glassnode

Systematic Trading

Capriole INVESTMENTS

Capriole is a hedge fund deploying a quantitative macro strategy with institutional custody. Its advanced investment process aims to outperform Bitcoin through a quantitative strategy and stringent risk management. Capriole applies a proprietary investment thesis to Bitcoin, digital assets and equities using statistics and machine learning. It has developed globally adopted Bitcoin on-chain valuation strategies, including Hash Ribbons, Bitcoin Energy Value and Bitcoin Production Cost.

The Challenge

Capriole sought to integrate on-chain metrics into one of its systematic trading strategies to enhance investment decisions on large-cap digital assets.

1. **Enhancing systematic trading**

   Since day one, Capriole Investments has been researching new methods to value Bitcoin from a fundamental analysis perspective.

   Especially in its earlier days, the idea of identifying the intrinsic value of Bitcoin was a significant challenge, which could only be solved with clean, consistent, and unique on-chain data such as that available on Glassnode.

2. **Monitoring exchange risk**

   Capriole required reliable on-chain data points to effectively monitor key counterparty risk at major centralized trading venues.

Critical requirements included accurate exchange reserve data, asset flows and detailed volume information.

This data needed to be regularly and accurately updated, in order to capture exchange reserve and asset balances. Also to effectively take into account frequent exchange wallet and labelling updates.

Solution

Capriole used Glassnode's data to research, develop, and publish dozens of new approaches to valuing Bitcoin, from supply-side metrics like **Hash Ribbons**, **Bitcoin Production Cost**, and **Bitcoin Yardstick** to demand-side metrics like **Supply Delta**, **SLRV Ribbons**, and many more.

Key features that made the difference:

1. **On-chain metrics for systematic trading**

   A selection of the metrics and models created by Capriole, using Glassnode data, is fed into Capriole's machine learning "Bitcoin Macro Index" model.

   This Capriole model identifies optimal risk-on and risk-off periods to allocate to Bitcoin and other digital asset investments.

2. **On-chain data points to track exchange health**

   Capriole created the 'Guardian' Exchange Risk Report. This is Capriole Investment's summary of Tier-1 exchange on-chain risks. Tracking key measures of exchange risk across reserves, inflows, outflows, and volume in real time to determine a net risk status.

Example analysis from the Guardian Dashboard

The example below showcases the key on-chain risk metrics of the top centralized exchanges.

Exchange	Updated	Res. BTC	Vol. Spot	Vol. Futs	OI	Res. DD	Res. 7d	Res. 30d	VRR_z	ORR_z	Risk Status
Binance	03/18/25 1:50pm	665,564	40,028	307,472	112,859	-13.9%	-0.2%	2.3%	1.10	0.10	
Bitfinex	03/18/25 1:50pm	362,817	702	1,905	8,088	0.0%	0.2%	5.0%	0.12	0.62	
Bitget	03/18/25 1:50pm	20,160				-1.7%	0.0%	7.1%			
Bithumb	03/18/25 1:50pm	7,135				-88.5%	5.6%	-3.6%			
Bitmex	03/18/25 1:50pm	50,711		7,001	4,790	-83.9%	-0.1%	-1.4%	0.80	0.97	
Bitstamp	03/18/25 1:50pm	45,234	1,275			-76.7%	-2.9%	-0.5%			
Bittrex	03/18/25 1:50pm	157,978				-9.8%	0.3%	1.6%			
Bybit	03/18/25 1:50pm	59,223	14,351	127,546	70,024	-17.6%	2.5%	-14.7%	0.97	1.00	

Source: capriole.com

Example actionable insights:

- Binance remains a robust anchor venue: With the highest BTC reserves (665,544 BTC) and strong VRR/ORR scores (1.10 / 0.62), Binance shows strong on-chain fundamentals.

  Action: Maintain or increase usage for execution and custody, especially during volatile periods where counterparty risk matters.

- Bitfinex shows resilient stability: Despite relatively lower reserves, Bitfinex posts clean reserve trends (no major depletion) and a healthy ORR (0.52).

  Action: Consider Bitfinex as a reliable secondary venue, particularly for derivatives or institutional spot flow diversification.

The following shows how the Guardian risk report can be used to flag and track key risks such as those shown for Huobi and Kraken.

Exchange	Updated	Res. BTC	Vol. Spot	Vol. Futs	OI	Res. DD	Res. 7d	Res. 30d	VRR_z	ORR_z	Risk Status
Gemini	03/18/25 1:50pm	129,078	947			-59.0%	0.3%	-0.5%			
Hitbtc	03/18/25 1:50pm	55,441				-35.9%	-0.0%	-0.1%			
Huobi	03/18/25 1:50pm	11,201	4,688	6,828	33,056	-97.3%	-0.7%	2.4%	0.26	-3.55	
Kraken	03/18/25 1:50pm	115,817	2,249	7,171	2,395	-47.2%	-21.5%	-30.6%	-1.55	-0.04	
Kucoin	03/18/25 1:50pm	5,996	2,695			-76.1%	-5.0%	36.8%			
Okex	03/18/25 1:50pm	130,271		135,003	37,169	-30.8%	-0.0%	3.9%	0.71	0.94	
Poloniex	03/18/25 1:50pm	10,283	1,386			-89.0%	-0.0%	-0.0%			

Source: capriole.com

Example actionable insights:

- Huobi exhibits a significant risk profile: With an ORR (Overall Risk Rating) of -3.85 and significant 30-day reserve depletion (-28.5%), Huobi may be facing liquidity stress or operational instability.

  Action: Withdraw and avoid use of exchanges which are high risk, like Huobi at present.

- Kraken shows early warning signals: Despite being a top-tier exchange, Kraken has a negative VRR (-1.04) and declining reserves over 7 and 30 days (-2.7%, -10.8%).

  Action: Closely monitor reserve trends and risk ratings. If deterioration continues, reassess counterparty risk for institutional usage.

Results

Capriole's ability to leverage on-chain analytics has provided the firm with a competitive edge in systematic digital asset trading.

Key outcomes

- **Positive Returns:** As of January 2025, this has allowed the Capriole Fund to generate after-fees average annual returns of 79%, well in excess of Bitcoin for the same six-year period.
- **Guardian Exchange Risk Framework:** Capriole established an automated exchange risk monitoring framework using Glassnode's data to flow into Guardian, allowing the fund to systematically avoid high-risk venues, reducing operational risk.

Conclusions

Glassnode provided Capriole with clear on-chain market insights, helping enhance risk-adjusted returns exceeding industry benchmarks.

Today Capriole is recognized as an industry pioneer in on-chain analysis and Bitcoin valuation techniques, having successfully implemented Glassnode models to support the management of the hedge fund's investments in this highly volatile asset class since 2019.

"We wouldn't have been able to do this without the quality data available at Glassnode."

— **Charles Edwards**, Capriole Investments Founder