

S&P Kensho New Economies Quarterly Commentary

The S&P Kensho New Economy Indices seek to track the industries and innovation of the Fourth Industrial Revolution

Contributor

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The last quarter of 2022 saw U.S. equities rebound from their YTD lows as inflation prints started to cool. While the Fed has not relented on its hawkish stance, despite multiple forward-looking indicators pointing to a recession ahead, wages have provided a sturdy support to consumer spending on goods and services. Additionally, the uncertainty at the start of the Q4 over the U.S. mid-term elections also dissipated. Notwithstanding its weakest annual return (-18%) since 2008, the S&P 500[®] posted its first positive (7.6%) quarterly return of 2022. Market strength was broad based, with 10 of the GICS[®] sectors contributing positively to the overall S&P 500 quarterly performance. From a style perspective, value continued its outperformance versus growth in Q4, ending 2022 with the largest outperformance in nearly two decades. Most S&P 500 Factor Indices posted positive quarterly performance, from defensive-tilted low volatility and quality factors, along with more cyclical high beta and growth factors. Within the S&P Kensho New Economies, 15 of the 25 subsectors had positive quarterly returns, the most since Q2 2021. Given the sanguine performance of U.S. factors, positive exposure to volatility and growth factors was not as detrimental during this quarter as it was in the prior three quarters.

U.S. fixed income performance was also positive in the fourth quarter, supported by easing inflation and the U.S. Fed chair's comments in November that were interpreted to indicate a slower rate hike path ahead. However, December saw the unwinding of some of these gains, as the central banks of U.K. and Japan joined

the U.S. in raising rates, along with commentary on maintaining their aggressive stance toward inflation despite concerns of a slowdown. Bond-equity return correlations remained mostly in positive territory during Q4. The U.S. dollar, one of the few diversifiers to equities and fixed income strategies for most of 2022, maintained its pattern of rising and falling with inflation concerns. A global recession is expected by many market participants in the coming 12-24 months, but the depth and the impact it will have on employment and wages is still debated. The reopening of China has been a closely watched factor, potentially providing a counterbalance to global recession fears.

Top Three from across the New Economies

Space (18.5%): KMARS, which is primarily composed of Aerospace & Defense sub-industry firms (nearly 58% of the index), posted its best quarterly performance since Q4 2020. The rally was broad, with 29 of the 34 constituents contributing positively to the index performance. Maxar was the top performer (176%), largely owing to a positive reaction to news that Advent International would be taking the company private after a buyout involving a significant premium ([link](#)). Boeing was another notable performer this quarter (57%), becoming one of the top three best-performing stocks within the S&P 500. Continued recovery in the air travel industry and robust delivery numbers helped turn the sentiment around Boeing, as it recovered from a four-year low at the beginning of the quarter. Virgin Galactic topped the underperformers list (-26%), extending its downtrend for the sixth consecutive quarter and reaching a historic low. The company's plans for space travel have been delayed, adding to the cash burn, and reporting a Q3 2022 revenue of less than USD 1 million. After a flurry of SPAC activity in the Space arena, 2022 was a year of consolidation and competition that hopefully will drive the next leg of innovation in this area. The index's heavy weight toward defense firms also reflects rising national security interests forming a key support for this industry.

Robotics (16.4%): KBOTS had its best quarterly performance in two years, aided by positive performance from 27 of its 35 constituents. Its fourth quarter recovery was strong after ending the previous quarter near a two-year low. Oceaneering Intl., the only stock in the index from the Energy sector (best-performing sector within S&P 500 in 4 2022), was the top contributor after gaining 120% in the final quarter, of which 57% was in the last two weeks of October near the Q3 earnings release ([link](#)). The company, in addition to its deep-sea drilling activities, is also involved in defense contracts supporting the U.S. Navy. The biggest index underperformer was Omnicell, a pharmacy inventory management company, which suffered after reporting weak Q3 numbers that have slowed down from their COVID-era forecasts. The index recouped the previous quarter's loss this quarter but ended the year down (-22%). With a balanced exposure to defensive Health Care Equipment and the more cyclical Industrial Machinery and Life Sciences Tools & Services, the index was less volatile this quarter than most of the other Kensho subsectors.

Smart Factories (11.7%): KFACT's large exposure to the Information Technology sector has driven its 2022 performance, closely tracking the S&P 500 Equal Weight Information Technology Index, especially in Q4, as KFACT recorded its best quarterly performance since early 2021. A tight labor market and rising wages typically increase corporates focus on automation and infrastructure upgrades. The Capital Goods industry group was the top quarterly performance contributor (4.6%), followed by the Semiconductors group (3.9%). Emerson Electric and Rockwell Automation beat their Q4 earnings expectations and were the top contributors within the Capital Goods space. The Semiconductors industry recovered in Q4 after material losses since the peak of the pandemic; Ambarella and Allegro MicroSystems, companies with a focus on computer vision application design, were the best performers within this industry. Aspen Tech, majority owned by Emerson Electric, was the notable underperformer within the index, posting -16.6% in December. 3D Systems, focused on 3D printing, was another underperformer with four consecutive quarters of negative returns (totaling -65%). Lackluster revenues and falling earnings have driven the dive in investor sentiment for 3D systems.

Exhibit 1: S&P Kensho New Economies Performance Dashboard

Composite Index	QTD	12-Month
New Economies Composite (KNEX)	2.5%	-32.4%
New Economies Select (KNESLX)	4.2%	-29.5%
S&P Composite 1500®	7.8%	-17.8%
Sector Index	QTD	12-Month
Final Frontiers (KEXPLORE)	18.7%	-0.5%
Sustainable Staples (KSTAPLE)	6.2%	-18.7%
Advanced Manufacturing (KMAKE)	6.0%	-29.7%
Future Security (KSECURE)	3.6%	-17.5%
Future Communication (KCONNECT)	3.1%	-42.5%
Intelligent Infrastructure (KINFRA)	1.7%	-27.6%
Human Evolution (KEVOLVE)	1.4%	-38.3%
Clean Power (KPOWER)	-3.0%	-7.7%
Smart Transportation (KMOVE)	-6.1%	-46.1%
Democratized Banking (KFIN)	-7.9%	-43.8%
Subsector Index	QTD	12-Month
Space (KMARS)	18.5%	-0.4%
Robotics (KBOTS)	16.4%	-22.1%
Smart Factories (KFACT)	11.7%	-25.8%
Drones (KDRONE)	11.6%	-2.8%
Advanced Transport Systems (KATS)	10.6%	-42.4%
Digital Communities (KSOCIAL)	9.4%	-36.0%
Smart Borders (KDMZ)	8.7%	-17.8%
Smart Buildings (KHOME)	7.5%	-33.7%
Sustainable Farming (KFARM)	5.3%	-22.9%
Wearables (KBORG)	3.5%	-28.6%
Clean Energy (KENERGY)	2.6%	2.2%
Future Payments (KPAY)	2.3%	-33.1%
Virtual Reality (KVR)	1.6%	-45.9%
Nanotechnology (KNANO)	0.1%	-40.3%
Smart Grids (KGRIDS)	-1.6%	-24.8%
Cyber Security (KCYBER)	-2.0%	-24.1%
Genetic Engineering (KDNA)	-2.4%	-40.5%
Electric Vehicles (KEV)	-6.3%	-44.5%
3D Printing (KDDDP)	-6.7%	-35.0%
Cleantech (KCLEAN)	-7.5%	-20.1%
Alternative Finance (KALTFIN)	-8.6%	-48.2%
Enterprise Collaboration (KTEAM)	-8.6%	-49.7%
Digital Health (KDOC)	-10.5%	-42.5%
Autonomous Vehicles (KCARS)	-11.5%	-56.0%
Distributed Ledger (KLEDGER)	-31.9%	-71.9%

Source: S&P Dow Jones Indices LLC. Data as of Dec. 30, 2022. Index performance based on total return in USD. Index tickers shown in parentheses. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

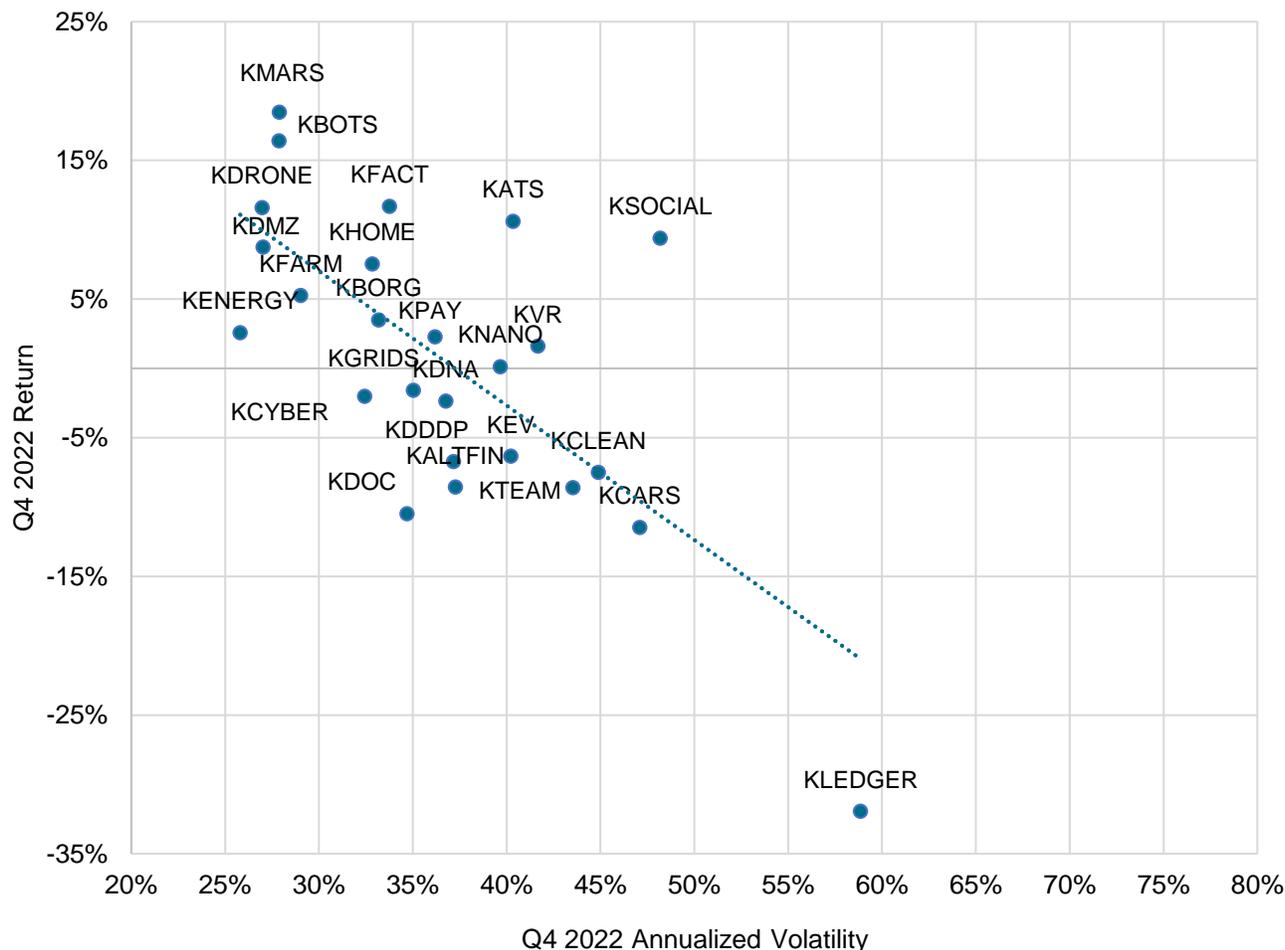
Bottom Three from across the New Economies

Distributed Ledger (-31.9%): KLEDGER was hit by the fallout of the FTX bankruptcy, registering the worst quarterly performance across the S&P Kensho New Economies subsectors, accompanied by sustained volatility. Bitcoin, a bellwether of this segment, fell below its previous cycle high for the first time. The highly interconnected nature of crypto firms has raised investor concern over a possible domino effect within this space, kickstarted by FTX's collapse. Of the 15 constituents, 11 posted negative quarterly returns, while the other 4 were positive due to their diversified revenue sources (non-core to the distributed ledger theme). Crypto miners Marathon Digital (-213%) and Riot Platforms (-107%) were the biggest underperformers, owing to their high sensitivity to cryptocurrency prices due to their levered nature. Top positive contributors for the quarter were ING Group and Banco Santander, both European banks that have benefited from positive rates in Europe and robust trading volumes.

Autonomous Vehicles (-11.5%): KCARS maintained its position as one of the weakest performers among the S&P Kensho New Economies for the second consecutive quarter. Of the 37 constituents, 21 were negative contributors to the index performance, mainly within the EV space. EV-linked firms make up nearly 40% of KCARS, and this segment suffered from supply chain disruptions and lockdowns in China in 2022. The Chinese EV market is the largest in the world, accounting for more than 50% of global sales ([link](#)). TuSimple was a big contributor to KCARS' weakness, losing 78% just in Q4. The stock fell 45% on Oct. 31, 2022, after news broke of the ousting of its CEO following reports of U.S. federal investigations into the company's dealings. Tesla was another notable underperformer, losing 37% in December 2022, calling back to its losses during latter part of 2018. Expensive valuations combined with falling demand and constrained production weighed on the company's stock price. Meanwhile, other EV companies like Nio, Lucid and Rivian were also down significantly, affecting KCARS' performance. On the upside, the top positive performance contributors—Ambarella, Allegro MicroSystems and Visteon—belonged to the computer vision systems and electronics segment of KCARS, which are core to the theme.

Digital Health (-10.5%): KDOC's overweight (75%) to Health Care Equipment & Services, the worst-performing industry within the Health Care sector, did not help in Q4, despite the overall market seeing a bit of a turnaround rally. Stock-level performance contributions were mixed, with 28 of the 48 constituents recording negative contributions to the top-line performance. Butterfly Network was the main quarterly underperformer (-47.7%), reaching its lowest price since its IPO via a SPAC. Oscar Health was another big underperformer in Q4 (-50%), also reaching its lowest price since its IPO in early 2021. The quarter's weak performance pushed the KDOC index levels below its pre-COVID peak. This has prompted taming of lofty valuations within this space, along with moderating revenue growth estimates from their aggressive levels set during the height of the pandemic and the market melt-up in early 2021.

Exhibit 2: S&P Kensho New Economies Subsectors Performance Profiles



Source: S&P Dow Jones Indices LLC. Data as of Dec. 30, 2022. Index performance based on total return in USD. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Commentary from across the New Economies

Cybersecurity

The cybersecurity market is already a significant segment due to its impressive growth over the last few years. According to a report from Grand View Research ([link](#)), the global cybersecurity market was valued at USD 202.7 billion in 2022 and is expected to have a 12.3% CAGR from 2023 to 2030. Increase in cybersecurity attacks on e-commerce platforms and the deployment of cloud solutions are some areas expected to drive this market’s growth in years to come. One strong tailwind for spending growth in cybersecurity is the increasing geopolitical tensions around the world, as well as 70 elections due to take place across the globe in 2023, according to Forbes ([link](#)). Another strong growth area is education. According to a survey released by Clever, one in four K-12 schools in the U.S. were victims of cyberattacks in 2022 ([link](#)). According to the same survey, three out of four K-12 school districts said they would

increase their spending on security and privacy in the next two to three years. Another large and growing subsector in the cybersecurity market is global healthcare. This subsector of cybersecurity is estimated to grow 17.5% annually to surpass USD 51.40 billion by 2030, according to Polaris Market Research ([link](#)).

Alternative Finance

Alternative finance has gained in popularity in the last few years, in part due to increased innovation and lower cost of services ([link](#)). Going forward, the alternative finance space may see increased demand, with traditional lenders tightening lending standards as interest rates rise and fears of an economic slowdown gain momentum ([link](#)). With this backdrop, the segment is expected to have a CAGR of approximately 10% through 2025. According to the same report ([link](#)), the Asia-Pacific region is expected to be a key growth driver, as the number of SMEs in India and China is large and expected to grow. These enterprises will drive demand for alternative sources of capital that traditional lenders might not be able to meet. Recent developments in machine learning can also play a crucial role for alternative financing companies by allowing for more accurate and faster decision-making through the analysis of consumer data, usage trends and patterns ([link](#)). The increase in innovation and proper regulations in the space will aid these companies to meet the expected increase in global demand for alternative financing over the coming decades.

Digital Health

The COVID-19 pandemic was a huge catalyst for the digital health market. According to Contrive Datum Insights, the digital health market is expected to grow significantly from 2022-2030. They estimate the market will grow from the current USD 167 billion to USD 1.3 trillion in 2030 ([link](#)). Two keys for this growth are capital investment and innovation. On the capital investment side, approximately USD 59.6 billion was invested in digital health startups in 2021. Although the amount slowed somewhat in 2022, investors appear to be expecting continued consolidation and investment in 2023 ([link](#)). On the innovation front, the University of California Davis Health together with virtual practice management LiveCare Corp. recently announced the launch of Clinii, an artificial intelligence functionality platform designed to improve patient care, clinician experience and billing accuracy ([link](#)). One of the major areas of growth within digital health is in wearable technology. Currently, approximately 30% of adults in the U.S. use wearable devices to track their health and well-being. This market is expected to grow from USD 115.8 billion in 2021 to approximately USD 380.5 billion by 2028 ([link](#)).

Distributed Ledger

The distributed ledger market is expected to grow at a fast pace, according to a report by Allied Market Research. The report states that the global blockchain distributed ledger market is projected to reach USD 137.3 billion by 2027, which would represent a 62.5% CAGR from 2020 to 2027 ([link](#)). Supporting this growth is the Asia-Pacific region, which is expected to be the fastest-growing region in the blockchain distributed ledger space ([link](#)). The use cases are also growing, particularly in fields such as supply chain management, logistics and finance ([link](#)). According to a report by the World Economic Forum, interoperability between distributed ledgers and existing systems is key in integrating the technology for new use cases ([link](#)). Furthermore, governments have also shown support for the technology. Andrew Griffith, the Economic Secretary to the U.K. Treasury, recently stated that the U.K. economy would benefit if it embraced crypto assets and the underlying blockchain technology ([link](#)).

Clean Energy

According to a recent report by the International Energy Agency, global clean energy investment reached USD 1.4 trillion in 2022, up 10% from the previous year. The clean energy transition will continue to gain momentum, with employment in the sector projected to grow to 70 million in 2030, more than double the size of the workforce in 2019 ([link](#)). In fact, clean energy activity and adoption reached new landmarks last year. For example, 60% of Denmark's electricity came from renewable sources in 2022, up from 30% a decade earlier ([link](#)). Meanwhile, in Germany, a record 256 terawatt hours of electricity was estimated to be produced from renewable sources last year, making up 46% of overall local power consumption ([link](#)). The U.K. similarly recorded its highest ever amount of energy generated from renewable sources in 2022 ([link](#)). However, there have been renewed calls to increase activity in the space to prevent shortfalls against national targets designed to limit global temperature increases. For example, the World Meteorological Organization advised in October 2022 that the supply of clean energy-driven electricity needs to double by 2030 in order to remain on track with progress ([link](#)).

Space

The global space tourism industry generated USD 598.4 million in 2021 and is anticipated to generate USD 12.6 billion by 2031, potentially achieving a CAGR of 36.4% from 2022 to 2031. North America, primarily the U.S., should maintain dominance in this space until at least 2030 ([link](#)). The global space tourism market is in its nascent stage and requires a high level of investment, advanced technologies and significant technical expertise to design fully functional space tourism ([link](#)). Sierra Space and IBM are partnering to work on the next generation of space technology, which will help grow new applications for commerce, research and tourism. Sierra Space will leverage IBM's cloud and technology offerings while integrating their

expertise in the space industry for these new applications ([link](#)). Virgin Orbit recently failed to launch their rocket in space, an indication that the space tourism industry is seemingly dominated by U.S. rocket builders ([link](#)). The DOD, more specifically Space Force, is investing heavily in JDAC2; while still in its infancy, this tool will allow the U.S. to have better global coverage from space's point of view ([link](#)). Lockheed Martin has won a contract for the U.S. Navy and U.S. Army for space hypersonic missiles ([link](#)). Another development in the space industry, the U.S. Pentagon now mandates spy satellite launchers to have the ability to defend against interference from China ([link](#)).

Digital Communities

Social e-commerce is expected to continue to grow and is critical for digital communities to succeed in the future, as more platforms offer new ways to monetize within the community atmosphere ([link](#)). Online gambling has embraced digital communities; with more states legalizing sports betting, gambling platforms are starting to implement social aspects within their apps. The esports community has expanded into TV shows; for example, Opera GX will host a game show in Brazil with a focus on esports and gaming culture. Brazil was chosen due its active user base within the online community ([link](#)). Digital communities have lost approximately 21% of its female user base in the past year due to negative experiences online ([link](#)). FaZe, the first publicly traded esports company, has embraced Web3 and has grown its community within the metaverse this past year, selling merchandise and fan experiences ([link](#)).

Smart Factories

The global industry 4.0 market was estimated at USD 116.95 billion in 2021 and is anticipated to reach around USD 406.49 billion by 2030, with a CAGR of roughly 16.5% between 2022 and 2030. The industry has adopted automated robots worldwide to boost the production rate and meet the increasing demand. Artificial intelligence has transformed the entire process by increasing speed and reducing the chance of human error, and negligence has been reduced with the introduction of artificial robotic systems into the manufacturing process ([link](#)).

Verizon's 5G network is allowing one smart factory to operate via its own network; this smart factory includes a fully operational production line and experiential labs for developing and exploring smart manufacturing technology and strategy ([link](#)). The role of 5G in manufacturing is to improve both human and machine productivity, and in smart factories it will also help maintain safety and performance, even when engineers can't be on site ([link](#)). Hexagon AB, a leader in digital reality solutions combining sensor, software and autonomous technologies, recently announced an investment in Divergent Technologies Inc., a pioneer of green manufacturing technologies with the first modular digital factory for the automotive industry ([link](#)). ABB Group continues to benefit from China's smart manufacturing industrial development, with a 67,000 m² robotic factory in Shanghai. The factory is a USD150 million investment by ABB and will produce robots for all of Asia ([link](#)).

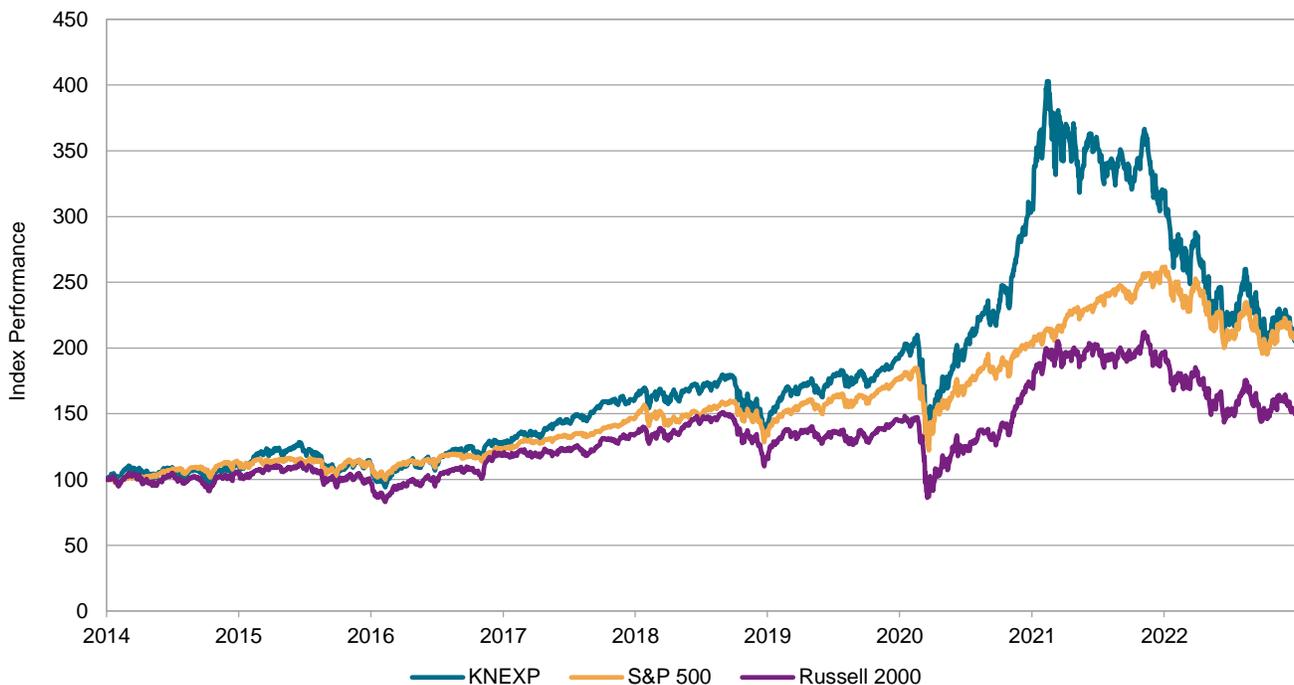
Robotics

China has overtaken the U.S. in robot manufacturing over the past year. The top five countries to implement robotics in manufacturing are South Korea, Singapore, Japan, Germany and China ([link](#)). The service sector saw an increase in robot use, up 37% from the previous year. They were used in areas such as warehouses, hospitals, airports and dairy farms ([link](#)). MLB plans to use robots as official umpires in AAA baseball games in 2023; this move is to test whether regular umpires for the parent MLB league could be replaced in the future ([link](#)). The use of robotics has a new use case for crop productivity; Sentvi robots monitor crops as they grow by patrolling the crop and alerting if there are problems such as weeds, diseases and pest damage. The robot can also notify if fertilizer or water is required, and track plant growth ([link](#)). The U.S. Army awarded Sarcos Defense a contract to produce a robotic arm for their self-propelled howitzers. If tests are successful, it would reduce the need for humans to be in certain combat situations ([link](#)).

Relative Performance of the New Economies Composite Index

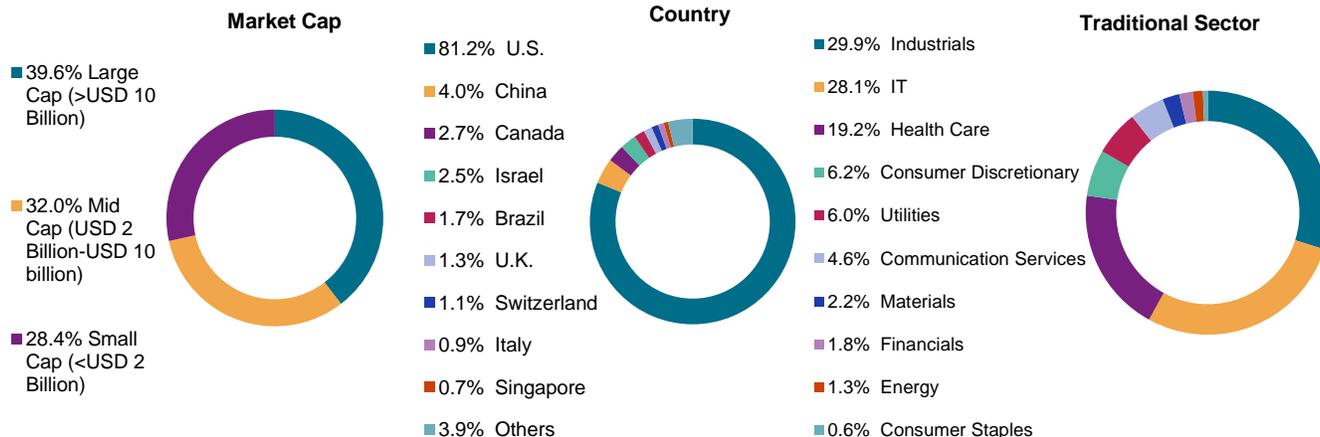
The [S&P Kensho New Economies Composite Index](#) (KNEX) is made up of all qualifying New Economy subsectors, the industries driving the Fourth Industrial Revolution, with each weighted according to an algorithmic proxy for industry maturity.

Exhibit 3: Relative Performance of the S&P Kensho New Economies Composite Index



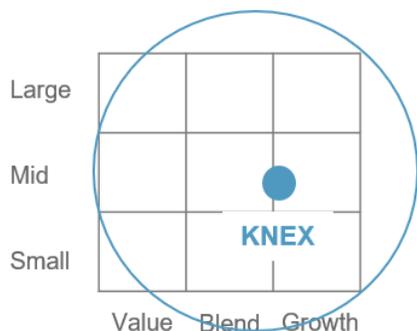
Source: S&P Dow Jones Indices LLC, FactSet. Data from Jan. 2, 2014, to Dec. 30, 2022. Index performance based on price return in USD. The S&P Kensho New Economies Composite Index was launched Feb. 6, 2017. All data prior to index launch date is back-tested hypothetical data. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Exhibit 4: Breakdown of the S&P Kensho New Economies Composite Index



Source: S&P Dow Jones Indices LLC. Data as of Dec. 30, 2022. Charts are provided for illustrative purposes.

Exhibit 5: Style, Fundamentals and Differentiation



	Fundamentals	KNEX	S&P 500	KNEX Versus	Active Share (%)
Trailing 12-Month Price to Earnings		20.28	19.12	S&P 500	84.75
Forward 12-Month Price to Earnings		18.28	16.87	Russell 2000	87.35
Price-to-Book Ratio		2.17	3.55	Nasdaq 100	90.46
Price / Cash Flow		10.50	13.08	Morningstar Exp. Tech.	86.21
Estimated 3-5 Year Earnings Per Share Growth (%)		12.26	10.74	S&P 1500	84.37
Historical 3-Year Sales Growth (%)		13.56	9.85	S&P 500 Growth	89.79

Source: S&P Dow Jones Indices LLC, FactSet, Morningstar. Data as of Dec. 30, 2022. Past performance is no guarantee of future results. Chart and tables are provided for illustrative purposes. Active share against Russell 2000, NASDAQ 100 and Morningstar Exp. Tech is calculated by using IWM, QQQ, XT

Performance Disclosure/Back-Tested Data

The S&P Kensho New Economies Composite Index was launched February 6, 2017. The S&P Kensho Digital Health Index was launched June 21, 2021. The S&P Kensho Smart Factories Index and S&P Kensho Advanced Manufacturing Index were launched September 16, 2021. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance, and is based on the index methodology 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. In addition, forks have not been factored into the back-test data with respect to the S&P Cryptocurrency Indices. For the S&P Cryptocurrency Top 5 & 10 Equal Weight Indices, the custody element of the methodology was not considered; the back-test history is based on the index constituents that meet the custody element as of the Launch Date. Complete index methodology details are available at www.spglobal.com/spdji. 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.

Typically, when S&P DJI creates back-tested index data, S&P DJI uses actual historical constituent-level data (e.g., historical price, market capitalization, and corporate action data) in its calculations. As ESG investing is still in early stages of development, certain datapoints used to calculate S&P DJI's ESG indices may not be available for the entire desired period of back-tested history. The same data availability issue could be true for other indices as well. In cases when actual data is not available for all relevant historical periods, S&P DJI may employ a process of using "Backward Data Assumption" (or pulling back) of ESG data for the calculation of back-tested historical performance. "Backward Data Assumption" is a process that applies the earliest actual live data point available for an index constituent company to all prior historical instances in the index performance. For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the [FAQ](#). The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used.

Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices maintains the index and calculates the index levels and performance shown or discussed but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US \$100,000 investment for a 12-month period (or US \$10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US \$1,650), the net return would be 8.35% (or US \$8,350) for the year. Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US \$5,375, and a cumulative net return of 27.2% (or US \$27,200).

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