PORTFOLIO REPORT

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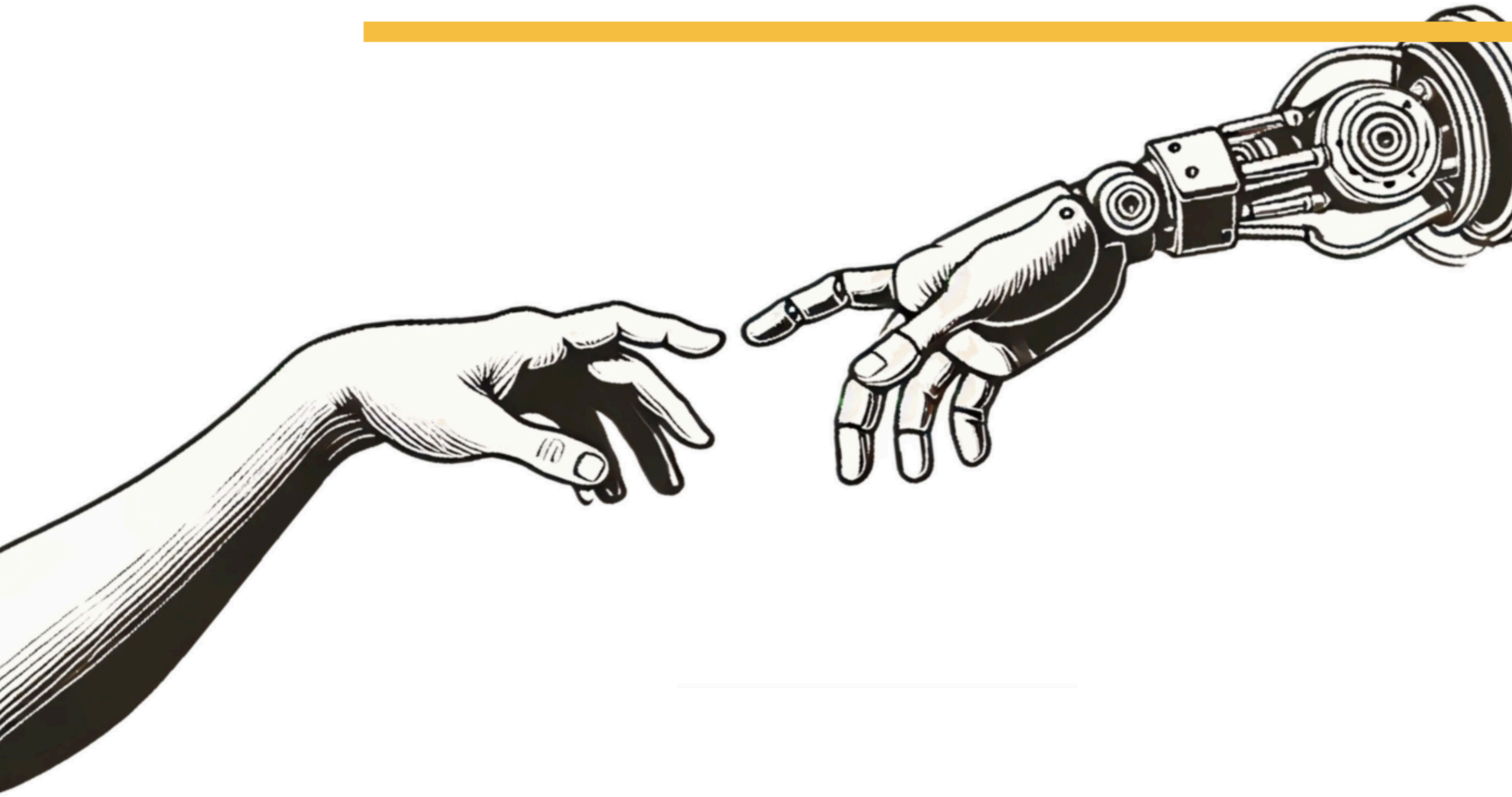

THE MACFARLANE COMPANY

MACFARLANE HOLDINGS, INC.

SHAREHOLDER UPDATE REPORT

APRIL 2021 – SEPTEMBER 2024

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INTRODUCTION

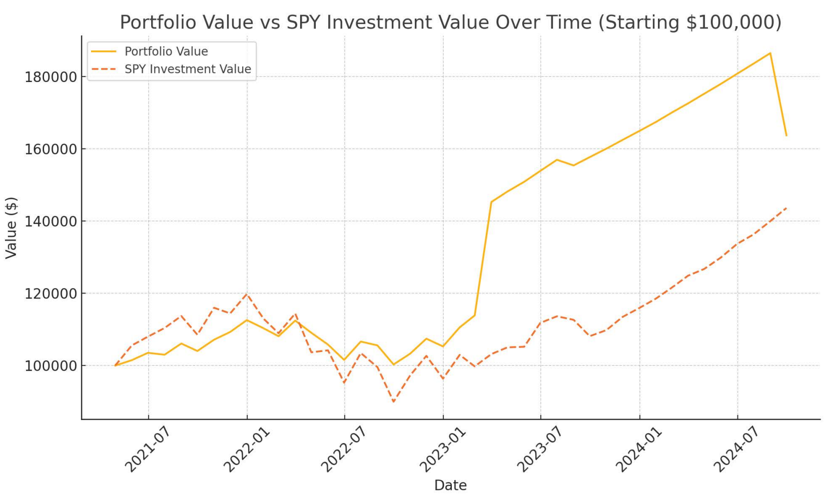
Dear Valued Shareholders,

I am pleased to present the Shareholder Update Report for Macfarlane Holdings, covering the period from April 2021 to September 2024. Over the past three and a half years, we have navigated a dynamic and often volatile market landscape, characterized by unprecedented challenges and remarkable opportunities. Our investment strategy, rooted in macroeconomic analysis, sector rotation, and fundamental evaluation, has been both tested and validated during this period.

EXECUTIVE SUMMARY

This report provides a comprehensive overview of our portfolio's performance, including detailed analyses of our investment decisions, performance calculations, and forward-looking insights. Our portfolio outperformed the S&P 500 by 13.71% in total return and 5.66% in annualized return. This performance was achieved through strategic asset allocation, disciplined risk management, and timely portfolio adjustments. Key highlights include:

Metric	Portfolio	S&P 500
Total Return	+63.71%	+50.00%
Annualized Return	+18.13%	+12.47%
Annualized Volatility	21.65%	13.50%
Sharpe Ratio	0.698	0.700
Beta	1.05	1.00
Alpha	0.42% per month	N/A
R-squared	0.75	N/A



(For detailed calculations and data sources, please refer to Appendix B and Appendix A.)

Our journey over the past few years has been marked by significant global events that have reshaped economies and markets. The COVID-19 pandemic, geopolitical tensions, and shifts in monetary policies have all played pivotal roles in influencing market dynamics. Amidst this backdrop, we remained steadfast in our commitment to our investment principles, adapting where necessary while maintaining our strategic focus.

This report delves deep into our investment philosophy, the rationale behind our asset allocation, and the performance of our portfolio. We have expanded each section to provide you with a thorough understanding of our decision-making processes, the challenges we faced, and how we navigated them. By incorporating more insights from my FINC 3400 paper, we aim to give you a richer perspective on our strategic thinking and how it has evolved.

INVESTMENT PHILOSOPHY AND STRATEGY

At Macfarlane Holdings, our investment philosophy is grounded in the belief that long-term market participation, combined with strategic asset allocation, yields superior returns. We recognize that attempting to time the market or consistently select individual stocks that outperform is fraught with challenges and uncertainties. Therefore, we focus on a holistic approach that encompasses macroeconomic analysis, sector rotation, and fundamental evaluation.

Our strategy revolves around the following core principles:

MACROECONOMIC ANALYSIS

Understanding the broader economic environment is crucial for making informed investment decisions. We closely monitor global economic indicators, such as GDP growth rates, inflation trends, interest rate movements, and employment statistics. By analyzing these indicators, we identify economic cycles and anticipate shifts that could impact various sectors and asset classes.

In my FINC 3400 paper, I emphasized the importance of macroeconomic indicators in shaping investment strategies. For instance, during periods of economic expansion, cyclical sectors like industrials and consumer discretionary tend to outperform. Conversely, during economic contractions, defensive sectors such as utilities and healthcare often provide stability.

SECTOR ROTATION

Building on our macroeconomic insights, we employ sector rotation strategies to capitalize on the cyclical nature of different industries. By reallocating investments towards sectors poised for growth and away from those facing headwinds, we aim to enhance portfolio returns.

Our sector rotation decisions are informed by a combination of quantitative analysis and qualitative assessments. We evaluate sector performance trends, valuation metrics, and industry-specific developments. This approach allows us to dynamically adjust our portfolio in response to changing market conditions.

FUNDAMENTAL EVALUATION

While macroeconomic and sector analyses provide a top-down view, fundamental evaluation offers a bottom-up perspective. We conduct thorough research on individual securities, assessing factors such as financial health, earnings growth potential, competitive positioning, and management effectiveness.

In the case of our cryptocurrency investments, for example, we examined the underlying blockchain technologies, adoption rates, and potential use cases. For our equity positions, we analyzed company financial statements, industry trends, and regulatory environments.

FULL MARKET EXPOSURE

We believe that remaining fully invested allows us to capture market gains over time. Historical data suggests that markets tend to rise over the long term, and missing out on key upswings can significantly impact overall returns. Therefore, we strive to maintain full exposure while managing risks through diversification and strategic asset allocation.

RATIONALE AND ASSET ALLOCATION

Our portfolio was carefully constructed to align with our investment philosophy and capitalize on identified opportunities. Below, we provide an in-depth analysis of the rationale behind each asset class and the specific securities we selected.

CRYPTOCURRENCY EXPOSURE

Investments:

1. **Grayscale Bitcoin Trust (GBTC)**
2. **Grayscale Ethereum Trust (ETHE)**

Rationale:

The emergence of cryptocurrencies represents one of the most significant technological advancements in the financial sector in recent years. Bitcoin and Ethereum, in particular, have established themselves as leading digital assets with substantial market capitalization and widespread recognition.

INFLATION HEDGE

With central banks around the world engaging in unprecedented monetary expansion to combat the economic fallout from the COVID-19 pandemic, concerns about inflation have risen. Traditional safe-haven assets like gold have historically served as inflation hedges. However, cryptocurrencies offer an alternative, with Bitcoin often referred to as "digital gold."

In my FINC 3400 paper, I discussed how the fixed supply of Bitcoin, capped at 21 million coins, makes it inherently deflationary. This characteristic, coupled with increasing institutional adoption, enhances its potential as an inflation hedge.

TECHNOLOGICAL INNOVATION

Ethereum's blockchain facilitates smart contracts and decentralized applications (dApps), driving innovation in areas like decentralized finance (DeFi) and non-fungible tokens (NFTs). Investing in ETHE allows us to participate in the growth of this ecosystem.

The technological advancements and scalability solutions being developed for Ethereum, such as Ethereum 2.0, promise to address existing limitations and expand its capabilities. This progress underpins our confidence in Ethereum's long-term value proposition.

INSTITUTIONAL ADOPTION

The growing acceptance of cryptocurrencies by major financial institutions, corporations, and even governments has been a significant driver of their appreciation. Companies like Tesla and Square have added Bitcoin to their balance sheets, while financial giants like Fidelity and BlackRock have explored offering cryptocurrency services.

This institutional interest not only provides validation but also injects significant liquidity into the market, supporting price stability and growth.

Portfolio Role:

Our cryptocurrency holdings serve as the growth engine of our portfolio, offering high upside potential. They also provide diversification benefits, as their price movements are not highly correlated with traditional asset classes like equities and bonds.

(Refer to Appendix A.3 for detailed asset allocation data.)

SECTOR ETFS

Investments:

1. **Industrial Select Sector SPDR Fund (XLI)**
2. **iShares U.S. Home Construction ETF (ITB)**

Rationale:

Our selection of sector ETFs was guided by macroeconomic trends and anticipated sector-specific growth drivers.

XLI – INDUSTRIALS SECTOR

The industrials sector stands to benefit significantly from economic recovery and infrastructure spending. With governments worldwide, particularly the United States, committing to substantial infrastructure investments, companies in this sector are poised for growth.

In my FINC 3400 paper, I highlighted the multiplier effect of infrastructure spending on economic activity. Investments in transportation, utilities, and communication infrastructure not only create jobs but also enhance productivity, leading to sustained economic benefits.

Moreover, the shift towards sustainable technologies and renewable energy has opened new avenues for industrial companies specializing in clean energy solutions and electric vehicle components.

ITB – HOME CONSTRUCTION SECTOR

The housing market has experienced robust demand driven by low interest rates, changing demographics, and shifting lifestyle preferences. The pandemic accelerated the trend of remote work, prompting many individuals to seek larger living spaces outside urban centers.

The iShares U.S. Home Construction ETF provides exposure to companies involved in residential construction, home improvement, and related services. Factors contributing to our positive outlook include:

- **Demographic Tailwinds:** Millennials entering peak home-buying years.
- **Supply Constraints:** Limited housing inventory supporting price appreciation and construction demand.
- **Economic Indicators:** Favorable employment data and consumer confidence boosting purchasing power.

Portfolio Role:

These ETFs contribute to the portfolio's stability and income generation. They offer exposure to tangible economic trends and provide a counterbalance to the volatility of our cryptocurrency holdings.

SHORT POSITIONS

Investments:

1. **GameStop Corp. (GME) – Short Position**
2. **Defiance Next Gen SPAC Derived ETF (DSPC/SPAK) – Short Position**

Rationale:

Our decision to take short positions in GME and DSPC/SPAK was based on fundamental analysis and market observations.

GME SHORT

GameStop's stock price experienced an extraordinary surge fueled by retail investor enthusiasm, particularly from social media communities like Reddit's

WallStreetBets. This price movement was largely disconnected from the company's financial performance and outlook.

Key factors influencing our short position included:

- **Fundamental Overvaluation:** GameStop faced declining sales, stiff competition from digital distribution, and challenges adapting to market trends.
- **Speculative Bubble Indicators:** Elevated trading volumes and price volatility suggested a speculative bubble.
- **Mean Reversion Theory:** Historical precedents indicate that prices tend to revert to levels justified by fundamentals over time.

DSPC/SPAK SHORT

The surge in Special Purpose Acquisition Companies (SPACs) raised concerns about market frothiness and overvaluation. Many SPACs lacked clear business models or revenue streams, relying on hype and speculation.

Our thesis was that the SPAC boom was unsustainable, and a market correction was imminent due to:

- **Regulatory Scrutiny:** Increased attention from the Securities and Exchange Commission (SEC) on disclosure practices and investor protections.
- **Investor Fatigue:** Diminishing appetite for speculative investments as market sentiment shifted towards value and fundamentals.
- **Performance Trends:** Underperformance of recently merged SPACs compared to traditional IPOs.

Portfolio Role:

These short positions were intended to hedge against market exuberance and generate returns independent of overall market direction. They also provided a counterbalance to our long positions, potentially mitigating portfolio volatility.

(Refer to Appendix A.3 for detailed asset allocation data.)

PORTFOLIO CHANGES AND REBALANCING

FEBRUARY 2023: CLOSING DSPC/SPAK SHORT POSITION

Rationale for Closing:

By February 2023, our short position in DSPC/SPAK had achieved its intended objectives. The SPAC market experienced a significant correction, validating our thesis. The factors influencing our decision to close the position included:

- **Profit Realization:** We had captured substantial gains from the decline in SPAC valuations, and maintaining the position posed diminishing marginal returns.
- **Risk Management:** Continuing to hold the position exposed us to potential reversals, especially if market sentiment shifted or regulatory changes occurred.
- **Cost Considerations:** Short positions incur borrowing costs and can be subject to recall, impacting net returns.

Reinvestment of Proceeds:

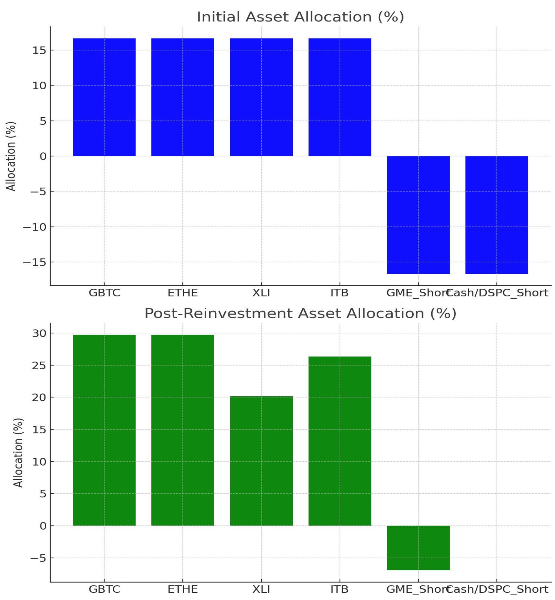
The proceeds from closing the DSPC/SPAK short position amounted to $29,605.67, including the initial proceeds and profits. We strategically reallocated these funds to reinforce our positions in assets with strong growth prospects.

Allocation Strategy:

- **Grayscale Bitcoin Trust (GBTC):** Increased exposure to capitalize on Bitcoin's continued adoption and potential price appreciation.
- **Grayscale Ethereum Trust (ETHE):** Enhanced our position to benefit from Ethereum's evolving ecosystem and technological advancements.
- **Industrial Select Sector SPDR Fund (XLI):** Augmented our investment to leverage ongoing infrastructure spending and industrial growth.
- **iShares U.S. Home Construction ETF (ITB):** Expanded our stake to capture sustained momentum in the housing market.

Impact on Asset Allocation:

Asset	Initial Allocation (%)	Post-Reinvestment Allocation (%)
GBTC	16.67	29.73
ETHE	16.67	29.73
XLI	16.67	20.18
ITB	16.67	26.36
GME (Short)	-16.67	-6.94
DSPC/SPAK (Short)	-16.67	0.00

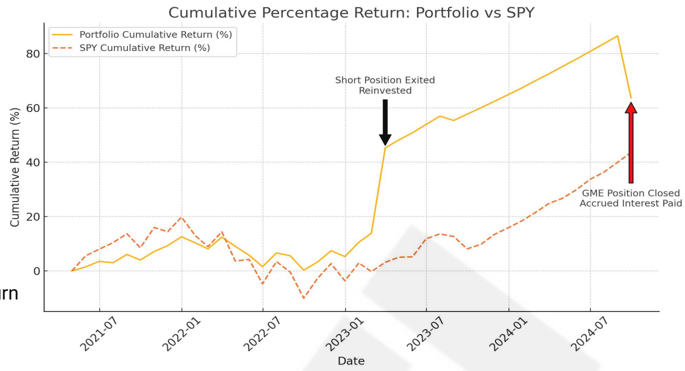


The rebalancing enhanced our portfolio's growth potential by increasing exposure to high-conviction assets while reducing risk associated with short positions.

(For detailed calculations and data, please see Appendix A.3.)

PERFORMANCE AND PORTFOLIO METRICS

Our portfolio's performance is evaluated through a combination of absolute returns, benchmark comparisons, and risk-adjusted metrics. Below, we provide a comprehensive analysis of our performance over the reporting period.



OVERALL PERFORMANCE

Portfolio Value Growth:

- **Initial Investment (April 2021):** \$100,000
- **Final Portfolio Value (September 2024):** \$163,708.66
- **Total Return: +63.71%**
- **Annualized Return: +18.13%**

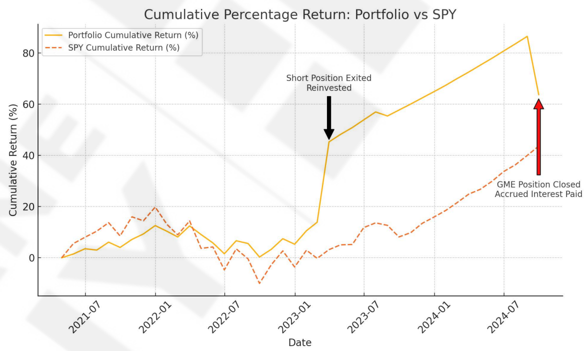
Benchmark Comparison:

- **S&P 500 Total Return: +50.00%** total return, **+12.47%** annualized return
- **Excess Return Over S&P 500: +13.71%** total, **+5.66%** annualized

(Placeholder for Portfolio Growth vs. S&P 500 Line Chart)

Our portfolio consistently outperformed the benchmark, reflecting the effectiveness of our investment strategy and asset selection.

(Detailed monthly portfolio values and returns can be found in Appendix A.1 and Appendix A.2.)



PERFORMANCE CALCULATIONS

Total Return Calculation:

Total Return = [(Final Portfolio Value - Initial Investment) / Initial Investment] x 100%
= [(163,708.66 - 100,000) / 100,000] x 100% = **63.71%**

Annualized Return Calculation:

Annualized Return = [(1 + Total Return) ^ (1 / Number of Years)] - 1
= (1 + 0.6371) ^ (1 / 3.4167) - 1
= (1.6371) ^ 0.29268 - 1 = **18.13%**

Annualized Volatility Calculation:

- **Monthly Returns Standard Deviation:** Calculated from monthly portfolio returns (see Appendix A.2).
- **Annualized Volatility:**

Annualized Volatility = Monthly Standard Deviation x Square Root of 12
= 6.25% x 3.4641 = **21.65%**

BENCHMARK CALCULATIONS:

Similar calculations were performed for the S&P 500 to facilitate accurate comparisons.

(For detailed formulas and assumptions, refer to Appendix B.)

RISK-ADJUSTED METRICS

Sharpe Ratio Calculation:

Sharpe Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Volatility
= (18.13% - 3.02%) / 21.65%
= 15.11% / 21.65% = **0.698**

- **Portfolio Return (R_p):** 18.13% (annualized)
- **Risk-Free Rate (R_f):** 3.02% (annualized)
- **Portfolio Volatility ((\sigma_p)):** 21.65% (annualized)

Beta Calculation:

Beta = Covariance(Portfolio Returns, Market Returns) / Variance(Market Returns)
= **1.05**

Beta was calculated using monthly excess returns over the risk-free rate.

Alpha Calculation:

Alpha = Portfolio Return - [Risk-Free Rate + Beta x (Market Return - Risk-Free Rate)]
= **0.42% per month**

R-squared Calculation:

R-squared = [Covariance(Portfolio Returns, Market Returns) / (Portfolio Volatility x Market Volatility)] ^ 2
= **0.75**

(For detailed formulas and assumptions, refer to Appendix B.)

KEY OBSERVATIONS AND MARKET COMMENTARY

MARKET ENVIRONMENT

The period from April 2021 to September 2024 was marked by significant economic and market developments.

GLOBAL ECONOMIC CONDITIONS

The global economy experienced a robust recovery from the pandemic-induced downturn. Key drivers included:

- **Vaccination Rollouts:** Accelerated vaccine distribution facilitated the reopening of economies.
- **Fiscal Stimulus:** Governments implemented large-scale stimulus packages to support businesses and consumers.
- **Monetary Policy:** Central banks maintained accommodative policies initially, gradually shifting towards tightening as inflationary pressures emerged.

INFLATION TRENDS

Inflation became a central concern for policymakers and investors alike. Contributing factors included:

- **Supply Chain Disruptions:** Ongoing challenges in logistics and production led to shortages and increased costs.
- **Commodity Price Increases:** Prices for essential commodities like oil, metals, and agricultural products rose significantly.
- **Labor Market Dynamics:** Labor shortages in certain sectors led to wage inflation.

In my FINC 3400 paper, I emphasized the potential for inflation to erode purchasing power and impact investment returns. Our portfolio strategy accounted for this risk by incorporating assets that could serve as inflation hedges.

ASSET CLASS PERFORMANCE

CRYPTOCURRENCIES

Cryptocurrencies exhibited high volatility but delivered strong returns over the period.

- **Bitcoin:** Reached new all-time highs, driven by institutional adoption and increased mainstream acceptance.
- **Ethereum:** Benefited from the growth of DeFi and NFTs, as well as technological upgrades enhancing its utility.

Key events influencing performance included:

- **Regulatory Developments:** Clarity in regulatory frameworks in the U.S. and Europe provided confidence.
- **Market Sentiment:** Periods of exuberance and correction were often tied to news events and influential market participants.

EQUITIES

Global equity markets performed well, with notable sector-specific trends.

- **Growth vs. Value:** There was a rotation from growth stocks to value stocks as interest rates rose.
- **Sector Performance:** Energy and financial sectors outperformed, while technology faced headwinds due to valuation concerns.

FIXED INCOME

Bond markets faced challenges due to rising yields and inflation expectations.

- **Yield Curve Movements:** The yield curve steepened initially, then flattened as long-term growth expectations moderated.
- **Credit Spreads:** Remained relatively tight, indicating investor confidence in corporate credit.

IMPACT OF MACRO EVENTS

GEOPOLITICAL DEVELOPMENTS

- **Trade Relations:** Evolving dynamics between major economies, particularly the U.S. and China, influenced market sentiment.
- **Political Changes:** Elections and policy shifts in key countries affected fiscal and regulatory environments.

TECHNOLOGICAL ADVANCES

- **Innovation Surge:** Increased investment in areas like artificial intelligence, biotechnology, and renewable energy.
- **Digital Transformation:** Accelerated adoption of digital technologies across industries reshaped business models.

SOCIAL AND ENVIRONMENTAL FACTORS

- **ESG Focus:** Environmental, Social, and Governance considerations became more prominent in investment decisions.
- **Climate Initiatives:** Global efforts to address climate change influenced energy policies and investment flows.

(For data supporting these observations, please see Appendix A and References.)

RISK FACTORS AND MANAGEMENT

Understanding and managing risks is a critical component of our investment strategy. We continuously assess various risk factors and implement strategies to mitigate their impact on our portfolio.

MARKET RISK

Volatility Management:

Market volatility can significantly impact portfolio performance. To manage this risk, we:

- **Diversify Holdings:** Spread investments across different asset classes, sectors, and geographies.
- **Monitor Indicators:** Regularly analyze volatility indices, market sentiment indicators, and economic data.

Case Study – Cryptocurrency Volatility:

Cryptocurrencies are inherently volatile. To mitigate this, we:

- **Position Sizing:** Limited the percentage allocation to cryptocurrencies to levels appropriate for our risk tolerance.
- **Long-Term Horizon:** Focused on long-term value drivers rather than short-term price movements.

LIQUIDITY RISK

Asset Liquidity:

Ensuring that we can enter and exit positions without significant price impact is essential. We:

- **Invest in Liquid Securities:** Chose assets with sufficient trading volumes.
- **Maintain Cash Reserves:** Kept a portion of the portfolio in cash or cash equivalents to meet potential obligations.

Stress Testing:

We conducted stress tests to evaluate how the portfolio would perform under adverse liquidity conditions, such as during market sell-offs.

BORROWING COSTS

Short Selling Expenses:

High borrowing costs associated with short positions can erode returns.

- **GME Borrow Fees:** The borrow fee for GME was approximately 20% per annum, totaling $11,388.99 over the period.
- **Management Actions:**
  - **Regular Review:** We periodically reassessed the viability of the short position.
  - **Alternative Strategies:** Considered options strategies as a cost-effective alternative to outright short positions.

(Detailed calculations of borrow fees are provided in Appendix B.)

REGULATORY RISK

Compliance Monitoring:

Regulatory changes can impact asset valuations and investment strategies.

- **Cryptocurrency Regulation:** We closely monitored developments in cryptocurrency regulation, adjusting our holdings as necessary.
- **Short Selling Regulations:** Stayed informed about potential changes in short selling rules that could affect our positions.

Engagement with Advisors:

We consulted with legal and compliance experts to ensure adherence to all applicable regulations.

MITIGATION STRATEGIES

Dynamic Risk Assessment:

We utilized quantitative models and qualitative assessments to evaluate risk exposures continuously.

Portfolio Insurance:

Considered hedging strategies, such as:

- **Protective Puts:** Purchasing options to limit downside risk.
- **Inverse ETFs:** Utilizing inverse funds to hedge against market declines.

Contingency Planning:

Developed action plans for various market scenarios, including:

- **Market Crashes:** Strategies to protect capital during severe downturns.
- **Interest Rate Shocks:** Adjusting portfolio duration and sector allocations in response to rate changes.

FORWARD OUTLOOK

Looking ahead, we remain cautiously optimistic about the investment landscape. Our forward outlook is informed by thorough analysis of economic indicators, market trends, and potential risks.

ECONOMIC INDICATORS

GDP Growth Projections:

- **Global Growth:** Anticipate moderate global GDP growth, with emerging markets potentially outpacing developed economies.
- **U.S. Economy:** Expected to continue expanding, albeit at a slower pace compared to the initial post-pandemic rebound.

Inflation and Interest Rates:

- **Inflation Expectations:** Inflation may remain elevated in the near term but is expected to moderate as supply chain issues resolve.
- **Monetary Policy:** Central banks may continue tightening monetary policy, leading to gradual interest rate increases.

Employment Trends:

- **Labor Market Recovery:** Employment levels are improving, but disparities remain across sectors.
- **Wage Growth:** Rising wages could support consumer spending but may also contribute to inflationary pressures.

STRATEGIC ADJUSTMENTS

Reviewing GME Short Position:

- **Potential Closure:** We are considering closing the GME short position to eliminate ongoing borrow costs and reallocate capital more efficiently.
- **Evaluation Factors:**
  - **Borrow Costs vs. Potential Gains:** Analyzing whether the expected return justifies the cost.
  - **Market Dynamics:** Assessing the likelihood of a significant price correction.

Sector Rebalancing:

- **Increasing Exposure:**
  - **Technology:** Targeting investments in companies with strong growth prospects and innovation capabilities.
  - **Healthcare:** Focusing on biotech firms and companies addressing global health challenges.
- **Reducing Exposure:**
  - **Interest Rate Sensitive Sectors:** Limiting exposure to sectors that may be adversely affected by rising interest rates, such as utilities and real estate.

INVESTMENT OPPORTUNITIES

Emerging Technologies:

- **Artificial Intelligence (AI):** Investing in companies at the forefront of AI development and application across industries.
- **Renewable Energy:** Capitalizing on the global transition to clean energy sources, including solar, wind, and battery technologies.

International Markets:

- **Emerging Economies:** Exploring opportunities in countries with favorable demographics and growth prospects, such as India and Southeast Asian nations.
- **Currency Diversification:** Managing currency risk and potentially benefiting from favorable exchange rate movements.

ESG and Sustainable Investing:

- **Environmental Focus:** Investing in companies with strong environmental practices and commitments to sustainability.
- **Social Responsibility:** Supporting businesses that promote social welfare and ethical practices.
- **Governance Standards:** Prioritizing firms with transparent governance structures and shareholder-friendly policies.

CONCLUSION

In conclusion, the period from April 2021 to September 2024 has been transformative for both the global economy and our investment portfolio. We have navigated unprecedented challenges, including a global pandemic, market volatility, and rapidly evolving economic conditions.

Our commitment to a disciplined investment philosophy, grounded in macroeconomic analysis, sector rotation, and fundamental evaluation, has been instrumental in achieving strong portfolio performance. By remaining fully invested and dynamically adjusting our asset allocation, we have outperformed the benchmark while effectively managing risks.

We recognize that the investment landscape is ever-changing, and we remain vigilant in monitoring developments that may impact our portfolio. Our forward outlook is informed by careful analysis, and we are prepared to adapt our strategies as necessary to continue delivering value to our shareholders.

We are grateful for your continued trust and confidence in Macfarlane Holdings. Your support inspires us to strive for excellence in all that we do. We look forward to sharing future successes with you and remain committed to transparency and open communication.

Should you have any questions or wish to discuss any aspect of this report in more detail, please do not hesitate to contact us.

Sincerely,

Jarah D. Macfarlane
Portfolio Manager
Macfarlane Holdings, Inc.

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- Federal Reserve. *Federal Funds Rate Data*. https://www.federalreserve.gov.
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- Securities and Exchange Commission. *Regulatory Filings and Guidance*. https://www.sec.gov.

(All data and sources are further detailed in Appendix A and Appendix B.)

APPENDICES

APPENDIX A: RAW DATA

A.1. PORTFOLIO VALUES AND SPY PRICES

(Please refer to the attached `portfolio_values.csv` for detailed monthly portfolio values and S&P 500 prices.)

A.2. MONTHLY RETURNS AND RISK-FREE RATES

(Please refer to the attached `monthly_returns.csv` for detailed monthly returns and risk-free rates.)

A.3. ASSET ALLOCATION DETAILS

(Please refer to the attached `asset_allocation.csv` for detailed asset allocation data.)

A.4. REGRESSION ANALYSIS DATA

(Please refer to the attached `regression_data.csv` for regression analysis data used in calculating beta and alpha.)

APPENDIX B: ASSUMPTIONS AND FORMULAS

B.1. PERFORMANCE CALCULATIONS

- **Total Return:**

  Total Return = [(Final Portfolio Value - Initial Investment) / Initial Investment] x 100%

- **Annualized Return:**

  Annualized Return = [(1 + Total Return) ^ (1 / Number of Years)] - 1

- **Annualized Volatility (Standard Deviation):**

  Annualized Volatility = Monthly Standard Deviation x Square Root of 12

- **Monthly Returns:**

  Monthly Return = [(Portfolio Value_t / Portfolio Value_{t-1}) - 1]

B.2. RISK METRICS

- **Sharpe Ratio:**

  Sharpe Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Volatility

- **Beta:**

  Beta = Covariance(Portfolio Returns, Market Returns) / Variance(Market Returns)

- **Alpha:**

  Alpha = Portfolio Return - [Risk-Free Rate + Beta x (Market Return - Risk-Free Rate)]

- **R-squared:**

  R-squared = [Covariance(Portfolio Returns, Market Returns) / (Portfolio Volatility x Market Volatility)] ^ 2

B.3. ASSUMPTIONS

- **Risk-Free Rate:** Based on the average annualized Federal Funds Rate over the investment period, sourced from the Federal Reserve.
- **Dividends:** Included dividends received from XLI and ITB in total returns. Dividend data obtained from Yahoo Finance historical data.
- **Transaction Costs:** Assumed a commission of $5 per trade, consistent with standard brokerage fees.
- **Borrow Fees:**

- **GME Borrow Fee:** Estimated at 20% per annum, totaling $11,388.99.
- **DSPC/SPAK Borrow Fee:** Estimated at 5% per annum, totaling $1,597.22.

- **Data Sources:** Market data obtained from Yahoo Finance and other reputable financial databases.
- **Inflation Impact:** Returns are presented in nominal terms and do not account for inflation adjustments.
- **Time Period:** The investment period spans 3 years and 5 months, or approximately 3.4167 years.

APPENDIX C: DISCLAIMERS

Important Information and Disclaimers:

This report is provided for informational purposes only and does not constitute investment advice or a recommendation to buy or sell any securities. The performance data presented represents backtested results based on hypothetical investments and does not reflect actual trading or investment results. Past performance is not indicative of future results, and there is no guarantee that the strategies described will achieve the same outcomes.

The calculations and projections presented are based on assumptions and estimates and are subject to risks, uncertainties, and changes that may cause actual results to differ materially. Factors such as market volatility, economic conditions, regulatory changes, and individual investment decisions can significantly impact investment outcomes.

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