

S&P Kensho New Economies Quarterly Commentary

THE S&P KENSHO NEW ECONOMY INDICES CAPTURE THE INDUSTRIES AND INNOVATION OF
THE FOURTH INDUSTRIAL REVOLUTION

Top 3 from across the New Economies

Enterprise Collaboration (+5.3%)

The pandemic has been a major catalyst for adoption and improvement of enterprise collaboration tools. As lockdowns ease, more companies are embracing a hybrid workspace model going forward. This trend continues to benefit this subsector. Two companies focused on work management platforms, Asana and Atlassian, produced strong performances over the quarter. Asana made its publicly traded debut last autumn and has accumulated an impressive number of paying users. Atlassian has been a consistent double-digit-percentage grower for years and delivered stronger-than-expected quarterly results with its ongoing pivot to cloud.

Cyber Security (+0.5%)

Tailwinds from the ongoing digital transformation, favorable security backdrop, and remote work contributed to accelerated demand for next generation security. Palo Alto Networks, Fortinet, and Zscaler were the top three contributors this quarter. All three companies reported better-than-expected revenue. They are well positioned for the ongoing firewall spending cycles as well as the focus on Secure Access Service Edge-driven Next Generation Security spending (SASE-driven NGS spending).

Smart Borders (-1.6%)

Increasing tension across borders and a rise in terrorism are projected to drive the market growth of border technology for years to come. The biggest contributor this quarter was Embraer S.A., a Brazilian aerospace and defense company. Its stock price benefited from the rightsizing trend in executive jets suitable for regional travel.

Bottom 3 from across the New Economies

Electric Vehicles (-16.9%)

Electric Vehicles faced a tough quarter, with only five securities generating positive returns in Q3. Tesla reverted its disappointing performance in the first half of 2021. However, concerns over the Chinese regulators clamping down on large technology companies spread to the three major Electric Vehicle manufacturers: Nio, Li Auto, and XPeng. Other headwinds in the sector include Workhorse's loss of an over USD 6 billion contract from the USPS, and Nikola's founder Trevor Milton being charged by prosecutors with making false statements to investors.

Digital Communities (-18.3%)

With the gradual reopening of the global economy and people returning to the office, Digital Communities posted a disappointing performance in Q3. The Chinese tightening regulatory environment toward tech companies further amplified the negative sentiment toward large Chinese online communities. iQiyi and Bilibili, two major Chinese video streaming websites, both saw their prices drop by over 40% in Q3. Skillz was down primarily due to the economic reopening, which gives people more options to spend their time and money instead of playing mobile games, as well as the company's excessive spending on marketing with little topline contribution, which disappointed the investors.

Distributed Ledger (-19.7%)

The battle between regulation and the market took place in Distributed Ledger as well. The People's Bank of China and other regulators said all crypto-related transactions were illegal and must be banned. The statement put strong pressure on cryptocurrencies and their related stocks such as Riot Blockchain and Ebang International. OneConnect Financial Technology is another victim of Chinese technology collapsing.

Performance Dashboard

(Total Returns – as of Sept. 30, 2021)

Composites	QTD	YTD	12M
New Economies Composite (KNEEX)	-8.87%	6.14%	43.5%
New Economies Select (KNESLX)	-5.37%	-2.43%	32.0%
S&P Composite 1500®	0.35%	16.02%	31.4%

Sectors	QTD	YTD	12M
Future Security (KSECURE)	-2.46%	10.03%	38.0%
Final Frontiers (KEXPLORE)	-6.29%	4.49%	29.2%
Advanced Manufacturing (KMAKE)	-7.73%	15.52%	48.9%
Democratized Banking (KFIN)	-7.78%	8.34%	29.2%
Human Evolution (KEVOLVE)	-8.16%	-7.18%	28.4%
Intelligent Infrastructure (KINFRA)	-8.44%	4.57%	36.5%
Future Communication (KCONNEX)	-10.23%	12.08%	41.0%
Clean Power (KPOWER)	-11.00%	12.64%	30.4%
Smart Transportation (KMOVE)	-11.67%	0.35%	47.13%

Subsectors	QTD	YTD	12M
Enterprise Collaboration (KTEAM)	5.3%	23.5%	55.9%
Cyber Security (KCYBER)	0.5%	12.9%	37.8%
Smart Borders (KDMZ)	-1.6%	24.5%	57.5%
Smart Factories (KFACT)	-3.1%	27.1%	70.9%
Alternative Finance (KALTFIN)	-3.8%	32.1%	73.7%
Wearables (KBORG)	-6.8%	13.5%	42.9%
Autonomous Vehicles (KCARS)	-7.1%	9.0%	77.2%
Future Payments (KPAY)	-7.4%	-2.4%	21.2%
Space (KMARS)	-7.4%	3.8%	28.3%
Clean Energy (KENERGY)	-7.7%	-8.9%	11.6%
Genetic Engineering (KDNA)	-7.9%	-9.8%	21.0%
Smart Grids (KGRIDS)	-8.1%	4.2%	50.2%
Advanced Transport Systems (KAT)	-8.9%	22.3%	75.0%
Robotics (KBOTS)	-9.1%	14.6%	42.6%
Digital Health (KDOC)	-10.9%	-3.8%	13.5%
Virtual Reality (KVR)	-12.4%	48.7%	132.6%
Drones (KDRONE)	-12.8%	1.4%	30.5%
Smart Buildings (KHOME)	-13.6%	0.2%	33.3%
Cleantech (KCLEAN)	-14.4%	-17.3%	32.2%
Nanotechnology (KNANO)	-14.6%	14.7%	80.5%
3D Printing (KDDDP)	-15.1%	12.3%	70.3%
Electric Vehicles (KEV)	-16.9%	0.4%	59.2%
Digital Communities (KSOCIAL)	-18.3%	-6.1%	13.3%
Distributed Ledger (KLEDGER)	-19.7%	10.4%	32.3%

(Index tickers shown in parentheses)

The quarterly S&P Kensho New Economies Dashboard is available for more analysis on performance, volatility, correlations, and dispersion across the New Economies. ([Link](#))

COMMENTARY FROM ACROSS THE NEW ECONOMIES

Facebook, Meta, and Virtual Reality; Are We Ready for the Metaverse?

- Mordor Intelligence reported that the virtual reality (VR) market was valued at USD 17.25 billion in 2020 and is expected to reach USD 184.66 billion by 2026, at a CAGR of 48.7% over the forecast period 2021-2026. [\[Link\]](#)
- Facebook is changing to Meta, with an ambitious new goal to build the “next generation of the internet.” As the first step, Facebook (now Meta) launched a workplace app called Horizon Workrooms, which is in open beta for Quest 2 users. The app seems to be geared toward providing work-from-home employees a virtual reality sphere to collaborate inside. A Facebook metaverse attempt would also set up a battle with the companies behind some of world’s most popular video games, such as Fortnite, Minecraft, and Roblox. [\[Link\]](#) After appointing the head of AR/VR as the new CTO, Facebook is running toward the metaverse with full speed. [\[Link\]](#)
- Chasing Facebook, TikTok parent company ByteDance acquired its own VR headset maker called Pico. Like Oculus, Pico creates both hardware and software for VR devices. Unlike Oculus, it has a substantial presence in China. [\[Link\]](#)

Enterprise Collaboration

- A Gartner survey shows nearly 80% of workers are using collaboration tools for work in 2021, up from just over half of workers in 2019, an increase of 44% since the pandemic began. [\[Link\]](#)
- Adobe is planning to buy Frame.io, makers of video editing collaboration software, for USD 1.2 billion to help the company deliver a collaboration platform that powers the video editing process. [\[Link\]](#)
- Fuze, the leading cloud-based communications provider for the modern global enterprise, announced expanded Microsoft Teams integration to enable more seamless and efficient workflow between Fuze and Teams users. [\[Link\]](#)

Clean Energy/Technology Campaign Continues Globally

- The U.S. Energy Department outlined in a new report that the country would have to double the amount of solar energy installed every year over the next four years and then double it again by 2030. The report said that solar panels had fallen so much in cost that they could produce 40% of the U.S.’s electricity by 2035—enough to power all American homes—and 45% by 2050. [\[Link\]](#) Chinese President Xi Jinping announced at the UN General Assembly that “China ... will no longer build new coal power plants abroad.” [\[Link\]](#) EU Energy Commissioner Kadri Simson says it will ramp up energy targets—instead of a goal of using 32% renewable energy by 2030, the EU will now strive for 40%. [\[Link\]](#)
- Chevron will spend USD 10 billion over the next seven years to increase its renewable energy production and cut its carbon pollution. [\[Link\]](#) Microsoft has announced that by 2030 the company will have 100% of its electricity consumption, 100% of the time, matched by zero carbon energy purchases. [\[Link\]](#)
- American Airlines, General Motors, and Microsoft built on their commitment to clean energy by joining Bill Gates' Breakthrough Energy program, which aims to boost development of technologies to achieve the target of net zero carbon emissions by 2050. Companies already in the program include Bank of America, ArcelorMittal SA, Boston Consulting Group, and BlackRock. [\[Link\]](#)
- Venture capitalists are expected to complete USD 7.7 billion worth of clean-tech deals in the U.S. this year, up from USD 1 billion a decade ago, according to PitchBook. [\[Link\]](#)

Cybersecurity

- Microsoft on Monday announced that it would buy cybersecurity firm RiskIQ to help companies better protect themselves, as ransomware and other cyber-attacks become increasingly disruptive. It would spend USD 20 billion over five years on cybersecurity initiatives and pledged USD 150 million in support of federal, state, and local governments seeking to upgrade their security. [\[Link\]](#) Google said it would spend USD 10 billion on cybersecurity initiatives. [\[Link\]](#)
- Saudi Aramco, the world’s largest oil producer, confirmed that some of its company files had been leaked via a contractor, after a cyber extortionist claimed to have seized troves of its data and demanded a USD 50 million ransom from the company. [\[Link\]](#) T-Mobile sought to downplay the massive hack that exposed 48 million customers' sensitive information and claimed that it would work together with Mandiant and KPMG to sketch out a plan for T-Mobile to address its cybersecurity gaps in the future. [\[Link\]](#)

COMMENTARY FROM ACROSS THE NEW ECONOMIES

Autonomous Vehicle Tests Are Happening Globally as Companies Continue to Invest

- Volkswagen and Argo AI, an autonomous driving technology company, unveiled the first version of the ID Buzz Autonomous Driving (AD). In 2025, MOIA, a subsidiary of the VW Group that works with cities and local public transport providers on mobility solutions, will be commercially launching the ID Buzz AD in Hamburg as part of a self-driving ride-pool system. [\[Link\]](#) Volkswagen Group CEO Herbert Diess said autonomous cars, not electric vehicles, were the "real game changer" for the auto industry. [\[Link\]](#) Another conventional car manufacturer partner with Argo AI—Ford—will make its self-driving cars available on Lyft's platform in Miami and Austin. [\[Link\]](#)
- The California Department of Motor Vehicles approved autonomous vehicle deployment permits for GM-backed Cruise and Alphabet's Waymo on Thursday. It will allow the companies to charge a fee and receive compensation for autonomous services offered to the public, such as ride-hailing, in certain areas. [\[Link\]](#) Mobileye, the company that specializes in chips for vision-based autonomous vehicles, is now testing its AVs in New York City. [\[Link\]](#) FedEx has started to use self-driving trucks to haul goods between Dallas and Houston as part of a pilot program with autonomous vehicle start-up Aurora and heavy-duty vehicle manufacturer Paccar. [\[Link\]](#) Russian tech giant Yandex plans to start testing its autonomous vehicles in the city this year. [\[Link\]](#) It has also announced a partnership with food delivery service GrubHub to be its multi-year robotic delivery provider across American college campuses. [\[Link\]](#)
- General Motors said it would invest USD 300 million in Momenta, a Chinese autonomous driving start-up to accelerate the development of AV tech for future GM vehicles in China. [\[Link\]](#) Alibaba led with a USD 300 million investment into Chinese autonomous driving start-up DeepRoute.ai. [\[Link\]](#) Volvo, together with a group of investors, funded USD 32 million to back Israeli mobility tech start-up Foretellix—a developer of a testing and verification platform for driver assistance and an autonomous driving system. [\[Link\]](#) Xiaomi announced plans to launch an electric vehicle business and invest USD 10 billion over the next 10 years. It acquired Deepmotion, an autonomous driving company, for about USD 77.37 million to "enhance the technological competitiveness" of its electric vehicle business. [\[Link\]](#)

The Heat Wave of Electric Vehicles Continues

- In an executive order, President Biden set a new national goal that 50% of new car sales by 2030 be electric vehicles, casting the plan as part of an "all-out effort" to build out the country's base of electric vehicle manufacturing and compete with China. [\[Link\]](#)
- Ford Motor Co. and South Korea-based energy company SK Innovations are investing USD 11.4 billion to build two new enormous manufacturing campuses for electric vehicles. Ford's share of the investment will be USD 7 billion, which is the single biggest investment in the history of the 118-year-old automaker. [\[Link\]](#)
- Toyota Motor Corp said it expected to spend more than USD 13.5 billion by 2030 to develop batteries and its battery supply system. [\[Link\]](#)
- Volkswagen has earmarked EUR 73 billion for the development of future technologies between 2021 and 2025, which makes up 50% of the company's total investments. The company expects half of its sales to be battery-electric vehicles by 2030. [\[Link\]](#)
- Mercedes-Benz said more than 80% of vehicles sold by the company would be powered by hybrid or purely electric powertrains by 2025. [\[Link\]](#)
- Sales of electric vehicles in Q2 2021 increased by 161% from Q2 2020, when sales were held down by the lockdowns precipitated by the COVID-19 pandemic, announced Veloz, the alliance of public utilities, charging companies, automakers, and state government agencies organized to promote the sales of electric vehicles across the State of California. The sales of electric vehicles jumped significantly across the U.S., according to Experian data tracking new vehicle registrations. Electric vehicle sales were up 95% through April, pushing electric vehicles to a 2.3% market share nationally, about a 50% increase from the same time in 2020. [\[Link\]](#)

COMMENTARY FROM ACROSS THE NEW ECONOMIES

Billionaires Are Flying into Space

- Richard Branson, the billionaire founder of Virgin Group, made a trip on July 11, 2021, into space, flying on the first fully crewed spaceflight of Virgin Galactic's VSS Unity space plane. Branson became the first person to blast off in his own spaceship, beating Jeff Bezos, the richest person on the planet, by nine days. [\[Link\]](#)
- Following Branson, Bezos blasted into space on his rocket company's first flight with people on board, becoming the second billionaire in just over a week to ride in his own spacecraft. [\[Link\]](#)
- Everyone is watching for when Elon Musk will make his own trip. Surprisingly, the iron man may not fly with his own SpaceX spacecraft. Branson told The Sunday Times that Musk has put down a USD 10,000 deposit to reserve a seat on a future suborbital flight; the take-off date is unclear. [\[Link\]](#)

Smart Grid

- Italy's biggest utility, Enel, has set up a new company, Gridspertise, to offer digital grid services to power distributors around the world to help upgrade networks as the energy transition gathers pace. [\[Link\]](#)
- Spanish multinational Iberdrola is set to expand its smart grid capabilities using an EUR 550 million green loan the company has secured from the European Investment Bank. [\[Link\]](#)

Drones

- Google's drone delivery service completed 100,000 deliveries and is growing fast: 500% last year, and more deliveries in Q1 2021 than in all of 2020 combined. [\[Link\]](#)

Biometric Technology to Help Cut Airport Queues Post-COVID-19

- UAE carrier Emirates launched an integrated biometric pathway at Dubai International Airport in October 2020 for travelers to pass through the airport without showing any documents. Japan also launched similar technology that uses facial recognition technology, allowing passengers to go through the airport without showing their documents. In the EU, the biometric-enabled smart border system will be implemented in 2022. [\[Link\]](#)

3D Printing

- The first ever 3D-printed steel bridge has opened in Amsterdam, the Netherlands. It was created by robotic arms using welding torches to deposit the structure of the bridge layer by layer and is made of 4,500 kilograms of stainless steel. [\[Link\]](#)
- NASA has edged one step closer to building Moon and Mars colonies using the celestial bodies' soil. NASA's latest International Space Station resupply mission included a machine meant to demonstrate 3D printing regolith (that is, loose soil or rock) on the Moon and similar extraterrestrial surfaces. [\[Link\]](#)

Genetic Engineering

- The prospect of genetically modified foods being grown and sold in the U.K. has come a step closer, after changes to farming regulations that will allow field trials of gene-edited crops in England. Companies or research organizations wishing to conduct field trials will still have to notify the Department for Environment, Food, and Rural Affairs, but existing costs and red tape will be removed so more trials are likely to go ahead. [\[Link\]](#)
- Scientists have successfully wiped out a population of malaria-transmitting mosquitoes by using a radical form of genetic engineering to render the females infertile, in the most advanced and largest ever test of the technology to fight the disease. [\[Link\]](#)
- The world's most popular and powerful gene-editing tool, CRISPR-Cas9, has enabled numerous scientific discoveries. It works by excising specific DNA sequences using a gene-cutting protein, Cas9, sourced from bacterial immune systems. Because CRISPR-Cas9 and its derivatives are sometimes too large and cumbersome to be used in certain cellular environs, limiting their adaptability, researchers at Stanford University developed a smaller CRISPR-Cas system called CasMINI. CasMINI features just 529 amino acids. Its compact size allows it to be easily smuggled into a variety of target cells, and it can be carried into cells using an adeno-associated virus or lipid nanoparticles. [\[Link\]](#)

COMMENTARY FROM ACROSS THE NEW ECONOMIES

Strong Growth Is Expected from the Robotics Market and Companies Are Taking Action

- Alphabet announced its latest venture—a robotics software company called Intrinsic, which aims to make industrial robots more capable. [\[Link\]](#)
- Retail giant Walmart announced its latest robotics partnership, teaming with Massachusetts-based automation company Symbotic to bring robotics to 25 regional Walmart distribution centers. [\[Link\]](#)
- Chinese electric vehicle maker XPeng has now unveiled its latest creation: a robot unicorn. The robot will be rideable by children and uses a host of AI technologies previously developed for the company's vehicles to allow for autonomous “prancing.” [\[Link\]](#)

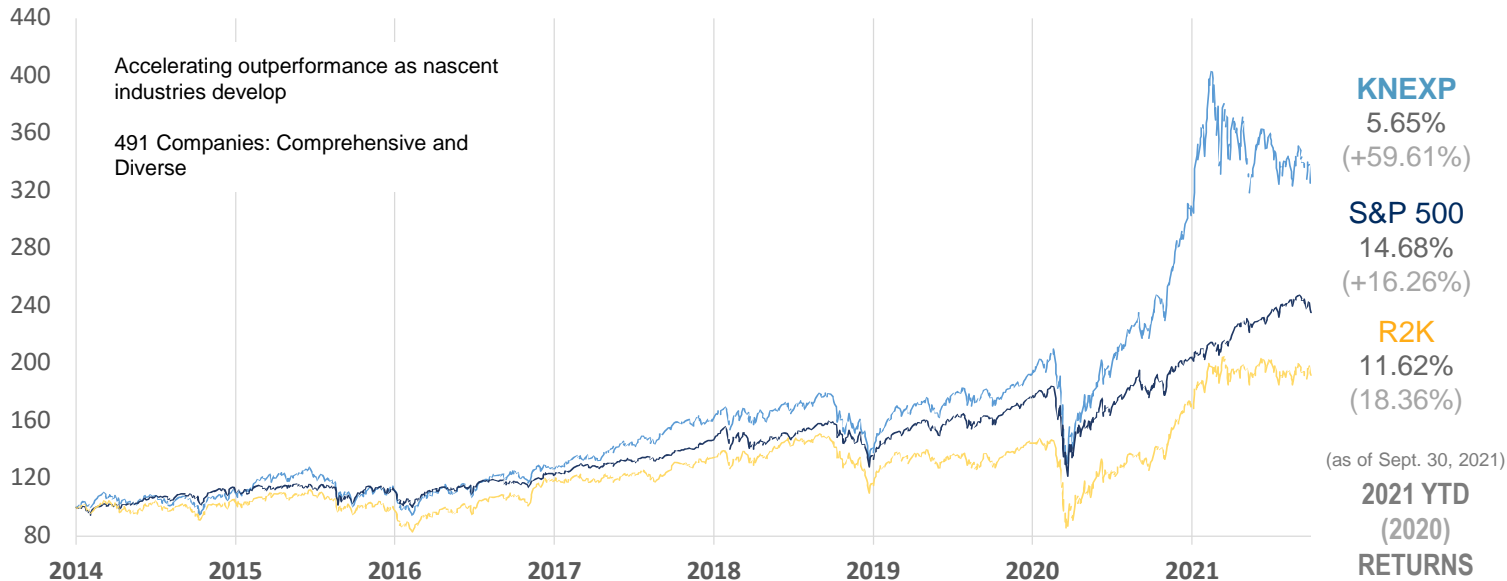
Wearables

- In Q2 2021, the wearables market grew 32.3% year-over-year, despite an overall slowing of consumer spending on technology. A total of 114.2 million wearables shipped in the second quarter, compared with 86.3 million in the same period last year. Wrist bands remained flat, but hearables and watches grew by 39% each in the second quarter. Apple was once again the top wearables manufacturer, with 32.2 million shipments and a 28.2% market share, but that was down from 34.1% in the same quarter last year. Xiaomi and Huawei were in second and third place, respectively. [\[Link\]](#)
- Samsung announced its new wearable processor, the Exynos W920. The new processor integrates an LTE modem and is the first in the industry to be built with an advanced 5-nanometer extreme ultra-violet process node, offering powerful yet efficient performance demanded by next-generation wearable devices. [\[Link\]](#)
- Apple's revenues from its Wearables, Home, and Accessories (WHA) segment exceeded revenues of the iPad and Mac segments in its fiscal Q3 2021 (ending June 26). For context, WHA is a catchall category that includes the Apple Watch, Apple TV, AirPods, AirTags, and HomePod speakers. [\[Link\]](#)

RELATIVE PERFORMANCE OF THE NEW ECONOMIES COMPOSITE INDEX

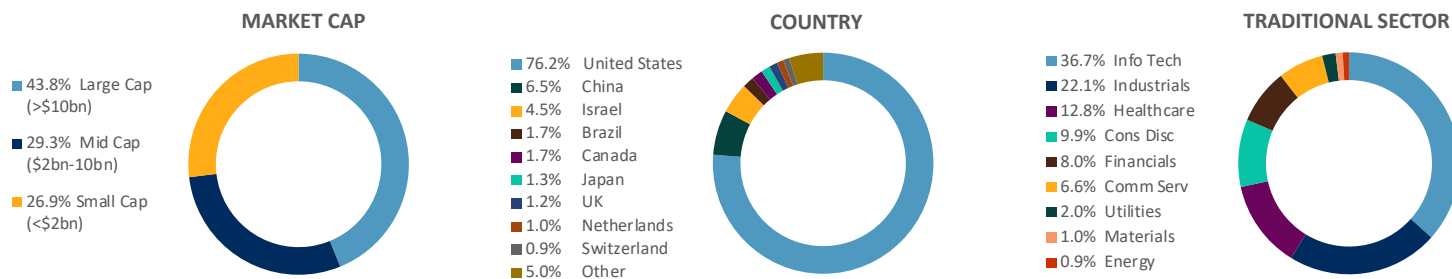
(normalized price return from Jan. 2, 2014, to Sept. 30, 2021)

The S&P Kensho New Economies Composite Index (KNEX) is made up of all qualifying New Economy subsectors, the industries driving the Fourth Industrial Revolution, with each weighted according to an algorithmic proxy for industry maturity.



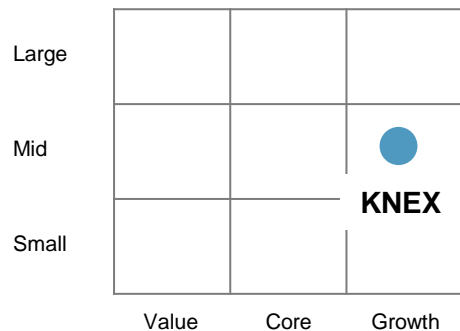
BREAKDOWN OF THE NEW ECONOMIES COMPOSITE INDEX

(as of Sept. 30, 2021)



STYLE, FUNDAMENTALS, AND DIFFERENTIATION

(as of Sept. 30, 2021)



FUNDAMENTALS *1	KNEX	S&P 500
Trailing 12M PE	21.00	24.30
Forward 12M PE	19.10	21.00
Price to Book Ratio	3.00	4.30
Price / Cash Flow	13.30	18.30
Est 3-5 Yr. EPS Growth	16.00%	16.10%
1 Yr Diluted EPS Growth	18.18%	17.69%

*1 source: Factset

KNEX VS	ACTIVE SHARE
S&P 500	85.50%
Russell 2000	84.50%
Nasdaq 100	91.10%
Morningstar Exp. Tech.	88.60%
S&P 1500	85.20%
S&P 500 Growth	88.70%

Performance Disclosure/Back-Tested Data

The S&P Kensho New Economies Composite Index was launched February 6, 2017. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spglobal.com/spdji. Past performance of the Index is not an indication of future results. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results. Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations. Back-tested performance is for use with institutions only; not for use with retail investors.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

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