

Growth & Income

December 31, 2023

Green Alpha[®]

Largest Positions	2
Macroeconomic Commentary	4
Performance and Attribution Commentary	5
Portfolio Characteristics	6
Sector, Geographic, and Market Cap Allocations	7
Disclosures	8

Investment Philosophy

Today's economy derives its most significant growth from innovative, high-performing businesses that actively develop and expedite solutions addressing critical systemic issues such as the climate crisis, resource degradation, inequality, and diseases. These companies represent the most promising investment opportunities for both safeguarding and increasing our clients' capital.

Green Alpha adheres to a straightforward philosophy: we actively seek out companies pioneering swiftly scalable and rapidly adaptable, economically competitive solutions.

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



Why Invest in Growth & Income?

- Active research, stock selection, and portfolio management
- 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 portfolios, we aim to identify companies meeting the following criteria:

- They offer products and/or services that mitigate the risk profile of the global economy by providing solutions to pressing economic and environmental challenges.
- Companies allocating a significant portion of revenue to R&D, CapEx, and possessing more IP than their peers.
- Those led by shareholder-aligned, effective, and diverse executive teams and BODs with a record of increasing revenues and expanding profit margins, which in turn drives earnings and potential dividend growth.
- Companies with prudent capital allocation priorities and strong balance sheets.
- Those with shares trading at attractive valuations relative to proven and anticipated growth prospects.

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 dividend yield and expectations of yield growth, coupled with share price appreciation potential.

The strategy typically exhibits lower short-term volatility than broad market indices and other Green Alpha portfolios, while providing an above-average dividend yield.

Largest Positions

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

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

- Horizon is focused on lending to and investing in venture debt. The company delivers tailored lending and investment solutions supporting innovative businesses through staged growth while also offering retail investors access to participate in venture debt market opportunities via a publicly traded BDC structure. As of Q3, 2023, shares in Horizon had a dividend yield of 10%.
- 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 has had a notable beneficial impact supporting innovation in cleantech and healthcare companies through its specialty lending activities:
 - Over the past 5 years, they have originated over \$80 million in venture loans into 35+ cleantech companies commercializing solutions in renewable energy, transportation, agriculture, waste, and water management.
 - Since 2017, the company has deployed over \$117 million debt financing to healthcare names spanning biopharma, diagnostics, medical devices, and health IT/services. Loan structuring expertise aids capital intensive business models and lengthy development timelines in healthcare sector.
 - Additionally, Horizon maintains a venture loan Initiative targeting impact-oriented companies whose success delivers quantifiable environmental or societal advances.
- Horizon has directed over \$250 million to fund innovative cleantech and healthcare high growth companies in recent years - providing a crucial conduit of expansion capital paired with specialized industry experience. Its expertise and reliable financing avenues generate positive externalities accelerating promising solutions confronting some of society's greatest challenges.

Taiwan Semiconductor Manufacturing Co. (Sector: Technology, Industry: Semiconductors)

- Taiwan Semiconductor Manufacturing Co (“TSMC”) is the world’s largest semiconductor foundry, providing advanced chip manufacturing and fabrication services to companies on a made-to-order basis. TSMC maintains a clear dominance where their specialized factories manufacture advanced custom chips for companies like Apple, NVIDIA, and Qualcomm.
- TSMC stands alone as the one foundry already operating at the 3nm node, the most advanced chip manufacturing process available anywhere in the world currently. No other competing fab comes close in leading-edge capability and capacity. Early adoption of pioneering techniques like extreme ultraviolet lithography (EUV) underpins this leadership.
- Many contest that TSMC stands as the most important company in all of technology due to their vital role as an enabler to virtually every semiconductor innovator pushing the performance envelope—those firms critically depend on TSMC to transform their chip visions into scaled reality.
- With over 90% of advanced global foundry market share, an unparalleled focus on sustaining the most capable fab infrastructure, and customers heavily reliant on their new node introduction cadence, TSMC's name goes nearly synonymous with "state of the art" among computing architects. Their operational prowess dominates the leading edge of possibility, and their work arguably underpins the entire modern economy.

Hudson Pacific Properties, JinkoSolar, and IBM's Next Economy attributes are described on the following page.

Company Name	Ticker	Weight
Horizon Tech. Finance	HRZN	7.14%
Taiwan Semiconductor Manuf.	TSM	5.29%
Hudson Pacific Props.	HPP	4.21%
JinkoSolar Holding	JKS	4.11%
IBM	IBM	4.10%
% of Portfolio		24.85%

Largest Positions *continued*

Hudson Pacific Properties (Sector: Real Estate, Industry: REITs)

- Hudson Pacific Properties (HPP) is a real estate investment trust (REIT) that owns, acquires, develops, and operates office and studio properties focused on the tech and media sectors primarily across select West Coast office markets.
- HPP's significant presence in Hollywood and Silicon Valley are largely owned and managed high-quality media studios and Class-A tech-centric modern office spaces. Overall, they possess specialized sector expertise matching high-demand tenants with premium workspaces in core economic growth regions—enabling it to stand resilient across market cycles.
- Here are a few key reasons why Hudson Pacific Properties stands out as resilient compared to many REITs:
 - Diverse Blue-Chip Tenant Base: Tenants include major technology firms (Google, Twitter, Uber) and media/streaming giants (Netflix, Disney) across sectors poised for long-term growth.
 - Modern Architectural Pedigree: Many HPP buildings boast contemporary award-winning architectural designs well-suited to attracting top creative class tenants.
 - High credit worthy tenant mix limits risks associated with downturns or loss of any single key occupant.
 - HPP maintains a conservative capital allocation strategy, prioritizing reinvestment in its core business and maintaining financial strength over aggressive expansion. This prudent approach limits debt exposure and provides a financial buffer to navigate challenging economic conditions.

JinkoSolar Holding (Sector: Energy, Industry: Renewable Energy)

- JinkoSolar is one of the world's largest solar panel manufacturers and the most vertically integrated, making ingots, cells, panels, and modules. They distribute to 160 countries and manufacture products in the U.S., China, Malaysia, and Vietnam, thus mitigating political and trade dispute-related growth obstacles.
- JinkoSolar's production capacity is expanding. In 2021, the company had a total production capacity of 55 GW. In early 2024, Jinko expects to have annual production capacity of over 100 GW, roughly enough to power 75 million homes.
- The company continues to emphasize R&D, achieving mass production efficiency exceeding 26.1% for their 16 GW N-type cells, which is a world record for n-type solar cell efficiency.
- Of the world's top five PV manufacturers, Jinko alone has grown its global module market share in the last year and has ranked number one in global shipments for the past four years. Jinko's strong financial and operational performance in the first three quarters of 2023 enabled the company on September 26th to announce a dividend of \$1.50 per share/ADR.
- JinkoSolar is the top-ranked firm on the Silicon Valley Toxics Coalition's Solar Scorecard, receiving 100 out of 100 points for operational sustainability. The company plans to run on 100% renewable energies by 2025 and is a member of RE100. Their executive team has a strong age spread of 31 years and the board's is above average at 27 years.

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

- IBM is a leading driver of innovations mitigating global risks. Having divested from its legacy managed-infrastructure business, IBM has re-emerged as a Next Economy™ powerhouse. Areas of focus include:
 - Hybrid Cloud Infrastructure: IBM provides robust cloud computing solutions, competing with giants like Amazon Web Services and Microsoft Azure.
 - AI and Machine Learning: IBM is a leader in the field of artificial intelligence, offering tools and platforms like Watson for various applications, including data analysis, customer service, and healthcare.
 - Security and Blockchain: IBM emphasizes data security and privacy, offering comprehensive security solutions and exploring the potential of blockchain technology for enhanced trust and traceability.
 - IBM Quantum: One of the world's first and largest publicly accessible quantum computing platforms, offering access to over 20 quantum processors via its cloud platform, IBM Quantum Cloud.
 - Qiskit: An open-source quantum software development kit, empowering developers and researchers worldwide to build and run quantum algorithms and applications.
- IBM believes these “can exponentially alter the speed and scale at which we can uncover solutions to complex problems. We've come to call this accelerated discovery.”

Please see the final page of this document for important disclosures about portfolio, benchmark, and characteristic information.

Macroeconomic Commentary

Our complete [2023, 2024, and the Road Ahead](#) review is available [here](#); the summary provided below aims to spark your curiosity to explore the comprehensive content and associated source materials.



In 2023, the dichotomy of our future became starker: a potential utopia or a daunting dystopia. Our path hinges on collective decisions, particularly in financial investments. Money, as a potent agent of change, directs economic growth. Where we choose to invest can either propel innovations that solve critical problems, fostering economic expansion and societal progress, or lead us toward detrimental outcomes. The key lies in aligning our financial resources with sustainable and innovative ventures that promise a brighter, richer, and more abundant, more equitable future. What were 2023's key milestones of hope and despair?

First: Despair. Key negative events in 2023 that affected and continue to pose economic and market risks

- **Climate Crisis:** Increased severity of climate events; high investment in fossil fuels both prolonging and causing further environmental damage; subsequent economic risks like insurance companies withdrawing from high-risk areas
- **Geopolitical Conflicts:** Escalation of global conflicts affecting economies and markets; significant wars include Israel-Hamas and Russia-Ukraine
- **American Political Landscape:** Potential impact of the 2024 U.S. Presidential election on environmental policies and global climate action
- **China's Economic Challenges:** China is facing a decline in foreign investments and economic growth due to high debt-to-GDP ratio, affecting global economic dynamics, but also incentivizing China to stabilize relations with the U.S.

What IS Working?

- **Renewable Energy Growth:** Significant increase in renewable energy adoption and electric vehicle (EV) use; advancements in solar technology and reduction in costs
- **Biotechnological Advances:** Gene editing, particularly CRISPR-Cas9, is showing potentially unlimited promise in medicine and agriculture
- **AI Integration:** AI's growing role in the economy and its impact on productivity and solving major issues
- **Market Conditions:** Improving environment for innovation-driven companies; shifts in investment patterns and potential for growth in sustainable technology sectors; some growth stocks appear undervalued

2024 Financial Outlook: Continued expensive money, geopolitical economic reshaping, and rapid technological advancement impacting investment and growth strategies

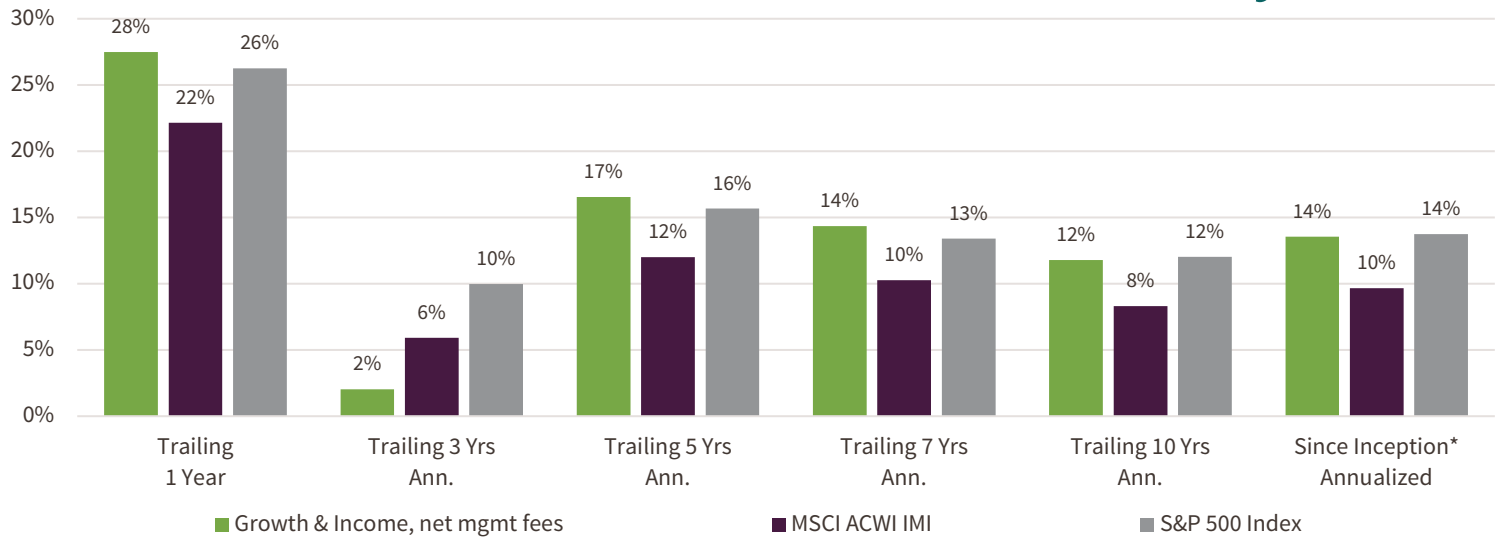
- The climate crisis is worsening—higher temperatures and more extreme weather are likely
- China taking a more collaborative stance with the West as its economy struggles

Key Unknowns

- Whether geopolitical conflicts spread or cool down
- If \$6 trillion in money market funds flows to stocks and other risk assets, that could fuel appreciation in share prices of growth companies

In the context of escalating global challenges, technological innovation emerges as a pivotal force for stability and economic progression. For fiduciaries, it's prudent to direct investment portfolios towards companies demonstrating resilience and innovation in sustainable production functions that can support long-term global growth. These firms are not only transforming their industries, but also show a robust capacity to flourish amid complex global dynamics. A strategic emphasis on such sustainability-focused enterprises highlights the critical role of technology in driving meaningful global change, lowering economic and portfolio risks, and aligning financial returns with positive impact.

Portfolio Performance & Commentary



For the full year 2023, Green Alpha's Growth & Income portfolio returned 27.50% net of management fees, versus its benchmark, the MSCI All Country World Investable Market Index (MSCI ACWI IMI), which returned 22.15%.

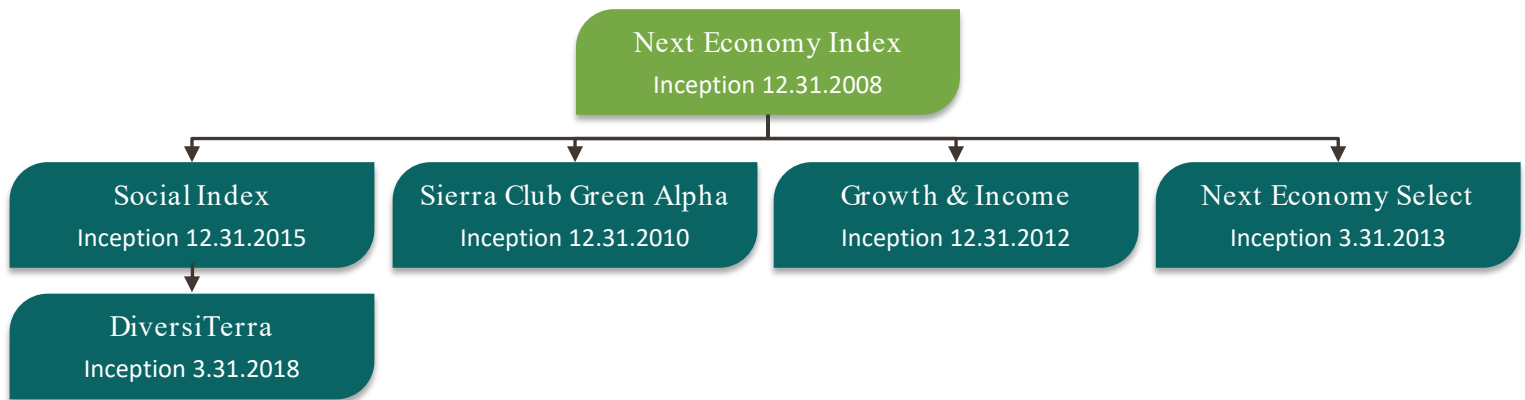
The sectors detracting the most from the strategy's returns were Health Care and Utilities.

- Health Care was the sole detracting sector for the strategy in 2023. The Growth & Income portfolio has limited exposure to Health Care in only three companies, two of which had share prices up for the year and one of which was down. The gainers were a leading provider of genomic therapeutics and a large drug and vaccine maker, and the detractor was the world's leading provider of mRNA vaccines and therapeutics. As the mRNA firm has a heavier weighting in the portfolio, its negative contribution was sufficient to make the sector a net detractor. Here we note that in shorter time periods equity markets can fail to recognize the longer-term potential of a large pipeline of promising solutions, and more generally, can show a disconnect between positive business results and share price.
- The Utilities sector was the second lowest contributor for 2023, but nevertheless did contribute positively to the portfolio's returns. The Growth & Income portfolio only has one utilities company in it, which is a global renewables-only electricity provider and it benefited from several trends, including the higher interest rate environment.

The strategy's top performing sectors were Technology and Real Estate.

- Technology was the sector contributing the most to returns in 2023, with chip designers leading, followed by manufacturers and upstream equipment providers. Thematically, interest in AI tended to favor the designers, although the essential practical work of foundries in making the actual chips was also recognized by markets. Following semiconductors, our exposure to technology hardware companies also contributed, with most contributions coming from consumer electronics and communications hardware firms. As a reminder, Green Alpha believes that technology presents a uniquely powerful solution set for addressing the world's top systemic risks, and in fact, tech addresses each of our [four pillars of the Next Economy](#).
- Green Alpha's exposure to real estate was almost uniformly positive across REIT subgroups, including office, specialty, data centers, industrial, and infrastructure REITs (*within infrastructure, a communications REIT was the sole detractor*), and was a key source of the portfolio's outperformance. While data center REITs performed well throughout the year, the other subcategories primarily rallied in Q4, as expectations for a plateau in interest rates became the dominant narrative. On a fundamentals level, our REIT companies executed on their business models exceptionally well throughout the year, even when share prices didn't reflect it, as their sustainable, desirable spaces were in high demand and their occupancy rates remained well above industry average. We believe that our selective evaluation process results in a highly curated set of equities with excellent potential for continued appreciation matched with an above-average dividend yield.

**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.*



- **High Income** – a compelling combination of 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, Current Ratio
- **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, so their largest opportunity for impact
- **Fossil fuel free since inception:** we never invest in companies that prospect, extract, refine, or transport fossil fuels, nor in fossil-fired utilities or internal combustion engine manufacturers

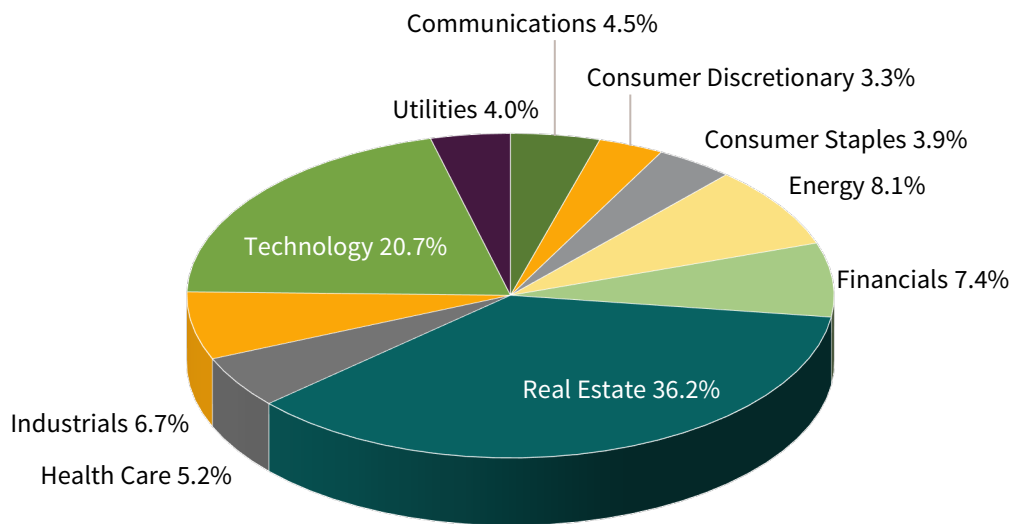
Characteristics	Growth & Income	Benchmark: MSCI ACWI IMI (SPGM)	Next Economy Index	Social Index	Next Economy Select	Sierra Club Green Alpha	DiversiTerra
# of Securities	36	2,639	150	114	66	46	58
Active Share vs MSCI ACWI IMI	97%	-	92%	94%	96%	96%	95%
Active Share vs Next Economy Index	71%	-	-	29%	63%	68%	61%
Sales Growth, Trailing 3-Yr	23%	15%	47%	63%	35%	39%	59%
P/E, Current	15.2	18.0	21.4	25.0	16.2	14.1	21.0
P/E, 1-Year Forward	15.2	17.1	23.9	27.1	18.6	16.0	25.4
Price/Sales	1.3	1.8	2.2	2.3	1.6	0.9	2.1
Price/Book	1.7	2.6	2.8	2.7	2.2	1.9	2.4
LT Debt/Equity	62%	156%	58%	58%	47%	60%	56%
Current Ratio	3.4	2.3	3.9	3.8	4.5	3.5	4.2
Dividend Yield	3.93%	2.11%	1.17%	1.02%	1.90%	1.97%	1.54%
Market Cap, Wtd Avg (\$B)	\$75.28	\$431.37	\$94.81	\$82.46	\$126.13	\$124.36	\$116.58
Market Cap, Median (\$B)	\$28.37	\$2.55	\$8.26	\$9.69	\$5.14	\$7.41	\$5.64
Turnover, Trailing 2-Yr Avg	16%	Not Available	25%	39%	12%	10%	28%
Beta, Trailing 3-Yrs	1.27	1.00	1.31	1.39	1.36	1.31	1.32
U.S.-Domiciled Companies	68%	59%	78%	87%	68%	72%	81%
% Revenue Derived in U.S.	46%	44%	49%	57%	46%	46%	55%

Characteristics are sourced from FactSet, based on a representative account and include cash. Please see additional disclosures on last page.

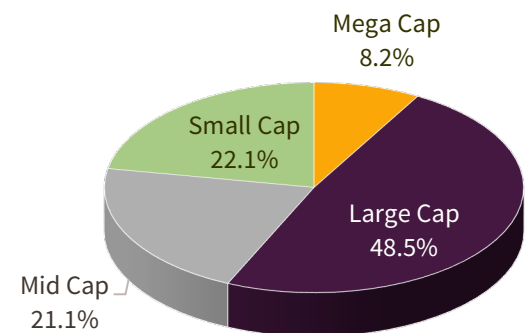
Portfolio Allocations

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.

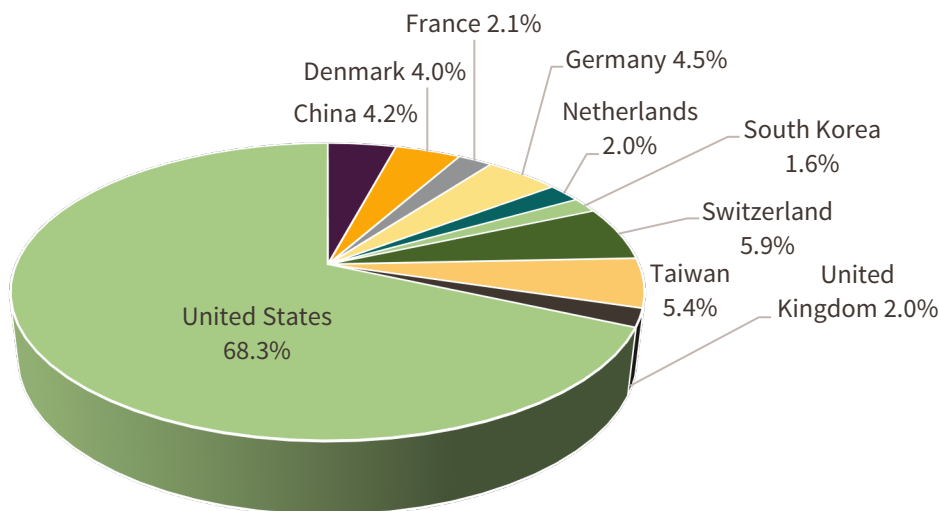
Sectors



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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