



The TIE & Social Market Analytics

Digital Asset Daily Trading Strategy

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This Digital Asset daily trading strategy is based on generating a 7-Day RSI of Sentiment from daily Raw-S values at 23:55:00 UTC and executing based on these values as 23:59:59 UTC.

The Sentiment RSI is calculated using the following methodology:

- 1) Calculate the daily change in Raw-S
 - a. $\Delta S_{RAW} = S_{RAW_t} - S_{RAW_{t-1}}$
- 2) Calculate the rolling average of $abs(\Delta S_{RAW})$ daily for both positive and negative S_{RAW}
 - a. 7 Days
 - i. Positive Only
 - ii. Negative Only
- 3) Calculate the ratio of rolling averages
 - a. $Ratio_S = \frac{7Day\ Rolling\ Average\ of\ Positive\ S_{RAW}}{7Day\ Rolling\ Average\ of\ Negative\ S_{RAW}}$
- 4) Scale RSI 0-100
 - a. $100 - \left(\frac{100}{1+Ratio_S}\right)$

To first verify Sentiment RSI as a signal for trading, we calculated the spearman rank correlation of Sentiment RSI to forward return. Figure 1 below shows consistent average spearman rank correlations being positive across time horizons ranging from 1 to 5 days.

Figure 1. S-Score to Forward Return Spearman Rank Correlation (N>20) 2018-01-01 to 2018-06-25.

	1 Day	2 Days	3 Days	4 Days	5 Days	Symbol
Sentiment RSI	0.0719	0.0634	0.0922	0.0394	-0.0037	ADA
Sentiment RSI	-0.0379	-0.0144	-0.0397	-0.0557	-0.0691	BCH
Sentiment RSI	0.0116	-0.1358	-0.2672	-0.1818	-0.1171	BCN
Sentiment RSI	-0.0435	-0.0896	-0.1126	-0.1847	-0.2423	BNB
Sentiment RSI	0.1196	0.1451	0.1311	0.1028	0.0901	BTC
Sentiment RSI	-0.1111	-0.1370	-0.0485	-0.0159	-0.0379	BTG
Sentiment RSI	-0.0562	-0.0187	0.0216	0.0866	0.0842	DASH
Sentiment RSI	0.0390	0.1391	0.1532	0.0894	0.0618	EOS
Sentiment RSI	0.0107	0.0143	0.0869	0.1067	0.1345	ETC
Sentiment RSI	0.0459	0.0489	0.0402	0.0497	0.0637	ETH
Sentiment RSI	-0.0883	-0.1747	-0.1381	-0.1216	-0.0743	ICX
Sentiment RSI	-0.0193	0.0780	0.0437	0.0977	0.1496	LSK
Sentiment RSI	0.0292	-0.0162	-0.0397	-0.0124	0.0139	LTC
Sentiment RSI	0.0892	0.1216	0.0413	0.0119	0.0175	MIOTA
Sentiment RSI	-0.0047	-0.1052	-0.0964	-0.0795	-0.0677	NEO
Sentiment RSI	0.0792	0.0951	0.0894	0.0644	0.1170	OMG
Sentiment RSI	0.0385	0.0142	0.0492	-0.0032	0.0291	QTUM
Sentiment RSI	0.1362	0.1276	0.1475	0.1462	0.1468	TRX
Sentiment RSI	-0.1648	-0.2672	-0.2207	-0.1301	-0.0553	VEN
Sentiment RSI	0.0448	0.1075	0.0287	0.0940	0.0816	XEM
Sentiment RSI	0.0503	0.0582	0.0219	-0.0490	-0.0995	XLM
Sentiment RSI	-0.0285	-0.0016	0.0053	0.0195	0.0791	XMR
Sentiment RSI	0.0757	0.1194	0.1492	0.1793	0.1637	XRP
Sentiment RSI	-0.0247	0.0234	0.2675	0.1831	0.1753	XVG
Sentiment RSI	0.1860	0.0456	-0.0474	0.2509	0.1298	ZEC
Averages	0.0180	0.0096	0.0143	0.0275	0.0308	

Strategy Details:

This strategy is a single-factor model solely based on adjusting daily weights according to 7-Day Sentiment RSI on the top 20 market capitalization digital assets at point in time. It is long-short with the assumption that tails act with similar magnitude.

- 1) Long/Short
 - a. RSI \geq 50, Long
 - b. RSI $<$ 50, Short
- 2) 50% Long & 50% Short Asset Allocation
 - a. Long weights are calculated using only longs
 - b. Short weights are calculated using only shorts
- 3) Daily weight adjusted following:
 - a. $\frac{Weight_{Asset}}{\sum Weight_{Asset}}$ separately for the long side and the short side

See Figures 2.1, 2.2 and 2.3 below for sample calculations and sample weighting.

Figure 2.1 Sample Long Calculation for Sentiment RSI Weights and Returns

Date	Symbol	RSI	Return	Average Return	Long RSI>=50	Sum of Long RSI	Weight	Weight/2	Weighted Return	Return
4/24/2018	ADA	18.27258763	-13.17%	-12.73%	0	935.8985	0.00%	0.00%	0.00%	-5.96%
4/24/2018	BCH	56.95931895	-9.93%		56.95932	935.8985	6.09%	3.04%	-0.30%	
4/24/2018	BNB	67.36853832	-12.97%		67.36854	935.8985	7.20%	3.60%	-0.47%	
4/24/2018	BTC	62.74028481	-8.78%		62.74028	935.8985	6.70%	3.35%	-0.29%	
4/24/2018	DASH	62.99726693	-13.04%		62.99727	935.8985	6.73%	3.37%	-0.44%	
4/24/2018	EOS	84.19610012	-5.55%		84.1961	935.8985	9.00%	4.50%	-0.25%	
4/24/2018	ETC	55.57202409	-16.49%		55.57202	935.8985	5.94%	2.97%	-0.49%	
4/24/2018	ETH	27.50641785	-13.10%		0	935.8985	0.00%	0.00%	0.00%	
4/24/2018	ICX	72.59192255	-13.72%		72.59192	935.8985	7.76%	3.88%	-0.53%	
4/24/2018	LTC	57.9754297	-12.68%		57.97543	935.8985	6.19%	3.10%	-0.39%	
4/24/2018	MIOTA	59.94109422	-16.28%		59.94109	935.8985	6.40%	3.20%	-0.52%	
4/24/2018	NEO	49.35435905	-14.01%		0	935.8985	0.00%	0.00%	0.00%	
4/24/2018	OMG	55.45215456	-14.15%		55.45215	935.8985	5.93%	2.96%	-0.42%	
4/24/2018	QTUM	44.71992654	-16.83%		0	935.8985	0.00%	0.00%	0.00%	
4/24/2018	TRX	79.51174959	-4.56%		79.51175	935.8985	8.50%	4.25%	-0.19%	
4/24/2018	VEN	53.10688367	-13.19%		53.10688	935.8985	5.67%	2.84%	-0.37%	
4/24/2018	XEM	59.88620199	-13.42%		59.8862	935.8985	6.40%	3.20%	-0.43%	
4/24/2018	XLM	56.30518255	-15.26%		56.30518	935.8985	6.02%	3.01%	-0.46%	
4/24/2018	XMR	44.9440824	-13.14%		0	935.8985	0.00%	0.00%	0.00%	
4/24/2018	XRP	51.29434109	-14.35%		51.29434	935.8985	5.48%	2.74%	-0.39%	

Figure 2.2 Sample Short Calculation for Sentiment RSI Weights and Returns

Date	Symbol	RSI	Return	Average Return	Short RSI<50	Sum of Long RSI	Weight	Weight/2	Weighted Return	Return
4/24/2018	ADA	18.27258763	-13.17%	-12.73%	81.72741	315.2026	25.93%	12.96%	1.71%	6.96%
4/24/2018	BCH	56.95931895	-9.93%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	BNB	67.36853832	-12.97%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	BTC	62.74028481	-8.78%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	DASH	62.99726693	-13.04%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	EOS	84.19610012	-5.55%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	ETC	55.57202409	-16.49%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	ETH	27.50641785	-13.10%		72.49358	315.2026	23.00%	11.50%	1.51%	
4/24/2018	ICX	72.59192255	-13.72%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	LTC	57.9754297	-12.68%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	MIOTA	59.94109422	-16.28%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	NEO	49.35435905	-14.01%		50.64564	315.2026	16.07%	8.03%	1.13%	
4/24/2018	OMG	55.45215456	-14.15%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	QTUM	44.71992654	-16.83%		55.28007	315.2026	17.54%	8.77%	1.48%	
4/24/2018	TRX	79.51174959	-4.56%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	VEN	53.10688367	-13.19%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	XEM	59.88620199	-13.42%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	XLM	56.30518255	-15.26%		0	315.2026	0.00%	0.00%	0.00%	
4/24/2018	XMR	44.9440824	-13.14%		55.05592	315.2026	17.47%	8.73%	1.15%	
4/24/2018	XRP	51.29434109	-14.35%		0	315.2026	0.00%	0.00%	0.00%	

Figure 2.3 Summary of Sample Calculation Weights

Symbol	ADA	BCH	BNB	BTC	DASH	EOS	ETC	ETH	ICX	LTC
Equal Weight	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Strategy Weight	12.96%	3.04%	3.60%	3.35%	3.37%	4.50%	2.97%	11.50%	3.88%	3.10%
Symbol	MIOTA	NEO	OMG	QTUM	TRX	VEN	XEM	XLM	XMR	XRP
Equal Weight	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Strategy Weight	3.20%	8.03%	2.96%	8.77%	4.25%	2.84%	3.20%	3.01%	8.73%	2.74%

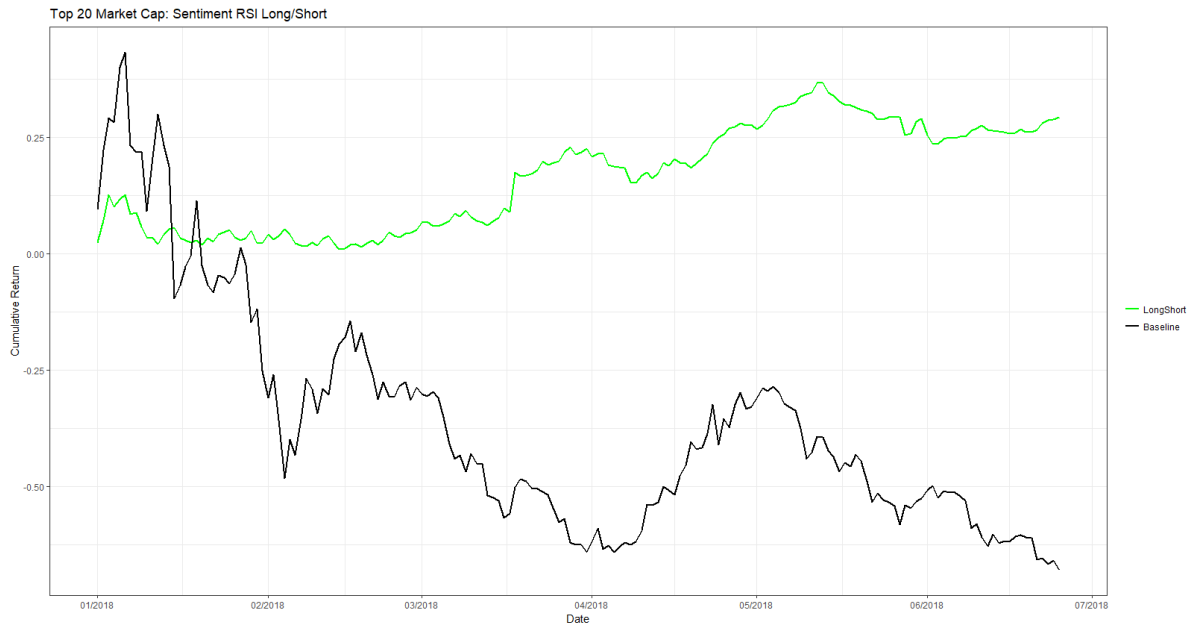
After calculating the long return and short return separately. The long-short can be found by adding the two returns together as each leg is weighted 50%.

$$\text{Return} = -5.96\% + 6.96\% = 1\%$$

This return shows a large increase compared to the average return of -12.73% on the day.

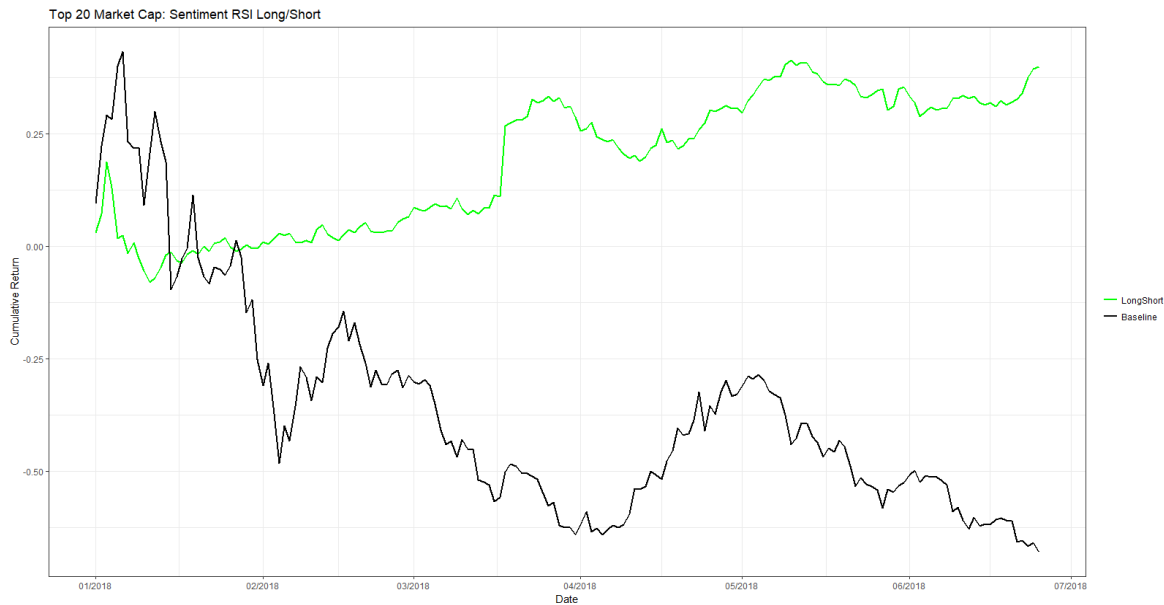
Please refer to figures 3.1 and 3.2 on page 4 for cumulative returns charts and summary statistics.

Figure 3.1 Cumulative Returns January 01, 2018 to June 25, 2018



	Cumulative Return	Sharpe Ratio	Sortino Ratio
Strategy	29.31%	2.25	4.30
Baseline	-67.91%	-1.23	-1.93

Figure 3.2 Cumulative Returns with Neutrals Removed (RSI = 46-54) January 01, 2018 to June 25, 2018



	Cumulative Return	Sharpe Ratio	Sortino Ratio
Strategy	40.04%	1.95	3.66
Baseline	-67.91%	-1.23	-1.93