INVESTMENT IN DIGITAL ASSETS: DELEGATE TO AI OR NOT

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Introduction

Artificial Intelligence (AI) investment is increasingly popular, driven by recent technology advancements in blockchain, machine learning, and various application scenarios. First, AI has been widely applied with the Industrial 4.0 revolution. Besides the outstanding performance of AlphaGo, an AI agency that beat the best Go player in the world, AI also exhibits a huge potential in empowering financial investment in digital assets (DeepMind 2016). Second, the invention and expanding applications of blockchain and decentralized finance (DeFi) provide a framework to solve various problems existing in the traditional finance world. Finally, as a combination of AI and blockchain, emerging decentralized applications (dApp) could reinvent the finance world and reveal more possibilities. However, little evidence has shown that AI is more reliable than humans in volatile financial markets, especially the emerging digital assets markets.

Research Question & Methods

Our research question is whether delegating to AI improves investment performance. To get the answer, I conducted economic and data analysis on two types of digital assets portfolios created by Set Protocol (a dApp). For those who invest through Set Protocols, there are three ways they can participate in the investment, (1) choosing one Robo Set (portfolio executed by AI), (2) choosing one Social Set (portfolio executed by human traders), or (3) designing its own Set (creating personal portfolio).

First, we compare the investment performance of AI and human traders and answer the question: Who has a better investment performance in the digital asset market: hard-coded algorithmic trading strategies or human traders? Second, we want to investigate how to create a token portfolio for investment. We utilize the theoretical framework and strategies in portfolio management in traditional finance to propose a strategy that could facilitate investors in constructing a token portfolio.

"TokenSets - Asset Management Simplified." n.d. TokenSets. Accessed April 8, 2022. https://www.tokensets.com/explore?show=community.

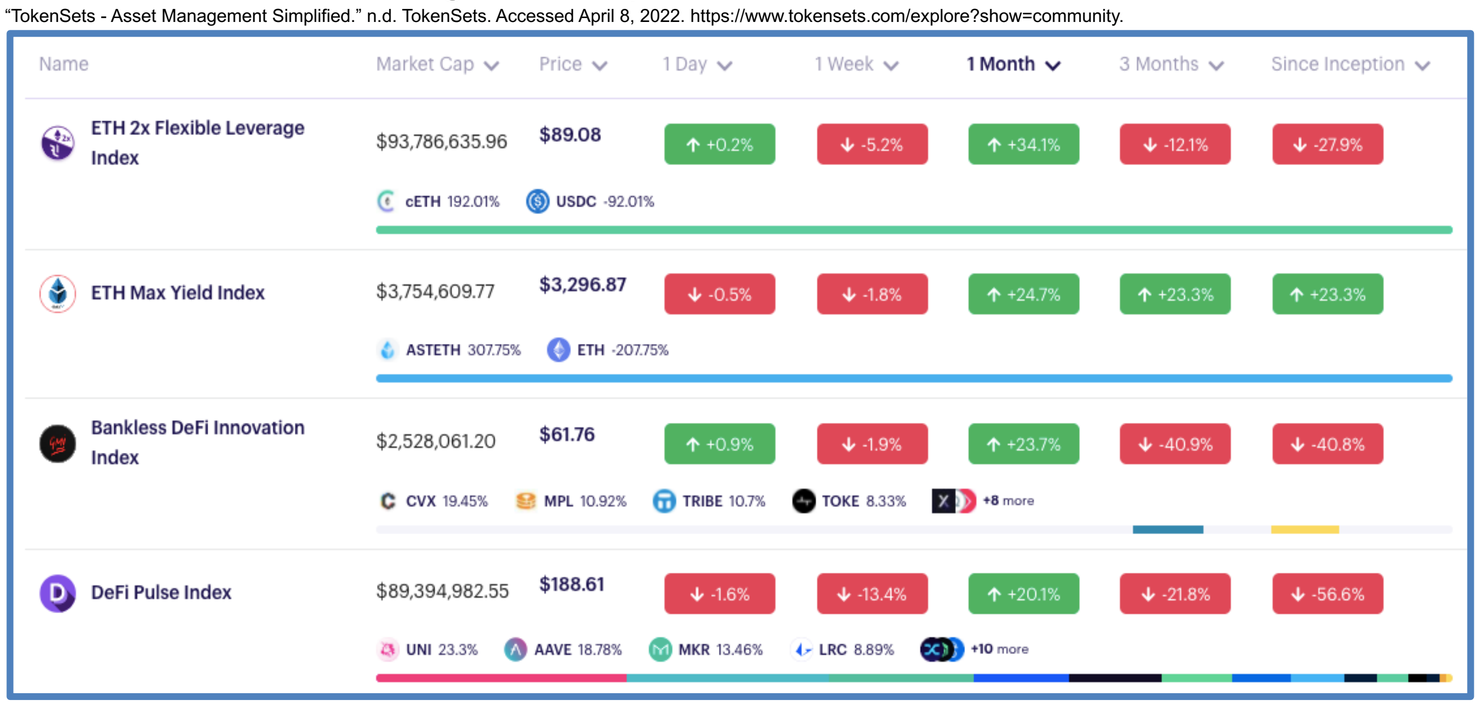

Figure 2. List of Indexes/portfolios Created by Set Protocol

Conclusions & Implications

Among the selected top portfolios, AI has a better but less stable investment performance than human traders in digital assets investment. Based on the factor model, I picked market capitalization, the sum count of blocks, closing price in BTC, closing price in USD, and Hash rate, with corresponding weights, to predict expected returns, risks, and other indexes to help build a token portfolio. The project has created value in multiple disciplines as it integrated knowledge in financial investment and portfolio theory, statistical testing and data science, explainable AI (XAI), augmented AI, behavioral economics and delegation choice, and the emerging technology of blockchain.

Figure 1. AI versus Human Traders

Extensions & Related Work

This research project has also inspired me to initiate or participate in other relevant projects with professors from DKU and Duke, Williams College, NYU, and other institutions. I co-founded the Behavioral Economics Lab at Duke Kunshan University with Prof. Luyao Zhang and implemented economic experiments to answer fundamental economic questions or seek solutions to interdisciplinary challenges. In addition to conducting data analysis in my SW project, I also proposed a digital asset investment experiment to approach the research question of comparing investment performance by algorithmic trading strategies versus human traders. Furthermore, I integrated the theories and methods in behavioral finance and psychology to understand behavioral anomalies and unfold the factors that affect decision-making in digital asset investment. Prof. Zhang and I initiated a pilot game in a macroeconomics class, and based on the pilot results, I conducted data processing, visualization, statistical testing, regressions, and other economic analysis. We further drafted papers on the research findings, and one of them has been accepted by the Pandemic Pedagogy Research Symposium organized by Duke University and the TeachECONference organized by University College London and Cornell University.

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