Disagreement, Liquidity, and Price Drifts in the Corporate Bond Market

Yoshio Nozawa, Yancheng Qiu, Yan Xiong

Discussion

Dan Segal, Reichman University, Israel

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Outline

- Key Findings and Overall Assessment
- Background - PEAD
- Motivation
- Liquidity and Disagreement
  - General
  - Findings
  - Model
- Equity Market vs. Credit Market

Key Findings

- PEAD exists in the bond and CDS markets
- *Positively* associated with liquidity, so illiquidity does not drive the phenomenon, and positively associated with disagreement
- Authors provide unifying explanation - Difference of Opinion (DO) model whereby investors agree to disagree

Overall Assessment

- Very intriguing findings, making the paper interesting
- Contribution although VERY crowded research area
- Nice model to explain the seemingly contradictory relation between PEAD and liquidity
- Very rigorous analysis, with many sensitivity analyses

Background: The PEAD - Synthesis of Findings

- One of the most researched phenomenons with close to 11,000 papers citing Ball and Brown (1968)
- Debate whether the phenomenon still exists. Results are robust (Ball and Brown, 2019) although the returns to the strategy decline over time; PEAD disappeared in recent years (Martineau 2021)
- Evidence suggests that PEAD is attributed to trading frictions impeding price discovery - transaction costs (Ng et al. 2008), arbitrage risks (Mendenhall, 2004), illiquidity (Chordia et al., 2009), and limited investor attention (DellaVigna and Pollet, 2009) [See Fink 2021 for review of the lit]
- Decrease in PEAD is attributed to the decrease in trading costs and the increase in price informativeness over time

Motivation

- Authors motivate the study arguing that the bond market provides an ideal setting to disentangle liquidity and disagreement effects on PEAD
  - Is the bond market relevant for the PEAD?
    - Highly sophisticated investors
    - Limited set of firms
    - Large firms

Set of firms where one expects, *ex-ante*, to find minimal to non-existent PEAD.

Motivation

- Is the bond market relevant for the PEAD (cont.)?
  - Lower volatility
  - High transaction costs
  - Lower liquidity

Even if PEAD does exist - how one disentangles the drivers of the phenomenon and trading frictions? is it feasible to realize the returns? Are the returns sufficient to recover transaction costs?

  - Further, bond market exhibit efficient pricing to the extent that anomalies, including PEAD, in equity market disappear in the bond market (Chordia et al. 2017)

Motivation - Disentangling Disagreement and Liquidity

- Liquidity (together with low short-sale constraints and other trading frictions) is crucial for disagreement to manifest in trading (Miller 1977; Carlin et al. 2012)
- So, not clear why the authors choose the bond market - a market with ex-ante characteristics (low liquidity, high transaction costs) that make it difficult to identify let alone separate the two effects.
- Further, ex ante, are the results generalizable or attributed solely to the bond market?
- Equity, bond, and CDS markets are integrated ==> CF shocks are observed as frequently across markets, so this begs the question [again] - given its limitations why bond market?

Liquidity and Disagreement - PEAD

- Both extensively examined: negative association with liquidity (e.g. Chordia et al. 2009; Sadka 2006) and positive association with information uncertainty (e.g. using analyst dispersion: Ayers et al., 2011; Han et al., 2009; Imhoff and Lobo, 1992; Liang, 2003)
- Hence, the key result in the paper - disagreement drives PEAD (through under-reaction to news) and volume, resulting in positive association between liquidity and PEAD - is interesting and intriguing

Liquidity and Disagreement - The Model

- The authors explain the link between the PEAD, disagreement, and liquidity using a Difference of Opinion (DO) model where investors have heterogeneous priors and interpret information differently
  - Realistic assumption? Why more suitable than Rational Expectation (RE) model where investors disagree due to information asymmetry?
  - Key result of the model is that PEAD manifests when noise trading is low:
    - Result is counterintuitive - one common explanation for the drift is the presence of noise => consequently, prices are slow to aggregate information and, as a result, drift slowly towards the fundamental value
    - And contradicts [extensive] empirical findings that PEAD is negatively associated with level of sophistication (see Fink 2021 for review)
    - How do we explain PEAD in the equity market? Different model? Why? Note, model is silent about type of market

Liquidity and Disagreement - The Model

- The model assumes disagreement among investors (each interprets the public signal differently). Hence upon the arrival of a public signal there is high volume and it takes time for prices to converge to their fundamental value
  - But if disagreement is the key ingredient then we should observe BOTH high volume and [close] to zero return around the EA [main goal of DO is to explain volume and volatility patterns, not returns]. Yet the empirical evidence in general and in this paper is that CAR[-1,+1] is the highest in absolute value at the extreme earnings surprise portfolios - the PEAD is lower relative to the immediate reaction

Liquidity and Disagreement - The Model

- The model ties the knots by arguing that in order for prices to converge [in the presence of disagreement] there must be sufficient liquidity so that investors can express their opinion through trading
  - This provides testable implication - if the story is correct than PEAD is affected by the interaction of disagreement and liquidity
    - 5X5 matrix (disagreement and liquidity)
    - Interaction model

Liquidity and Disagreement - Results

- The authors establish [weak] positive association between liquidity and PEAD (Table 6); and positive association between disagreement and PEAD (Table 8).
- They resolve the "puzzle" by showing positive association between disagreement and ***volume*** (on EA day/ month):

Disagreement Quintiles	Average Dis-agreement	PEAD 11-Factor Alpha	Turnover (%) on Announcement Day	Turnover (%) on Announcement Month
Panel A: Analyst Forecast Dispersion (*DISP*) As Disagreem				
Low	0.0005	0.10** (2.01)	0.48	0.41
2	0.0011	0.11*** (2.91)	0.55	0.44
3	0.0022	0.16*** (3.12)	0.60	0.46
4	0.0048	0.10* (1.69)	0.75	0.54
High	0.0306	0.43*** (3.31)	1.14	0.68
High - Low		0.33** (2.25)		

- BUT, liquidity and volume are unrelated over time (Johnson 2008)

Liquidity and Disagreement - Results

- Indeed a careful look at the table - shows that high disagreement is concentrated in firms with **HIGH ILLIQUIDITY** - high BAS, low rating:

Disagreement Quintiles	Average Dis-agreement	PEAD 11-Factor Alpha	Turnover (%) on Announcement Day	Turnover (%) on Announcement Month	*Bond Vol*	*Stock Vol*	*Size*	*Rating*	*Maturity*	*Down*	*BAS*	*ACOV*
Panel A: Analyst Forecast Dispersion (*DISP*) As Disagreement Proxy												
Low	0.0005	0.10**	0.48	0.41	1.73	1.36	660.70	7.27	10.59	2.60	69.86	0.77
		(2.01)										
2	0.0011	0.11***	0.55	0.44	1.80	1.47	687.87	7.69	11.07	2.80	75.56	0.92
		(2.91)										
3	0.0022	0.16***	0.60	0.46	1.89	1.65	713.00	8.31	10.52	2.95	80.33	1.02
		(3.12)										
4	0.0048	0.10*	0.75	0.54	2.09	1.93	748.85	9.14	9.86	3.29	81.15	1.12
		(1.69)										
High	0.0306	0.43***	1.14	0.68	3.31	2.69	659.50	11.29	8.76	5.52	96.48	1.83
		(3.31)										

Divergence between Credit Markets and Equity Market

- Using the same sample of firms the authors find no PEAD in the equity market. This is quite difficult to explain.
  - The explanations offered (size, decay of PEAD over time) are not convincing. After all, these are the same firms. Further, the disagreement story holds (in theory) IRRESPECTIVE of market.
  - A somewhat simpler explanation is that the PEAD in the bond market is not large enough to cover transaction cost and liquidity risk and hence not arbitraged away

Summary

- Interesting paper; robust results; very diligent analyses; well written
- Need to explain better why the bond market is the most suitable setting to examine the implications of DO model for the PEAD
- More support for the suitability of the DO model in this setting
- Strengthen the empirical analysis re the interaction of the two effects
- More rigorous analysis on the divergence of results across markets

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- More rigorous analysis on the divergence of results across markets