

“Memory Moves Markets”
Constantin Charles (USC)

Discussion by:

Nancy R. Xu

Boston College

AFA, New Orleans

January 6, 2023

What does this paper do?

Provides empirical evidence of the existence, and, the implications of memory-induced attention in the U.S. capital market, by exploiting randomly overlapping earnings announcement events.

What does this paper do?

Provides empirical evidence of the existence, and, the implications of memory-induced attention in the U.S. capital market, by exploiting randomly overlapping earnings announcement events.

- ▶ **Associative Memory Theory** Kahana (2012); Bordalo, Gennaioli and Shleifer (2020) – when an investor is cued by an event, she recalls past experiences that are similar to the cue.

What does this paper do?

Provides empirical evidence of the existence, and, the implications of memory-induced attention in the U.S. capital market, by exploiting randomly overlapping earnings announcement events.

- ▶ **Associative Memory Theory** Kahana (2012); Bordalo, Gennaioli and Shleifer (2020) – when an investor is cued by an event, she recalls past experiences that are similar to the cue.
- ▶ **Memory-Induced Attention**
 - ⇒ {Association in memory} Firm-1 and Firm-2 are associated in memory, as their last quarter's earnings were announced on the same day;
 - ⇒ {Cue} Firm-1 announces earnings today, but Firm-2 does not;
 - ⇒ {"Memory-Induced Attention"} Investor attention would still be paid to Firm-2 (the cued firm) today, causing buying pressure and hence a higher abnormal daily return for Firm-2.

What does this paper do?

Provides empirical evidence of the existence, and, the implications of memory-induced attention in the U.S. capital market, by exploiting randomly overlapping earnings announcement events.

- ▶ **Associative Memory Theory** Kahana (2012); Bordalo, Gennaioli and Shleifer (2020) – when an investor is cued by an event, she recalls past experiences that are similar to the cue.
- ▶ **Memory-Induced Attention**
 - ⇒ {Association in memory} Firm-1 and Firm-2 are associated in memory, as their last quarter's earnings were announced on the same day;
 - ⇒ {Cue} Firm-1 announces earnings today, but Firm-2 does not;
 - ⇒ {"Memory-Induced Attention"} Investor attention would still be paid to Firm-2 (the cued firm) today, causing buying pressure and hence a higher abnormal daily return for Firm-2.
- ▶ **Economic magnitude:** A memory cue lead to a daily abnormal return of 3-5 basis points of the "cued" firm.

What does this paper do?

Provides empirical evidence of the existence, and, the implications of memory-induced attention in the U.S. capital market, by exploiting randomly overlapping earnings announcement events.

- ▶ **Associative Memory Theory** Kahana (2012); Bordalo, Gennaioli and Shleifer (2020) – when an investor is cued by an event, she recalls past experiences that are similar to the cue.
- ▶ **Memory-Induced Attention**
 - ⇒ {Association in memory} Firm-1 and Firm-2 are associated in memory, as their last quarter's earnings were announced on the same day;
 - ⇒ {Cue} Firm-1 announces earnings today, but Firm-2 does not;
 - ⇒ {"Memory-Induced Attention"} Investor attention would still be paid to Firm-2 (the cued firm) today, causing buying pressure and hence a higher abnormal daily return for Firm-2.
- ▶ **Economic magnitude:** A memory cue lead to a daily abnormal return of 3-5 basis points of the "cued" firm.
- ▶ **Literature:** A wide literature on **external** sources of attention in various context; little evidence on the **internally**-motivated attention ⇒ This paper fits here

Empirical results

► **Specification:** $return_{j,t} = \alpha + \beta * cue_{j,t} + \gamma_t + u_{j,t}$

⇒ $return_{j,t}$: daily factor-adjusted returns;

⇒ $cue_{j,t}$: 1 if ≥ 1 firm(s) that announced earnings on the same day as j , in any of the past 4 quarters; 0 otherwise;

⇒ γ_t : Time FE;

⇒ β : of interest.

Empirical results

- ▶ **Specification:** $return_{j,t} = \alpha + \beta * cue_{j,t} + \gamma_t + u_{j,t}$
 - ⇒ $return_{j,t}$: daily factor-adjusted returns;
 - ⇒ $cue_{j,t}$: 1 if ≥ 1 firm(s) that announced earnings on the same day as j , in any of the past 4 quarters; 0 otherwise;
 - ⇒ γ_t : Time FE;
 - ⇒ β : of interest.
- ⇒ **Exploited randomization:** Two firms' Earnings announcement schedules (e.g., second Thursday of a fiscal quarter; 18th day of the next month) landing on the same day is a random event;
- ⇒ **Sample:** 16,474 firms, to start with; j does not have an own earnings announcement within $[t-3, t+3]$;
- ⇒ **Variation to capture:** Within the same day, comparing firms with a memory cue and those without.
- ⇒ **Quality control:** Association only from the previous quarter; "Pattern Firm" sample (firms that follow a strict quarter-specific pattern);

Main results & mechanism tests

- ▶ **Main:** A cueing event leads to a daily abnormal return of 3.8 bps

Panel B: Pattern Firm Sample

Dependent variable:	Return on day t (%)			
	(1)	(2)	(3)	(4)
Cue (dummy)	0.038*** (0.011)	0.027** (0.013)		
Cue _{t-1} (dummy)			0.062*** (0.015)	0.053*** (0.018)

- ▶ **Mechanism:** The effect of memory cue \uparrow for...
 1. Contiguity: Associations with smaller past announcement gaps
 2. Recency: Associations with more recent co-occurrences
 3. Interference: Associations with fewer total co-occurrences at the same time

Comments

- ▶ Quite thought-provoking! Novel idea; strong evidence; clear writing
- ▶ Provides **evidence for an internal source of attention** induced by memory formation, followed by an implication on trading strategy

Comments

- ▶ Quite thought-provoking! Novel idea; strong evidence; clear writing
- ▶ Provides **evidence for an internal source of attention** induced by memory formation, followed by an implication on trading strategy
- ▶ *Coming up:* **Three extending thoughts**
 1. Understanding the associated cues
 2. Proposing ways to provide some direct evidence
 3. Minor comments / wonders...

#1 Understanding the associated cues

- ▶ I believe the story, and the competing fundamental story is well controlled for. If this (**memory-induced attention**) has not been done and documented, it is worth spending more time documenting several **characteristics/dimensions** of this **new state variable**.

#1 Understanding the associated cues

- ▶ I believe the story, and the competing fundamental story is well controlled for. If this (**memory-induced attention**) has not been done and documented, it is worth spending more time documenting several **characteristics/dimensions** of this **new state variable**.
- ▶ The paper has shown some efforts, for instance, using $cue_{j,t,q-1}$ from only the most recent quarter and using the Pattern Firm only; but I think some more tests could make the paper clearer and more convincing:
 1. Intensive margin: Is this story a pure extensive margin one, or the intensity of association also matters? For instance, some co-occurrences in the past (quarters) might have caused memory to grow deeper and stay more rigid.
Suggestion: One can use the main specifications to back out / identify which combinations (firm1-firm2-time) appear to trigger the stronger “memory cues” today? While understanding the existence is important, the next natural question is, what was remembered? The answers might help the modelers to write down a simple framework to capture this novel empirical fact in the paper.

#1 Understanding the associated cues

- ▶ I believe the story, and the competing fundamental story is well controlled for. If this (**memory-induced attention**) has not been done and documented, it is worth spending more time documenting several **characteristics/dimensions** of this **new state variable**.
- ▶ The paper has shown some efforts, for instance, using $cue_{j,t,q-1}$ from only the most recent quarter and using the Pattern Firm only; but I think some more tests could make the paper clearer and more convincing:
 1. Intensive margin: Is this story a pure extensive margin one, or the intensity of association also matters? For instance, some co-occurrences in the past (quarters) might have caused memory to grow deeper and stay more rigid.
Suggestion: One can use the main specifications to back out / identify which combinations (firm1-firm2-time) appear to trigger the stronger “memory cues” today? While understanding the existence is important, the next natural question is, what was remembered? The answers might help the modelers to write down a simple framework to capture this novel empirical fact in the paper.
 2. Industry or network? The type of variation the paper exploits is mainly within-time, or across firms. If cues only matter when the pairs are from the same industry or *network* (whatever that means...), it might still go against the story.
Suggestion: One test that could help towards your way (of eliminating fundamental explanations) is to particularly focusing on the {Firm1,Firm2} association where the cue is coming from a different industry.

#2 Direct evidence

- ▶ Two core empirical pillars of this story:
 - (1) The state-variable-being “Attention” (rather than information), and
 - (2) Memory-induction
- ⇒ For (1): I wonder, if there is a more direct evidence to prove **attention**.
Suggestion: Do news mentions of this association or co-mentions of the associated firms go up, when a memory cue arrives ($cue_{j,t} = 1$)?

#2 Direct evidence

- ▶ Two core empirical pillars of this story:
 - (1) **The state-variable-being “Attention” (rather than information), and**
 - (2) **Memory-induction**
- ⇒ For (1): I wonder, if there is a more direct evidence to prove **attention**.
Suggestion: Do news mentions of this association or co-mentions of the associated firms go up, when a memory cue arrives ($cue_{j,t} = 1$)?
- ⇒ For (2): I also wonder, if this is a pure memory (behavioral) story, then it should be able to be observed in various co-occurring events and/or various market participants behaviors too?
Suggestion: Checking analyst recommendations of the stocks? Do you see abnormal incoming forecast entries of the associated firm in IBES? Of course, as a macrofinance observer, we see macro announcements co-occur all the time; can do find similar stories there too (again, as potential validation; probably worth a new paper)?

#3 Minor comments

- ▶ Asymmetry. In the current panel setup, a $\{Firm1, Firm2\}$ associate appears twice. Is there a parent-child (asymmetric) relation in their respective effect on memory formation and elicitation later on?
- ▶ Good and bad memories.
- ▶ Small writing suggestions: (1) The last sentence of the first paragraph of 3.2 is a little confusing; should define Pattern Firm (in the second paragraph) earlier. (2) Footnote 6, I would list out the url link in the paper, rather say “click here.” (3) Explain what you mean by “day” earlier?

Conclusion

- ▶ **Highly recommend!**
- ▶ **My comments:**
 1. Understanding the associated cues
 2. Proposing ways to provide some direct evidence
 3. Other thoughts

Conclusion

- ▶ **Highly recommend!**
- ▶ **My comments:**
 1. Understanding the associated cues
 2. Proposing ways to provide some direct evidence
 3. Other thoughts

Thank You!

nancy.xu@bc.edu

Constantin: Viel glück with the job market :)