HEDGE USING NVIX FUTURES

India VIX(NVIX) is the volatility index which indicates the expected market volatility based on Option prices of NIFTY. It is the volatility figure in percentage (%) calculated from the best bid-ask spreads of the prices of NIFTY Options contracts over the next 30 calendar days.

Summary

VIX futures being highly mean-reverting can give investors an attractive opportunity for managing tail risk. It has a steeper futures curve than other financial futures so require more in-depth analysis.

By using descriptive and inferential statistics it has been concluded that INDIA VIX has turned out to be a cheap investment to hedge your investments in NIFTY.

It is recommended that in tail events rather than opting expensive options and high carrying cost short dates futures, use NVIX futures as your hedging venue.

Introduction

Investments in NIFTY compels investors to search for a

cheap and effective venue for hedging in tail events.

NIFTY 50 is volatile at appropriate levels of significance and thus increases value at risk.

A perfect hedge may hedge investment completely, but that would mean NO RETURN. So, a better hedge would be to reduce risk significantly while still generating optimal returns.

A desire to get optimal returns while minimum possible risk makes NVIX better than other futures and options. It avoids expensive option premiums and expensive carrying costs associated with short dated futures.

An optimal portfolio i.e. a global minimum variance portfolio is generated to get the optimum levels of investments in NVIX to hedge effectively while still generating optimum returns.

Literature Review: WHILE Volatility index futures are rapidly traded in all major stock exchanges across the globe including NYSE, LSE and SSE but traders in India have been neglecting it since its launch in last decade. So, there are not much research reports available as of now. Maybe NSE need to generate more awareness about NVIX to make it a liquid and investable opportunity**.**

Methodology (Materials and Methods)

ASSUMPTIONS
1.NIFTY 50 IS VOLATILE AND THUS INCREASES THE VALUE AT RISK
2.RISK ASSOCIATED WITH INVESTMENTS IN NIFTY50 ARE SUBJECT TO A SIGNIFICANT AMOUNT OF RISK
3.INDIAVIX FUTURES CAN BE USED TO REDUCE PORTFOLIO RISK WHILE INCREASING RETURNS

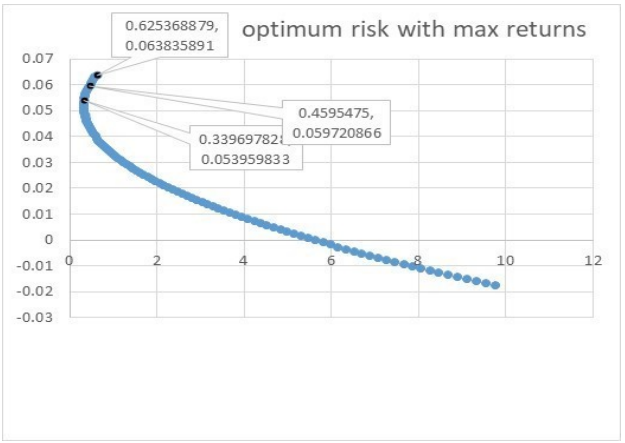
TECHNIQUES USED
1.CONDUCTED Z AND P VALUE TESTS TO PROVE THAT NIFTY 50 IS VOLATILE
2.CONDUCTED CHI SQUARE TEST TO PROVE THE SIGNIFICANCE OF RISK ASSOCIATED IN NIFTY50
3.CREATED A DATA TABLE AND AN INTERACTIVE CHART TO REPRESENT THE EFFICIENT PORTFOLIOS

ONLY LAST ONE YEAR DATA IS STUDIED BECAUSE THE INTEND IS TO DRAW CONCLUSION ABOUT THE SHORT-TERM STRATEGY ONLY.

THE ONLY SOURCE OF DATA IS NSEINDIA.COM FOR HISTORICAL DATA.

Results

BY allocating just **15%** of your portfolio to NVIX can significantly reduce risk while still generating optimal returns.



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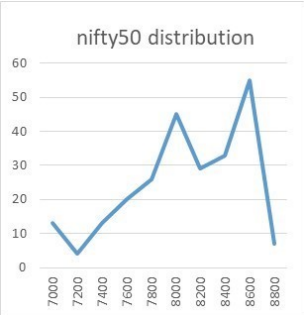
Discussion

After checking the distribution type, we can say that it is slightly negatively skewed but more or less a normal distribution. We neglect the minor inaccuracy in the bell shape of the curve because data is of just one year and it depicts sudden crash due to major events like BREXIT referendum.



At 15% level of significance, two tailed z value test, null hypothesis being NIFTY is stationary got rejected. At 15% level of significance critical z values stood at +/-1.44 and test revealed the value of an observation(selected randomly) at 1.61 z statistic which denotes p value at 10.74%. NIFTY50 being a very critical index we can say that at any p value less than 15% Null hypothesis gets rejected. SO NIFTY 50 IS NOT STATIONARY INFACT ITS QUITE VOLATILE.

Chi-square test was conducted to reassure that NIFTY50 variance is measured accurately. With 5% level of significance and critical value at 16.928 with df 28 chi statistics came at 18.06, so again we failed to reject null hypothesis that variance is zero. So we maintain our assumption that the associated risk is intact with NIFTY50 investments.

Using data table and what if analysis and simulating data to calculate portfolio risk and return at different allocation proportions it was inferred that by allocating just 15% of portfolio to NVIX, it reduced risk by 58% while reducing expected returns by just 18%.

Conclusion

Highly mean-reverting NVIX futures creates a volatile futures curve; but this volatility spells opportunity. Opportunity to hedge your investments.

References

ALL CALCULATIONS AND METHODS ARE APPLIED
BY THE AUTHOR SOLELY AT HIS OWN DISCRETION.