ACTIVE

Risk Adjusted Coin (RAC)

Automated DeFi Portfolio Optimization
with Democratic Risk Management

by Adjusted Finance

February 2025 — **Arbitrum One** — **https://adjusted.finance**

Unless otherwise stated, Performance, Portfolio Breakdowns and Net Assets information as of: 19-Feb-2025. Data begins 01-Feb-2021. This document is marketing material. For users in the United States, and other heavily regulated jurisdictions, refer to your local laws for your ability to participate.

Overview

- **Risk Adjusted Coin (RAC)** is an open access DeFi index that delivers asymmetric returns over an extended period of time.
- Its mission is to deliver the highest return, in the most accessible and tax-efficient package. Over 5 years, RAC's strategy returns 1978.83%, following crypto markets in upturns, and avoiding volatility in downturns.
- RAC rebalances daily, with the allocation determined by novel quantitative methods, inspired by Markowitz portfolio theory, and a democratic voting system.

Sharpe Ratio Scale

2.85

0.0	0.33	0.66	1.0	1.33	1.66	2.0+
Sub-optimal			Good			Excellent
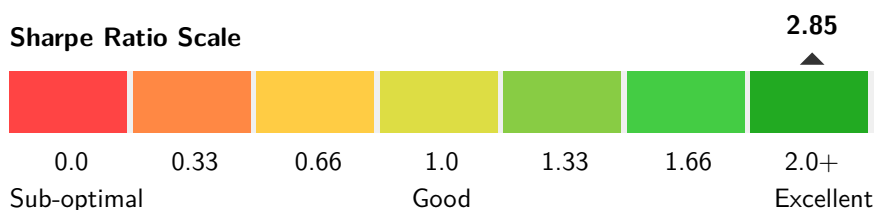
(15-Sep-2024 to Present)

Risk

RAC breaks the traditional correlation of higher risk leading to higher rewards – the system demonstrably shows lower risk with higher rewards. This makes it an attractive investment vehicle. However, there is always risk involved.

Capital at Risk

The value of investments and the income from them can fall as well as rise and are not guaranteed. Investors may not get back the amount originally invested.

Key Risks

- The basket is not immune to stark changes in politics and economics.
- Smart contracts bear intrinsic risk. No code is perfect.
- Counterparty Risk: third parties, such as Circle, play an important role in the tokenization of certain assets.

Key Facts

Asset Class:	Digital Assets
Smart Contracts:	Arbitrum One
Net Assets of Fund:	$16,000
Unique Investors:	22
Rebalance Frequency	Daily
DAO Asset Control	100.00%
Launch Date	15-Sep-2024
Benchmarks:	Bitcoin
	DeFi Pulse Index
Security:	Access controlled

Portfolio Characteristics

5y Return	1978.83%
3y Return	597.37%
3m Return	20.10%
Inception Return (5m)	40.30%
Beta (BTC)	0.21
Sharpe Ratio	2.64
Number of Holdings	9

Fees and Charges

Purchase	0.50%
Sale	0.50%
Annual Management Fee	0.00%
Performance Fee	0.00%

Dealing Information

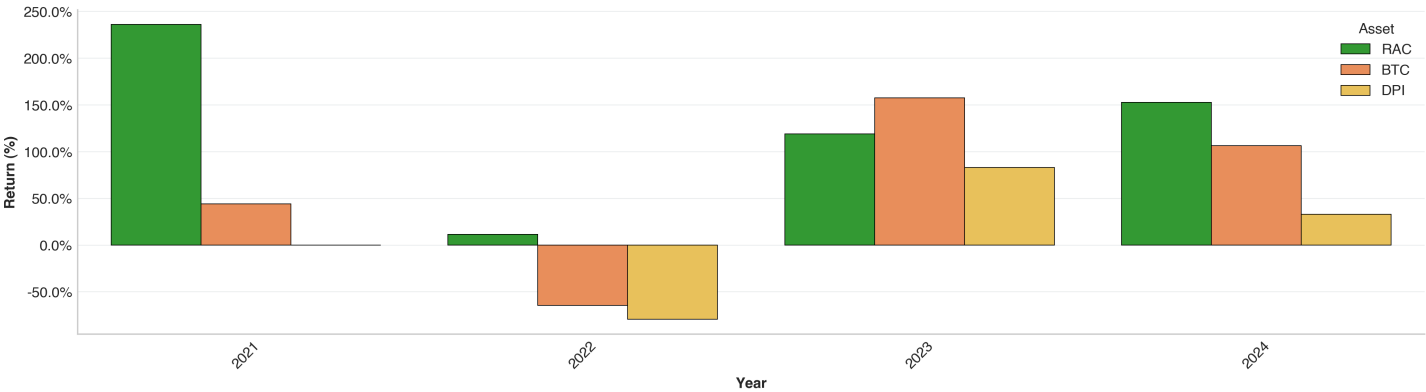|	
Dealing Frequency	Continuous
Settlement	Instant

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Note: Backtesting data included. Real data from 15-Sep-2024

Calendar Year Performance (%)

Year	RAC	BTC	DPI
2021	235.95%	43.85%	-0.33%
2022	11.28%	-64.73%	-79.60%
2023	118.70%	157.38%	82.84%
2024	152.50%	106.40%	32.76%

Percentage Change over Time
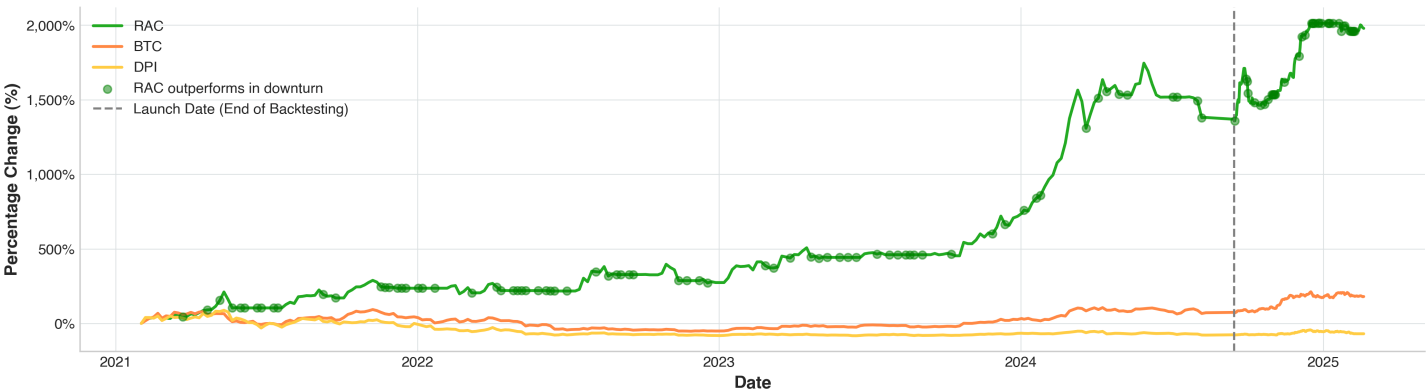
Cumulative & Annualized Performance

Period	RAC Cumulative	BTC Cumulative	DPI Cumulative	RAC Annualized	BTC Annualized	DPI Annualized
3m	20.10%	4.19%	-1.32%	106.80%	17.67%	-5.15%
1y	72.23%	82.80%	-14.06%	71.98%	82.50%	-14.02%
3y	597.37%	155.52%	-40.33%	91.17%	36.75%	-15.82%
5y	1978.83%	180.06%	-69.57%	111.46%	28.94%	-25.44%

Benchmarks: Risk Adjusted Coin (RAC) is benchmarked to Bitcoin (BTC), the worlds largest cryptocurrency, and the DeFi Pulse Index (DPI), one of the oldest and well established DeFi Indices.

Past performance is not a reliable indicator of future results. Volatility and market conditions may change rapidly in crypto markets. Base currency is USD. Data shown is for period 2021-02-01 to 2025-02-19. **Source:** Chainlink

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Technical Infrastructure

- **Core**: RAC is an ERC20 token, which lays claim to funds in an ERC721 compatible vault.
- **Governance**: Controlled via an OpenZeppelin Governor contract, with voting power dictated by the RAC token.
- **Asset Proposals**: Optimization of an Extended Markowitz framework, with decentralized fraud proofs (coming soon).
- **Rebalance Strategy**:
  - **0-200k AUM**: Rebalances execute via Uniswap V3 and V4 pools with $1MM minimum liquidity constraint
  - **200k-1MM AUM**: Time-Weighted Average Price (TWAP) execution via CoW Swap protocol
  - Integration with CoW Swap's infrastructure is in development to ensure seamless scaling
- **AI Agents**: Voters can setup a variety of AI Agents, thanks to the open access API at the Governor contract level.

Risk Management

- **Algorithmic Portfolio Optimization**: Diversifies across multiple assets to mitigate concentration risk, achieving an asset combination on an efficient frontier.
- **Community Veto Power**: Each weighting proposal can be vetoed by the community, given enough votes are cast to reach quorum. Final control, and liability, rests with those holding RAC.
- **Access Control**: Currently, the DAO has to approve users to purchase RAC, reducing the attack surface of the system.
- **Automated Rebalancing**: Contracts rebalance to target allocations daily.
- **Slippage Protection**: 1% tolerance on all rebalances.
- **MEV Protection**: Contracts are deployed on Arbitrum – centralized sequencer and FCFS ordering.

Regulatory & Legal

- **DAO Structure**: Operated via a decentralized autonomous organization (Adjusted Finance).
- **Frontend Separation**: The protocol is distinct from the user interface run by MakeWithMe, Inc.
- **User Responsibility**: Participants are responsible for any regulatory or tax compliance in their jurisdiction.
- **Transparency & Terms**: All terms of use and disclaimers are available on-chain and at official documentation sites.
- **No Investment Advice**: This document is for informational purposes only and does not constitute investment/legal advice.
- **Smart Contract Risk**: Despite code audits, vulnerabilities or exploits may result in loss of user funds.

Additional Disclosures

- The performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate; thus an investor's units, when redeemed, may be worth more or less than their original cost.
- Current performance may be lower or higher than return data quoted herein. For more current information including month-end performance, please visit https://adjusted.finance
- The portfolio data presented here is for informational purposes only and is not a recommendation to buy or sell any security.
- This document has been prepared without consideration of the investment needs, objectives, or financial circumstances of any specific person.

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Assets

Bitcoin	First and largest cryptocurrency, designed as peer-to-peer digital cash
Ethereum	Programmable blockchain platform enabling smart contracts and decentralized applications
Arbitrum	Ethereum scaling solution providing lower fees while maintaining security
Chainlink	Decentralized network connecting smart contracts with real-world data
LayerZero	Protocol enabling secure messaging and asset transfers between different blockchains
Uniswap	Automated market maker protocol for decentralized token trading
Aave	DeFi protocol for lending and borrowing crypto assets using collateral
Pendle	Protocol for trading yield and tokenized future yield

Quantitative Model

The protocol implements an extension to Modern Portfolio Theory (MPT) that solves the fundamental problem of incorporating risk-free assets into portfolio optimization. The approach uses a novel two-step process:

1. **Initial Optimization**: A highly constrained optimization in the risky asset domain that:

- Enforces belief alignment ($w_i \mu_i \geq 0$)
- Maintains absolute weight constraint ($|w|^\top \mathbf{1} = 1$)
- Handles short positions systematically

2. **Variance Optimization**: A secondary step that:

- Transforms negative weights into USD position
- Preserves expected returns while optimizing variance
- Ensures portfolio efficiency in the complete domain

This framework demonstrably outperforms classical MPT in highly correlated markets, with empirical evidence showing superior risk-adjusted returns. The complete mathematical framework will be published in academic journals. A primitive version of the implementation can be found at: https://github.com/keroshanpillay/MarkowitzPortfolioTheory

Glossary

DAO	Decentralized Autonomous Organization – a community governed organization
FCFS	First come first serve – an ordering system, akin to a queue
ERC20	The universal token standard on Ethereum
ERC721	The universal vault standard on Ethereum
MEV	Maximal Extracted Value – value extracted via ordering transactions on a blockchain
Slippage	The difference between a trade's execution and desired prices

Contact Us

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