

QUARTERLY REPORT

3RD 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 our portfolio of

25.6%

coupled with a robust risk-adjusted return.

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 **artificial intelligence** 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.



BUSINESS PRIORITIES

- Company registration
- Research grant received
- Research started



RESEARCH PRIORITIES

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



TEAM AND COOPERATION

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

WORKS DONE

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.

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 extremes – 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.

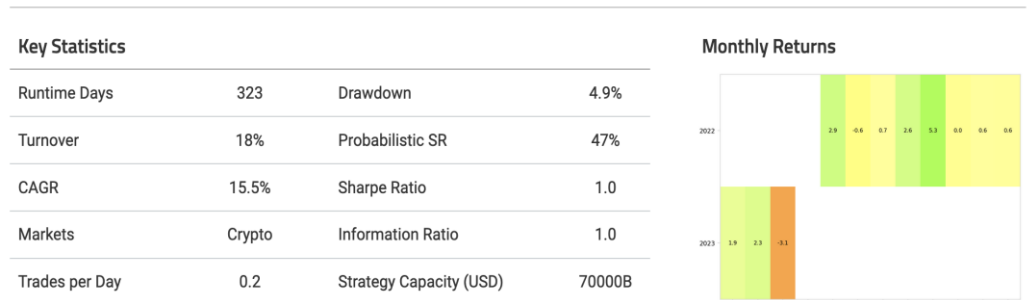


Figure 1. Key statistics of the crypto (BTC, ETH) trades backtesting

WORKS DONE



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

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 Draw-down	-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

WORKS DONE

3RD QUARTER 2023

Q3 2023 key highlights:

- Research Methods:**
 - ML Pivot Strategy Live Trading:** Successfully validated Q2 backtest results with live trading and optimized asset selection. Two portfolios of stocks and ETFs were actively traded.
 - VWAP and Cointegration Strategies:** Optimized and implemented these strategies in real-time trading. ML regression was used for VWAP to reduce risk. Cointegration tests showed potential but require further research.
- Focus on Traditional Assets in the Technology Sector:** PrimeQ concentrated on traditional assets in the technology sector, focusing on performance-risk combinations in shares of four large tech companies. This sector yielded the best results among many industries studied.
- Performance with ML:** The Machine Learning strategy outperformed the benchmark S&P500. While the S&P500 dropped by 4.1%, PrimeQ's portfolio grew by 5%, suggesting a potential annual profit of 25.6%. Average profit per trade was 0.88%, best win 2.55% (worst lose 4.4%),
- Website Development:** PrimeQ's launched its website, www.primeq.ai, to showcase its features and performance to the public.
- External Audit:** The company commissioned an external audit encompassing technical security, regulatory compliance, and stress tests to ensure robustness.

These achievements underscore PrimeQ's Q3 milestones in advancing machine learning, trading strategies, and analytical capabilities. The live trading results, with the main portfolio generating a PnL of 5%, while the benchmark S&P500 incurred a loss of -4%, highlight the effectiveness of PrimeQ's ML strategies. The company is well-positioned for continued growth and innovation in the finance and trading industry.

	ML Strategy – main portfolio	Market (benchmark S&P500)
Profit and Loss	5.05%	-4.13%
Max Drawdown	-1.18%	-6.72%

Table 2. Selected results of live trading (83 days, up to 30 Sept.)



Figure 4. ML Pivot strategy results, live trading (83 days)



BUSINESS PRIORITIES

- The project has been prolonged
- All monthly and quarterly reports accepted by the VC
- First talks with hedge funds from the EU and U.S.



RESEARCH PRIORITIES

- VWAP and Cointegration strategies
- Live trading on real time data
- Machine Learning Pivot strategy



TEAM AND COOPERATION

- Going beyond internal stakeholders
- Talks with potential stakeholders
- Talks with VCs and private investors



WHAT'S NEXT

In Q4 2023, PrimeQ is poised to welcome new investors for testing and research. Our objectives for this quarter are as follows:

- Focus on AI/ML research to develop new strategies and enhance performance.
- Implement long-term portfolio management and rebalancing optimization strategies powered by deep machine learning.
- Leverage sentiment analysis from news and microblogs to inform more effective trading decisions.
- Automate model retraining and conduct order book research with AI/ML to support day trading strategies.
- Expand into Forex and cryptocurrency market trading.
- Enhance the TerraBot platform with improved PnL reporting, trader tools, infrastructure upgrades, and integration with additional brokers.
- Strengthen risk and portfolio management systems, and improve monitoring, alerting, fault tolerance, and security measures.

Our Q3 achievements in live trading validate our dynamic portfolio management approach and the need for frequent research updates in cointegration strategies. The VWAP strategy exhibited potential in delivering low-risk profits. Looking ahead, we are committed to further AI/ML research and platform enhancements.

**In Q4 2023,
we focus on
research to
improve the
results.**

ENDNOTES

As PrimeQ initiates live trading in August, we extend an exclusive invitation. We invite prospective investors to contribute a minimum of \$20,000 for testing purposes. Be assured, your funds will be secured through a dedicated agreement guaranteeing both the return of your investment and proportional interest based on our performance within a matter of weeks.

We look forward to your involvement in shaping the future of PrimeQ. For comprehensive details and to explore this exceptional opportunity, we invite you to reach out to us. Your participation could mark the commencement of a mutually advantageous partnership.