Social Index

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 the Social Index?

- Active research and stock selection; passively managed through an annual rebalance
- Industry-leading rigorous gender and social inclusion criteria applied to the Next Economy™ thesis creates a powerful combination of innovative companies led by diverse, empowered teams
- ~99 global, market-leading companies

Inception Date: December 31, 2015

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 Social Index construction is based on the science that the cognitive capacity, execution abilities, and risk management of groups exceeds that of individuals. In general, the more diverse the group, the better the long-term results. Diverse teams have stronger potential.

We set initial weights by market cap, then assign additional weighting to companies where women hold significant decision-making authority, have especially strong representation, and/or those companies with policies that are eminently inclusive of all demographics.

info@greenalphaadvisors.com 303.993.7856 www.greenalphaadvisors.com

Largest Positions

How the Social Index portfolio is driving progress toward the Next Economy

Company Name	Ticker	Weight
Pacific Biosciences	PACB	4.07%
First Solar	FSLR	3.20%
NVIDIA Corporation	NVDA	3.20%
Commercial Metals Co.	CMC	2.23%
Palo Alto Networks	PANW	2.23%
Vertex Pharmaceuticals	VRTX	2.04%
Cisco Systems	CSCO	1.86%
Universal Display Corp.	OLED	1.68%
American Water Works	AWK	1.67%
Broadcom	AVGO	1.51%
% of Portfolio		23.69%

Pacific Biosciences *(Sector: Health Care, Industry: Medical Equipment & Devices)*

- Pacific Biosciences designs, develops, and manufactures the world's most advanced gene sequencing systems to address solutions across a broad set of applications including human germline sequencing, plant and animal sciences, infectious disease and microbiology, oncology, and other emerging applications.
- The company offers Single Molecule and Real-Time (SMRT) technology, which enables real-time analysis of biomolecules with single molecule resolution. Their third-generation DNA sequencing technology can map an organism's genome in minutes and their proprietary technology performs fast and inexpensive DNA sequencing. The technology performs highly accurate reads of ultra-long sequences with the ability to simultaneously detect epigenetic changes. PacBio's sequencing machines are designed for use by clinical, commercial, and institutional research laboratories.
- PacBio has recently introduced new products to gain market share and extend their technological leadership. Specifically, the Revio long-read sequencing system can sequence up to 1,300 human genomes per year at 30-fold coverage for less than $1,000 per genome.
- Pacific Biosciences' executive team is 25% women and the board of directors is 30%, including Chairs of the Compensation and Science & Technology Committees.

First Solar *(Sector: Energy, Industry: Renewable Energy)*

- First Solar manufactures CdTe thin-film PV solar panels and provides utility-scale PV power plants and supporting services, including finance, construction, maintenance, and end-of-life panel recycling. They employ rigid thin-film modules for its solar panels and cadmium telluride (CdTe) as a panel semiconductor.
- Unique among large solar manufacturers, First Solar is a U.S.-headquartered company and does not use crystalline silicon (c-Si) semiconductors. That means they have fewer supply chain dependencies than traditional c-Si solar PV makers and avoid dependencies on China, which dominates the c-Si industry.
- Catalysts driving performance results are an already-strong order flow and the passage of the Inflation Reduction Act ("IRA").
    - Under the IRA, First Solar could earn subsidies as high as 17 cents per watt of capacity, which is more than half of their reported production cost.
- The company plans to grow revenues by investing $1.1 billion in a new 3.5 GW module factory in Alabama, the company's fourth domestic facility, while an additional $185 million will add 1 GW of new manufacturing to the company's plant in Ohio.
- First Solar has a vertically integrated manufacturing process providing the lowest carbon footprint and fastest energy payback time available.
- The board of directors is 25% women, including the Lead Independent Director and Audit Committee Chair. The Chief People & Communications Officer is also female. Importantly, the executive team boasts an above-average age spread of 32 years.

***NVIDIA**, **Commercial Metals Co.**, and **Palo Alto Networks**' Next Economy attributes are described on the following page.*

Largest Positions *continued*

NVIDIA Corporation *(Sector: Technology, Industry: Semiconductors)*

- NVIDIA specializes in designing and manufacturing graphics processing units (GPUs) and system-on-a-chip units (SoCs).
- NVIDIA's processors are dominant in datacenters, machine learning, and AI. Their processors are used by many of the most advanced companies for advanced products and applications. NVIDIA is critical for cloud computing companies AWS, Google Cloud, and Microsoft's Azure, largely because its processors are among the fastest and highest throughput—factors that are key as cloud companies offer more AI-based capabilities. In addition, NVIDIA's advanced chips have become the backbone of processing for LLMs such as ChatGPT.
- NVIDIA's industry-leading software and hardware technology has made its products among the go-to options for leading edge applications. For example, to run ChatGPT and other AI applications, Microsoft Azure says they use up to "thousands of NVIDIA H100 GPUs interconnected by NVIDIA Quantum-2 InfiniBand networking."
- The company also provides professional-grade GPUs utilized in a wide range of industries, including automotive, aerospace, healthcare, entertainment, and gaming.
- Fully half of NVIDIA's executive officers and 25% of directors are women, including the Compensation Committee Chair.

Commercial Metals Company *(Sector: Materials, Industry: Steel)*

- Commercial Metals is an industrial steel manufacturer with a focus on steel for steel-reinforced concrete (plus other products) based on 99% recycled input materials, making the company a waste-to-value leader in any industry, particularly in the difficult-to-decarbonize steel industry.
- CMC is a leading provider of steel and metal products to a variety of industries, including construction, manufacturing, and transportation. Their products are used in buildings, bridges, cars, roadways, and appliances.
- In the United States, it owns 41 scrap metal recycling facilities with a total annual capacity of over 5 million tons, six electric arc furnace mini mills and two electric arc furnace micro mills and two re-rolling mills with a total annual capacity of 5.4 million tons, and steel fabrication facilities with a total annual capacity of 2.4 million tons.
- CMC's Americas Fabrication division manufactures steel products, including structural steel, plate steel, and pipe and tubing. CMC's International Mill division produces steel products in Poland and China. The company has capacity expansion plans in both North America and Europe.
- They are sustainability leadership in other areas as well, including an important 88% water recycling and reuse rate.
- CMC's executive team is half women, including the CEO, Chief Legal Officer, and CHRO. The board of directors is composed of nine members, including a majority independent directors and four women, including the Board Chair.

Palo Alto Networks *(Sector: Technology, Industry: Software)*

- Palo Alto Networks is an American multinational cybersecurity company headquartered in Santa Clara, California. The company's core product is a platform that includes advanced firewalls and cloud-based offerings that extend those firewalls to cover other aspects of security. It is one of the leading cybersecurity companies in the world.
- Palo Alto Networks' products are used by a wide range of businesses, including government, healthcare, financial services, and retail. The company's products are designed to help businesses protect themselves from a wide range of cyberattacks, including malware, ransomware, and data breaches.
- The company is also a leader in the development of cloud-based cybersecurity solutions. Their cloud-based offerings allow businesses to protect themselves from cyberattacks even when they are not connected to the corporate network.
- Palo Alto Networks is committed to innovation and has multiple research and development centers around the world—it's constantly developing new products and features.
- Executive leadership is 25% female and the board of directors is 40% female, including the Audit Committee Chair.

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?

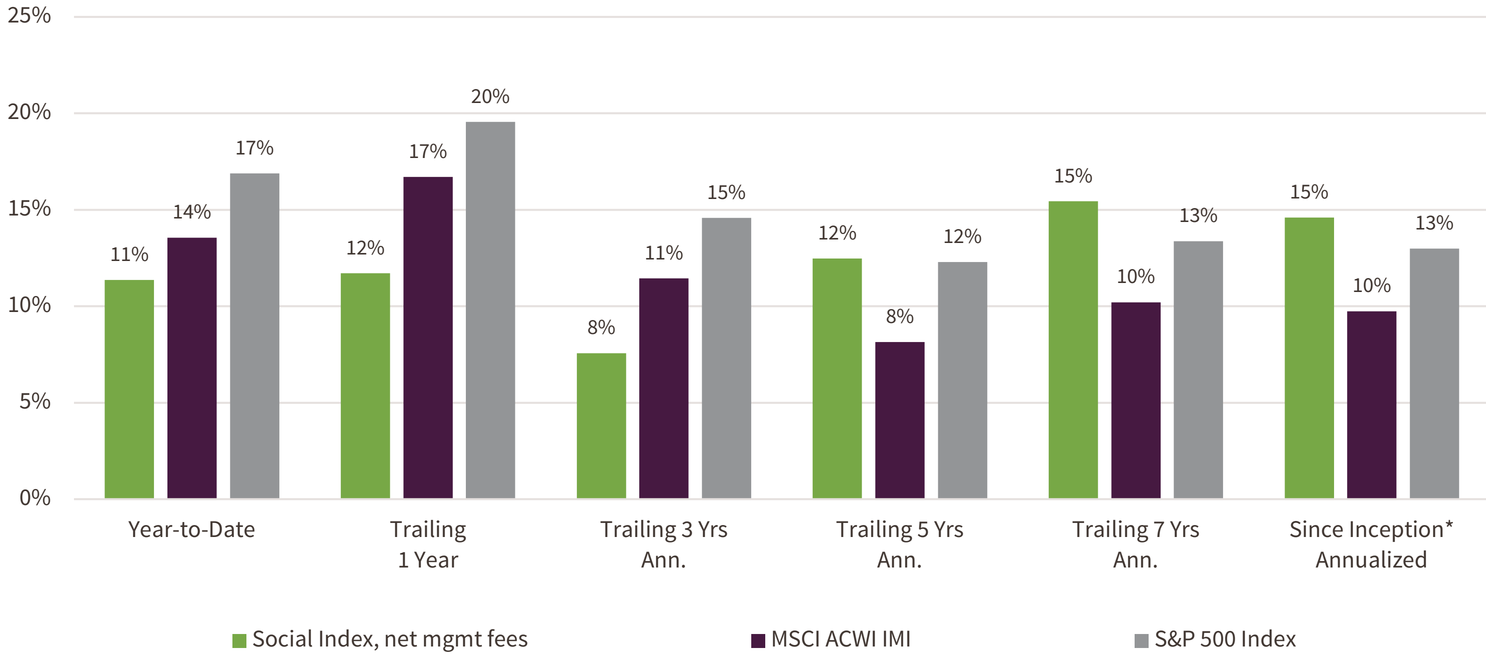
Despite these very significant risk overhangs, there are many positive developments, particularly in the United States, which is growing its economy rapidly relative to other developed nations and has also managed to do a better job taming inflation than most of its peers. Most notably, the growth in 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 Social Index strategy returned 11.37% 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 technology hardware industries were the standout performers. Semiconductor manufacturer contributions were especially significant returns during Q1 and additional contributions aided in Q2. Returns also came from advanced chip providers, especially those providing chips for AI and communications, but also from analog chips, including power control technology, memory chip makers, and advanced display makers. Within the technology hardware industry, wireless data and network equipment, and consumer electronics industries contributed to returns. Software also added to returns, particularly security software, cloud software providers, and design/engineering SaaS providers.
- In the Industrials sector, intelligent meters for energy and water contributed the most to returns, followed by electrical components makers. Overall, returns were derived from growth in power and water infrastructure systems, including from the leading global industrial electrical equipment maker, one of the globe's primary logistics providers, and a leading factory automation equipment maker.

The strategy's worst performing sectors were Energy and Consumer Discretionary.

- Moderate losses within Energy came from a number of renewable energy verticals, including America's leading residential solar installation company, two leading commercial solar providers, and the world's two leading solar inverter makers. These losses were mostly offset by gains in two leading solar PV makers, one of traditional c-Si panels, and the other a thin-film CdTe PV panel maker.
- In the Consumer Discretionary sector, also only detracting moderately, two EV automotive makers were down, as was a sustainable flooring provider and a sustainable office furnishings manufacturer.

**Portfolio Inception: December 31, 2015. 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.*

Social Index

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

Characteristics

- **Next Economy innovators, diversity leaders** – harnessing the performance enhancing and risk reducing potential offered by diverse teams, we apply rigorous gender and social inclusion criteria to our Next Economy universe
- **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

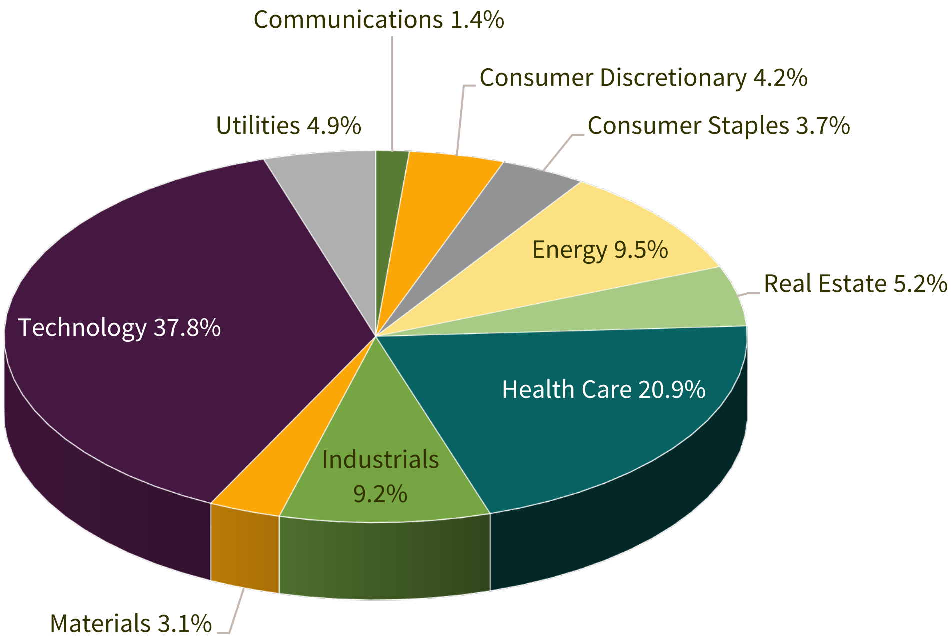
Characteristics	Social Index	Benchmark: MSCI ACWI IMI (SPGM)	Next Economy Index	Next Economy Select	Growth & Income	Sierra Club Green Alpha	DiversiTerra
# of Securities	99	2,498	141	63	35	47	57
Active Share	94%	-	92%	96%	97%	96%	95%
Sales Growth, Trailing 3-Yr	55%	15%	45%	36%	23%	39%	47%
P/E, Current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

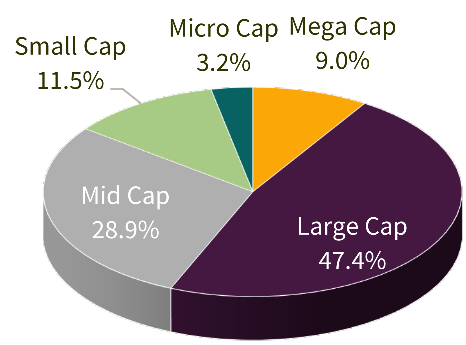
Portfolio Allocations

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

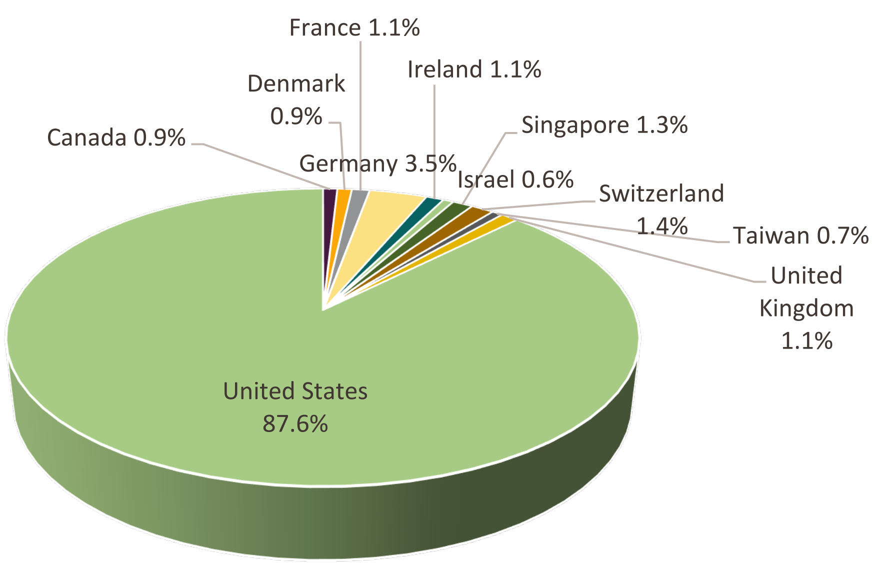
Economic Sectors



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.

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- 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 Social Index performance results are a composite of discretionary client accounts invested in the Social Index 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 $50,000. The Social Index 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 Social Index 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. Social Index composite performance results do not reflect the reinvestment of dividends and interest.
- Prior to July 31, 2021, the Social Index 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 Social Index strategy contains stocks that are managed with a view towards capital appreciation. 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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