

# Short-Term Reversals and Longer-Term Momentum Around the World: Theory and Evidence

Jegadeesh, Luo, Subrahmanyam, Titman

Discussion by Ricardo De la O

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- What about ST reversal (Jegadeesh 1990)?
  - ▶ Less attention?
  - ▶ A.K.A. “momentum is stronger if you skip the first month”

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- Test these implications on US and international data
- Great paper: Necessary and big step in our understanding of momentum

# This discussion

- Model overview
- Discuss implications
- Evidence
  - ▶ Comments on implications < – > evidence
- Comments
  - ▶ Timing of information
  - ▶ Earnings announcements
  - ▶ Definition of momentum and reversal

# Model

- Three periods
- Noise traders
  - ▶  $D_1 = z_t \rightarrow D_2 = z_2 \rightarrow D_3 = z_3$ , where  $z_t \in (0, \nu_z)$
  - ▶ Demand is at least partly transitory
  - ▶  $\nu_z$  : degree of noise trading
- Risk-averse investors
  - ▶  $\lambda$  informed investors
  - ▶  $1 - \lambda$  uninformed investors, which underreact to signals
- Timing of signals
  - ▶  $T_1 : \theta + \xi + \epsilon + \zeta \rightarrow T_2 : \theta + \xi + \epsilon \rightarrow T_3 : \theta + \xi \rightarrow T_4 : \theta$
- Uninformed investors think:  $\theta = \theta_1 + \theta_2$ 
  - ▶  $T_1 : \theta_1 + \xi + \epsilon + \zeta \rightarrow T_2 : \theta_1 + \xi + \epsilon \rightarrow T_3 : \theta_1 + \xi \rightarrow T_4 : \theta$

## ST reversal and Momentum

- ***STrev***  $\equiv \frac{\text{Cov}(P_1 - P_0, P_2 - P_1) + \text{Cov}(P_2 - P_1, P_3 - P_2) + \text{Cov}(P_3 - P_2, P_4 - P_3)}{3}$



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- Each period:
  - ▶ Noise trading demand shocks  $D_1, D_2, D_3$  with size  $\nu_z$
  - ▶ Limited risk-bearing capacity  $\rightarrow$  Prices move
  - ▶ Demand shocks transitory  $\rightarrow$  Prices revert next period
  - ▶  $STrev < 0$ : **ST reversal**

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- Over two periods:

- ▶ If  $\nu_z$  small enough,  $P_2$  closer to fundamental than  $P_0$
- ▶ Uninformed underreact to  $T_2$  signal:  $P_2$  doesn't move 'enough'
- ▶  $Mom > 0$ : **Momentum**

## Testable implications

- ② Higher noise trading exacerbates ST reversals
  - ▶ Higher  $\nu_z \rightarrow$  risk-averse investors require higher premium
  - ▶  $\text{Cov}(P_t - P_{t-1}, P_{t+1} - P_t) \downarrow$  for all  $t$

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## Testable implications

- 1 At  $T_2$ , ST reversal is attenuated (if  $T_2$  signal is “sufficiently precise relative” to  $T_3$  signal)
  - ▶ Reversal due to noise trading is expected at all  $t$
  - ▶ But in  $t = T_2$ , there is also an underreaction effect
    - ★  $\text{Cov}(P_2 - P_1, P_3 - P_2) > \text{Cov}(P_t - P_{t-1}, P_{t+1} - P_t)$  at other  $t$
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  - ▶ Question: What is special about  $T_2$ ?
    - ★ If  $T_1$  signal more precise than  $T_2$ , shouldn't we expect more attenuation at  $T_1$ ?
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# Evidence

- US sample: monthly CRSP data 1931-2020
- International Sample: 22 developed, 27 emerging monthly data

$$r_{i,t} = \rho + \sum_{j=1}^{12} (\rho_j r_{i,t-j}) + \epsilon_{i,t}$$



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- US evidence {1961-1990, 1991-2020}
  - ▶  $\rho_1 \in \{-.048^{***}, -.012^{***}\} \rightarrow$  ST Reversal!
  - ▶  $\rho_{3-12} \in \{.016^{***}, .005^{**}\} \rightarrow$  Momentum!

## Testable implication #1

- Implication: During  $T_2$ , ST reversal is attenuated
- Paper interprets  $T_2$  as earnings announcements
  - ▶  $T_1$  and  $T_3$  as analyst guidance
- Specification:

$$r_{i,t} = \rho + \sum_{j=1}^{12} (\rho_j r_{i,t-j}) + \phi \times r_{i,t-1} \times EAD_{i,t-1} + b \times EAD_{i,t-1} + \epsilon_{i,t}$$

- $\phi \approx .02^{***} > 0 \implies$  ST Reversal attenuates!

## Testable implication #2

- Implication: Higher noise trading  $\nu_z$  exacerbate ST reversals
- Proxy for  $\nu_z$ : Retail trade imbalance
- Specification:

$$r_{i,t} = \rho + \rho_1 r_{i,t-1} + \phi \times r_{i,t-1} \times \text{RetailOIB}_{i,t-1} + b \times \text{RetailOIB}_{i,t-1} + \epsilon_{i,t}$$

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- Question: Why is the specification different than the previous specification?

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- Specification: Pooled cross-sectional regression across countries

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All correlations negative!
- Question: Why not just test implication 3 directly?
  - ▶ Already have proxy for  $\nu_z$
  - ▶ Test retail trade imbalance on momentum

## Comment 1: Timing of information

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- Private info arrives before resolution, but after public information

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- Contrasts with early-private info vs late-public info dynamics
  - ▶ Timing used by authors to explain Momentum+LT reversal
  - ▶ Easier story to tell: as time goes by, information unravels

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  - ▶ But is it crucial for testable predictions?
- Suggestion: More hand-holding on the interpretation of timing

## Comment 2: Earnings announcements in the model

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- Suggestion:
  - ▶ Define earnings announcement in the model as “the time at which the signal is more precise”
    - ★ This seems like an easier interpretation to digest, (but not sure it's correct)

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- In a different paper (and model), authors show autocovariance is equivalent to average profit of a cross-sectional strategy
  - ▶ It wasn't clear that in this model the derivation is equivalent

## Conclusion

- Clever and compact model unifying ST reversal+momentum
- Easier to complement (conceptually) with an additional explanation on LT reversal
- Some interpretation details:
  - ▶ Some timing choices are not as intuitive as unifying theories of momentum+LT reversal
  - ▶ The mapping of Earnings Announcement evidence to the model still needs some clarifications
- Happy to have dipped my toes into the water of momentum research!