Return Distribution Summary

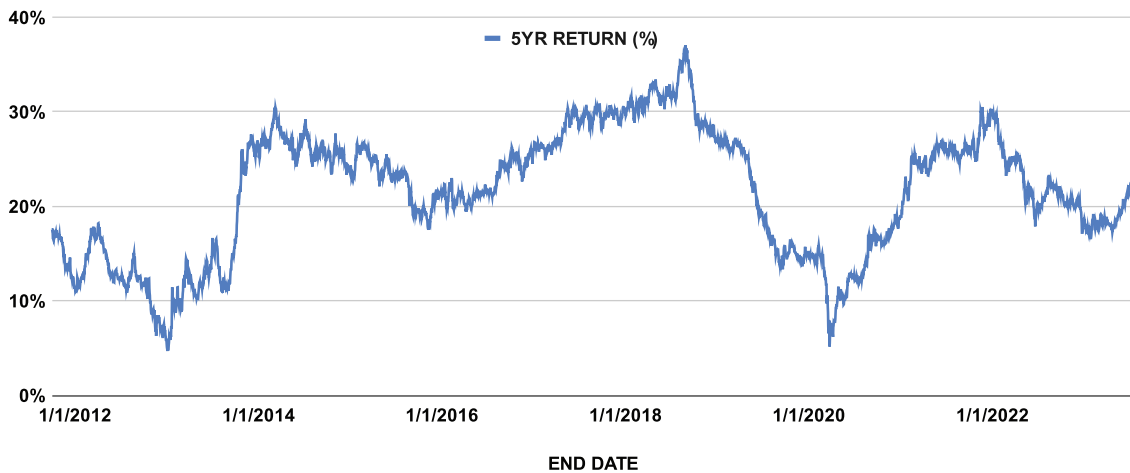
| NJ Enhanced Value | |
|-------------------------------------|--------|
| Mean Return | 14.70% |
| Median Return | 15.13% |
| Std Dev Of Returns | 6.49% |
| Max Return | 29.55% |
| Min Return | -2.99% |
| Negative Observation (%) | 0.81% |
| % Of Observations Between 0% & 10% | 26.83% |
| % Of Observations Between 10% & 15% | 21.59% |
| % Of Observations Between 15% & 20% | 28.48% |
| % Of Observations Between 20% & 30% | 22.29% |
| % Of Observations >= 30% Return | 0.00% |
| Total Observations | 4,312 |

Data from 30th Sep, 2006 to 30th Sep, 2023

NJ Momentum+: Normal Distribution vs Actual Returns Distribution of Rolling Returns



NJ Momentum+: Rolling Returns Over Time

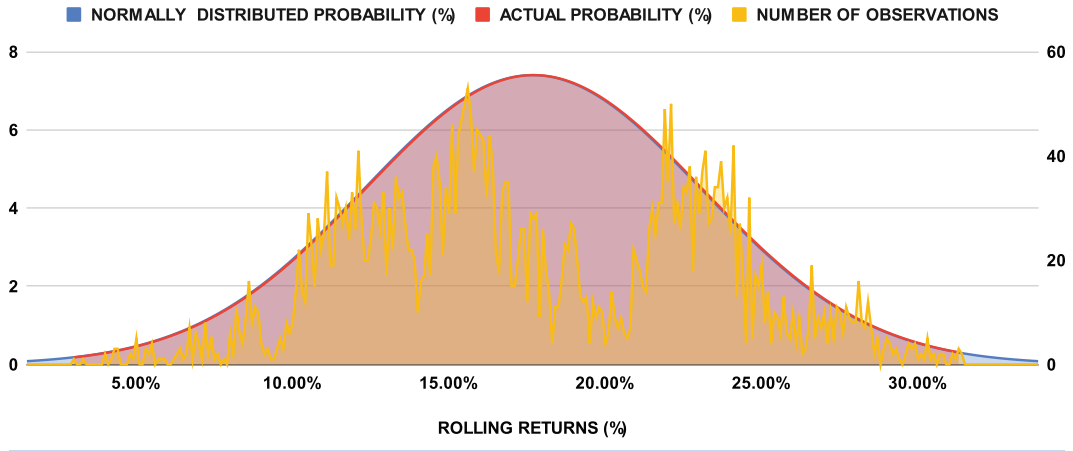


5Yr Return Distribution Summary

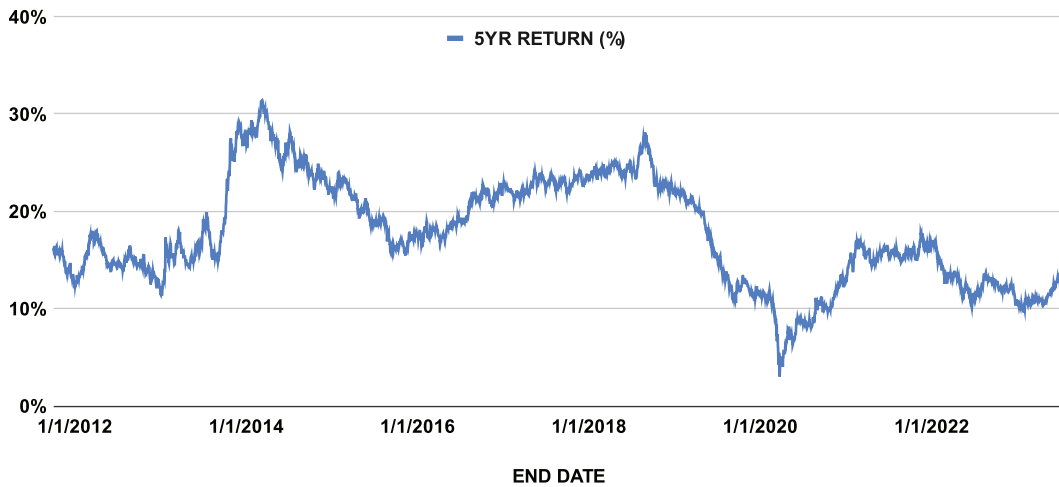
| NJ Momentum+ | |
|-------------------------------------|--------|
| Mean Return | 21.61% |
| Median Return | 22.53% |
| Std Dev Of Returns | 6.52% |
| Max Return | 37.05% |
| Min Return | 4.82% |
| Negative Observation (%) | 0.00% |
| % Of Observations Between 0% & 10% | 3.69% |
| % Of Observations Between 10% & 15% | 17.00% |
| % Of Observations Between 15% & 20% | 16.60% |
| % Of Observations Between 20% & 30% | 54.57% |
| % Of Observations >= 30% Return | 8.14% |
| Total Observations | 4,312 |

Data from 30th Sep, 2006 to 30th Sep, 2023

NJ Low Volatility+: Normal Distribution vs Actual Returns Distribution of Rolling Returns



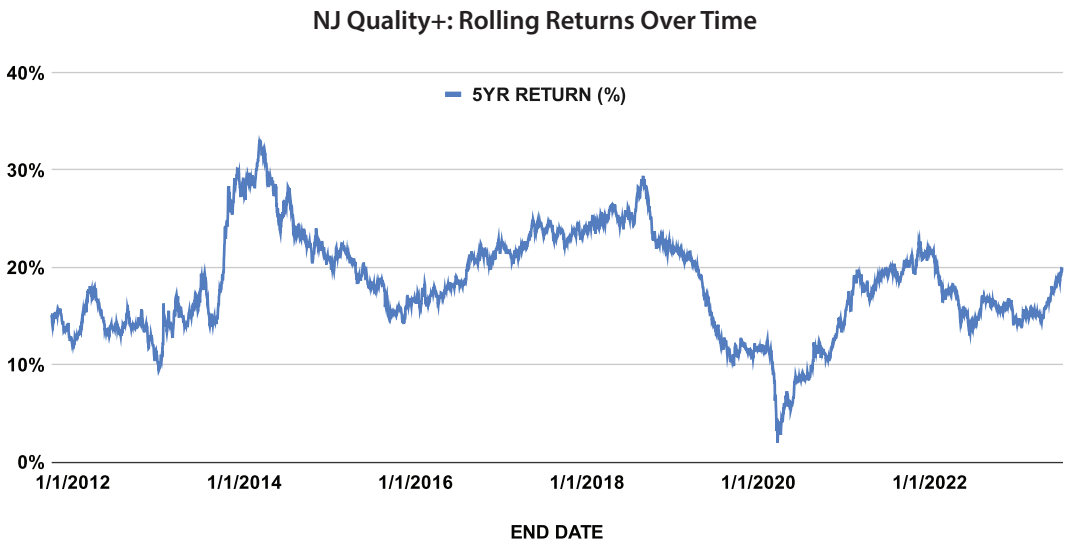
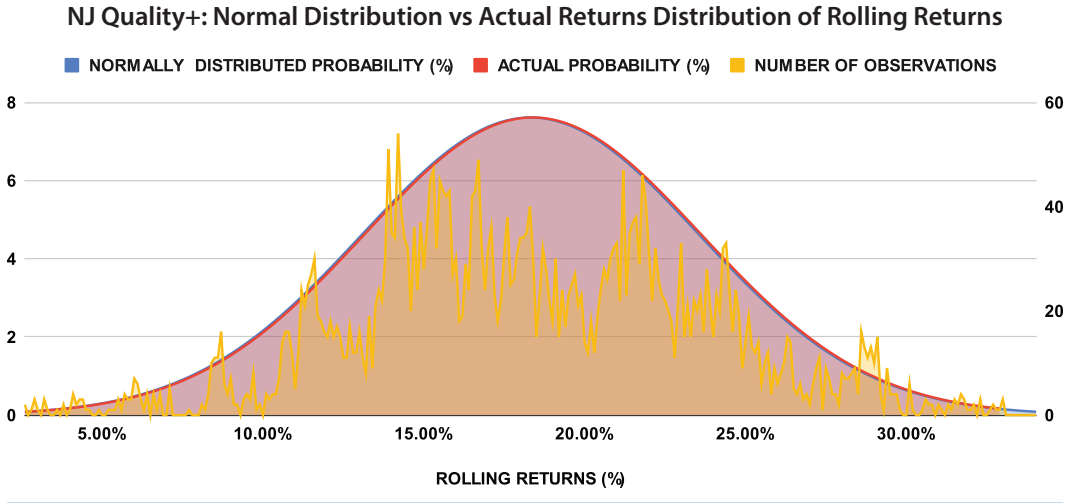
NJ Low Volatility+: Rolling Returns Over Time



5Yr Return Distribution Summary

| NJ Low Volatility+ | |
|-------------------------------------|--------|
| Mean Return | 17.73% |
| Median Return | 16.77% |
| Std Dev Of Returns | 5.39% |
| Max Return | 31.40% |
| Min Return | 3.02% |
| Negative Observation (%) | 0.00% |
| % Of Observations Between 0% & 10% | 4.59% |
| % Of Observations Between 10% & 15% | 29.31% |
| % Of Observations Between 15% & 20% | 29.52% |
| % Of Observations Between 20% & 30% | 36.02% |
| % Of Observations >= 30% Return | 0.56% |
| Total Observations | 4,312 |

Data from 30th Sep, 2006 to 30th Sep, 2023

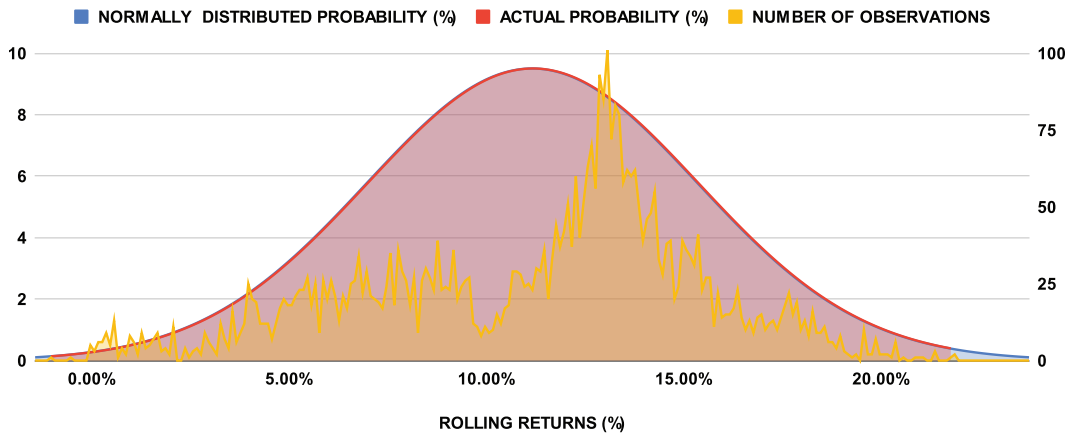


5Yr Return Distribution Summary

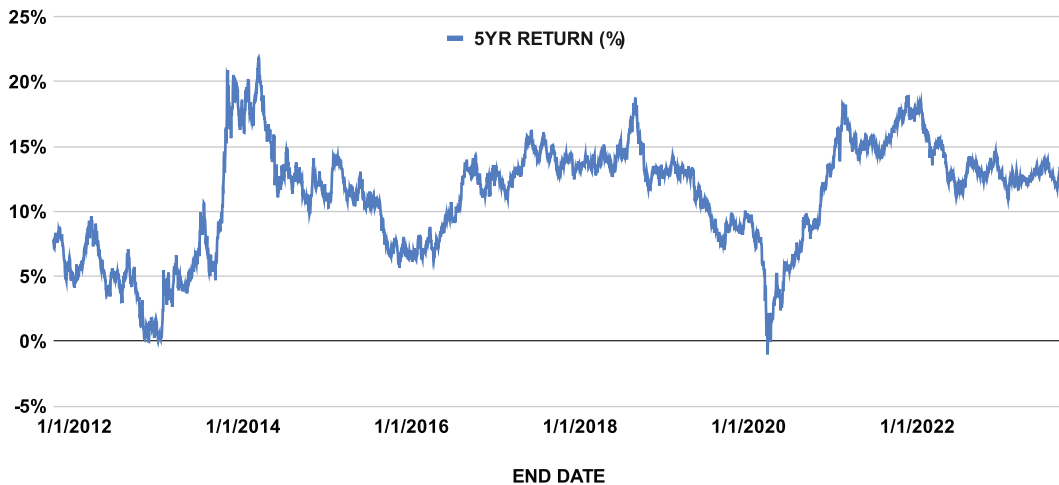
| NJ Quality+ | |
|-------------------------------------|--------|
| Mean Return | 18.37% |
| Median Return | 18.01% |
| Std Dev Of Returns | 5.24% |
| Max Return | 33.00% |
| Min Return | 1.98% |
| Negative Observation (%) | 0.00% |
| % Of Observations Between 0% & 10% | 4.17% |
| % Of Observations Between 10% & 15% | 22.82% |
| % Of Observations Between 15% & 20% | 34.62% |
| % Of Observations Between 20% & 30% | 37.27% |
| % Of Observations >= 30% Return | 1.11% |
| Total Observations | 4,312 |

Data from 30th Sep, 2006 to 30th Sep, 2023

Nifty 50 TRI : Normal Distribution vs Actual Returns Distribution of Rolling Returns



Nifty 50 TRI : Rolling Returns Over Time



5Yr Return Distribution Summary

| Nifty 50 TRI | |
|-------------------------------------|--------|
| Mean Return | 11.19% |
| Median Return | 12.30% |
| Std Dev Of Returns | 4.20% |
| Max Return | 21.85% |
| Min Return | -1.03% |
| Negative Observation (%) | 0.16% |
| % Of Observations Between 0% & 10% | 34.83% |
| % Of Observations Between 10% & 15% | 49.13% |
| % Of Observations Between 15% & 20% | 15.40% |
| % Of Observations Between 20% & 30% | 0.48% |
| % Of Observations >= 30% Return | 0.00% |
| Total Observations | 4,312 |

Data from 30th Sep, 2006 to 30th Sep, 2023

Factor Correlations

Correlation Matrix based on excess return of each factor over Nifty 500 TRI

| | NJ Low Volatility+ | NJ Momentum+ | NJ Quality+ | NJ Enhanced Value | NJ Traditional Value |
|----------------------|--------------------|--------------|-------------|-------------------|----------------------|
| NJ Low Volatility+ | 1 | 0.54 | 0.78 | 0.58 | 0.35 |
| NJ Momentum+ | 0.54 | 1 | 0.69 | 0.68 | 0.59 |
| NJ Quality+ | 0.78 | 0.69 | 1 | 0.76 | 0.58 |
| NJ Enhanced Value | 0.58 | 0.68 | 0.76 | 1 | 0.75 |
| NJ Traditional Value | 0.35 | 0.59 | 0.58 | 0.75 | 1 |

Source: CMIE, NJ Smart Beta. Data from 30th June, 2013 to 30th Sep, 2023

Exploring the correlations and interconnections between factors is of extreme importance as it helps to design an optimally diversified factor model. The factor correlation has been calculated by using excess return over Nifty 500 TRI.

NJ Low Volatility+ is very strongly correlated with NJ Quality+ (0.78). While the degree of correlation between the NJ Low Volatility+ is moderately strong with the NJ Momentum+ (0.54), it is fairly weak with the NJ Traditional Value (0.35) and moderate with NJ Enhanced Value (0.58) model.

The degree of correlation between NJ Momentum+ is moderately strong with all the other indexes i.e. NJ Quality+ (0.69), NJ Traditional Value (0.59) and NJ Enhanced Value (0.68).

NJ Quality+ has moderately strong correlation with NJ Traditional Value (0.58) and strong correlation with NJ Enhanced Value (0.76).

NJ Enhanced Value has strong correlation with NJ Traditional Value (0.75).





Our focus this month is on three research articles that explore different aspects of the momentum factor.

1. Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency (<https://doi.org/10.1111/j.1540-6261.1993.tb04702.x>)

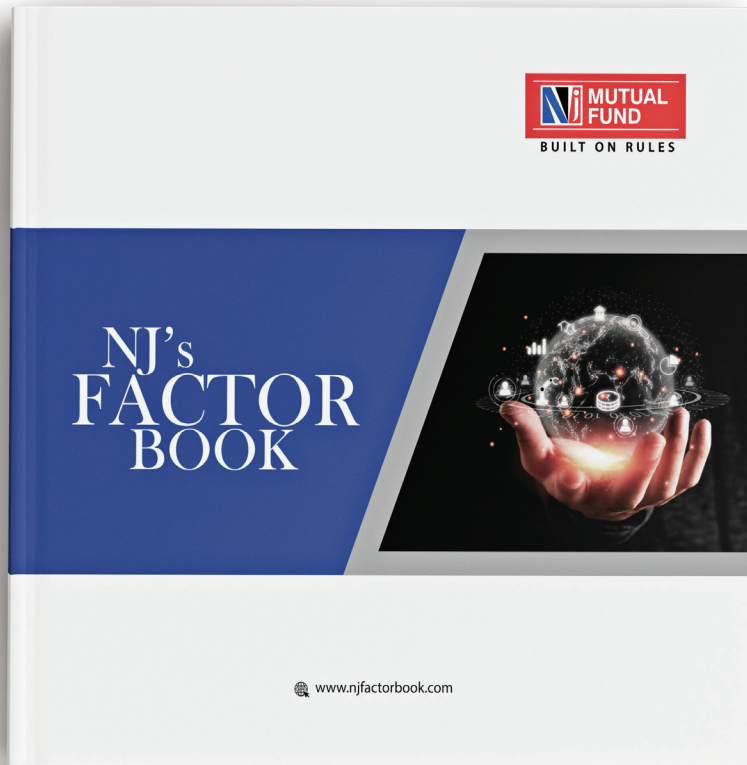
The first influential academic paper documenting the evidence of momentum factor by N. Jegadeesh and S. Titman.

2. A Century of Evidence on Trend-Following Investing (<http://dx.doi.org/10.2139/ssrn.2993026>)

The researchers examine the effectiveness of trend-following strategies in global markets dating back to 1880. Their analysis reveals that in every decade since 1880, time series momentum consistently yielded favourable average returns, with minimal correlation with other asset categories.

3. Momentum Crashes and the 52-Week High (<https://doi.org/10.1080/0015198X.2023.2183706>)

The authors investigate if a stock nearing its 52 week high was more prone to momentum crash adding to the insights on how to reduce momentum crashes when implementing the factor.



A Comprehensive Exploration of Factor Investing.

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