

# Next Economy Select

September 30, 2022

## Green Alpha<sup>®</sup>

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### 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) while striving to grow faster than underlying GDP.



### Why Invest in Next Economy Select?

- Active research, stock selection, and portfolio mgmt
- Low minimum fund provides democratized access to institutional-quality investing: minimum of 1 share!
- Seeks long-term capital growth to preserve and grow purchasing power
- 45-65 global, market-leading companies developing solutions to core economic and environmental risks

**Inception Date:** March 31, 2013

**Vehicles:** AXS Green Alpha ETF (ticker NXTE) and 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 consistent track records of increasing revenues and expanding margins, leading to earnings growth and potential dividend increases
- that trade at compelling valuations relative to proven and anticipated growth, within acceptable levels of risk

### Portfolio Construction

The Next Economy Select's objective is long-term capital appreciation, investing in a diverse set of high-conviction, marketing-leading Next Economy companies with competitive moats protecting market share and growth potential.

Green Alpha's Next Economy Select portfolio provides democratized, low-minimum investment access to institutional-quality, innovation-focused investing.

# Largest Positions

How the Next Economy Select portfolio is driving progress toward the Next Economy

## CRISPR Therapeutics (Sector: Health Care)

- CRISPR Therapeutics AG is a leading gene editing company focused on the development of CRISPR/Cas9-based therapeutics for serious diseases. Co-founded by Dr. Emmanuelle Charpentier, who shared the Nobel Prize in Chemistry in 2020 with Jennifer Doudna for their discovery of CRISPR gene editing. Dr. Charpentier has subsequently leased her IP to the company.
- CRISPR is developing a significant pipeline of ex vivo and in vivo programs across four franchises: hemoglobinopathies, immunoncology, regenerative medicine, and in vivo approaches. It is in position to potentially be first to market with a CRISPR-edited product to treat sickle cell disease, a potential functional cure. Other pipeline therapeutics, including cancer and age-related degeneration, are in various trial stages. There are also potential applications for agriculture and advanced materials.
- CRISPR's intellectual property estate includes over 90 active patent families and over 40 granted patents, giving them considerable leverage to be the leader in the gene editing space.
- Females make up 27% of CRISPR's leadership team, including the Chief Medical Officer, Head of Human Resources, and Head of IP. The team's age diversity is significantly above average, with a spread of 31 years. The board is above average on age diversity as well, with a 27-year spread.

## Vestas Wind Systems (Sector: Energy)

- A front runner in the global transition, Vestas is the world's most advanced wind turbine manufacturer, and the global leader in onshore, offshore, and grid-connected installations. Vestas is also a leading service contract provider, furnishing the company with meaningful higher-margin recurring revenue.
- Vestas' order intake velocity, always strong, has accelerated: 2.9 GW in new 2022 orders, pushing delivery dates to early 2024, giving good transparency into revenue growth. The order backlog is \$49.53 billion.
- They have 138 GW under service contracts, with 125 GW located offshore. The average service contract duration is 10 years, providing revenue transparency.
- Vestas is targeting carbon neutral operations—without use of carbon offsets—by 2030 and zero-waste production by 2040.

## Taiwan Semiconductor (Sector: Technology)

- TSM is by far the largest semiconductor foundry in the world with 54% market share overall, and 85%+ market share among the most advanced chip makers. It is one of two companies capable of producing advanced 3-nanometer chips, and ahead on the next generation as it prepares to produce 2-nanometer chips in 2023. The company relies solely on internally generated funds to finance organic growth, partially by dedicating funds to production capacity and R&D and never to buybacks.

**Taiwan Semiconductor's** Next Economy attributes are continued on the following page, along with those for **Brookfield Renewable** and **IBM**.

Company Name	Ticker	Weight
CRISPR Therapeutics	CRSP	4.59%
Vestas Wind Systems	VWDRY	4.17%
Taiwan Semiconductors	TSM	4.04%
Brookfield Renewable	BEPC	3.84%
IBM	IBM	3.20%
Jinkosolar Holding	JKS	3.17%
Applied Materials	AMAT	3.00%
Moderna	MRNA	2.98%
Tesla	TSLA	2.94%
Hannon Armstrong Sustainable	HASI	2.71%
<b>% of Portfolio</b>		<b>34.64%</b>

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

# Largest positions *continued*

## **Taiwan Semiconductor** *continued*

- The company features strong fundamentals, with a fortress-like balance sheet and the industry's highest credit ratings.
- Their new, strategic Arizona plant will make advanced 5-nanometer transistors. A relentless competitor, TSM aggressively invests to grow capacity and innovate, resulting in a nearly insurmountable lead in advanced semi manufacturing.

## **Brookfield Renewable** *(Sector: Utilities)*

- Brookfield is a leading zero-carbon, 100% renewables-based energy utility. They own ~23 GW of electricity production capacity with a pipeline of ~75 GW, making them one of the world's largest pure-play public renewable companies.
- Brookfield is conservatively managed, continually looking for acquisitions at favorable prices and organic development to grow generation capacity, and has revenues largely backed by long-term power purchase agreements. Brookfield is inflation resilient and may benefit from an inflationary environment. Their generating costs are fixed, but their PPAs are indexed to inflation.
- Brookfield recently announced the investment of \$2 billion in Scout Clean Energy and Standard Solar to expand their portfolio, following a string of recent clean energy investments. So far, Brookfield has invested or allocated \$3.5 billion for clean energy investments and follow-on capital in North America in 2022.
- Women comprise 33% of board directors, 25% of overall workforce, and 50% of executive management. In addition, the Audit Committee Chair is female. The exec team has a robustly above-average age spread of 48 years, as does the board at 38 years.

## **IBM** *(Sector: Technology)*

- IBM is driving innovation to mitigate global risks. Having divested from its legacy managed-infrastructure business, IBM has re-emerged as a Next Economy™ powerhouse. Their primary initiatives include blockchain code and technology, cloud computing, AI and machine learning, and quantum computing. IBM has said that 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.”
- IBM has led the U.S. in number of patents received annually for 29 years in a row and is a top patent holder across many domains: cloud and cognitive software; quantum computing; enabling distributed ledger; pioneering AI; developing security methods atop lattice cryptography; advancing nanotechnology; developing and applying Watson AI across industries.
- Females comprise 33%+ of IBM's workforce. Women with significant authority include the COO, General Counsel, and CHRO. IBM is a longstanding leader on pay equity for both women and minority populations.

# Macroeconomic Commentary



The third quarter of 2022 was characterized generally by market declines in major indices, both domestically and globally. In the U.S., the primary reasons for negative market sentiment were the specter of rising (*or at least unabating*) inflation, and the Federal Reserve's aggressive response of large interest rate hikes in an attempt to control it. Interest rates have been the markets' focus for most of the year, but with the Fed signaling in Q3 that it was willing and able to intentionally create a recession if required to tame inflation, markets began to perceive the possibility of a shrinking economy. The Fed moved twice in the quarter, raising the Fed Funds rate a total of 1.5%, the highest since 2008. This significantly increases the cost of capital for all companies; more expensive capital means narrower margins, and the threat of recession raises the potential for less business activity.

The result for markets was a scenario leaving little place to hide. Economywide, all but two sectors (via the Global Industry Classification Standard) finished down, and the two positives, energy (up 0.01%) and consumer discretionary (up 0.36%), each increased anemic amounts. The MSCI All Country World Investable Market Index (MSCI ACWI IMI) had no positive sector returns for the quarter, bonds were down (Bloomberg U.S. Agg Total Return was down 4.75% for the quarter), most commodities declined, and cash was still losing value to inflation.

Geopolitical events continued to unnerve economies as well, and there is no question that we have entered a period of uncertainty with respect to the equity markets. Consequently, careful stock selection and active management are becoming more and more important.

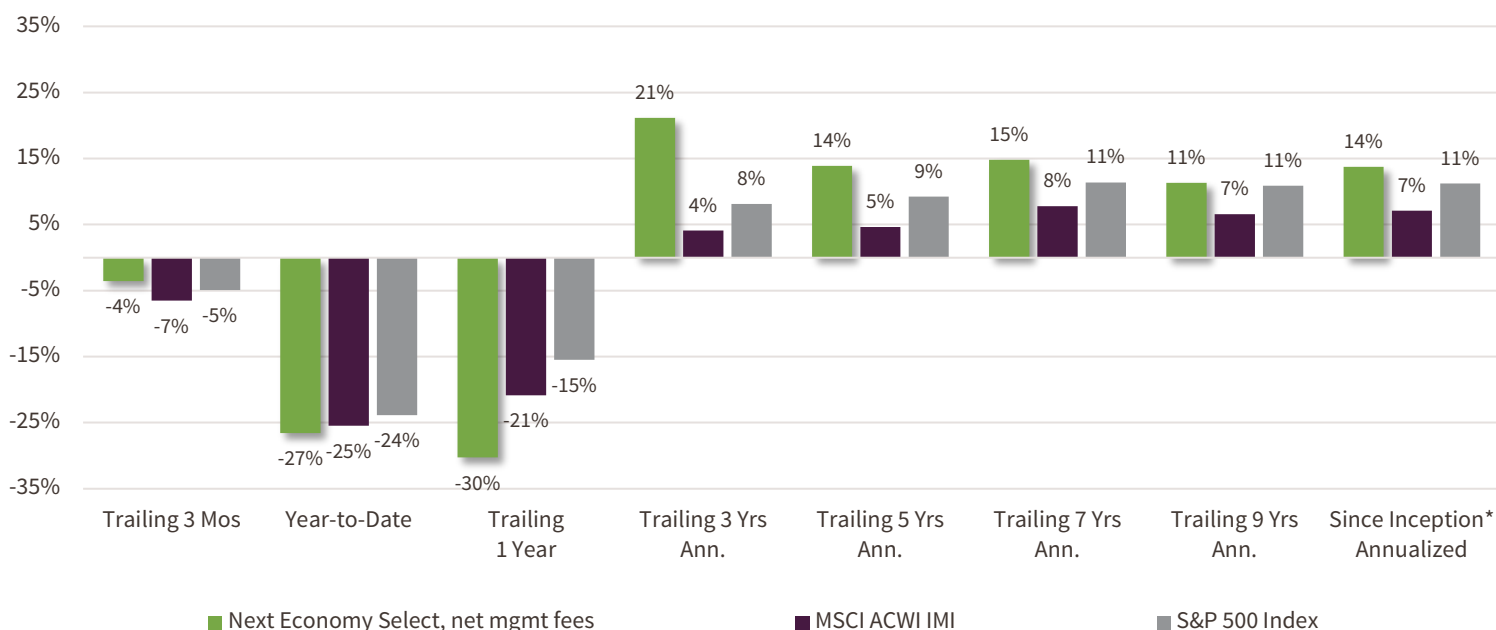
All the above economic factors illustrate the need for careful consideration of every holding in a portfolio: companies with strong balance sheets, earnings, and cash flows will become increasingly important as volatility continues into the immediately foreseeable future. Equally important is the need to understand risk vs. forward opportunity and real growth potential, while grasping the dynamics of market leadership, defensibility of market position—including intellectual property moats, capital allocation priorities, ability to access capital, balance sheet strength, and careful analysis of current valuations vs. expected growth.

These are all key attributes of Green Alpha's research process. For the firm, building portfolios that reflect the sustainable economy is not a matter of using ESG scores to filter an index list. Rather, it is a labor-intensive process of purposely selecting and evaluating each holding in terms of the above factors, as well as the business's net contribution to stabilizing the economy. Green Alpha's approach is to behave like private equity portfolio managers, evaluating each company meticulously as there is no index or benchmark to fall back on.

Amid a tough quarter, July was a bright spot for the Next Economy™ strategies. Each of the portfolios demonstrated meaningful relative and absolute performance, much of which can be attributed to the passage of the Investment Reduction Act (IRA). The IRA will, beginning in 2023, provide significant tax benefits, subsidies, and alternative incentives to renewable energies, zero emissions transportation, and other Next Economy areas of interest. Green Alpha does not consider potential policy tailwinds when making investments, preferring to rely solely on holdings' competitiveness and fundamentals, as well as on market context provided by the macro environment. That said, if policy does provide catalysts for share price appreciation, Green Alpha is happy for its clients to benefit.

*Portfolio-specific commentary is on the following page.*

# Portfolio Performance & Commentary



For the three quarters ending September 30th, Green Alpha's Next Economy Select portfolio returned -26.56%, versus its benchmark, the MSCI All Country World Investable Market Index (MSCI ACWI IMI), which returned -25.44%.

The sectors that detracted the most from the portfolio were Technology and Health Care, which together were responsible for the bulk of losses year to date.

- In Technology, declines were largely precipitated by a rotation to safety as interest rates climbed and recession fears grew. The decrease in returns overwhelmingly came from the technology hardware & semiconductors industry. Front-end capital equipment and foundry services companies represented most of the declines, while integrated circuits also detracted modestly.
- Health Care also experienced diminishing returns brought about by a turn to safety in response to climbing interest rates and growing recession fears. Most losses came from the biotech & pharma industry as genomic therapeutics and diagnostics companies suffered as growth went out of favor. In addition, the medical equipment & devices manufacturing industry detracted from returns, and health care facilities & services also declined.

The strategy's best performing sectors were Energy and Communications.

- Within Energy—which for Green Alpha is exclusively the various parts of the renewable energy value chain—stocks enjoyed a large rally in July with the passage of the Inflation Reduction Act (IRA); however, those gains were later moderated with the broad market declines in August and September. The best performers year-to-date include two leading makers of C-Si solar PV modules, a chief maker of smart solar inverters, and the world's leading thin film solar manufacturer. In addition, the market leader providing polysilicon ingots to the solar industry contributed positively. Gains were partially offset by losses in wind energy equipment manufacturing.
- In Communications, the telecommunications subsector provided positive returns due to the private equity purchase of the world's most sustainably-powered data center company. These gains were partially offset by declines in Korea's leading wireless telecommunication provider.

*\*Composite Inception: March 31, 2013. 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.*

# Next Economy Select

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

## Characteristics

- **Highest conviction stocks, two investment vehicles:** democratizing access to leading Next Economy companies via a mutual fund and separately managed accounts, providing clients of all shapes and sizes with institutional-quality options
- **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

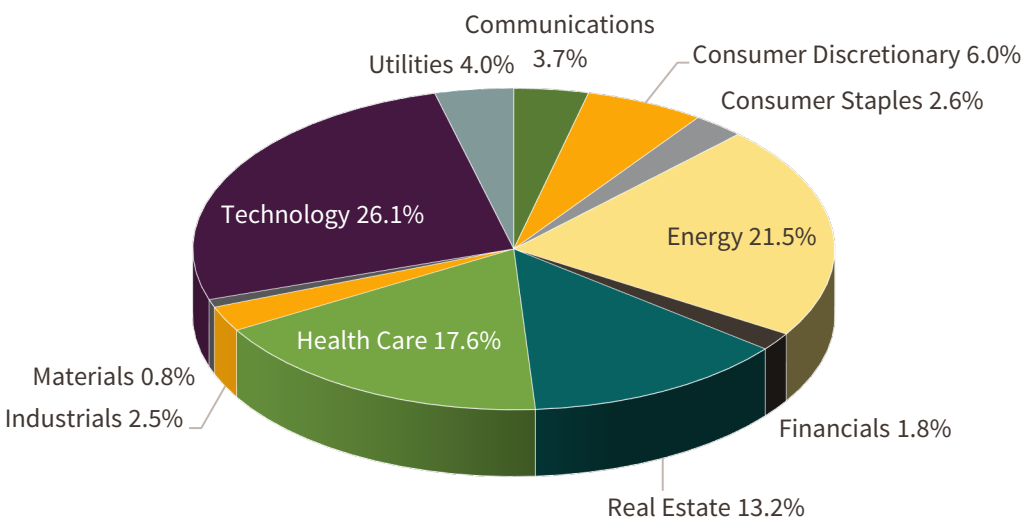
Characteristics	Next Economy Select	Benchmark: MSCI ACWI IMI (SPGM)	Next Economy Index	Social Index	Growth & Income	Sierra Club Green Alpha	DiversiTerra
# of Securities	57	2,502	144	101	36	47	57
Active Share	96%	-	93%	95%	97%	96%	96%
Sales Growth, Trailing 3-Yr	39%	10%	35%	28%	23%	39%	33%
P/E, Current	13.4	13.5	14.6	15.5	12.0	17.0	16.5
P/E, 1-Year Forward	13.5	13.0	15.6	15.8	11.5	18.0	16.0
Price/Sales	1.8	1.6	2.1	2.0	1.4	1.4	2.0
Price/Book	2.3	2.2	2.7	2.5	1.7	2.8	2.8
LT Debt/Equity	55%	461%	121%	108%	91%	70%	133%
Current Ratio	5.7	2.2	4.1	3.8	4.4	3.1	4.1
Dividend Yield	1.89%	2.48%	1.28%	1.23%	5.14%	1.24%	1.42%
Market Cap., Wtd Avg (\$B)	\$85.48	\$289.99	\$63.96	\$56.89	\$55.62	\$92.58	\$78.62
Market Cap., Median (\$B)	\$5.08	\$1.87	\$7.97	\$8.18	\$26.08	\$14.10	\$7.17
Turnover, Trailing 2-Yr Avg	1%	-	24%	34%	9%	11%	30%
Beta, Trailing 2-Yrs	1.19	1.00	1.20	1.22	0.96	1.17	1.16
U.S.-Domiciled Companies	70%	59%	78%	86%	71%	70%	83%
% Revenue Derived in U.S.	50%	44%	50%	56%	50%	48%	60%

All characteristics are sourced from FactSet and are based on a representative account, including cash. Beta is the exception, being sourced from Bloomberg while we are converting platforms. Please see the final page of this document for additional important disclosures.

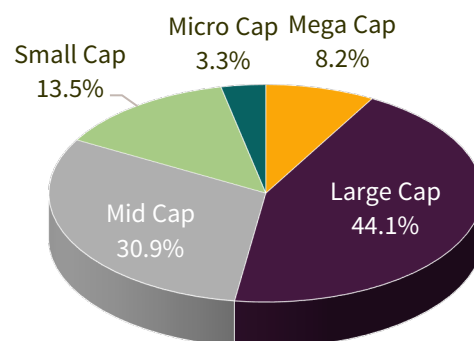
# Portfolio Allocations

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

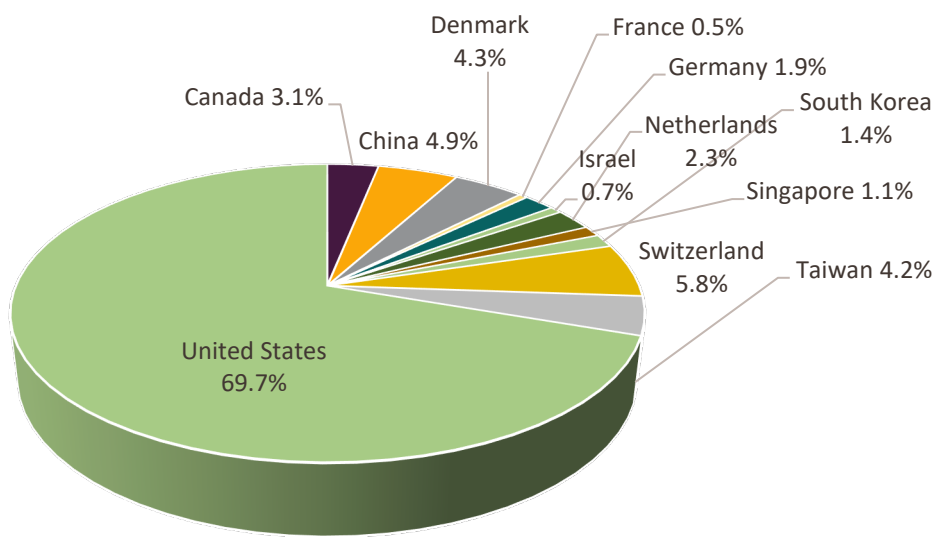
## Economic Sectors



## 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. 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

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- 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 represents 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.
- Next Economy Select performance results reflect actual performance for a composite, net of actual management fees and transaction costs. Some assets managed in the Next Economy Select strategy within the composite receive a reduced fee from the standard fee schedule. Actual client returns experienced will vary from the composite returns 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. Next Economy Select performance results do not reflect the reinvestment of dividends and interest. 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.
- From the strategy’s inception through June 30, 2021, performance data are sourced from Bloomberg Finance L.P. Beginning June 30, 2021, the composite and all performance results are maintained and calculated by Green Alpha’s portfolio accounting system Advent APX.
- 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/>.
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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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