

# Algorithmic Trading

And the Future of Investing

Parijat Garg, CFA

# Myths

- Algo trading has to be fully automated, requires high performance computers and very intense programming
- Algo trading carries very high/very low risk
- Algo trading is pure arbitrage
- Algo trading involves front-running
- Algo trading cannot do as well as value investing

# What Is It

**An rules-based objective process to  
generate buy and sell decisions**

# Why It Works

- Objective systems are less prone to behavioral mistakes
- Back-test-ability
- Ideas are often scalable and replicable across markets and asset classes
- Improvements accumulate because no need to train humans (like AI) but they also get arbed away (unlike typical AI solutions)
- Speed advantage

# Strategies

**Directional**

**Long/Short**

**Market-Making**

**Arbitrage**

# Inputs

Daily Market Data

Fundamental  
Data

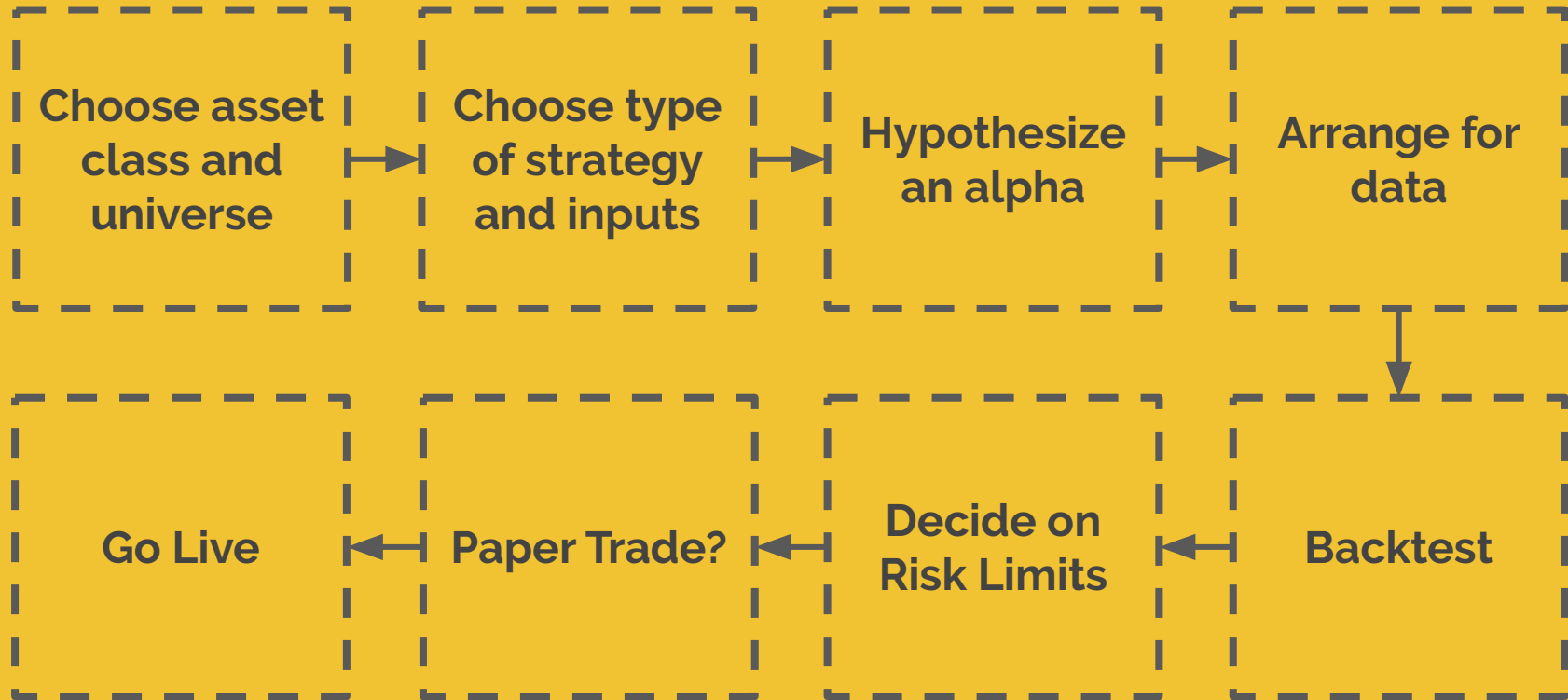
Macroeconomic  
Data

News

High Frequency  
Data

Alternative Data

# Putting It Together



**In theory...**



# A Real Strategy

## Momentum Long/Short

1. **Universe:** Large-cap Indian stocks
2. **Strategy Type:** Long/Short
3. **Alpha:** Momentum (Buy the winners, sell the losers)
4. **Data:** Monthly returns

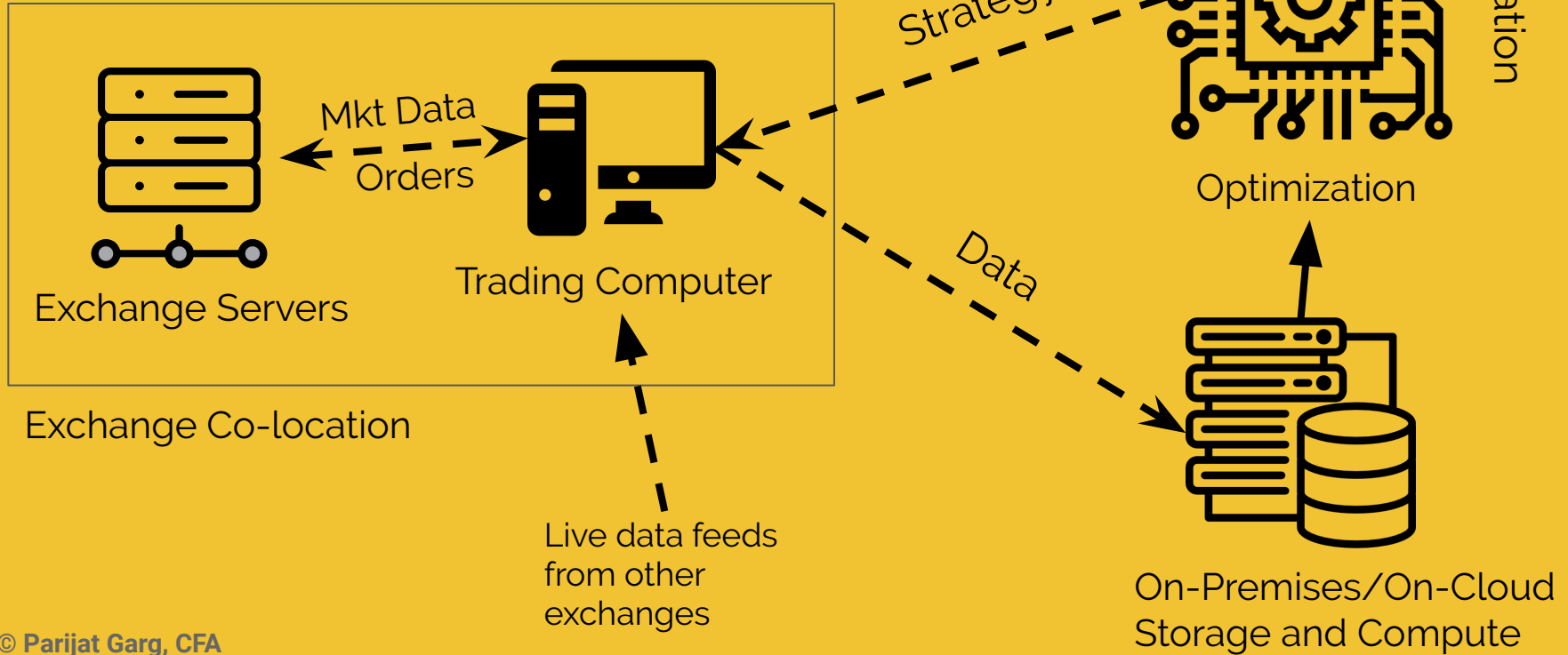
**In practice...**

# A Real Strategy

## Momentum Long/Short

1. **Universe:** Large cap stocks
2. **Strategy Type:** Long/Short
3. **Alpha:** Momentum (Buy the winners, sell the losers)
4. **Data:** Monthly returns

# The Anatomy of HFT



# Risks

**Operational**  
**(KCG)**

**Regulatory**  
**(Speedbumps)**

**Financial /  
Model**  
**(LTCM)**

**Human /  
Behavioral**  
**(RenTec)**

# Tales From The Field

**KCG loses \$440 million**

[Link](#)

**Renaissance's Medallion Fund  
Amasses Annual Returns of 66%  
Before Fees (of 5/44)**

[Link](#)

# Investing vs Trading

What are the *inputs* and what is the *holding period*

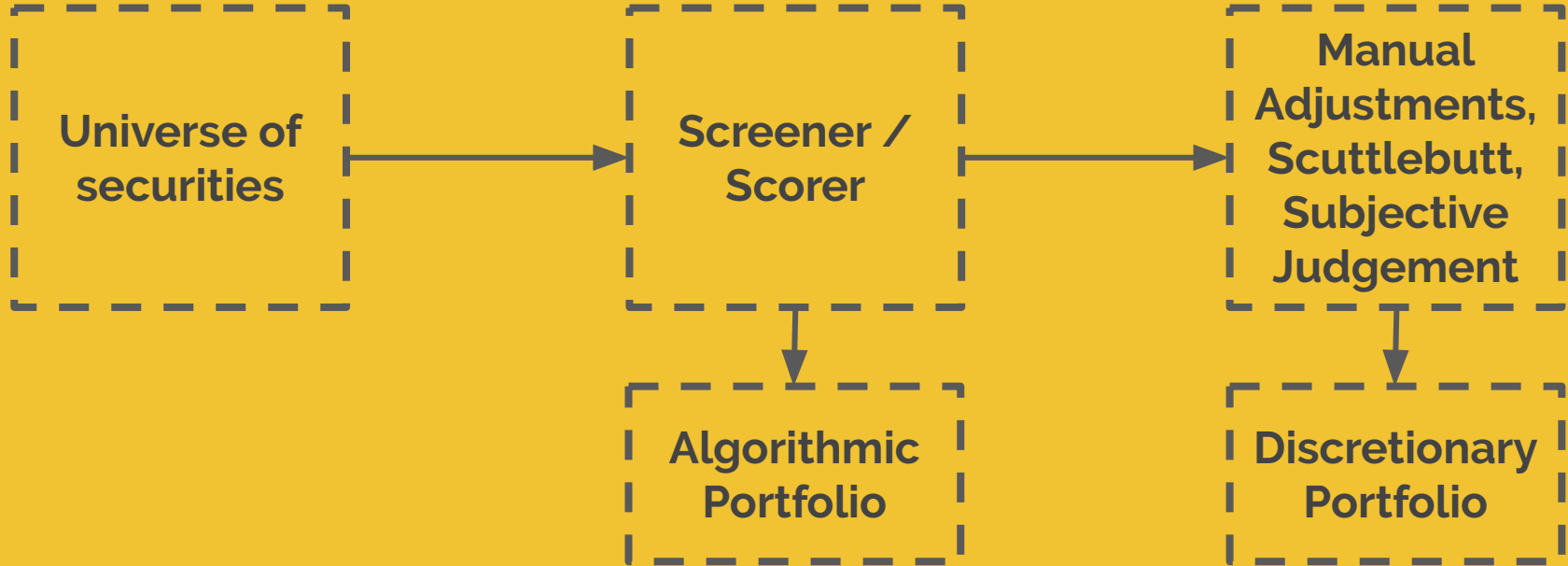


# A Different Kind of Algo

## Your screener as an investing algo

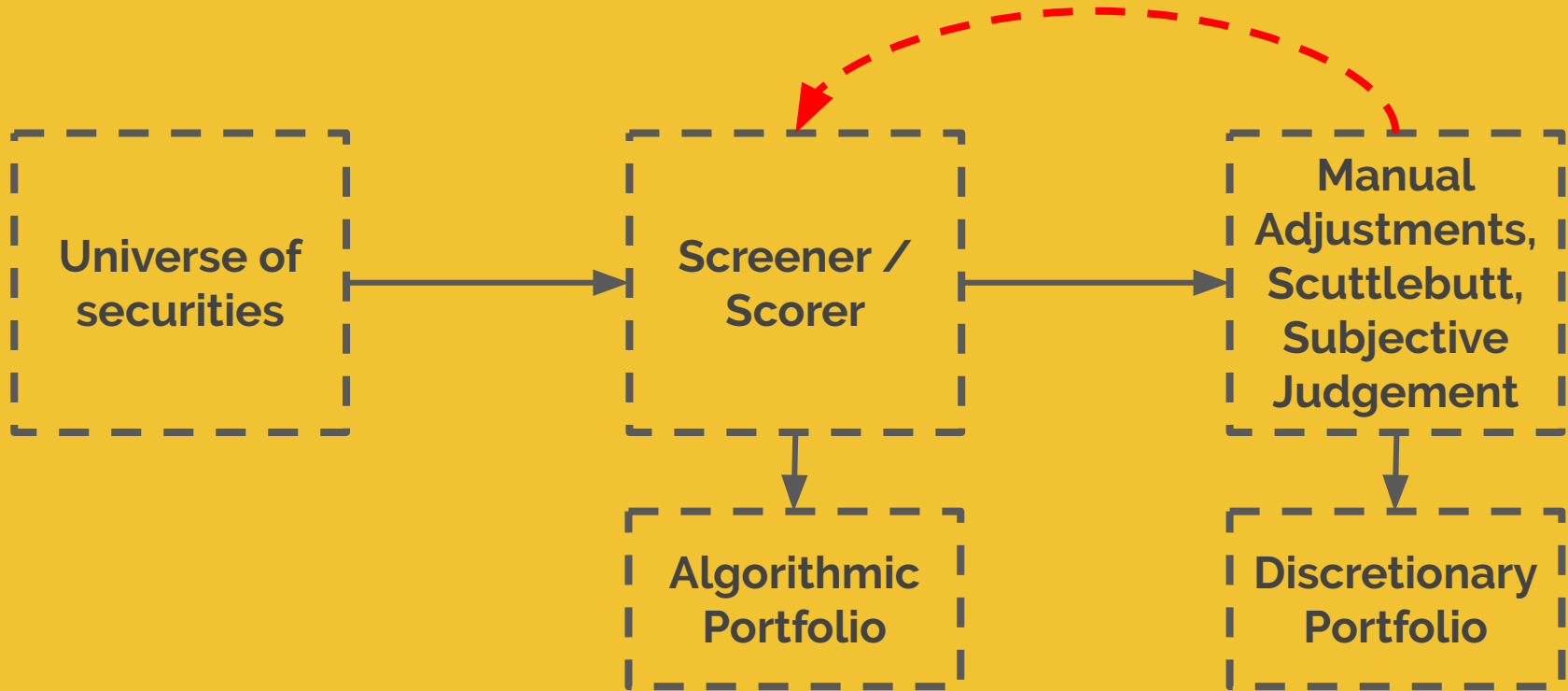
1. **Universe:** BSE 500 Companies
2. **Strategy Type:** Long Only
3. **Alpha:** High quality and low valuation (ROCE > 15%, P/B < 2)
4. **Data:** Quarterly Financials and Stock Price

# Algo Trading vs. Investing



**It's all about *Base Rates***

# Algo Trading vs. Investing



# What's Being Automated

1. **ESG:** Assessment of metrics across all of E S and G (eg: SASB)
2. **Accounting Shenanigans:** Much deeper analysis
3. **Public Perception:** Using social media monitoring
4. **Scuttlebutt:** Analysis of export-import data, Nielsen reports, litigation
5. **Management Quality:** Automated analysis of earnings calls, annual reports for management focus and reliability
6. **And more...**

# The Duality



**Foursquare predicts Chipotle's earnings two weeks in advance**

[Link](#)

# Tales From The Field

**Quandl is selling daily estimates of  
car sales by model and  
manufacturer**

[Link](#)



# Tales From The Field

**Orbital Insights uses daily  
photographs of the entire planet to  
drive insights**

[Link](#)

# How to get started

**Validate Your  
Screens**

**Analyse  
Drivers of  
Portfolio  
Returns**

**Codify Your  
Decision Rules**



Photo Credit: Kristoffer  
Tripplaar/Alamy

**Are You Thinking  
“Long-Term”?**

Image Credits, via [www.flaticon.com](http://www.flaticon.com) licensed under [CC 3.0 BY](https://creativecommons.org/licenses/by/3.0/)  
Thanks to: [Eucalyp](#), [Gregor Cresnor](#), [Pause08](#), [SimpleIcon](#),