Discussion on "Bonds, Stocks, and Sources of Mipricing" by Avramov, Chordia, Jostova, and Philipov

Jennie Bai
Gerogetown University

ABFER
May 23, 2017

Motivation of the Paper

- Financial distress is the source of mispricing (Avramov, et.al 2013)
  - Intuition: distressed firms are highly illiquid and hard to short sell, which establish hurdles for exploiting anomalies
- Sentiment is the source of mispricing (Stambaugh, et.al, 2012)
  - Intuition: in high sentiment period, investors have tendency to overprice the stocks which have anomaly characteristics

$\Rightarrow$ What is the common source of mispricing? (this paper)

- Examine the stock/bond returns sorted by firms' overpricing and credit risk (cross-section) in different sentiment periods (time-series).

An Ambitious Work!

1. Rational vs Behavioral
   Credit risk is more a rational story, while sentiment a behavioral one.
   To reconcile two is a challenge!

An Ambitious Work!

1. Rational vs Behavioral
   Credit risk is more a rational story, while sentiment a behavioral one.
   To reconcile two is a challenge!

2. Time-series vs Cross-section
   Overpricing and credit risk examines the cross-sectional variation of firms, while market sentiment focuses on the time-series variation.
   To explain both dimensions is a challenge!

An Ambitious Work!

1. Rational vs Behavioral
   Credit risk is more a rational story, while sentiment a behavioral one.
   To reconcile two is a challenge!

2. Time-series vs Cross-section
   Overpricing and credit risk examines the cross-sectional variation of firms, while market sentiment focuses on the time-series variation.
   To explain both dimensions is a challenge!

3. Stocks vs Bonds
   The equity market and the corporate bond market are segmented, having different risk factors.
   To distinguish their mispricing sources is a challenge!

Main Findings

- In low sentiment periods, no mispricing for either stocks or bonds.
- In high sentiment periods, no mispricing for stocks or bonds of low credit risk firms.

- Financial-distressed firms tend to have overpricing
- High credit risk firms do not have mispricing in low sentiment time

- Price reaction of stocks and bonds to downgrade events vary much in high or low sentiment
- Bonds of a firm with overpriced equity have lower returns following high sentiment periods

- When distressed firms are downgraded, they have anomaly characteristics in both high and low sentiment periods
- Mispricing of stocks and bonds are likely driven by investors excessive optimism to distressed firms

General Comment: Sharpen the Contribution

- Each of the following two topics can make it alone an interesting paper!
  1. Commonality of mispricing sources for stocks by combining the stories of sentiment and financial distress
  2. Common risk factors of stocks and bond mispricing and its comparison

- To sharpen the contribution, each topic needs further investigation

Comment 1: Sentiment + Financial Distress

- What's the economic rationale for the joint findings of behavioral story on sentiment and rational story on financial distress?

- Is it really a sentiment story or others?
  For example, financial-distressed firms may generate mispricing over business cycle instead of sentiment cycle?
  Also, how to separate from the story of shorting premium(Drechsler and Drechsler, 2016) ?

- Typically, sentiment matters due to the existence of individual investors. For corporate bonds dominated by institutional investors, why should we expect sentiment play a key role?

  > "so if sentiment ...exists, it is likely to affect one particular type of institutional investor more than another. For example, ...hedge funds are more likely to be contrarian while mutual funds tend to be trend followers" (P29) – Any supporting evidence that mutual funds tend to follow sentiment trend?

Comment 2: Mispricing of Corporate Bonds

There is well-documented literature on equity mispricing, but far less clear on bond mispricing. To understand the source of mispricing, one needs to first get a clear picture on bond mispricing.

- Chordia et.al.(2015) and Choi and Kim (2015) examine whether equity market anomalies hold in the corporate bond market.
  - Most equity market anomalies do not hold in bond market.
  - Exceptions include asset growth and profitability.
- Bai, Bali, and Wen (2015, 2016) show that bond market has prominent features which distinguish them from the equity market.
  - Corporate bonds are invested dominating by institutions, who are more risk-averse and cautious;
  - Corporate bonds are capped by upside payoff and are sensitive to downside risk;
  - Corporate bonds are more illiquid and less volatile than equities;
  - All existing pricing factors have very limited explanatory power on bonds.

Corporate Bond Pricing (Bai, Bali, and Wen, 2016)

Test assets: 25 portfolios formed on size and maturity

	Alpha (α)					t-statistics				
Model 1: MKT^{Stock}, SMB, and HML, MOM, LIQ										
	Short	2	3	4	Long	Short	2	3	4	Long
Small	0.46	0.50	0.57	0.43	0.46	2.45	2.19	2.32	2.23	1.86
2	0.36	0.51	0.52	0.36	0.55	2.91	2.42	2.21	1.20	2.70
3	0.36	0.47	0.49	0.52	0.66	3.33	2.80	2.32	2.86	3.10
4	0.34	0.43	0.50	0.48	0.64	3.06	3.03	2.31	2.91	2.82
Large	0.26	0.39	0.59	0.53	0.76	2.74	3.12	2.75	3.17	3.10
Average α	**0.49**									
p-GRS	0.00									
Model 2: MKT^{Bond}, DEF, TERM, and MOM^{bond}										
Small	0.38	0.49	0.5	0.38	0.43	3.18	2.72	2.83	2.34	2.08
2	0.31	0.4	0.39	0.36	0.44	3.59	2.63	1.71	1.37	2.42
3	0.27	0.35	0.29	0.37	0.48	3.32	2.27	1.60	2.27	2.32
4	0.26	0.31	0.33	0.33	0.44	2.89	2.36	1.54	1.81	1.84
Large	0.21	0.33	0.49	0.43	0.6	3.65	3.24	2.81	2.78	2.61
Average α	**0.38**									
p-GRS	0.00									
Model 3: MKT^{Bond}, DRF, CRF, and LRF										
	Short	2	3	4	Long	Short	2	3	4	Long
Small	0.12	0.12	0.15	0.11	0.11	1.13	1.12	1.29	1.02	1.06
2	0.10	0.10	0.10	0.07	0.14	0.63	0.56	0.58	0.60	1.10
3	0.08	0.10	0.07	0.12	0.16	0.46	0.80	0.65	1.22	1.92
4	0.07	0.09	0.08	0.09	0.15	0.66	0.68	0.97	1.28	1.42
Large	0.08	0.10	0.15	0.14	0.21	0.91	0.93	0.81	0.83	1.92
Average α	**0.11**									
p-GRS	0.02									

Test assets: 25 portfolios formed on size and maturity

Model 1: MKT^{Stock}, SMB, and HML, MOM, LIQ

	Short	2	3	4	Long
Small	0.11	0.18	0.10	0.12	0.18
2	0.16	0.20	0.14	0.19	0.14
3	0.29	0.23	0.20	0.09	0.07
4	0.23	0.15	0.17	0.06	0.06
Large	0.04	0.04	0.09	0.03	0.05
Average R^2	**0.13**				

Model 2: MKT^{Bond}, DEF, TERM, and MOM^{bond}

	Short	2	3	4	Long
Small	0.50	0.50	0.48	0.40	0.31
2	0.45	0.47	0.34	0.47	0.29
3	0.41	0.33	0.37	0.24	0.18
4	0.44	0.31	0.32	0.17	0.13
Large	0.48	0.33	0.35	0.16	0.13
Average R^2	**0.34**				

Model 3: MKT^{Bond}, DRF, CRF, and LRF

	Short	2	3	4	Long
Small	0.78	0.86	0.85	0.82	0.85
2	0.79	0.88	0.82	0.92	0.87
3	0.76	0.80	0.79	0.67	0.64
4	0.73	0.67	0.72	0.55	0.57
Large	0.67	0.64	0.74	0.57	0.60
Average R^2	**0.74**				

Test assets: 30 Industry Portfolios

Industry #	Industry description	Model 1	$t(\alpha)$	Model 2	$t(\alpha)$	Model 3	$t(\alpha)$
1	Food	0.47	(3.78)	0.31	(2.62)	0.18	(1.53)
2	Beer	0.40	(4.20)	0.32	(3.37)	0.23	(2.71)
3	Smoke	0.56	(2.76)	0.56	(2.65)	0.26	(1.33)
4	Games	0.90	(2.17)	0.94	(2.47)	0.01	(0.03)
5	Books	0.65	(1.99)	0.54	(1.57)	-0.30	(-1.02)
6	Household	0.59	(2.42)	0.62	(2.54)	0.25	(1.08)
7	Clothese	0.80	(2.42)	0.45	(1.38)	-0.18	(-0.57)
8	Health	0.63	(3.04)	0.48	(2.34)	0.31	(1.52)
9	Chemicals	0.65	(2.74)	0.56	(2.25)	-0.13	(-0.65)
10	Textiles	0.80	(1.65)	0.75	(1.55)	0.16	(0.32)
11	Construction	0.85	(3.36)	0.62	(2.57)	0.24	(1.22)
12	Steel	0.95	(3.02)	1.04	(3.35)	0.31	(1.13)
13	Fabric	1.61	(2.56)	1.20	(1.86)	1.08	(1.61)
14	Electrical Equipment	0.45	(1.91)	0.29	(1.33)	-0.34	(-1.72)
15	Autos	0.95	(2.70)	0.80	(2.40)	-0.14	(-0.55)
16	Carry	0.68	(1.60)	0.67	(1.56)	0.22	(0.52)
17	Mines	0.54	(2.02)	0.36	(1.30)	-0.02	(-0.08)
18	Coal	0.31	(1.24)	0.09	(0.40)	-0.19	(-0.88)
19	Oil	0.90	(1.27)	0.78	(1.09)	0.46	(0.63)
20	Utilities	0.41	(3.33)	0.27	(2.41)	0.13	(1.36)
21	Communication	0.51	(2.94)	0.38	(2.59)	0.01	(0.06)
22	Services	0.54	(2.65)	0.41	(2.32)	-0.10	(-0.72)
23	Business Equipment	0.51	(2.94)	0.45	(2.97)	0.07	(0.50)
24	Paper	0.70	(2.55)	0.62	(2.32)	-0.07	(-0.33)
25	Transportation	0.73	(4.08)	0.59	(3.64)	0.28	(2.01)
26	Wholesale	0.61	(3.02)	0.49	(2.62)	0.16	(0.99)
27	Retail	0.69	(2.58)	0.64	(2.62)	0.07	(0.31)
28	Meals	0.41	(1.37)	0.40	(1.48)	-0.38	(-1.67)
29	Finance	0.58	(3.94)	0.53	(4.61)	0.10	(1.10)
30	Other	0.94	(3.61)	0.68	(3.07)	0.09	(0.47)
Avg. α		**0.68**		**0.56**		**0.09**	
p-GRS		0.00		0.00		0.02	

Table 3 - Firms sorted by overpricing and credit risk

Credit Risk	Low	Medium	High	High−Low
Panel B: 5-factor portfolio alphas				
B.1. Bond returns				
C1	0.32	0.32	0.31	−0.01
	(**4.39**)	(**4.40**)	(**3.87**)	(−0.44)
C2	0.33	0.33	0.27	−0.06
	(**5.09**)	(**4.79**)	(**3.73**)	(−**2.23**)
C3	0.43	0.33	0.11	−0.31
	(**7.50**)	(**5.18**)	(1.40)	(−**5.47**)
C3–C1	0.11	0.01	−0.19	−0.30
	(1.68)	(0.11)	(−**2.25**)	(−**5.18**)
B.3. Stock returns				
C1	0.01	−0.01	0.03	0.02
	(0.09)	(−0.09)	(0.19)	(0.13)
C2	−0.03	−0.04	−0.31	−0.28
	(−0.34)	(−0.38)	(−**2.40**)	(−**2.05**)
C3	0.09	−0.33	−0.70	−0.80
	(0.63)	(−**2.51**)	(−**3.46**)	(−**3.86**)
C3–C1	0.08	−0.32	−0.73	−0.82
	(0.57)	(−**2.39**)	(−**3.46**)	(−**3.67**)

Table 3 - Firms sorted by overpricing and credit risk

Credit Risk	Low	Medium	High	High−Low
Panel B: 5-factor portfolio alphas				
B.1. Bond returns				
C1	0.32	0.32	0.31	−0.01
	(**4.39**)	(**4.40**)	(**3.87**)	(−0.44)
C2	0.33	0.33	0.27	−0.06
	(**5.09**)	(**4.79**)	(**3.73**)	(−**2.23**)
C3	0.43	0.33	0.11	−0.31
	(**7.50**)	(**5.18**)	(1.40)	(−**5.47**)
C3–C1	0.11	0.01	−0.19	−0.30
	(1.68)	(0.11)	(−**2.25**)	(−**5.18**)
B.3. Stock returns				
C1	0.01	−0.01	0.03	0.02
	(0.09)	(−0.09)	(0.19)	(0.13)
C2	−0.03	−0.04	−0.31	−0.28
	(−0.34)	(−0.38)	(−**2.40**)	(−**2.05**)
C3	0.09	−0.33	−0.70	−0.80
	(0.63)	(−**2.51**)	(−**3.46**)	(−**3.86**)
C3–C1	0.08	−0.32	−0.73	−0.82
	(0.57)	(−**2.39**)	(−**3.46**)	(−**3.67**)

Number of firms per portfolio per month			
C1	63.8	38.8	19.8
C2	50.0	55.1	44.6
C3	27.1	53.1	88.1

Comment 3: Stock vs Bonds – Valid Comparison

- The comparison is based on unbalanced sample.

  To examine the conflicts of equityholders and bondholders, it needs to be a balanced sample, and the same firm's stock return and bond return both existing in month t.

- Firms are sorted by equity-defined overpricing, which is not necessarily overpricing for bonds

- Sentiment index is measured by equity market information, such as equity issue volume, IPO first-day return, dividend premium, closed-end fund discount, and NYSE turnover. Do the bond market share the same sentiment?

Conclusion

- Thought-provoking paper on an important topic!
- Much clear if focusing on the joint stories of sentiment and financial distress on stocks, while separating the comparison between stocks and corporate bonds into a new paper