

Are you familiar with momentum trading strategies?

Reasoned about momentum trading strategies for a second

Yes, I am familiar with momentum trading strategies. These strategies typically involve identifying a trading based on the continuation of market price trends. They assume that if an asset price is moving strongly in one direction, it is likely to continue moving in that same direction for some period of time.

If you have any specific questions about momentum trading—such as how to identify momentum, the types of indicators used, risk management techniques, or backtesting approaches—feel free to let me know!

Describe the trading strategies discussed in Jegadeesh and Titman - "Returns to Buying Winners and Selling Losers- Implications for stock Market Efficiency"

Reasoned about Jegadeesh and Titman strategies for a few seconds ▼

In their influential 1993 paper, "**Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency**," Narasimhan Jegadeesh and Sheridan Titman analyze **momentum investment strategies** in the U.S. equity market. Below is a concise overview of the main strategies they examine and their key findings.

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## 1. The Core Idea: Momentum Strategies

Jegadeesh and Titman focus on what we now call **momentum**: the idea that stocks which have performed relatively well (i.e., **winners**) over a certain past "ranking" period tend to continue to perform well in the near future, while stocks that have underperformed (i.e., **losers**) tend to continue to underperform.

To test this, they construct **zero-cost** trading strategies that go **long in winners** and **short in losers** based on prior returns.

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## 2. How They Construct the Portfolios

1. **Ranking (Formation) Periods:** They rank stocks by their **past 3-, 6-, 9-, or 12-month returns** (i.e., lookback windows).
2. **Selection of Winners/Losers:**
  - After ranking the stocks from highest to lowest returns over the chosen formation period, they typically select:
    - **Top decile (or top quintile) as winners**
    - **Bottom decile (or bottom quintile) as losers**
  - This produces two baskets: a "winner" portfolio and a "loser" portfolio.
3. **Holding Periods:**
  - They then hold these winners and short the losers for **3, 6, 9, or 12 months**.

- While the paper presents multiple horizons, the most common approach in their study (and widely cited thereafter) is a **6-month ranking period** followed by a **6-month holding period** ("6/6 strategy").

#### 4. Rolling Strategy:

- To simulate a continuous real-world strategy, they roll the portfolio monthly. In other words, each month, a new winner/loser portfolio is formed (based on the most recent formation period), and a prior month's strategy matures and is unwound.
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## 3. Key Findings

#### 1. Positive Abnormal Returns:

- Jegadeesh and Titman find that these momentum strategies yield significant positive return over 3- to 12-month horizons.
- On average, the zero-cost (long winners, short losers) portfolios generate **positive excess returns** of around 1% per month (depending on the exact formation-holding combination).

#### 2. Persistence of the Effect:

- The outperformance of winners over losers is strongest in the **first few months** after portfolio formation (i.e., right after the ranking period).
- Over the next 3 to 12 months, winner portfolios consistently beat loser portfolios.

#### 3. Reversal Over the Long Run:

- When looking at **longer horizons** (e.g., 2-3 years out), the initial momentum profits **tend to reverse**, suggesting that stocks that were initially winners eventually underperform, and vice versa. This longer-term reversal phenomenon is a different, though related, anomaly widely documented in other research (e.g., De Bondt and Thaler).

#### 4. Implications for Market Efficiency:

- The existence of these abnormal returns suggests that markets may **underreact** to new information in the short to intermediate term.
- Jegadeesh and Titman's results challenge the strict version of the Efficient Market Hypothesis (EMH), as the observed momentum returns cannot be fully explained by conventional risk factors or transaction costs (at least as modeled at the time).

#### 5. Robustness Tests:

- The authors conduct various tests to ensure that the results are not driven by small-cap stocks only, nor purely by risk-based explanations. The findings persist after controlling for different data sub-periods and market conditions.
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## 4. Practical Takeaways

#### 1. Typical Implementation:

- Investors can apply a **ranking period** (e.g., the last 6 months of returns), pick top and bottom performers, and then hold those positions for another **fixed duration** (also often 6 months).
- Portfolios are updated (rebalanced) on a regular schedule—often monthly—to capture the rolling nature of momentum.

## 2. Risk Management & Costs:

- While the paper finds significant raw returns, **transaction costs** can erode profits, especially if the strategy involves frequent trading.
- Risk management involves limiting turnover, avoiding extremely illiquid stocks, and considering short-selling constraints.

## 3. Market Underreaction Hypothesis:

- A leading explanation for the momentum effect is that investors fail to immediately or fully incorporate new information into prices, leading to a gradual drift that the momentum strategy exploits.

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# 5. Influence and Later Research

Since Jegadeesh and Titman's 1993 paper, a large body of research has further confirmed momentum effects in various markets (equities, commodities, currencies) and across different time frames. Their methodology of forming portfolios based on past returns and then holding them for fixed periods became a **standard template** for testing price momentum strategies in academic finance.

Overall, **Jegadeesh and Titman's key contribution** is the clear, systematic demonstration that **buying recent winners and shorting recent losers** can yield significant, risk-adjusted outperformance in the **intermediate term**, a result that has shaped both academic research on anomalies and the practice of quantitative investing.

Let's assume I have a stock with ticker Symbol "X". Let's further assume that the stock's price on 1/1 is 1.01, on 1/2 is 1.02 and so on until 1/30, where it is 1.30. Similarly, the stock's price in February ranges from 2.01 to 2.28. This pattern continues through the year. X's final price of the year is 12.31. I decide to construct a portfolio including this stock on 5/1 and will hold the portfolio for 1 month. Please show me the formula for calculating the 3 month lookback ("J") return as of 5/1 and the formula for calculating the holding period return ("K") after one month.

Reasoned about momentum strategy calculations for 42 seconds ▼

Below is a standard way to express the **3-month lookback return ("J")** as of a particular date—in the case, **May 1**—and then the **1-month holding period return ("K")** from May 1 to (approximately) June 1. This is in the spirit of a momentum strategy that uses a 3-month formation window (lookback) and then a 1-month holding window.

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## 1. 3-Month Lookback Return as of May 1

Let  $P_X(t)$  denote the **price** of stock  $X$  on date  $t$ .

- You want to measure how much the stock moved **over the previous 3 months** (i.e., from around February 1 to April 30).

A common way to calculate the **percentage change** over that 3-month lookback is:

$$R_{J=3}(\text{May 1}) = \frac{P_X(\text{April 30})}{P_X(\text{January 31 or Feb 1})} - 1$$

Depending on whether you treat the end of January (Jan 31) or the beginning of February (Feb 1) as your start, you adjust accordingly. In many implementations of momentum strategies (especially with monthly data), you use prices on the last trading day of each month. Hence you might see something like:

$$R_{J=3}(\text{May 1}) = \frac{P_X(\text{April 30}) - P_X(\text{January 31})}{P_X(\text{January 31})}$$

Both forms are equivalent:

$$\frac{P_X(\text{April 30})}{P_X(\text{January 31})} - 1 \quad \text{vs.} \quad \frac{P_X(\text{April 30}) - P_X(\text{January 31})}{P_X(\text{January 31})}.$$

## 2. 1-Month Holding Period Return After May 1

If you **buy** the stock at the closing price on May 1 and **hold** it until June 1 (or the last trading day of May, whichever is your end point), the **holding period return** is:

$$R_{K=1} = \frac{P_X(\text{June 1})}{P_X(\text{May 1})} - 1$$

or equivalently,

$$R_{K=1} = \frac{P_X(\text{June 1}) - P_X(\text{May 1})}{P_X(\text{May 1})}.$$

## 3. Putting It All Together

- **Formation (Lookback) Period ( $J = 3$ ):** Measure the stock's total return over 3 months leading up to May 1.
- **Ranking:** Decide if  $X$  is a "winner" (high lookback return) or "loser" (low lookback return) compared to other stocks.
- **Holding Period ( $K = 1$ ):** On May 1, you go long (and/or short) the selected stocks and hold for 1 month, realizing the return  $R_{K=1}$ .

Hence, for a single stock  $X$ :

1. **3-month lookback return (as of May 1)**

$$R_{J=3}(\text{May 1}) = \frac{P_X(\text{April 30})}{P_X(\text{January 31})} - 1$$

2. **1-month holding period return (May 1 to June 1)**

$$R_{K=1} = \frac{P_X(\text{June 1})}{P_X(\text{May 1})} - 1$$

These formulas capture the **percentage gain** (or loss) over the respective intervals, which is exactly what you need for a standard momentum strategy in the spirit of Jegadeesh and Titman's "buy winners and sell losers" framework.