Sentiment Value:
Does Market Sentiment Matter for Cryptocurrencies

Jiawen YAN 2018211671   Jianqiao HAO 2018211670
Ruofan KE 2018211663   Yiming PENG 2018211655   Yuan Liu 2018280289

SEM, Tsinghua University

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I.Introduction

- Sentiment can be used to price cryptocurrencies.
- General sentiment is positively correlated with crypto returns, while Equity market sentiment is negatively correlated with crypto returns; robust at 5, 15, 30 days;
- When the equity market is strong, investors short cryptos; when equity market is bear, investors long cryptos;
- When the general economy is strong, investors long cryptos; when general economy is bad, investors short cryptos.

II.Motivation

- **In equity market**:
  - Noise traders are not completely rational, they trade base on faith/beliefs besides fundamentals. (Shleifer and Summers, 1990)
  - Investor sentiment is positively correlated with stock returns. (Kumar, 2010, Hao, 2007, Frazzini and Lamont, 2008)
- **In crypto market**:
  - Traditional equity pricing factors are not working; (Liu and Tsyvinski, 2018)
  - Sentiment can be used to predict the successfulness in Initial Coin Offerings(**?**)
- **We focus on relatively long return window (5-60days)**:
  - High transaction costs/fees; (Ahamad et al., 2013)
  - Several Blocks to confirm;
  - Thin market;

III.Data

- **Crypto data:**
  - 63 crypto daily prices data from **coinmetrics.io**
  - Various Coins such as: Bitcoin, Bitcoin Cash, Litecoin, Ethereum, NEM, Dash, Monero. etc...
  - Structured Daily Variables:
    - *priceusd*: Prices;
    - *marketcapusd*: Market Cap;
    - *exchangevolumeusd*: Trading Vol;
    - *activeaddresses*: Active Users;

III.Data

- **Sentiment data:**
  - **General Sentiment:**
    - Data all available at *datago.com.hk*
    - News sentiment of over 1000 traditional media beginning from 1998;
    - Over 15 million news articles, each indicated with a sentiment level;
    - Average to get daily sentiment index;
  - **Equity Market Sentiment:**
    - Data all available at *finance.tencent.com*
    - Sentiment over equity market from professional analyst reports;
    - Over 1.2 million analyst reports from 2006 to 2018;
    - Employed Naive Bayes Algorithm in (Huang et al., 2014) to get tone for each sentence;
    - Average daily sentiment index according to their publish date;

III.Data

- **Summary Statistics;**

| VARIABLES	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
txvolumeusd	26,862.0000	13.7359	3.9513	11.5741	13.9832	16.1559
marketcapusd	29,520.0000	17.2694	4.2132	15.9409	18.0111	19.3693
exchangevolumeusd	29,520.0000	13.0111	4.0445	10.5909	13.4706	15.6998
activeaddresses	28,184.0000	7.7221	2.6009	5.9349	7.7560	9.6096
bh05	29,143.0000	0.0599	0.2815	-0.0755	0.0000	0.1123
bh015	28,537.0000	0.1808	0.6651	-0.1119	0.0121	0.2505
bh030	27,638.0000	0.3836	1.2635	-0.1522	0.0305	0.4482
bh060	25,887.0000	0.8550	2.9265	-0.1937	0.0826	0.7483
bh300	27,638.0000	0.3659	1.2119	-0.1517	0.0288	0.4335
tone_analyst_mean	29,205.0000	0.0019	0.0243	-0.0130	0.0017	0.0171
OPN_NEWS_MARKET_mean	29,205.0000	-0.0074	0.0553	-0.0075	0.0000	0.0076

III.Data
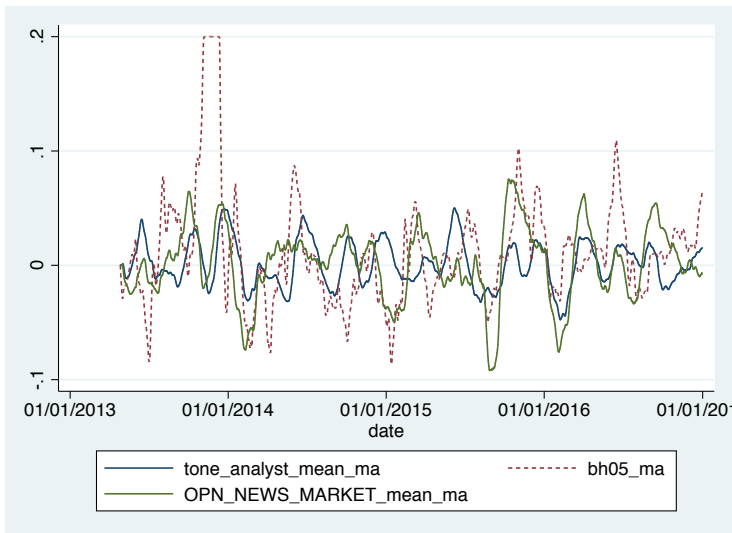
Figure: Time Trend Between Bitcoin Returns and Sentiment

IV.Methods and Results

- **Regression Model:**
- $Ret_{i,t} = \alpha + \beta_1 \times Sentiment_t + \beta_2 \times BH30_{i,t} + \beta_3 \times Controls + Year\ FE + Month\ FE + \epsilon$
    - $Ret_{i,t}$: N day cumulative returns;
    - *Sentiment*: Sentiment measures: general/equity market; calculated as MA(5) - MA(60)
    - *BH*30: Past 30 days cumulative returns, capturing momentum;
    - Controlled active users, trading vol, market cap, exchange vol, as well as Year and Month fixed effects;
    - All continuous variables are winsorized at 1% level; Sentiment measures are standardized to range (-1, 1);
    - Standard errors are estimated by clustering at coin type level;

- **Effect of general sentiment**
- $Ret_{i,t} = \alpha + \beta_1 \times Sentiment_t + \beta_2 \times BH30_{i,t} + \beta_3 \times Controls + Year\ FE + Month\ FE + \epsilon$

VARIABLES	Ret(0,5)	Ret(0,15)	Ret(0,30)	Ret(0,60)
OPN_NEWS_MARKET	0.4516***	1.0376***	1.4670***	-0.6894
	(4.45)	(3.59)	(2.30)	(-0.32)
bh300	0.0043	0.0077	-0.0007	-0.0574***
	(0.96)	(0.60)	(-0.03)	(-1.86)
Constant	0.1595***	0.4359***	0.8708***	1.8616***
	(5.46)	(5.54)	(5.93)	(4.83)
Year FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
N	22039	22039	22039	22039
Adjusted R2	0.141	0.141	0.141	0.141

Robust t-statistics in parentheses
*** p<0.1, ** p<0.05, * p<0.01

IV. Methods and Results

- **Effect of equity market sentiment**
- $Ret_{i,t} = \alpha + \beta_1 \times Sentiment_t + \beta_2 \times BH30_{i,t} + \beta_3 \times Controls + Year\ FE + Month\ FE + \epsilon$

VARIABLES	Ret(0,5)	Ret(0,15)	Ret(0,30)	Ret(0,60)
OPN_ANALYST	-0.6266***	-1.4699***	-2.7079***	-2.5671
	(-4.47)	(-3.41)	(-2.52)	(-1.56)
bh300	0.0057	0.0110	0.0044	-0.0578***
	(1.33)	(0.88)	(0.20)	(-1.99)
Constant	0.0992***	0.2979***	0.6772***	1.9580***
	(4.42)	(5.14)	(7.17)	(4.01)
Year FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
N	22039	22039	22039	22039
Adjusted R2	0.142	0.142	0.142	0.142

Robust t-statistics in parentheses

*** p<0.1, ** p<0.05, * p<0.01

V.Conclusions

- Sentiment can be used to price cryptocurrencies.
- General sentiment is positively correlated with crypto returns, while Equity market sentiment is negatively correlated with crypto returns; robust at 5, 15, 30 days;
- When the general economy is strong, investors long cryptos; when general economy is bad, investors short cryptos; One standard deviation of sentiment increase regarding equity market, 5-day cumulative returns decrease by about 9%;
- When the equity market is strong, investors long stocks; when equity market is bear, investors long cryptos; One standard deviation of sentiment increase regarding general economy, 5-day cumulative returns increase by about 20%;

Thanks

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