Foreign Sentiment

Azi Ben-Rephael[1], Xi Dong[2], Massimo Massa[3] and Changyun Zhou[2]
[1]Rutgers University, [2]Baruh College, CUNY, [3]INSEAD

1 Motivation

Sentiment is found to affect the cross section of stock returns, the aggregate stock market and various asset classes (e,g, Baker and Wurgler, 2006; Ben-Rephael, Kandel and Wohl, 2012 and Huang, Lehkonen, Pukthuanthong, and Zhou, 2018).

Recent evidence suggests that sentiment can also play an important role in international markets (e.g., Hwang, 2011; Baker, Wurgler and Yuan, 2012; Gao, Ren and Zhang, 2018).

2 Research Question

1) Is foreign sentiment just a mere reflection of general optimism? Or do foreign and local sentiments have different pricing implications?
2) Do foreign investors respond to local public signals differently than local investors (Dumas et al. 2017)?
3) Can country/culture/social differences between foreign and local investors amplify the reaction to these signals?

3 Foreign & local sent measure

U.S. investor foreign and local sentiment

Data source: U.S. mutual fund industry flow data from Investment Company Institute (ICI).

- ICI decomposes fund total flows into two components: sales and redemption (net sales) + exchanges in and exchanges out (fund intra-family flow shifts)
- **U.S. LOCAL** sentiment measure "***LNEIO***": mutual fund intra-family flow shifts between bonds and equities.
- **U.S. FOREIGN** sentiment measure "***FNEIO***": Intra-family flow shifts into and out of international asset classes.

International investor foreign and local sentiment

Data source: Morningstar mutual fund database

- **LOCAL** measure (each non-U.S. country) "***LBED***": the difference between percentage total net flows into local equity and bond mutual funds.
- **FOREIGN** measure (from International markets towards the U.S.) "**FEED**": the difference between percentage flows into U.S. equity and non-U.S. equity funds (VW across non-U.S. countries).

4 Main Results

1) Segmentation between local and foreign sentiment

	(1) $IntRet_{c,t+1}$	(2) $IntRet_{c,t+1:t+3}$	(3) $IntRet_{c,t+1:t+6}$	(4) $IntRet_{c,t+1:t+9}$	(5) $IntRet_{c,t+1:t+12}$
$FNEIO_t$	**-0.0101*** **	**-0.0151** **	**-0.0233** **	**-0.0234***	**-0.0271***
	(0.009)	(0.015)	(0.022)	(0.070)	(0.064)
$LEBD_{c,t}$	**-0.00186**	**-0.00472** **	**-0.00848*** **	**-0.0106** **	**-0.0130** **
	(0.148)	(0.028)	(0.009)	(0.023)	(0.021)
$LNEIO_t$	-0.00237	-0.00142	-0.00664	-0.00600	-0.00272
	(0.539)	(0.856)	(0.607)	(0.708)	(0.880)
Controls	YES	YES	YES	YES	YES
Obs.	5445	5403	5340	5277	5214
R2	0.032	0.032	0.031	0.027	0.027

- OOS R^2 of residual FNEIO

Out-of-Sample R^2

	$IntRet_{c,t+1}$	$IntRet_{c,t+1:t+3}$	$IntRet_{c,t+1:t+6}$	$IntRet_{c,t+1:t+9}$	$IntRet_{c,t+1:t+12}$
Rolling	4.58%	2.13%	1.87%	0.29%	-0.72%
Recursive	2.90%	2.76%	2.88%	1.61%	1.01%

2) Reaction to local public news signals: local vs. foreign sentiment

- PVAR indicates that country news tone leads FNEIO but not LEBD.

	(1) $IntRet_{c,t+1}$	(2) $IntRet_{c,t+1:t+3}$	(3) $IntRet_{c,t+1:t+6}$	(4) $IntRet_{c,t+1:t+9}$	(5) $IntRet_{c,t+1:t+12}$
$FNEIO_t$	-0.0101**	-0.00196	0.00381	0.0157	0.0388*
	(0.049)	(0.839)	(0.822)	(0.453)	(0.080)
$LEBD_{c,t}$	-0.00317	-0.00258	-0.0115**	-0.0158**	-0.0197**
	(0.113)	(0.439)	(0.044)	(0.027)	(0.024)
$RSNewsTone_{c,t}$	0.000740	0.00146	0.0113	0.0411	0.0806***
	(0.928)	(0.920)	(0.586)	(0.114)	(0.007)
$FNEIO_t$*$RSNewsTone_{c,t}$	**-0.00984**	**-0.0398** **	**-0.0666** **	**-0.105*** **	**-0.147*** **
	(0.282)	(0.014)	(0.011)	(0.002)	(0.000)
$LEBD_t$*$RSNewsTone_{c,t}$	0.00316	-0.00543	0.00227	0.00725	0.00960
	(0.450)	(0.434)	(0.826)	(0.574)	(0.514)
Controls	Yes	Yes	Yes	Yes	Yes
Obs.	4372	4372	4372	4372	4372
R2	0.047	0.052	0.048	0.053	0.061

	(1) $IntRet_{c,t+1}$	(2) $IntRet_{c,t+1:t+3}$	(3) $IntRet_{c,t+1:t+6}$	(4) $IntRet_{c,t+1:t+9}$	(5) $IntRet_{c,t+1:t+12}$
$FNEIO_t^{pos}$	-0.0109*	-0.00959	0.00381	0.0110	0.0489*
	(0.083)	(0.416)	(0.845)	(0.676)	(0.095)
$FNEIO_t^{neg}$	-0.00685	0.00301	-0.0196	-0.0177	-0.0241
	(0.459)	(0.864)	(0.515)	(0.603)	(0.540)
$LEBD_{c,t}^{pos}$	-0.00246	-0.00168	-0.0134	-0.0279**	-0.0356***
	(0.540)	(0.796)	(0.174)	(0.013)	(0.007)
$LEBD_{c,t}^{neg}$	-0.00376	-0.00332	-0.0112	-0.00511	-0.00753
	(0.326)	(0.616)	(0.223)	(0.661)	(0.612)
$RSNewsTone_{c,t}$	0.00189	-0.0220	-0.0238	-0.0219	0.0223
	(0.874)	(0.333)	(0.465)	(0.564)	(0.602)
$FNEIO_t^{pos}$ * $RSNewsTone_{c,t}$	-0.0141	0.00510	0.0127	0.0325	-0.0225
	(0.399)	(0.816)	(0.691)	(0.449)	(0.661)
$FNEIO_t^{neg}$ * $RSNewsTone_{c,t}$	**-0.0111**	**-0.0614** **	**-0.0746**	**-0.129** **	**-0.135** **
	(0.470)	(0.046)	(0.121)	(0.017)	(0.016)
$LEBD_{c,t}^{pos}$ * $RSNewsTone_{c,t}$	0.00307	0.00125	0.0152	0.0279	0.0437*
	(0.706)	(0.920)	(0.384)	(0.167)	(0.057)
$LEBD_{c,t}^{neg}$ * $RSNewsTone_{c,t}$	0.00336	-0.0128	-0.0103	-0.0158	-0.0228
	(0.626)	(0.301)	(0.558)	(0.454)	(0.365)
Controls	Yes	Yes	Yes	Yes	Yes
Obs.	4372	4372	4372	4372	4372
R2	0.048	0.057	0.060	0.074	0.080

3) Overreaction is stronger for countries that are more foreign relative to the U.S.

	CulturalDiff $IntRet_{c,t+1:t+12}$	**Distance** $IntRet_{c,t+1:t+12}$	**Ancestor** $IntRet_{c,t+1:t+12}$	**Religion** $IntRet_{c,t+1:t+12}$	**Language** $IntRet_{c,t+1:t+12}$	**Composite** $IntRet_{c,t+1:t+12}$
$FNEIO_t$	0.0147	0.0263	0.0309	0.0104	0.0376*	0.0269
	(0.490)	(0.294)	(0.199)	(0.676)	(0.070)	(0.213)
$RSNewsTone_{c,t}$	0.0714***	0.0851***	0.106***	0.109***	0.0873***	0.110***
	(0.009)	(0.009)	(0.002)	(0.000)	(0.005)	(0.000)
$Foreign_c$	-0.0674***	-0.0245	0.0334**	-0.0276**	-0.00848	-0.0346*
	(0.000)	(0.110)	(0.017)	(0.034)	(0.633)	(0.098)
$FNEIO_t$* $Foreign_c$	0.0319**	0.00285	-0.0972**	0.0305**	-0.0144	0.00267
	(0.020)	(0.836)	(0.011)	(0.035)	(0.405)	(0.899)
$RSNewsTone_{c,t}$* $Foreign_c$	0.0410	0.0107	-0.00575	-0.0343	0.00542	-0.0375
	(0.174)	(0.674)	(0.614)	(0.150)	(0.868)	(0.386)
$FNEIO_t$*$RSNewsTone_{c,t}$	-0.0949***	-0.0957**	-0.0312	-0.0867**	-0.131***	-0.0778**
	(0.005)	(0.018)	(0.269)	(0.025)	(0.000)	(0.030)
$FNEIO_t$*$RSNewsTone_{c,t}$ * $Foreign_c$	**-0.0630** **	**-0.0506** **	**-0.0488** **	**-0.0616*** **	0.0137	**-0.0808** **
	(0.018)	(0.034)	(0.048)	(0.004)	(0.599)	(0.022)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4998	4998	4998	4998	4998	4998
R2	0.040	0.037	0.038	0.041	0.036	0.039

4) Complimentary analysis using U.S. as local country

- LNEIO predicts USRet reversals, while FNEIO does not.
- LNEIO and FEED predict USRet reversal, separately.

5 Robustness checks

- Changes in risk
- Liquidity and volatility shocks
- Changes in Fundamentals
- Other sentiment measures
- Financial Crisis

6 Conclusion

1. Construct a new and *direct* measure of U.S. based foreign sentiment using mutual fund flow shifts toward international markets.
2. Document the evidence of the sentiment segmentation.
3. Shed light on a new behavioral explanation (outgroup negativity) to how foreign sentiment can be generated.

Contact me

Changyun Zhou
Baruch College and the Graduate Center, CUNY
Email: Changyun.Zhou@baruch.cuny.edu