



# NIFTY50 STOCK INFLUENCE AND RISK-IMPACT ANALYSIS

A Data Driven Framework for Trading Decisions



# AGENDA

- Introduction and Problem Statement.
- Business Questions.
- Data and Methods.
- Understanding Data.
- Dashboard.
- Findings and Analysis.
  - *Top Influencing Stocks.*
  - *Impact vs Risk Analysis.*
- Insights.
- Conclusion.



Introduction

# PROBLEM STATEMENT



# PROBLEM STATEMENT

- Lack of a systematic approach to measure individual stock influence on NIFTY50 daily movements
- No established framework to categorize stocks by **impact** and **risk**
- Traders rely on intuition instead of **data driven insights**, limiting decision-making in options and index strategies
- Absence of an integrated dashboard to **monitor and act** on high-impact stocks in real time



Why? What? Which? When?

# BUSINESS QUESTIONS

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- Which individual stocks have the largest influence and impact on NIFTY50 daily moves?
- Which stocks create maximum volatility and risk?
- How to categorize stocks by impact & risk for trading strategies?



Data and Tools

**METHODOLOGY**



# DATA AND TOOLS

- Source : **Yahoo Finance** (10Y)
  - Nifty50 (Index) daily data of open, close, high, low, volume of 10 years.
  - All individual (50) stock's from Nifty50 daily data of 10 years close value.
- Tools Used :
  - **Python**
  - **Power BI**



# METHODOLOGY

- Data cleaning :
  - HDFCLIFE and SBILIFE were listed after mid 2017, adjust the calculations.
- Feature engineering :
  - Created daily returns from closing price from 50 stock's and nifty50 index.
  - *Created impact measurement correlation,  $R^2$ , Beta stock on index.*
  - *Created risk measurement Volatility and categorization of stock.*

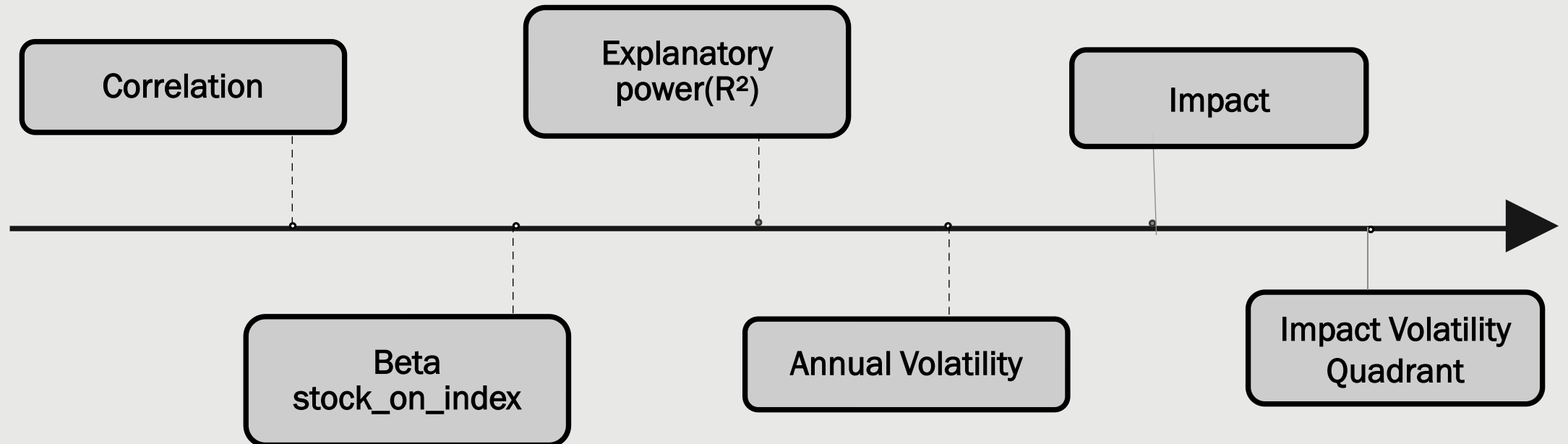
# UNDERSTANDING DATA

Unlocking new insights



# UNDERSTANDING DATA

- **Correlations** tells correlation between the stock's daily returns and Nifty50 daily returns.
- $R^2$  tells the measure of influence of single stock on index(Nifty50).
- **Beta** tells sensitivity of Nifty50 returns to a 1% move in the stock.
- **Impact** tells you how much influence a stock has on Nifty50 day to day movements combining both consistency ( $R^2$ ) and strength of effect ( $\beta$ ).
- **Annual Volatility** tells us how risky or stable a stock's daily moves are when annualized.





Presentation

**DASHBOARD**



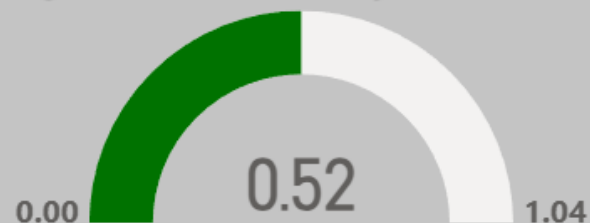


# Impact & Risk of 50 Nifty50 Stocks on the Index

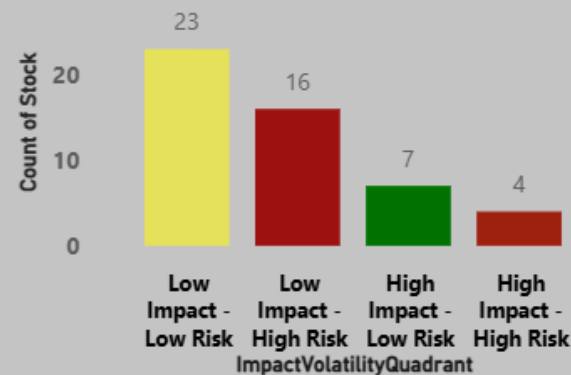
**HDFCBANK**  
HDFCBANK moves +1%  
NIFTY50 by 0.28%  
Highest Impact on Nifty50

**ADANI**  
Highest Volatility/Risk

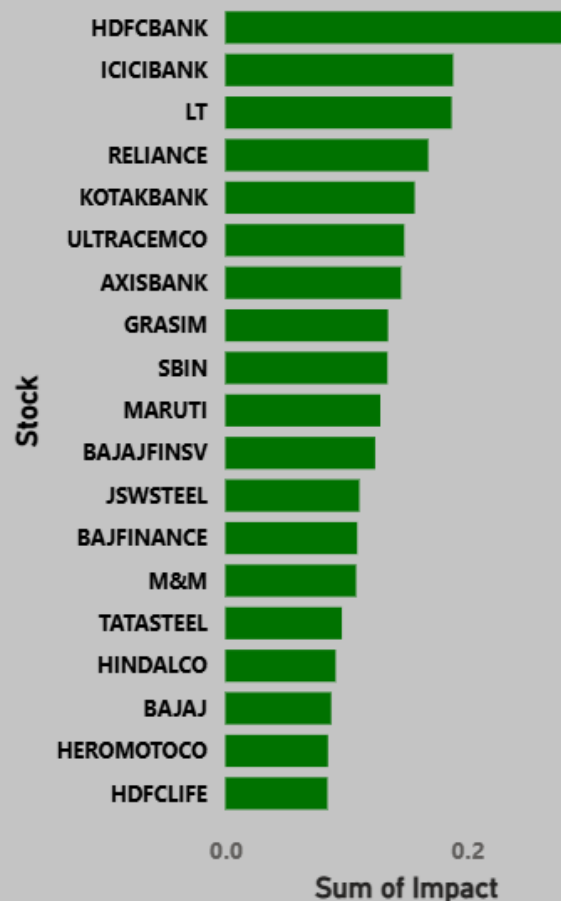
Avg Correlation with Nifty50



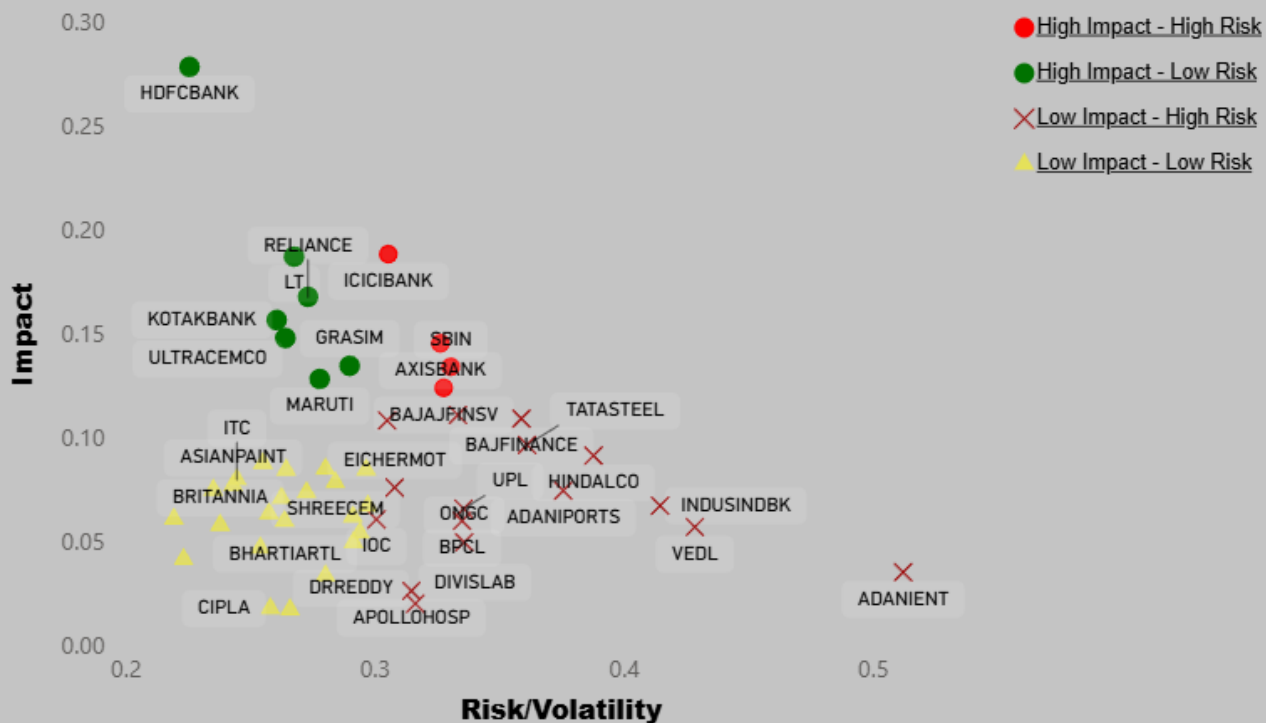
Count of Stock by  
ImpactVolatilityQuadrant



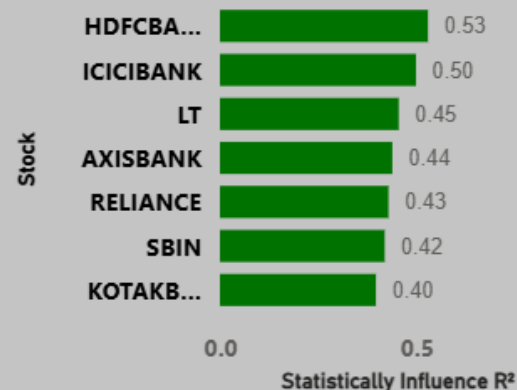
Impact on Nifty50 by Stocks



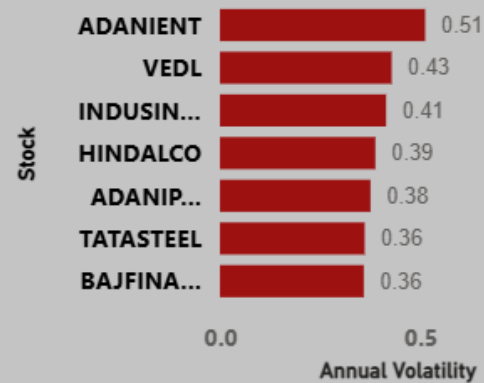
Distribution of Stocks by Quadrant



Influence Nifty50 Daily Moves( $R^2$ )



Annual Volatility by Stock



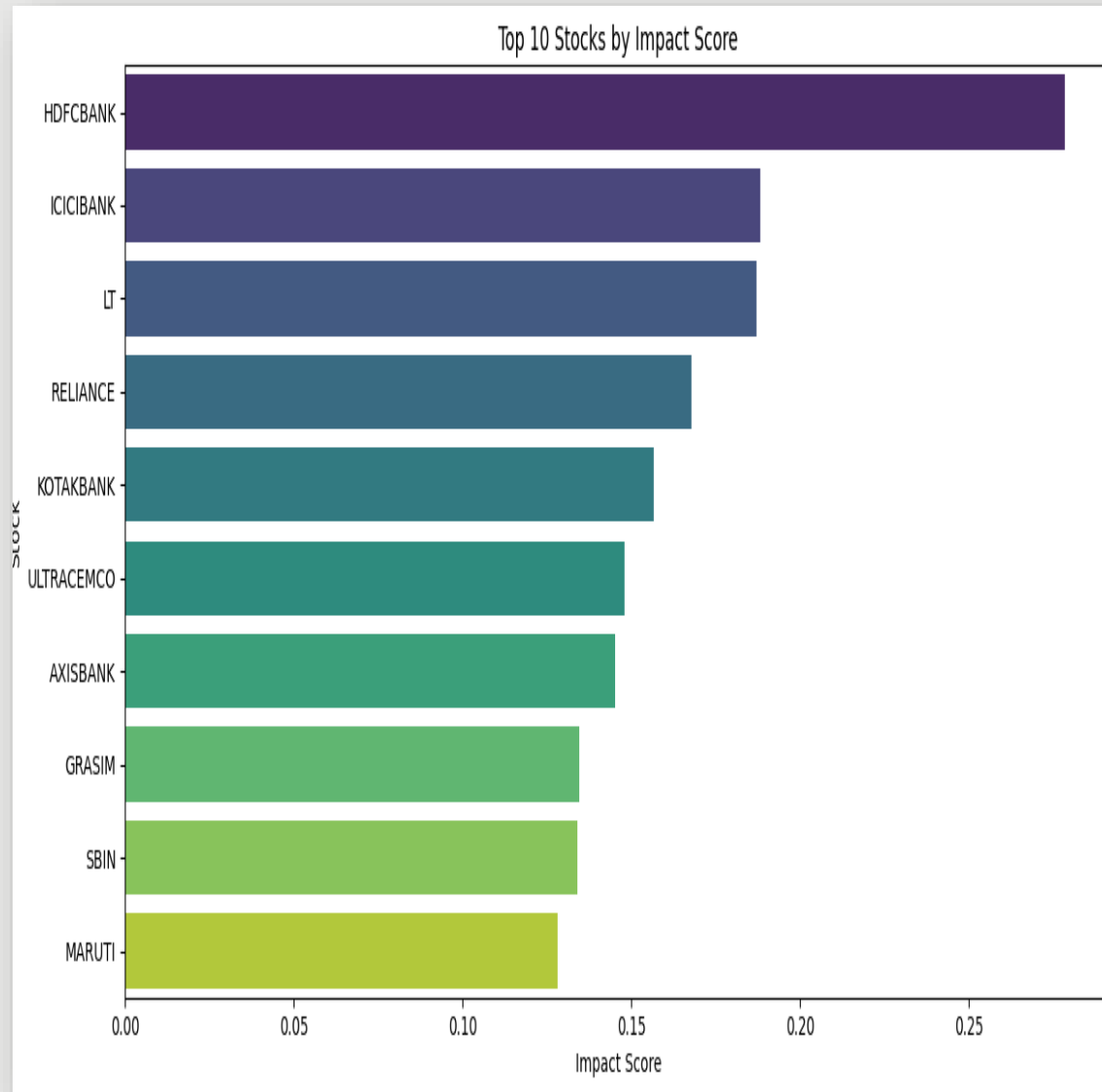
Impact Level



# FINDINGS AND ANALYSIS

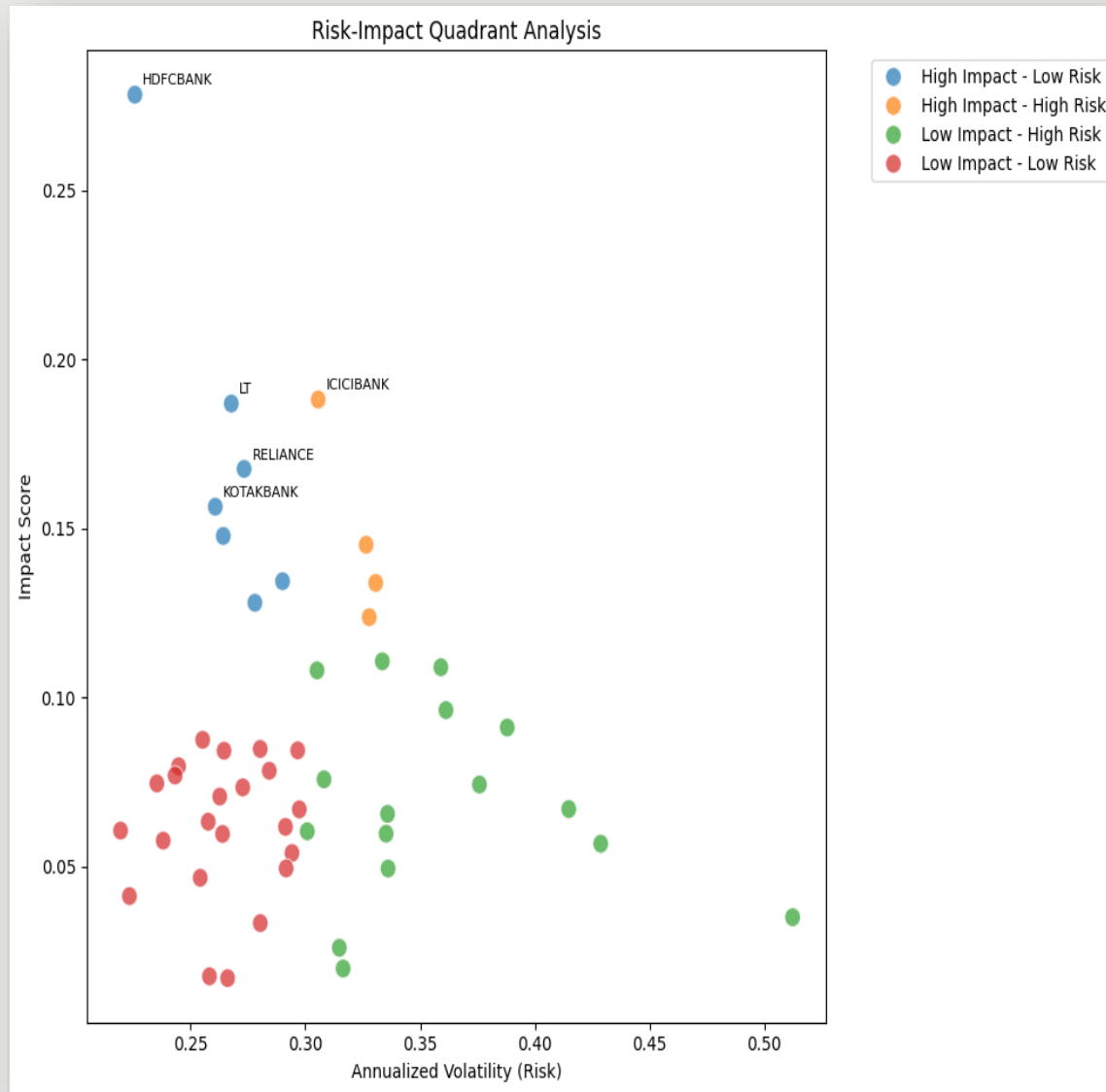
Search





## TOP INFLUENCING STOCKS

- **HDFCBANK** has the highest influence of 73% and impact score of 0.28% on Nifty50.
- ICICIBANK, L&T, RELIANCE also show a significant influence on Nifty50.
- Average moves of top 5 impact stock's is 68% times with Nifty50
- DRREDDY is the least influencing stock in Nifty50.



# IMPACT VS RISK ANALYSIS

- **HDFCBANK** is the only stock with High Impact Low Risk.
- KOTAKBANK, L&T, RELIANCE also in the range of High Impact Low to Medium Risk.
- All together there are 7 stocks in the range of High Impact Low to Medium Risk.
- ADANIENT is the stock with highest risk on Nifty50.





Point of View (POV)

**INSIGHTS**



# STOCK LEVEL INSIGHTS

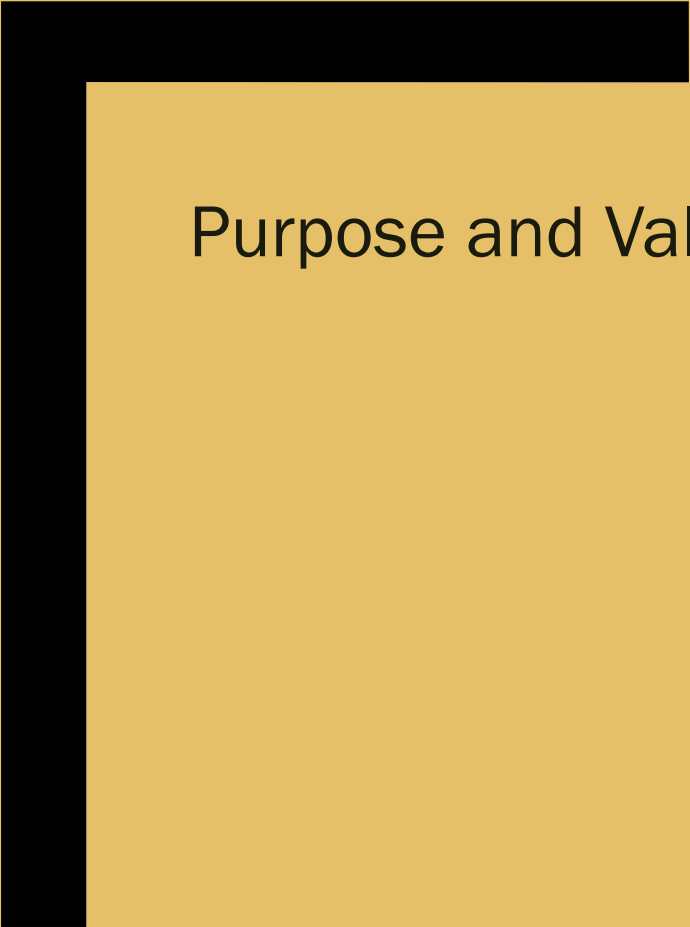
- **HDFCBANK is the most influential stock:**
  - *+1% move in HDFCBANK → +0.28% move in NIFTY50.*
  - *HDFCBANK is a prime candidate for **hedging/index-linked strategies**.*
- Some stocks like **HDFCBANK, RELIANCE, ICICIBANK, LT** have a large influence on NIFTY50, a move in these stocks explains a big chunk of the index move. if you hold these stocks, you can hedge your risk more effectively using NIFTY options/futures.
- On the risk side, **ADANIENT** (51%), **VEDANTA** (42%), **INDUSINDBK** (41%), **HINDALCO** (39%), and **ADANI PORTS** (37%) show the highest annual volatility, meaning they add uncertainty to NIFTY50 moves. High risk high reward in breakout cases.

# QUADRANT LEVEL INSIGHTS

- The distribution of stocks into four quadrants :
  - 23 in Low Impact–Low Risk.
  - 16 in Low Impact–High Risk.
  - 7 in High Impact–Low Risk.
  - 4 in High Impact–High Risk.
- This shows the majority of NIFTY50 stocks have low impact on index moves, while a handful drive both returns and risks.
- High Impact–High Risk stocks like HDFCBANK, KOTAKBANK, LT, ULTRACEMCO are safe for index hedging and less chances of extreme swings.
- High Impact – High Risk like RELIANCE, ICICIBANK, SBIN have a strong influence but are volatile in nature, good for short term option trading.

# INSIGHTS FOR OPTION TRADERS

- **Correlation of NIFTY50 with average stock = 0.52** which is moderate correlation. The index isn't always fully explained by individual stocks, but a basket of high-impact stocks can explain most of its moves.
- High Impact + High Risk stocks are best for selling premium strategies since they move the index and have volatility.
- To management risk avoid hedging with Low Impact High Risk stocks like ADANI, VEDL, ONGC they add noise instead of reducing risk.



Purpose and Value

**CONCLUSION**



# CONCLUSION

- By integrating impact and volatility insights traders can design smarter option strategies, manage risk exposure, and improve decision making consistency on the trading desk.
- Categorizing stocks by Impact vs Risk helps traders choose between option buying (high impact, low risk) and option selling (high volatility, high premium) strategies.
- Impact on index(nifty50) moves is uneven and volatility differs widely.



# THANK YOU

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