Growth & Income

June 30, 2023

Green Alpha®

Investment Philosophy

The greatest growth drivers of today's economy are high-functioning, inventive companies creating and accelerating solutions to system-level risks—the climate crisis, resource degradation, widening inequality, and human disease burdens. Those companies are our best investment opportunity to preserve and grow clients' capital.

Green Alpha's philosophy is simple: seek enterprises creating scalable and rapidly evolving, economically-competitive solutions, rigorously evaluate their fundamentals, and acquire them at reasonable valuations.

Our investments seek to de-risk the global economy (which in turn reduces clients' long-term investment risks) primarily within sectors and industries growing faster than underlying GDP.

Why Invest in Growth & Income?

- Active research, stock selection, and portfolio management
- Lower volatility portfolio producing above-market dividend income, while seeking long-term capital preservation and growth
- 25-45 global, market-leading companies developing solutions to core economic and environmental risks

Inception Date: December 31, 2012

Vehicle: Separately Managed Accounts

Research

Across our portfolios, we seek companies:

- with products and/or services lowering the global economy's risk profile by creating solutions to our most pressing economic and environmental risks
- committing more capital to R&D and owning more intellectual property than their peers
- run by effective, diverse executive teams and boards of directors with track records of increasing revenues and expanding margins, leading to earnings growth
- exhibiting sound financial fundamentals and capital custodianship
- trading at compelling valuations relative to proven and anticipated growth, within acceptable levels of risk

Portfolio Construction

The Growth & Income portfolio is designed to harness the powerful combination of growth and current income within one portfolio. Portfolio holdings are selected for current or potential dividend yield, coupled with strong revenue growth, bought at a reasonable price.

The Growth & Income strategy typically exhibits lower short-term volatility than broad market indices and other Green Alpha portfolios, while providing a competitive dividend yield.

Largest Positions

How the Growth & Income portfolio is driving progress toward the Next Economy

Company Name	Ticker	Weight
Horizon Tech. Finance	HRZN	7.03%
Taiwan Semiconductor	TSM	6.13%
IBM	IBM	5.82%
Brookfield Renewable	BEPC	4.67%
Deutsche Telekom	DTEGY	4.05%
% of Portfolio		27.70%

Horizon Technology Finance *(Sector: Financials, Industry: Specialty Finance)*

- Horizon Technology Finance is a publicly traded specialty finance company that provides secured loans to venture capital and private equity-backed companies in the technology, life sciences, healthcare information and services, and cleantech industries.
- Horizon has deployed more than $5 billion in venture loans, including their current $715.3 million book (as of March 31, 2023), to more than 300 businesses in the underserved venture loan space.
- The loan portfolio is conservatively managed with transactions usually well below their maximum of $35 million and terms of 3-5 years backed by security of offering debt on a “first lien” or “first lien behind a bank revolver” basis. They often partner with other institutions to reduce transactional risk.
- Horizon focuses on providing flexible and customized financing solutions to its portfolio companies, including growth capital, equipment financing, working capital lines of credit, and acquisition financing. Their lending strategies are designed to meet the unique needs of early and growth-stage companies, with a focus on companies that have the potential for rapid growth and strong market positions.
- Technology, sustainability, life sciences, and healthcare technology companies are attracting record investments on the VC side. This means Horizon enjoys a growing total addressable market in an underserved debt arena and offers the opportunity to invest in a venture loan fund that constitutes a diversified basket of privately held Next EconomyTM companies via a single stock.
- Horizon is committed to maintaining a strong balance sheet and managing risk effectively, with a focus on generating attractive risk-adjusted returns for its shareholders. The company also emphasizes the importance of corporate responsibility, including ethical business practices, environmental sustainability, and community engagement.

Taiwan Semiconductor *(Sector: Technology, Industry: Semiconductors)*

- Taiwan Semiconductor Manufacturing Company (TSMC) is a Taiwanese multinational semiconductor contract manufacturing and design company. It is the world's largest dedicated independent (pure-play) semiconductor foundry.
- TSMC is a contract manufacturer, which means that it does not design or sell its own chips. Instead, it manufactures chips for other companies, including Apple, Qualcomm, and NVIDIA. Customers include some of the world's largest technology companies, and their chips are used in a variety of products, including smartphones, computers, and cars.
- TSMC is by far the largest semiconductor foundry in the world with 54% market share overall and 92%+ market share of the world’s most advanced chips. It is one of two companies capable of producing advanced 3-nanometer tech and is planning to produce 2-nanometer chips in 2023.
    - Being first to the 2nm node gives pricing leverage: TSMC is reportedly planning to charge $25,000 per 2nm wafer.
- The company relies solely on internally generated funds to finance organic growth, capacity expansion, and R&D; it only invests in practical growth, never engaging in share buybacks.
- The company features strong fundamentals, including a fortress-like balance sheet and outstanding credit ratings.
- Their new Arizona plant will make advanced 3-and-5-nanometer transistors. The factory is expected to be operational by 2024, and it will be TSMC's first fab in the United States.
- TSMC’s executive team includes several women in positions of high authority, including the President of TSMC Europe.

***IBM**, **Brookfield Renewable**, and **Deutsche Telekom**’s Next Economy attributes are described on the following page.*

Largest Positions *continued*

IBM *(Sector: Technology, Industry: Software & Tech Services)*

- IBM is a world leader in driving innovation to mitigate global risks. Having divested from its legacy managed-infrastructure business, IBM has re-emerged as a Next EconomyTM powerhouse. Their primary initiatives include blockchain code and technology, cloud computing, AI and machine learning, and quantum computing. IBM has said these innovations “can exponentially alter the speed and scale at which we can uncover solutions to complex problems. We’ve come to call this accelerated discovery.”
    - In Q2 2023, IBM notably demonstrated that its 127-Qubit "Eagle" Quantum Processing Unit could perform calculations that have previously failed in the jumble of qubit noise. However, IBM has now managed to prove it can derive useful results from a noisy QPU. This means that quantum computing has reached the point where it is useful in practical terms, and much earlier than was generally expected.
- After filing the most U.S. patents annually for 29 straight years, IBM pivoted in 2022 to create more open-source code and platforms, and so was awarded the 2nd largest number of U.S. patents after Samsung. They remain among the largest IP holder across many domains: cloud and cognitive software; quantum computing; enabling distributed ledger; pioneering AI; developing security methods atop lattice cryptography; and advancing nanotechnology.
- Women comprise 33%+ of IBM’s workforce. Female senior leadership includes the SVP/COO of IBM Consulting, Chief Human Resources Officer, SVP/Legal and Regulatory Affairs, and General Counsel. IBM is a longstanding leader on pay equity for both women and minority populations.

Brookfield Renewable *(Sector: Utilities, Industry: Electric Utilities)*

- Brookfield Renewable is a leading renewable power company that owns and operates a portfolio of solar, wind, and hydroelectric power generation and storage facilities in North America, South America, Europe, and Asia.
- Brookfield is one of the largest renewable power companies in the world, with a portfolio of 8,000 generating facilities, representing over 24,000 megawatts of generating capacity. The company's mission is to provide sustainable energy solutions that help people and businesses thrive. They are committed to developing and operating renewable energy projects that are environmentally responsible, socially beneficial, and economically viable.
- Brookfield is conservatively managed, continually looking to acquire and organically grow generation capacity, and has revenues largely backed by long-term power purchase agreements (PPAs). Brookfield is inflation resilient and may benefit from an inflationary environment, because their generating costs are fixed but their PPAs are indexed to inflation.
- Women comprise 30% of board directors (including the Audit Committee Chair), 25% of overall workforce, and 26% of the exec team. The exec team has a robustly above-average age spread of 48 years, as does the board at 38 years.

Deutsche Telekom *(Sector: Communications, Industry: Telecommunications)*

- Deutsche Telekom is a multinational company with operations in more than 50 countries. Their main businesses are fixed-line telecommunications, mobile telecommunications, and information and communication technology (ICT). They also have smaller businesses, including media and entertainment, and real estate.
- Deutsche Telekom is well positioned to continue growing; they are investing in new technologies, such as 5G, fiber optic networks, and cloud computing. These investments will allow them to offer their customers the latest and most innovative telecommunications services. They have a strong track record of innovation, particularly in the field of telecommunications. For example, the company was one of the first in Europe to offer 5G services, and it has also invested heavily in R&D to stay at the forefront of emerging technologies.
- They are a shareholder in T-Mobile U.S., the 2nd largest mobile telecom provider in the America. T-Mobile U.S. is a growth company, and Deutsche Telekom's investment is a material driver of Deutsche Telekom’s overall growth.
- The board of management is 43% female, including the member for Human Resources and Legal Affairs, Labor Director, Board member for Europe, and the board member for Technology and Innovation.

Macroeconomic Commentary

2023 so far has been characterized by volatility, both up and down. Markets have managed to remain positive in aggregate. Some of the reasons for this volatility are well known, starting with the domestic economic environment. The much-anticipated recession, still said to be imminent, has not materialized despite two years of prognosticators' predictions. Unemployment is remarkably low, and wages have been increasing across income levels. Inflation continues, albeit at a moderated 4% annual pace, which is still above the Fed's ideal target, and this in turn adds uncertainty to markets that are having difficulty determining how many and how large additional Federal Reserve rate hikes to price into their models. Generally though, a more robust and still growing economy with greatly attenuated inflation is in principle modestly bullish for stocks.

Then there is the geopolitical environment. Ian Bremmer, founder of the Eurasia Group, believes that a rogue-state Russia is by far the greatest geopolitical risk currently facing the world. It is impossible to argue his point. In a recent podcast, Bremmer points to a recent incident where a Russian fighter jet mistakenly fired on a British aircraft, and all that prevented the deaths of 17 British service men and women was the malfunction of the Russian missile. Bremmer uses this example to point out that as long as the Russian invasion of Ukraine endures, we are a hair's breadth away from an incident that would provoke a shooting war between NATO and Russia, adding along the way that Russia has more nuclear weapons than any nation on Earth.

The second major geopolitical risk is the ongoing deterioration of the relationship between the United States and China—the world's two largest economies. This deterioration is meaningful in terms of its threat to economic growth, as it impacts not only trade, but also innovation and productivity. In the United States, the bipartisan clamoring to "get tough on China," and in China, increasing authoritarianism and the regime's desire to be the key regional superpower in Southeast Asia, have led to an atmosphere of distrust and uncertainty, and subsequently to both punitively motivated and risk-hedging steps towards economic decoupling. We view this as dangerous through the framing of the Thucydides trap: historically, when nations have moved to separate themselves from one another economically and taken active steps to throttle the development of a rival, it has often led to open war.

Relative to the desired outcomes of economic growth and stability, Green Alpha Investments would much prefer to see stabilization in the US-China relationship, and even active collaboration in areas where the two nations are in agreement, such as the need to address the climate crisis and to find ways to spur economic growth amid declines in working age populations. In that environment, areas where there is disagreement can be addressed far more constructively. Barring such a de-escalation, escalating tensions present risks for investors.

Given all the above, it should not be surprising that investors globally are sitting on near record levels of cash. That the markets have risen at all in 2023 should, if anything, be the surprise. So, why is that?

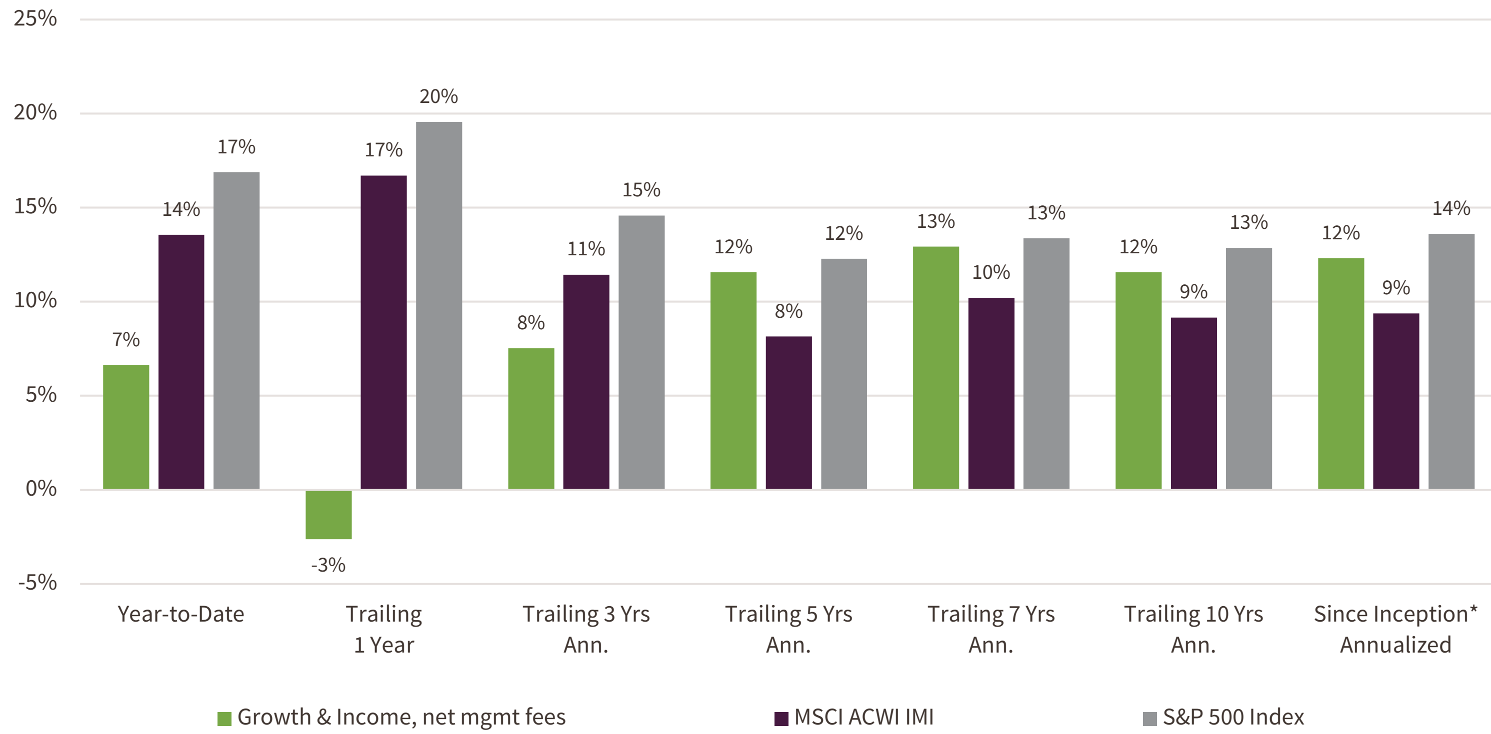
Despite these very significant risk overhangs, there are many positive developments, particularly in the United States, which is growing its economy rapidly relative to other developed nations and has also managed to do a better job taming inflation than most of its peers. Most notably, the growth in the U.S. economy revolves around significant new construction to support the build out of new, large-scale manufacturing. A significant share of this production boom is in

- semiconductor manufacturing,
- manufacturing for renewable energy,
- batteries for energy storage and electric vehicles, and
- increased domestic production of electric vehicles themselves.

All this is creating well-paying jobs and driving economic growth. We can't help but note that all these bullish trends are occurring within areas we have always defined as key Next Economy™ sectors and industries.

We continue to believe that this dynamic will continue: most economic growth will be derived from innovations that are economically competitive and that simultaneously solve problems, helping to de-risk the world. This is the underlying thesis of Green Alpha's Next Economics™, and, as complicated and nuanced as things are, we believe the current geopolitical and economic environment is providing elegant validation of that thesis.

Portfolio Performance & Commentary



For the first half of 2023, the Growth & Income portfolio returned 6.62% net of management fees, versus its benchmark, the MSCI All Country World Investable Market Index (MSCI ACWI IMI), which returned 13.55%.

The sectors contributing the most to the strategy's returns were Technology and Industrials.

- Within Technology, the semiconductors and tech hardware industries were the standout performers. Semiconductor manufacturer contributions were the leading area in the strategy with especially significant returns during Q1 and additional contributions during Q2. Also contributing were advanced chip providers, especially those providing advanced chips for AI and communications, along with modest contributions by consumer electronics makers. The IT services industry detracted slightly from gains during the first half.
- In the Industrials sector, the leading global industrial electrical equipment maker and one of the world's primary logistics providers were responsible for the sector's returns.

The sectors detracting the most from the strategy's returns were Real Estate and Health Care.

- The Real Estate sector carried the majority of the portfolio's negative contributions (-3.02%). Declines were led by office REITs (see here for Green Alpha's discussion of current REIT market dynamics and why we believe not all office REITs are created equal), and secondarily by communications REITs, particularly those providing wireless communications infrastructure. These losses in office and infrastructure REITs were partially offset by gains in data center REITs and specialty/industrial REITs.
- Within Health Care, the modest losses were from the world's leading mRNA vaccines and therapeutics company, which saw significant consolidation during 1H. Those losses were partially offset by gains in one of the world's leading genomic therapeutics companies and a global pharma/vaccines leader.

**Portfolio Inception: December 31, 2012. All returns presented above that are greater than 1 year in length have been annualized. Performance data quoted represents past performance. Past performance does not guarantee future results and current performance may be lower or higher than the data quoted. Please see the final page of this document for additional important disclosures.*

Growth & Income

How our portfolios compares to their benchmark, the MSCI All Country World Investible Market Index

Characteristics

- **High Income** – a compelling combination of robust growth and dividend income that is higher than the broad equity market
- **Fundamentals-driven:** the underlying quality of companies and the price paid for their shares are key drivers of LT returns
  - ✓ **High growth:** indicated by Sales Growth, and a decrease from Current P/E to Forward P/E as revenue and earnings grow
  - ✓ **Compelling valuation:** demonstrated by Price/Sales and Price/Book metrics relative to growth expectations
  - ✓ **Strong balance sheet and management execution:** conveyed by capital stewardship, LT Debt/Equity, and Current Ratio
- **Fossil fuel free since inception:** we have never invested in companies that prospect, extract, refine, or transport fossil fuels, nor in fossil-fired utilities or internal combustion engine manufacturers
- **Diversified – we seek solutions wherever we can find them:** across the globe, in companies of all sizes, and every industry
- **Public equities, long-only:** most investors' largest asset class; largest opportunity for impact

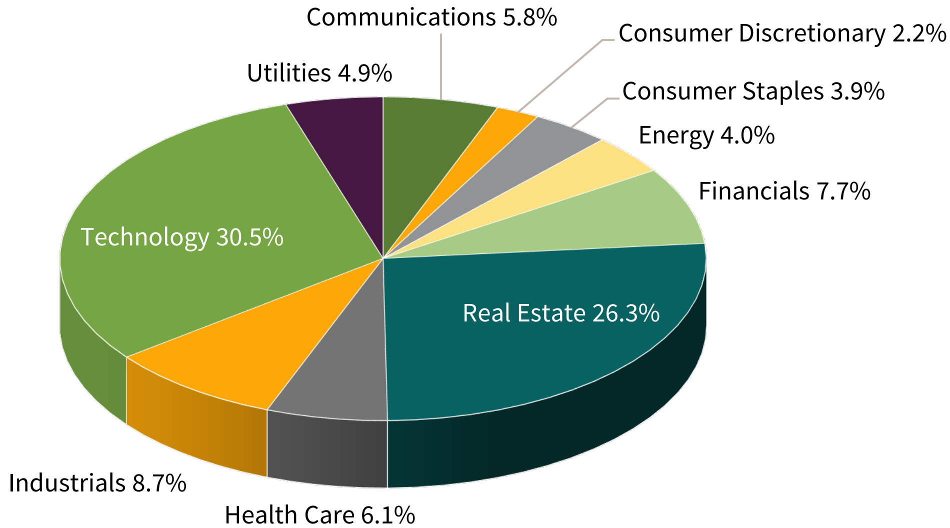
Characteristics	Growth & Income	Benchmark: MSCI ACWI IMI (SPGM)	Next Economy Index	Social Index	Next Economy Select	Sierra Club Green Alpha	DiversiTerra
# of Securities	35	2,498	141	99	63	47	57
Active Share	97%	-	92%	94%	96%	96%	95%
Sales Growth, Trailing 3-Yr	23%	15%	45%	55%	36%	39%	47%
P/E, Current	16.0	17.2	21.8	24.5	16.9	20.6	22.3
P/E, 1-Year Forward	16.8	16.3	21.8	23.5	17.6	19.7	23.5
Price/Sales	1.6	1.7	2.1	2.1	1.6	1.2	1.9
Price/Book	1.8	2.5	3.1	2.9	2.2	2.4	2.5
LT Debt/Equity	71%	423%	220%	72%	301%	696%	80%
Current Ratio	2.7	2.8	3.2	3.8	3.9	2.7	3.3
Dividend Yield	4.28%	2.22%	1.14%	1.08%	1.90%	1.46%	1.49%
Market Cap, Wtd Avg ($B)	$95.06	$407.10	$116.98	$121.06	$126.54	$135.62	$134.43
Market Cap, Median ($B)	$33.17	$2.67	$9.20	$9.71	$4.18	$11.40	$7.13
Turnover, Trailing 2-Yr Avg	19%	Not Available	12%	21%	12%	9%	15%
Beta, Trailing 2-Yrs	1.21	1.00	1.27	1.31	1.37	1.32	1.31
U.S.-Domiciled Companies	65%	56%	77%	85%	65%	68%	81%
% Revenue Derived in U.S.	45%	43%	48%	53%	43%	44%	59%

All characteristics are sourced from FactSet, are based on a representative account and include cash. Please see the final page of this document for additional important disclosures.

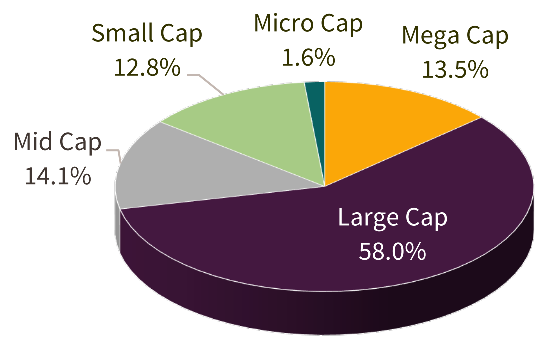
Portfolio Allocations

Our search for Next Economy companies is unconstrained. For the Growth & Income portfolio, we seek solutions to systemic risks wherever they exist – across sectors, market caps, and geographies.

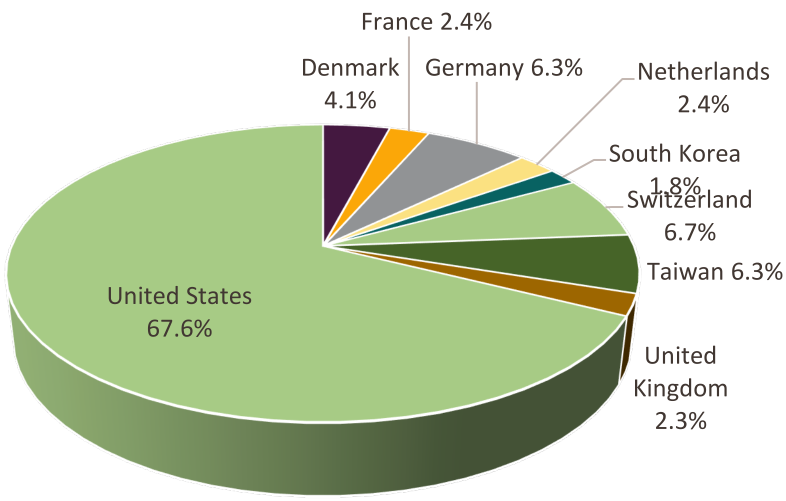
Economic Sectors



Market Capitalizations



Companies' Main Headquarters



Allocation data is sourced from FactSet and is based on a representative account. The exception is the sector chart, which utilizes the Bloomberg Industry Classification Standard from Bloomberg, and is based on a model portfolio. All charts on this page are shown as percent of equity. Please see the final page of this document for additional important disclosures.

Important Disclosures

- Green Alpha Advisors, LLC is a registered investment advisor. Registration as an investment advisor does not imply any certain level of skill or training.
- Green Alpha Investments is a trade name of Green Alpha Advisors, LLC. Green Alpha is a registered trademark of Green Alpha Advisors, LLC. Green Alpha Advisors also owns the trademarks to "Next Economy," "Next Economics," "Next Economy Portfolio Theory," "Investing in the Next Economy," and "Investing for the Next Economy."
- Performance quoted throughout this document represent past performance. Past performance does not guarantee future results, and current performance may be lower or higher than the data quoted. Investment returns and principal will fluctuate with market and economic conditions, and investors may have a gain or loss when shares are sold.
- Beginning July 31, 2021, the Growth & Income performance results are a composite of discretionary client accounts invested in the Growth & Income strategy on specific custodial platforms. Green Alpha's discretionary client accounts that are not included in the composite are those custodied at Folio Institutional due to operational limitations of Folio's data feeds to Green Alpha's portfolio accounting system Advent APX. Beginning May 31, 2023, composite membership also includes a minimum account size of $25,000. The Growth & Income composite performance results reflect actual performance for a composite of discretionary client accounts meeting custodian and minimum account size requirements. Net-of-fee returns reflect the deduction of actual management fees and transaction costs. Some assets managed in the Growth & Income strategy within the composite receive a reduced fee from the standard management fee schedule. Actual client returns experienced will vary from the returns presented based on a variety of factors, and we encourage you to ask about specific factors. Accounts are included in the composite for full-month periods under management with Green Alpha Investments. Growth & Income composite performance results do not reflect the reinvestment of dividends and interest.
- Prior to July 31, 2021, the performance results represent a single account managed to the strategy. The performance results shown are not materially higher than if all related accounts were included prior to August 2021. Please contact Green Alpha for information about the representative account selection process.
- Actual advisory fees may vary among clients with the same investment strategy. Green Alpha's standard fee schedules are available within Form ADV Part 2. For those details and additional legal information, please see information and files here: http://greenalphaadvisors.com/about-us/legal-disclaimers/.
- The Growth & Income strategy contains equity stocks that are managed with a view towards capital appreciation and current income. Extreme periods of underperformance or outperformance are due to the concentrated nature of the strategy and the impact of specific security selection. Such results may not be repeatable.
- Green Alpha portfolios may invest in companies with small and medium market capitalizations, which may have more limited product lines, markets, and financial resources than larger companies. In addition, their securities may trade less frequently and in more limited volume than those of larger companies. Small or mid-cap stocks may be more volatile than those of larger companies and, where trading volume is thin, the ability to dispose of such securities may be more limited. Green Alpha portfolios may also invest in foreign domiciled companies. Investing in foreign securities may involve additional risks, including exchange-rate fluctuations, limited liquidity, high levels of volatility, social and political instability, and reduced regulation. Emerging markets are often more volatile than developed markets and investing in emerging markets involves greater risks. International investing may not be suitable for everyone. An investment in Green Alpha portfolios should be considered a long-term investment.
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- The MSCI All Country World Investable Market Index (ACWI IMI) captures large, mid, and small cap representation across 23 developed markets and 27 emerging markets countries. With more than 8,750 constituents, the index is comprehensive, covering approximately 99% of the global equity investment opportunity set. Investors cannot invest directly in this index.
- The SPDR MSCI Global Stock Market ETF (ticker: SPGM) seeks to provide investment results that, before expenses, correspond generally to the price and yield performance of the MSCI ACWI IMI. Investors can invest directly in SPGM.
- The S&P 500 Index is an unmanaged index of 500 common stocks chosen for market size, liquidity, and industry group representation. It is market-value weighted. The S&P 500 Index figures do not reflect any fees, expenses, or taxes. Investors cannot invest directly in this index.
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