



# **Automated Investment Platform**

Group 12

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01

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# Stock Analysis

# Comprehensive Stock Information

- Using yFinance pull in below data:
  - *Company information*
  - *Current Stock Price*
  - *Current Market Cap*
  - *EPS*
  - *PE Ratio*
  - *Price/Book*
  - *Return on Equity*
  - *Total Debt/Equity*
  - *Current Ratio*
  - *Total Debt*
  - *Total Asset*

02

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# **BUY Strategy**

# Key Phases of BUY Strategy

*Phase 1.*

Behavioral Finance Analysis



1. Medium-term Momentum,
2. Prospect Theory

*Phase 2.*

Fundamental Analysis



Profitability, Liquidity, Leverage Metrics

*Phase 3.*

Stock Ranking and Selection



# Phase 1 - Behavioral Finance Analysis

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## Medium-term Momentum

- Identify stocks with upward momentum over 2 months to 1 year.
- Mutual fund flows reinforce momentum (winners keep winning).
- **Coding Logic:**
  - Calculate slope of past prices
  - **positive slope = candidate for further analysis.**

# Phase 1 - Behavioral Finance Analysis

## 2

### Prospect Theory

- **Insights:**
  - a. High beta = higher returns due to risk compensation.
  - b. Negative skewness = higher compensation for loss aversion.
  - c. Positive capital gain overhang = potential underpricing correction.
- **Coding Logic:**
  - Assign scores based on beta, skewness, and capital gain overhang
  - $\text{beta} > 1.0 \rightarrow 1 \text{ point}$
  - $\text{skewness} < 0 \rightarrow 1 \text{ point}$
  - $\text{capital gain overhang} > 0 \rightarrow 1 \text{ point}$
  - **retain stocks with a score of two points or higher**



# Phase 2 - Fundamental Analysis

- **Metrics Considered:**

- Profitability: P/E Ratio, P/B Ratio, EPS Growth, ROE
- Liquidity: Current Ratio
- Leverage: Debt-to-Equity (D/E), Debt-to-Asset (D/A)

- **Scoring System:**

- Assign points based on thresholds for each metric.
- Examples:

P/E

- $P/E \geq 20 \rightarrow 0$  point
- $P/E \leq 10 \rightarrow 1$  point
- $10 < P/E < 20 \rightarrow 0.5$  point

# Phase 2 - Fundamental Analysis

- **Thresholds for each metric**

- P/E
  - $P/E \geq 20 \rightarrow 0$  point
  - $P/E \leq 10 \rightarrow 1$  point
  - $10 < P/E < 20 \rightarrow 0.5$  point
- Price-to-Book (P/B) Ratio:
  - $P/B \leq 1 \rightarrow 1$  point
  - $P/B \geq 3 \rightarrow 0$  point
  - Between 1 and 3  $\rightarrow 0.5$  point
- EPS Growth
  - $\text{EPS Growth} \geq 10\% \text{ yoy} \rightarrow 1$  point
  - $\text{EPS Growth} \leq 0\% \text{ yoy} \rightarrow 0$  point
  - Between 0% and 10%  $\rightarrow 0.5$  point
- ROE
  - $\text{ROE} \geq 15\% \rightarrow 1$  point
  - $\text{ROE} \leq 10\% \rightarrow 0$  point
  - Between 10% and 15%  $\rightarrow 0.5$  point
- Current Ratio:
  - $\text{Current Ratio} \geq 2 \rightarrow 1$  point
  - $\text{Current Ratio} \leq 1 \rightarrow 0$  point
  - Between 1 and 2  $\rightarrow 0.5$  point
- Debt-to-Equity Ratio:
  - $\text{D/E Ratio} \leq 1 \rightarrow 1$  point
  - $\text{D/E Ratio} \geq 2 \rightarrow 0$  point
  - Between 1 and 2  $\rightarrow 0.5$  point
- Debt-to-Asset Ratio:
  - $\text{D/A Ratio} \leq 0.25 \rightarrow 1$  point
  - $\text{D/A Ratio} \geq 0.50 \rightarrow 0$  points
  - Between 0.25 and 0.50  $\rightarrow 0.5$  points

# Phase 3 - Stock Ranking and Selection

- **Ranking Process:**
  - Combine scores from fundamental analysis
  - Rank stocks by total score; select the stock with the highest score
- **Final Filter (If Tied):**
  - Use ROE for profitability focus
  - Buy stock with the highest ROE

03

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# **SELL Strategy**

# Key Phases of SELL Strategy



*Phase 1.*  
Fundamental Analysis



Examine profitability, liquidity, leverage metrics to identify weak stocks

*Phase 2.*  
Behavioral Finance Analysis



1. Identifies stocks with negative momentum  
2. Prospect Theory  
(beta, skewness, and capital gain overhang)

*Phase 3.*  
Final Filter (If Tied)



Sell stock with the lowest Capital Gain Overhang.

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**THANKS!**

