

QUARTERLY REPORT

2ND QUARTER 2023

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SUMMARY

PrimeQ: Delivering Tangible Results Through Data-Driven Strategies

PrimeQ emerges as a pioneer in AI-driven trading solutions, leveraging advanced machine learning models to predict market extremums.

Recent performance analysis demonstrates the effectiveness of our approach, with strategies achieving an average annualized return for S&P500 of 4.8%, coupled with a robust risk-adjusted return (Sharpe ratio of 1.25, drawdown 2.9%, win rate 99%).

Moving forward, we seek strategic partnerships to enhance our research and development capabilities, aiming to expand our strategy scope across various asset classes. This expansion is projected to generate an incremental return potential outperforming the market and manual trading, propelling both gains and overall portfolio performance.

We welcome the opportunity to explore collaborative avenues, demonstrating how a partnership with PrimeQ can optimize returns and elevate your fund's competitiveness. For further insights or tailored information, your input is invaluable in shaping a partnership that aligns seamlessly with your goals.



INTRODUCTION

PrimeQ is a Polish-Ukrainian startup that builds own trading bots based on AI and other quantitative methods

WHAT IS TERRABOT?

TerraBot is a platform offering AI-driven trading robots based on technical analysis. Initially targeted towards institutional clients, the platform aims to extend its services to retail clients, larger trading platforms, brokers, and cryptocurrency exchanges. TerraBot provides a collection of automated trading strategies, allowing investors to execute investment plans without emotions and utilize risk control tools not commonly available on mainstream trading platforms.

WHAT METHODS ARE USED?

The algorithms offered by TerraBot are equipped with historical data to assess potential profitability and risks. These algorithms undergo real simulation trading known as "backtesting," utilizing historical market prices. The platform offers integration with selected cryptocurrency exchanges or brokers, expanding its customer base and achieving better business scalability.

A notable feature of TerraBot is the incorporation of AI within its algorithms. These algorithms include predictive models for market behavior, as well as those efficiently identifying correlations between different instruments, conducting arbitrage, and spread trading. While numerous possibilities exist, the platform is currently testing a few of these advanced features.

TerraBot offers custom algorithm development, a rare and unique service in the market, appealing to discerning clients. As the platform creates more algorithms, it will implement a scoring system that considers not only robot profitability but also factors like capital drawdown, the ratio of profitable to losing trades, and more. This scoring system enables users to sort and select the most suitable robots without having to review each one individually.

WHAT IS PRIMEQ?

PrimeQ is a high-tech startup registered in Warsaw, Poland in November 2022 in a form of limited liability company. Its president is Piotr Majka. It has received a research grant of 1m PLN (c. \$0.25m) for 2023. The shareholders encompass: Piotr Majka (80%) and IGS Investment (20%), a venture capital fund that focuses on R&D projects in ICT at early stages. It has received the EU funds from the National R&D Centre (25m PLN).

WHAT IS THE TEAM?

The core team consists of 3 persons:

1. Piotr Majka (CEO), licenced securities broker with 20+ years experience,
2. Prof. Krzysztof Piech (R&D Head), professor of economics at Lazarski Uni,
3. Andrey Zupko (CTO), head of IT / AI and a leader of the quant team.



WORKS DONE

BUSINESS PRIORITIES

- Company registration
- Research grant received
- Research started

THE YEAR 2022

The team has prepared a 40-pages long research proposal and has submitted it to various VCs and business angels. The investment committee consisting of the IGS fund together with a representative of the National R&D Centre (a public institution with budget nearly \$1bn in 2022) have granted the team a non-refundable research grant of c. \$0.25m.

The legal entity was registered under the name PrimeQ sp. z o.o.



RESEARCH PRIORITIES

- Data collected and processed
- AI test started
- First positive results received

1ST QUARTER 2023

PrimeQ, a forward-thinking startup, has achieved significant milestones in the first quarter of this year, catering specifically to potential investment funds seeking innovative trading solutions. Key highlights include:

- **Advanced Technical Foundation:** PrimeQ has established a robust and scalable technical infrastructure, crucial for hedge funds seeking innovative trading solutions.
- **Data Access and Integration:** Integration with prominent exchanges like Binance, with Alpaca Markets and QuantConnect, empowers funds with comprehensive data insights.
- **Risk Management:** PrimeQ has developed basic features of a risk management tool (eg. stop loss / take profit) for hedge funds aiming to safeguard capital.
- **Efficient Strategy Execution:** The Strategy Manager Service offers seamless initiation, monitoring, and control of strategies, enhancing hedge funds' portfolio management.
- **AI-Powered Insights:** PrimeQ's initial machine learning tests showcase an XGBoost model with promising predictive capabilities, particularly in identifying local extremums – providing hedge funds with data-driven insights.
- **Positive Performance:** The XGBoost model achieved a balanced f1-score of up to 60-65%, with backtest results outperforming the market at a 75% prediction probability target.

PrimeQ's Q1 accomplishments offer a reliable and innovative AI-driven trading solution, with a focus on scalability, data insights, risk management, efficient execution, and strong performance results.



TEAM AND COOPERATION

- Core team established
- Quants and IT specialists hired
- Cooperation with a IGS VC started

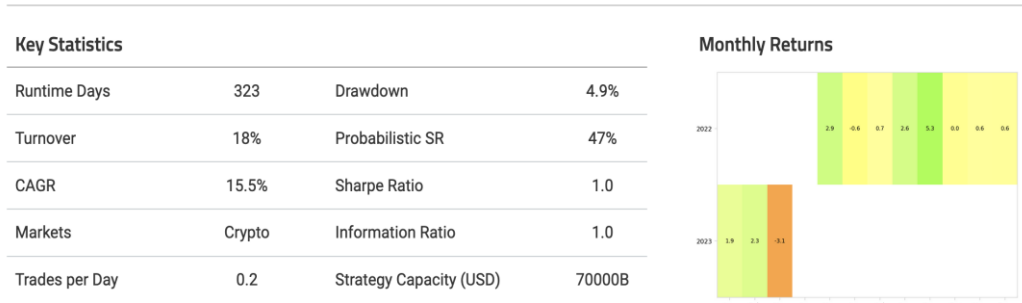


Figure 1. Key statistics of the crypto (BTC, ETH) trades backtesting



BUSINESS PRIORITIES

- Stable financing continues
- All monthly and quarterly reports accepted
- Talks on entering on market started



RESEARCH PRIORITIES

- Many ML models developed using:
- LSTM deep neural networks
- XGBoost Forest trees



TEAM AND COOPERATION

- Team maintained
- Successful cooperation with IGS VC developed
- Talks with potential partners initiated

WORKS DONE

2ND QUARTER 2023

Q2 2023 key highlights:

- **Machine Learning Mastery:** PrimeQ's intensive R&D in Q2 resulted in a breakthrough machine learning model that predicts market extremums with high probability. This innovation holds potential to shape future trading strategies.
- **Outperforming Strategies:** Our AI-powered trading strategies showcased exceptional performance on stock markets, exceeding market norms. Although early stages for crypto and forex markets, the strategies demonstrate promise.
- **Investment Robotics:** Q2 saw the creation of three pioneering "investment robots" employing strategies like spread trading and AI-backed trend-following. The results show that the application of VWAP and Cointegration techniques still require more research in order to achieve better results. A risk management module was further developed to enhance portfolio control.
- **Project Continuation:** The ongoing first-phase project boasts significant achievements, from system architecture design to simulation strategy development. The introduced investment engine brings together essential tools for effective evaluation.
- **Analytical Power:** A new backtesting module provides detailed insights into asset profitability and risk, while the "papertrade" feature allows real-time outcome simulation.

PrimeQ's Q2 milestones highlight innovation in machine learning, trading strategies, and analytical capabilities.

	BTCUSDT		AMD		S&P500	
	ML Strategy	Market	ML Strategy	Market	ML Strategy	Market
PnL	22.79%	-37.7%	109.63	39.15	20.07	18.68
Max Drawdown	-32.4%	-66%	-19.7	-67	-12.9	-35
Drawdown of Start Capital	-16.5%	-66%	0	-21	-10	-32

Table 1. Selected results of predictions of backtesting for the period 2020-2022



Figure 2. ML strategy results based on SPY 1h candles, 2020-2022



Figure 3. ML strategy results based on AMD 1h candles, 2020-2022



WHAT'S NEXT

In the upcoming Q3 of 2023, PrimeQ is set to embark on ambitious initiatives tailored to captivate potential hedge fund clients and investors. This phase, which spans three months, encapsulates deterministic tools exploration and the final comprehensive platform testing.

In Q3 2023,
we focus on
refining
trading
strategies,
risk
management,
platform
integration,
and a web
app for
enhanced
investment
decision-
making

- **Research and Development:** In this stage, extensive developmental research will be conducted. The scope encompasses both foundational research and software integration, culminating in an effective demonstration of the entire system's functionality.
- **Advanced Research Tools:** A central focus will be put on improving AI results, as we have already received some very promising results. Apart from that we would explore the statistical arbitrage and cointegration in spread trading (once we have more funds for R&D secured). These strategies leverage relative price movements across thousands of financial instruments, driven by pattern analysis and price differentials.
 - **AI development:** we will apply sliding windows of data (instead of a static approach) to improve learning of our networks.
 - **Statistical Arbitrage:** This strategy capitalizes on mean reversion patterns, investing in diverse portfolios over short periods. Notably, Spot-Futures statistical arbitrage will be investigated, combining stock trading with futures instruments.
 - **Cointegration:** A concept rooted in Nobel laureate Prof. Clive W.J. Granger's work, it identifies related instruments moving in sync. Spread fluctuations trigger trading opportunities, making it ideal for pair trading across sectors, indices, and cryptocurrencies.
- **Platform Integration and Testing:** Integration of prior research outcomes and new insights forms the core of this stage. The trading platform, incorporating the initial investment robots, will undergo comprehensive testing, error resolution, and system optimization.
 - **Efficient Trading Strategy:** PrimeQ aims to develop an efficient trading strategy based on predicted model data. Real-world comparisons and error metrics such as absolute prediction error will be utilized.
 - **Risk Management Model:** A more advanced risk management model will be built to provide uninterrupted trading operations through its State Service, and optimizing combinations for long-term profitability.
- **System Integration and Web Application:** All system modules, strategies, and risk management tools will be integrated into a unified platform, once we have enough resources for that. We have decided to put more efforts to build AI-based decision making engine instead of developing a mobile app. Instead, a web application will be built.

The Q3 endeavors are poised to position PrimeQ as a pioneering force in AI-driven trading solutions, offering hedge funds exceptional research insights, innovative strategies, and an all-encompassing platform for effective and informed investment decisions.

APPENDIX: PAPER TRADING RESULTS

Apart from back testing, we have already performed paper trading. For instance:

- Apple: Net Profit 6.9%, Drawdown 4.0%, Deposit Drawdown 0.5%
- BTC: Net Profit 10.15%, Drawdown 3.5%, Deposit Drawdown 0.8%



Figure 4. Paper trading results for AAPL, 2 months

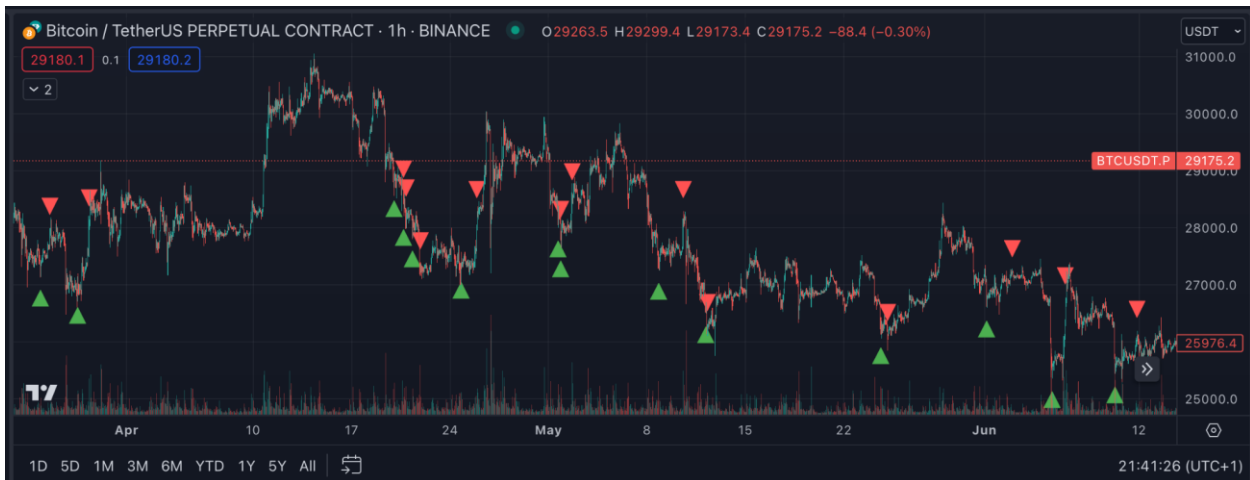


Figure 5. Paper trading results for BTC, 3 months

ENDNOTES

As we prepare to embark on live trading in August, PrimeQ extends a unique invitation. We invite interested parties to contribute a minimum of \$10,000 for testing purposes. Rest assured, your funds will be safeguarded through a dedicated agreement that ensures their return along with proportional interest based on the achieved results within a matter of weeks.

We eagerly await your participation in shaping PrimeQ's future. For further details and to explore this unparalleled opportunity, kindly contact us. Your involvement could mark the beginning of a mutually beneficial partnership.