

Factor Classification Report:

Fundamental and Technical Indicators

I. Fundamental Factors

Fundamental factors provide insights into a company's financial health, operational quality, and future growth potential. In this study, we categorize fundamental indicators into five core groups:

1. Profitability Factors

These indicators reflect a company's ability to generate earnings relative to its revenue, assets, or capital.

- **Gross Profit Margin (GPM):** $\text{Gross Profit} / \text{Revenue}$
- **Net Profit Margin (NPM):** $\text{Net Income} / \text{Revenue}$
- **Return on Equity (ROE):** $\text{Net Income} / \text{Shareholders' Equity}$
- **Return on Assets (ROA):** $\text{Net Income} / \text{Total Assets}$
- **Return on Invested Capital (ROIC):** $\text{Net Income} / \text{Invested Capital}$
- **Operating Profit Margin (OPM), Gross Profit to Assets (GPOA), Cash Flow to Assets (CFOA)**

2. Growth Factors

Growth metrics capture the rate of expansion in a company's operations or earnings over time.

- **Revenue Growth (QoQ):** Quarterly change in total revenue
- **Operating Profit Growth (QoQ):** Change in operating income
- **ROA Change (QoQ), ROE Change (QoQ)**

3. Accrual Quality Factors

These factors measure the reliability and sustainability of reported earnings.

- **Accrual Ratio (APR):** $(\text{Operating Income} - \text{Operating Cash Flow}) / \text{Operating Income}$
- **APR Difference (APRD):** Change in APR from previous quarter

- **Cash Sales Ratio (CSR):** Operating Cash Flow / Revenue
- **CSR Difference (CSRΔ):** Change in CSR from previous quarter

4. Safety Factors

Safety indicators evaluate a company's financial stability, leverage, and liquidity.

- **Current Ratio (CR):** Current Assets / Current Liabilities
- **Quick Ratio (QR):** (Current Assets - Inventory) / Current Liabilities
- **Debt-to-Equity Ratio (DTE):** Total Debt / Shareholders' Equity
- **Cash to Total Assets (CCR)**
- **Interest Coverage Ratio (ICR)**
- **Equity to Assets, Liabilities to Assets, etc.**

5. Operating Efficiency Factors

These metrics assess how efficiently a company utilizes its assets and capital in generating revenue.

- **Total Asset Turnover (TAT):** Revenue / Total Assets
- **Fixed Asset Turnover (FAT):** Revenue / Fixed Assets
- **Working Capital Turnover (WCT):** Revenue / Working Capital
- **OCFA:** Residual from regression of operation cost on fixed assets, representing capacity utilization improvement

II. Technical Factors

Technical indicators are derived from price and volume data and are widely used in momentum and trend-based strategies.

1. Trend Indicators

Used to identify the direction and strength of price trends.

- **Moving Average (MA):** Simple average over a fixed window (e.g., 20-day MA)
- **Exponential Moving Average (EMA):** Gives more weight to recent prices
- **MACD:** Measures trend direction and momentum shifts

- **ADX (from DMI):** Quantifies trend strength
- **SuperTrend:** Combines trend-following and volatility principles

2. Momentum Indicators

These indicators measure the speed or strength of price movements.

- **Relative Strength Index (RSI)**
- **KDJ (Stochastic Oscillator)**
- **Williams %R**
- **Momentum (MOM)**
- **Rate of Change (ROC)**

3. Volume Indicators

Volume-based metrics evaluate trading activity and confirm trends.

- **On-Balance Volume (OBV)**
- **Volume Moving Average**
- **Volume Ratio (VR)**
- **Money Flow Index (MFI)**

4. Volatility Indicators

These measure the degree of variation in a stock's price over time.

- **Average True Range (ATR)**
- **Bollinger Bands (BOLL)**
- **Price Standard Deviation (STD_N)**

Conclusion

The combination of fundamental and technical factors provides a holistic view of a company's valuation, risk, growth potential, and market sentiment. By integrating these signals, we can construct more robust and data-driven investment strategies tailored for both value and momentum-oriented approaches.