Monthly Thematic Update

29 November 2024

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ARK
INVEST

Innovation and Resilience as the Year Closes

As we near the end of the year, markets continue to show resilience despite economic uncertainties. The post-election policy environment, marked by a renewed emphasis on growth, reshoring and technological leadership, is shaping investment opportunities. Advances in AI and robotics, genomics, crypto and energy transition technologies are setting the stage for the next wave of economic transformation.

AI and Robotics Driving Productivity

Companies integrating AI and robotics are leading productivity gains across manufacturing, logistics and space exploration. Autonomous vehicles are transforming transportation and logistics by enhancing efficiency, safety and supply chain resilience. In manufacturing, humanoid robots are increasingly deployed alongside traditional automation, offering flexibility and adaptability to complex tasks, particularly in environments impacted by labour shortages. Meanwhile, AI is driving advancements in space exploration and rocket technology, enabling faster development cycles, optimised missions and new possibilities for commercial space travel. In healthcare, AI is advancing precision medicine and genomics, revolutionising diagnostics, treatment personalisation and disease prevention. These innovations are improving patient outcomes, accelerating drug discovery and reducing costs, setting new standards in medical care. These deflationary forces driven by AI, automation and robotics are counterbalancing inflationary pressures, supporting a more resilient economic outlook as we move into 2025.

Energy Transition Gathers Momentum

Energy transition technologies continue to evolve, driven by advancements in solar, battery storage and nuclear power. Improved solar efficiency and falling costs are supporting broader adoption, while advances in battery technologies are enhancing energy storage solutions for both electric vehicles and grid stability. At the same time, nuclear energy, particularly in the form of small modular reactors, is experiencing renewed interest as a reliable, low-carbon energy source. These developments are reinforcing energy security and supply chain resilience, reducing reliance on imported energy and supporting climate goals.

Reshoring and Reindustrialisation

A key theme emerging from the year is the resurgence of American reshoring and reindustrialisation. Strategic investments in semiconductor manufacturing, critical minerals and energy infrastructure are aimed at revitalising domestic industries and reducing dependency on foreign supply chains. This trend, supported by automation and clean energy technologies, is bolstering the competitiveness of U.S. manufacturing.

Investment Themes for 2025

As we look ahead, several transformative themes are likely to drive markets:

- AI and Robotics: Enhancing productivity and efficiency across healthcare, manufacturing and logistics.
- Genomics: Advances in precision medicine improving diagnostics, treatments and patient outcomes.
- Crypto and Bitcoin: Continued adoption as a hedge against fiscal uncertainty and a tool for financial sovereignty.
- Energy Transition: Innovations in solar, battery storage and nuclear power supporting sustainable and resilient energy infrastructure.
- Reshoring: Strategic realignment of supply chains boosting domestic manufacturing and industrial growth.

In a year marked by fiscal challenges and geopolitical realignments, these themes underscore the importance of innovation and adaptability. As we close out 2024, the focus remains on identifying opportunities where transformative technologies can drive long-term progress and resilience.

Innovation is Key to Growth.

OUR RANGE OF ETFs

Fund Name	Code	ISIN	AUM ($ million)	MSCI ESG Rating	SFDR Classification	TER (%)	Inception Date
ARK **Genomic Revolution** UCITS ETF	ARKG	IE000O5M6XO1	4.6	BBB	Article 8	0.75	12/04/2024
ARK **Artificial Intelligence & Robotics** UCITS ETF	ARKI	IE0003A512E4	19.3	A	Article 8	0.75	12/04/2024
ARK **Innovation** UCITS ETF	ARKK	IE000GA3D489	17.6	BBB	Article 8	0.75	12/04/2024
Rize **Circular Economy Enablers** UCITS ETF	CYCL	IE000RMSPY39	1.6	AA	Article 9	0.45	24/05/2023
Rize **Environmental Impact 100** UCITS ETF	LIFE	IE00BLRPRR04	78.0	AA	Article 9	0.55	14/07/2021
Rize **Global Sustainable Infrastructure** UCITS ETF	NFRA	IE000PY7F8J9	95.1	A	Article 9	0.45	17/08/2023
Rize **Sustainable Future of Food** UCITS ETF	FOOD	IE00BLRPQH31	107.6	A	Article 9	0.45	27/08/2020
Rize **USA Environmental Impact** UCITS ETF	LUSA	IE000QUCVEN9	16.7	A	Article 9	0.45	17/08/2023
Rize **Cybersecurity and Data Privacy** UCITS ETF	CYBR	IE00BJXRZJ40	117.3	A	Article 8	0.45	12/02/2020
Rize **Digital Payments Economy** UCITS ETF	PMNT	IE00BLRPRQ96	5.6	A	Article 8	0.45	05/11/2021

Source: Bloomberg as of close 29 November 2024.

Innovation is Key to Growth.

ARKK
ARK INNOVATION UCITS ETF

ARK INVEST

SFDR Article 8

PERFORMANCE HIGHLIGHTS

The ARK Innovation UCITS ETF returned +26.04% in November.

The best performing stock was Archer Aviation Inc-A returning +203.81%. Its shares contributed to performance as part of a broad-based rally in electric vertical take-off and landing (eVTOL) stocks. The company announced an agreement with Soracle, a joint venture between Japan Airlines and Sumitomo Corporation, to sell up to 100 Midnight aircraft for ~$500 million. Separately, Needham & Company initiated coverage with a buy rating and an $11 price target, citing Archer's industry momentum and confidence in the company's ability to execute against its ~$6 billion aircraft order book. Additionally, the stock attracted attention on Reddit forums, driving increased retail investor interest.

The worst performing stock was Prime Medicine Inc returning -15.21%, which is one of the smallest holdings in the fund. The primary driver of downside performance stemmed from its third-quarter earnings report where the company slightly missed on revenue and EPS.

Sources: ARK Invest, Bloomberg, November 2024.

MARKET COMMENTARY

The outcome of November's US election could signal a pivotal shift in economic and regulatory landscapes that will provide significant tailwinds for innovation across multiple sectors. Like the transformative policies of the 1980s, the new environment could catalyze productivity and advance technologically-enabled innovation. With pro-innovation policies in place, ARK's five platforms - AI, robotics, blockchain, energy storage, and genomics - were well-positioned for this rally.

Tesla's market cap exceeded $USD 1 trillion during the month, Bitcoin hit $80,000 and continued to climb – carrying shares of Coinbase along with it, benefiting from this market momentum. Historically, post-election years bring equity rallies, with an average S&P 500 gain of +15.2% over the last ten cycles. Trump's policies could fuel continued growth into 2025, favoring industrial and tech-driven investments.
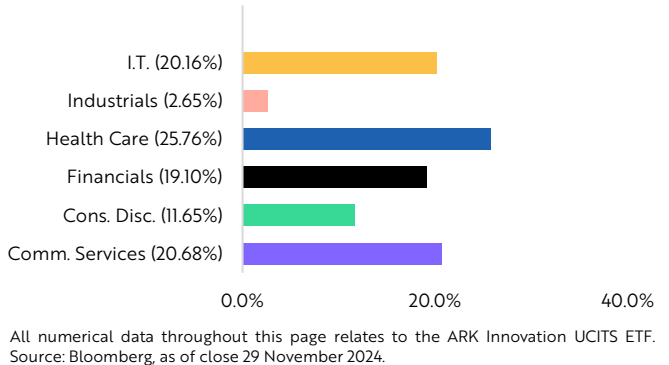
The convergence between supportive policy shifts and technological innovation should create meaningful investment opportunities.

Source: ARK Invest, Bloomberg, November 2024.

TECHNOLOGY BREAKDOWN

Advanced Battery Technology
Programmable Biology
Adaptive Robotics
Smart Contracts
Cryptocurrency Economy Pioneers
Multiomic Technologies
Autonomous Mobility
Digital Wallets
Precision Therapies
Neural Networks
Next Gen Cloud
Intelligent Devices

0.0%   10.0%   20.0%   30.0%

GICS SECTOR ALLOCATION

I.T. (20.16%)
Industrials (2.65%)
Health Care (25.76%)
Financials (19.10%)
Cons. Disc. (11.65%)
Comm. Services (20.68%)

0.0%   20.0%   40.0%

All numerical data throughout this page relates to the ARK Innovation UCITS ETF. Source: Bloomberg, as of close 29 November 2024.

MONTHLY STOCK RETURNS

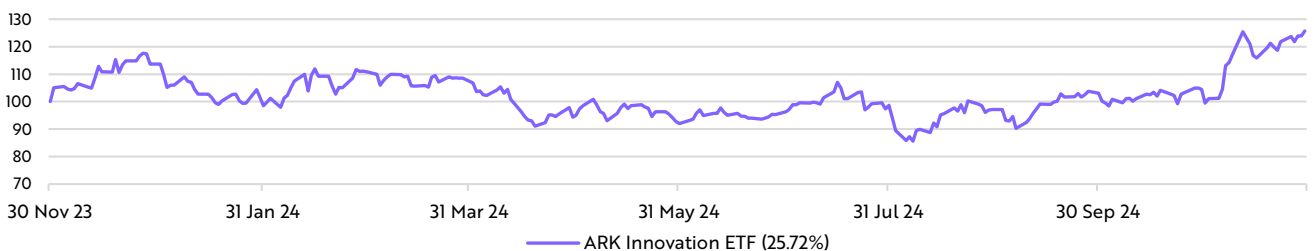Bloomberg, as of close 29 November 2024.

TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
ARCHER AVIATION INC-A	+203.81%	ILLUMINA INC	-3.75%
COINBASE GLOBAL INC -CLASS A	+65.24%	PINTEREST INC- CLASS A	-4.62%
PALANTIR TECHNOLOGIES INC-A	+61.41%	ADVANCED MICRO DEVICES	-4.79%
ROBINHOOD MARKETS INC - A	+59.81%	PACIFIC BIOSCIENCES OF CALIF	-11.98%
SHOPIFY INC - CLASS A	+47.94%	PRIME MEDICINE INC	-15.21%

1 YEAR PERFORMANCE (US-DOMICILED FUND)

130
120
110
100
90
80
70

30 Nov 23   31 Jan 24   31 Mar 24   31 May 24   31 Jul 24   30 Sep 24

— ARK Innovation ETF (25.72%)

ARKI
ARK ARTIFICIAL INTELLIGENCE & ROBOTICS UCITS ETF

ARK INVEST

SFDR Article 8

PERFORMANCE HIGHLIGHTS

The ARK Artificial Intelligence & Robotics UCITS ETF returned +23.17% in November.

The best performing stock was Archer Aviation Inc-A returning +203.81%, as mentioned on the prior page.

The worst performing stock was Aerovironment Inc returning -9.52%. After rallying materially in October, the stock gave back gains in November potentially driven by an Analyst downgrade at Jefferies due to valuation concerns and an acquisition announcement that was of significant value relative to the company's market capitalisation.

Sources: ARK Invest, Bloomberg, November 2024.

MARKET COMMENTARY

November brought positive developments for AI and robotics, signaling continued momentum in these transformative sectors. A pro-innovation environment benefits companies focused on autonomous technology, including Tesla, and names in defense and aerospace.

A Trump presidency would likely bring in more favorable oversight of the National Highway Traffic Safety Administration, a key regulatory player in the opportunity for Full Self-Driving. Less regulatory friction combined with Tesla's plan to rollout a robotaxi network across several states in 2025 helped propel its share price.

Furthermore, the defense industry seems poised for a paradigm shift. Traditional defense contractors face challenges in adapting to the increasing demand for low-cost, AI-driven solutions essential in modern warfare. With potential policy shifts that prioritise cost-effectiveness and technological agility, AI Platform leaders and smaller defense contractors are likely to enjoy outsized success.

Sources: ARK Invest, November 2024.

TECHNOLOGY BREAKDOWN
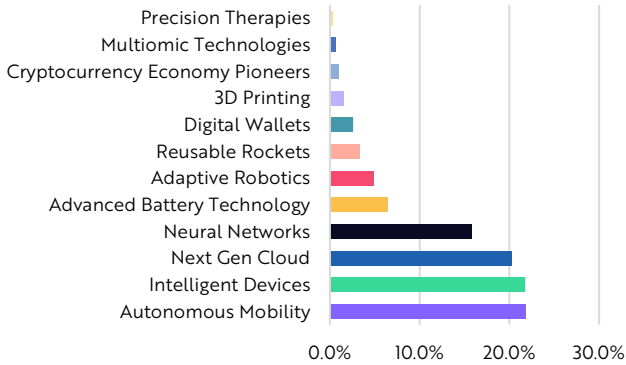
GICS SECTOR ALLOCATION
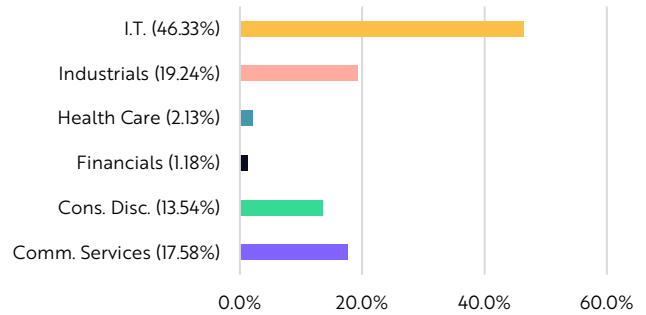
All numerical data throughout this page relates to the ARK Artificial Intelligence & Robotics UCITS ETF. Source: Bloomberg, as of close 29 November 2024.

MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
ARCHER AVIATION INC-A	+203.81%	MARKFORGED HOLDING CORP	-3.86%
ROCKET LAB USA INC	+154.95%	PINTEREST INC- CLASS A	-4.62%
JOBY AVIATION INC	+86.46%	ADVANCED MICRO DEVICES	-4.79%
PALANTIR TECHNOLOGIES INC-A	+61.41%	BYD CO LTD-UNSPONSORED ADR	-9.40%
SHOPIFY INC - CLASS A	+47.94%	AEROVIRONMENT INC	-9.52%

ARKG
ARK GENOMIC REVOLUTION UCITS ETF

ARK INVEST

SFDR Article 8

PERFORMANCE HIGHLIGHTS

The ARK Genomic Revolution UCITS ETF returned +12.16% in November.

The best performing stock was Butterfly Network Inc returning +84.83%. Butterfly is a small cap stock focused on commercializing a portable, low-cost point-of-care ultrasound (POCUS) system. Its shares rallied in early November after reporting third-quarter revenues of $20.6mm, marking a 33% year-over-year increase and surpassing analysts' expectations, and reducing losses more than anticipated.

The worst performing stock was Personalis Inc returning -21.39%. Shares of Personalis detracted from performance this month after the company reported guidance for a sequential decline in fourth-quarter revenue, driven primarily by its business with Moderna and Natera. That said, total third-quarter revenue grew 41% year-over-year, thanks to higher volume from biopharma customers and the U.S. Department of Veterans Affairs Million Veteran Program. Third-quarter gross margins increased 14.9 percentage points compared to the same quarter last year, thanks to a favorable customer mix and operating leverage.

Sources: ARK Invest, Bloomberg, November 2024.

MARKET COMMENTARY

In aggregate, healthcare names rallied less than other areas of innovation as the markets digested changes in US leadership post election. In our view, the health care sector could benefit enormously from policies that incentivise competition and streamline regulations. Reforms that increase access to healthcare, enhance price transparency, and modernise the FDA could pave the way for gene editing, precision medicine, and AI diagnostics. If the incoming administration pursues proactive and preventive healthcare, the industry is likely to pivot from "sick care" to more sustainable, patient-centric care.

Companies like CRISPR Therapeutics, Intellia Therapeutics, and Guardant Health seem well-positioned to benefit. CRISPR and Intellia, both leaders in gene editing, stand to gain from a regulatory environment that supports faster approval timelines for novel therapies, particularly cures. With its cutting-edge diagnostic tools, Guardant Health could benefit from a boost in the adoption of its early-detection diagnostic tools.

Sources: ARK Invest, November 2024.

TECHNOLOGY BREAKDOWN

Horizontal bar chart with categories (top to bottom): Intelligent Devices, Adaptive Robotics, Next Gen Cloud, Neural Networks, Programmable Biology, Precision Therapies, Multiomic Technologies. X-axis: 0.0%, 20.0%, 40.0%, 60.0%.

GICS SECTOR ALLOCATION

Horizontal bar chart: I.T. (0.65%), Health Care (99.35%). X-axis: 0.0%, 20.0%, 40.0%, 60.0%, 80.0%, 100.0%, 120.0%.
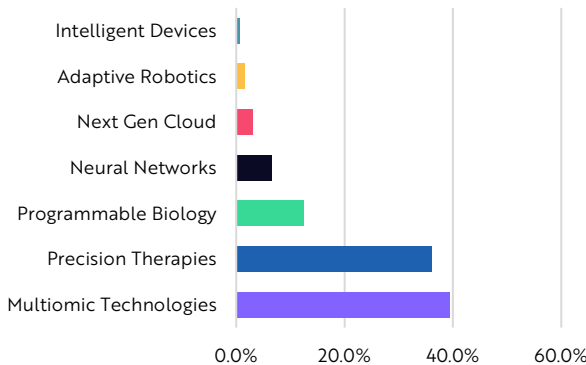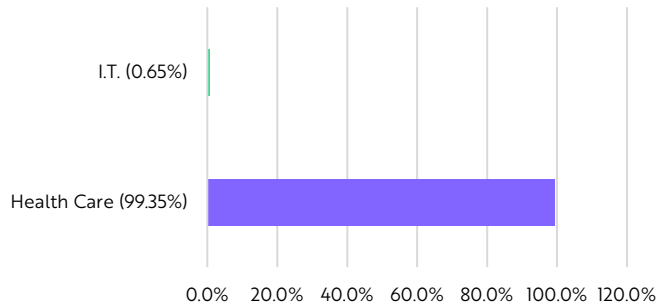
All numerical data throughout this page relates to the ARK Genomic Revolution UCITS ETF. Source: Bloomberg, as of close 29 November 2024.

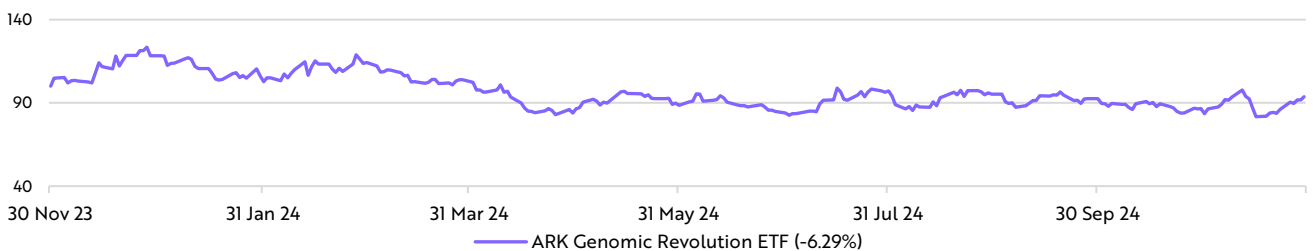## MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
BUTTERFLY NETWORK INC	+84.83%	908 DEVICES INC	-12.60%
QUANTUM-SI INC	+78.32%	PRIME MEDICINE INC	-15.21%
GUARDANT HEALTH INC	+62.75%	MODERNA INC	-20.03%
TEMPUS AI INC	+40.27%	ABSCI CORP	-20.57%
NATERA INC	+38.71%	PERSONALIS INC	-21.39%

1 YEAR PERFORMANCE (US-DOMICILED FUND)

Line chart. Y-axis: 40, 90, 140. X-axis: 30 Nov 23, 31 Jan 24, 31 Mar 24, 31 May 24, 31 Jul 24, 30 Sep 24.

— ARK Genomic Revolution ETF (-6.29%)

Please note that as the ARK Genomic Revolution UCITS ETF was launched on 19th April 2024, we are showing the 1 year performance of the ARK Genomic Revolution ETF which is the US-domiciled version of the same strategy. Where past performance and projected performance information is shown, it must be noted that past performance and projected performance is not a reliable indicator of future performance. Simulated past performance does not represent actual past performance and is not a reliable indicator of future performance. An investment in the fund involves significant risk and is subject to exchange rate fluctuations.

CYCL

RIZE CIRCULAR ECONOMY ENABLERS UCITS ETF

Rize etf | ARK INVEST

SFDR Article 9

PERFORMANCE HIGHLIGHTS

The Rize Circular Economy Enablers UCITS ETF returned +6.7% in November.

The best performing stock was Kadant Inc returning +23.94%. The leader in industrial processing systems posted better-than-expected Q3 2024 results, exceeding analyst forecasts across revenue and earnings metrics. It benefited particularly from strong demand for its equipment in paper recycling and waste reduction industries. Additionally, increasing adoption of its energy-efficient technologies resonated well with investors focused on sustainability, bolstering its share price.

The worst performing stock was Verbio Se returning -20.63%. The bioenergy and biofuel producer reported quarterly results and noted declining margins in its ethanol and biodiesel segments. Falling energy prices globally weighed on profitability, while supply chain disruptions and regulatory uncertainty in Europe may have further impacted sentiment. Namely, the German government is planning to stop companies from using unused carbon credits in 2025 and 2026. This change has caused prices for carbon credits in 2024 and 2025 to split apart. This could impact Verbio because some of their credits won't be usable until 2027.

Source: Bloomberg, November 2024.

MARKET COMMENTARY

Developments in 2024 continue to evidence the compelling circular economy investment opportunity which addresses the critical challenges in escalating trade tensions, global supply chains and resource scarcity. Take China's dominance in critical materials, such as lithium, cobalt, and rare earths, this has significant implications for global supply chains. For example, this month, China banned exports of gallium, germanium, and antimony to the United States in response to U.S. restrictions on China's semiconductor sector. These developments remind us of the West's reliance on Chinese supply chains for key resources. Decades-long development timelines and stringent regulations make ramping up traditional mining in the West unfeasible at the required pace. However, circular innovations offer a faster, more sustainable path to resource independence, ensuring competitiveness in sectors like battery technology and photovoltaics which are cornerstones of the clean energy transition. One advantage of investing in the circular economy is the alignment of sustainability with profitability. Companies adopting circular models drive industrial efficiency and infrastructure modernisation while achieving tangible environmental impact.

Source: Reuters, November 2024.

KEY METRICS

Performance:
+11.1% (Year to date)
+6.7% (1 Month)
+19.3% (1 Year)

Price-to-Earnings Ratio (P/E): 21.1x

Price-to-Book Ratio (P/B): 2.9x

Purity*: 80%

*Bloomberg, as of close 29 November 2024. P/E is positive estimated P/E for the year end. Purity is the weighted average revenue purity to the theme.

GICS SECTOR ALLOCATION

Sector	Allocation
Energy	0.31%
Comm. Services	2.99%
Cons. Staples	3.38%
Cons. Disc.	3.80%
I.T.	6.32%
Materials	31.90%
Industrials	51.30%

All numerical data throughout this page relates to the Foxberry SMS Circular Economy Enablers USD NTR Index. Source: Foxberry as of close 29 November 2024.
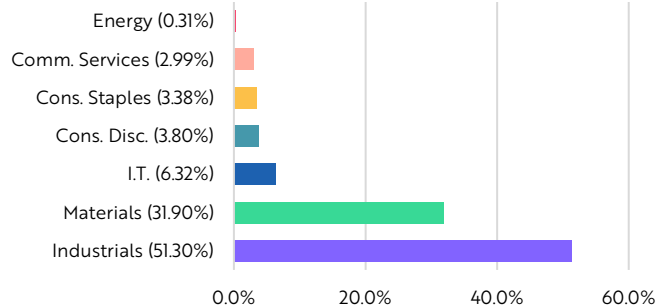
## MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
KADANT INC	+23.94%	METSO CORP	-6.94%
COPART INC	+23.16%	UMICORE	-9.52%
GREIF INC-CL A	+13.76%	VETROPACK HOLDING-REGISTERED	-9.58%
WATTS WATER TECHNOLOGIES-A	+13.45%	ENERGY RECOVERY INC	-12.88%
UNIFIRST CORP/MA	+11.71%	VERBIO SE	-20.63%

1 YEAR ETF PERFORMANCE

Rize Circular Economy Enablers UCITS ETF (19.34%)
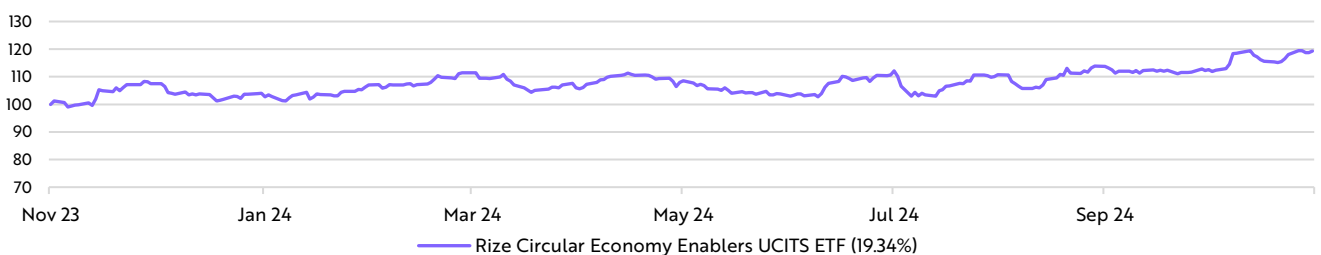
The Rize Circular Economy Enablers UCITS ETF replicates the Foxberry SMS Circular Economy Enablers USD NTR Index. The calculation of this index began on 12 December 2022. Accordingly, the performance shown is back-tested prior to 12 December 2022. Simulated past performance does not represent actual performance and should not be used as a guide to actual or future performance Simulated past performance does not represent actual past performance and is not a reliable indicator of future performance. An investment in the fund involves significant risk and is subject to exchange rate fluctuations.

LIFE
RIZE ENVIRONMENTAL IMPACT 100 UCITS ETF

Rize etf | ARK INVEST

SFDR Article 9

PERFORMANCE HIGHLIGHTS

The Rize Environmental Impact 100 UCITS ETF returned -0.5% in November.

The best performing stock was **Ceco Environmental Corp** returning +34.66% . The U.S.-based company provides environmental solutions including air quality and fluid handling systems. Shares rose following strong Q3 2024 results announced at the end of October, including record quarterly bookings and the highest-ever backlog. The company also announced a strategic acquisition of Profire Energy for $125 million. Profire is a burner management technology provider and leader in combustion control systems.

The worst-performing stock was **Montrose Environmental Group.** Montrose, a provider of environmental services including air quality testing and PFAS remediation, reported mixed Q3 2024 results. Adjusted EBITDA of $28.3 million slightly exceeded expectations, but revenue of $179 million fell short, due largely to lower emergency response revenue and delays in customer approvals for treatment technology projects. Despite this, management highlighted double-digit organic growth in most business lines and noted steady quarterly increases in treatment technology revenue following new PFAS limits set by the EPA in April 2024.

Source: Bloomberg, November 2024.

MARKET COMMENTARY

In November, Swedish battery manufacturer Northvolt filed for Chapter 11 bankruptcy protection in the United States, citing $5.8 billion in debt and only $30 million in available cash, sufficient to operate for just one more week. Northvolt, founded in 2016 by former Tesla executives, aimed to position Europe as a leader in battery production, reducing reliance on Asian manufacturers. Despite securing investments and partnerships with major automakers, the company faced significant challenges, including production inefficiencies and financial mismanagement. Whilst Northvolt faced systemic obstacles in Europe that stifle innovation such as regulation and restrictive policies, China continues to reap the rewards of its renewable energy initiatives. Take, its "Solar Great Wall" project in Inner Mongolia. Announced in November, this ambitious endeavour aims to generate 48 billion kWh of clean electricity annually by 2030, while combating desertification and promoting sustainable land use. The project exemplifies how strategic investments and supportive policies can drive large-scale renewable energy development. Europe can draw valuable lessons from China's approach by fostering a pro-innovation environment that includes streamlined regulations, increased access to financing, and enhanced collaboration among governments, private enterprises, and academia.

Source: GE Vernova, November 2024.

KEY METRICS

Performance:
+2.3% (Year to date)
-0.5% (1 Month)
+10.1% (1 Year)

Price-to-Earnings Ratio (P/E): **23.0x**

Price-to-Book Ratio (P/B): **1.8x**

Purity*: **82%**

*Bloomberg, as of close 29 November 2024. P/E is positive estimated P/E for the year end. Purity is the weighted average revenue purity to the theme.

GICS SECTOR ALLOCATION

Sector	Allocation
Financials (1.11%)	
Real Estate (1.21%)	
Cons. Staples (2.01%)	
Cons. Disc. (5.07%)	
I.T. (8.94%)	
Utilities (15.62%)	
Materials (16.58%)	
Industrials (49.46%)	

All numerical data throughout this page relates to the Foxberry SMS Environmental Impact 100 USD NTR Index. Source: Foxberry as of close 29 November 2024.

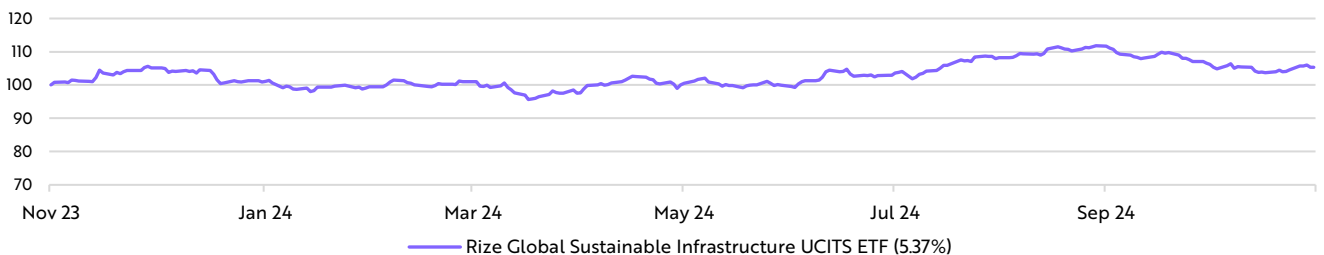## MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
CECO ENVIRONMENTAL CORP	+34.66%	SMA SOLAR TECHNOLOGY AG	-17.08%
ALTUS POWER INC	+25.58%	VESTAS WIND SYSTEMS A/S	-17.31%
RADIUS RECYCLING INC	+23.60%	NEXANS SA	-18.03%
OWENS CORNING	+16.31%	SAMSUNG SDI CO LTD	-23.31%
COMMERCIAL METALS CO	+14.67%	MONTROSE ENVIRONMENTAL GROUP	-28.63%

1 YEAR ETF PERFORMANCE

Rize Environmental Impact 100 UCITS ETF (10.05%)
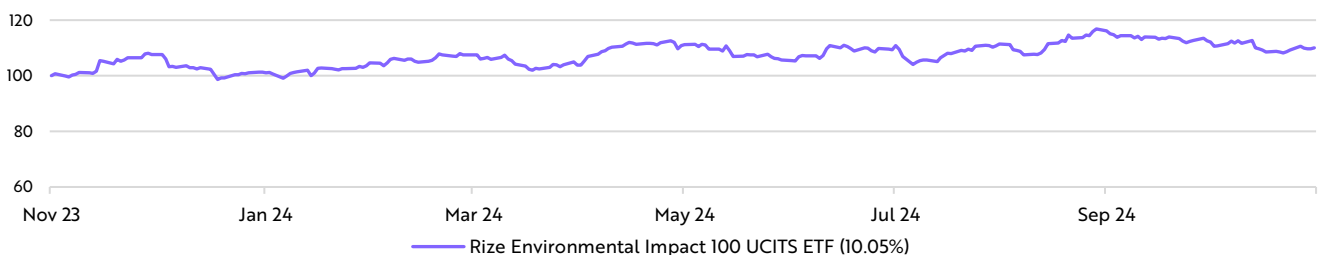
The Rize Environmental Impact 100 UCITS ETF replicates the Foxberry SMS Environmental Impact 100 Index USD NTR Index. Where past performance and projected performance information is shown, it must be noted that past performance and projected performance is not a reliable indicator of future performance. Simulated past performance does not represent actual past performance and is not a reliable indicator of future performance. An investment in the fund involves significant risk and is subject to exchange rate fluctuations.

NFRA

RIZE GLOBAL SUSTAINABLE INFRASTRUCTURE UCITS ETF

Rize etf | ARK INVEST

SFDR Article 9

PERFORMANCE HIGHLIGHTS

The **Rize Global Sustainable Infrastructure UCITS ETF was flat** in November.

The best-performing stock was **Casella Waste Systems, returning +15.66%**. Casella is a leading provider of waste management services, specialising in sustainable resource solutions across the United States. Its strong performance reflects robust growth in recycling and waste management, driven by increased demand for sustainable practices and pricing improvements. In its Q3 2024 results, the company reported revenues of $411.6 million, a 16.7% increase from the previous year, supported by higher solid waste pricing and successful acquisitions. With continued execution of its growth strategies and fiscal year guidance remaining strong, Casella demonstrates resilience and adaptability in a market increasingly prioritising environmental sustainability.

Conversely, the worst-performing stock was **Ecorodovias Infraestrutura e Logística, which declined by -25.19%**. Based in Brazil, Ecorodovias is a key operator of toll road concessions. Its share price declined following 2024 Q4 results with adjusted net revenue coming in below the average analyst estimate. More positively, its comparable toll traffic rose by 6% YoY in October 2024 which should support revenue growth.

Sources: ARK Invest, Bloomberg, November 2024.

MARKET COMMENTARY

November 2024 marked a notable development for sustainable infrastructure in an industry which is crucial for global trade and decarbonisation goals. The International Maritime Organization's ongoing commitment to reducing emissions in the shipping industry by 40% by 2030 gained momentum, as both countries and companies pushed forward initiatives to meet these ambitious targets. One major highlight was a renewed focus on alternative fuel infrastructure. Hydrogen and ammonia are both key to decarbonising shipping but require substantial investment in production and distribution systems. This month, announcements from regions with abundant renewable energy resources, such as North Africa and Australia, signalled a growing interest in establishing regional supply chains. For sustainable infrastructure investors, these projects present long-term opportunities to fund transformative clean energy hubs. Meanwhile, November also highlighted the need for updated port infrastructure. Ports around the world are beginning to adapt for low-carbon fuels, creating avenues for investment in advanced storage facilities, safety measures, and digital operational systems.

Source: Reuters, November 2024.
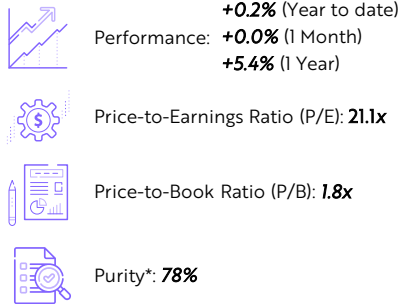
KEY METRICS

Performance:
+0.2% (Year to date)
+0.0% (1 Month)
+5.4% (1 Year)

Price-to-Earnings Ratio (P/E): **21.1x**

Price-to-Book Ratio (P/B): **1.8x**

Purity*: **78%**

*Bloomberg, as of close 29 November 2024. P/E is positive estimated P/E for the year end. Purity is the weighted average revenue purity to the theme.

GICS SECTOR ALLOCATION

- I.T. (1.32%)
- Financials (1.46%)
- Health Care (4.58%)
- Real Estate (19.42%)
- Comm. Services (19.98%)
- Utilities (22.70%)
- Industrials (30.51%)
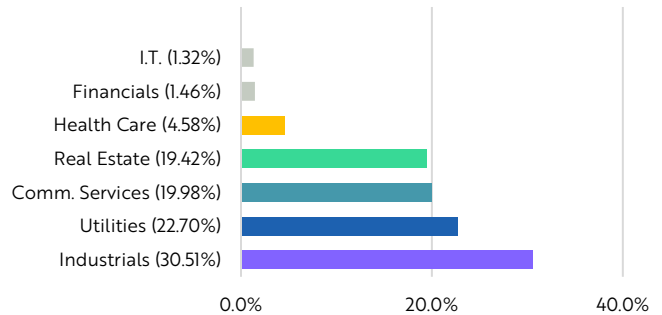
All numerical data throughout this page relates to the Foxberry SMS Global Sustainable Infrastructure USD NTR Index. Source: Foxberry as of close 29 November 2024.

MONTHLY STOCK RETURNS
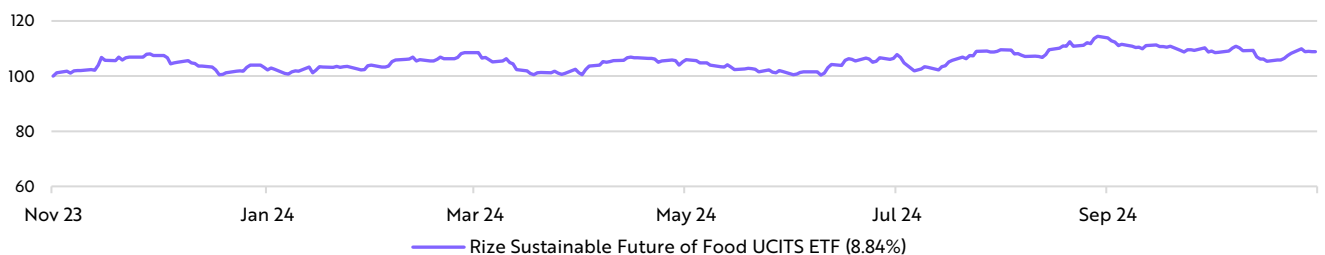
Bloomberg, as of close 29 November 2024.

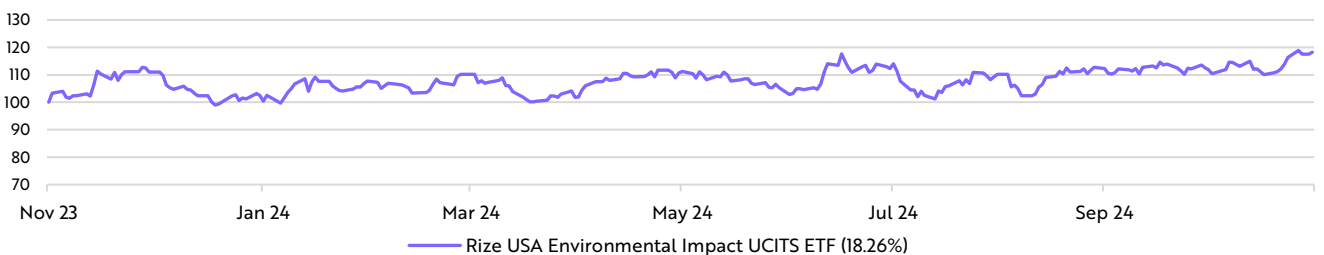| TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
CASELLA WASTE SYSTEMS INC-A	+15.66%	CCR SA	-11.59%
FIRSTGROUP PLC	+13.52%	ORIZON VALORIZACAO DE RESIDU	-12.77%
GFL ENVIRONMENTAL INC-SUB VT	+13.51%	EDP RENOVAVEIS SA	-12.91%
T-MOBILE US INC	+11.05%	SES	-13.51%
REPUBLIC SERVICES INC	+10.25%	ECORODOVIAS INFRA E LOG SA	-25.19%

1 YEAR ETF PERFORMANCE

Rize Global Sustainable Infrastructure UCITS ETF (5.37%)

The Rize Global Sustainable Infrastructure UCITS ETF replicates the Foxberry SMS Global Sustainable Infrastructure USD NTR Index. The calculation of this index began on 05 April 2023. Accordingly, the performance shown is back-tested prior to 05 April 2023. Simulated past performance does not represent actual performance and should not be used as a guide to actual or future performance Simulated past performance does not represent actual past performance and is not a reliable indicator of future performance. An investment in the fund involves significant risk and is subject to exchange rate fluctuations.

FOOD
RIZE SUSTAINABLE FUTURE OF FOOD UCITS ETF

Rize etf | **ARK INVEST**

SFDR Article 9

PERFORMANCE HIGHLIGHTS

The **Rize Sustainable Future of Food UCITS ETF returned +0.3%** in November.

The best-performing stock was **Kadant Inc**, a manufacturer of engineered systems and industrial equipment used in process industries such as pulp, paper, and packaging. Kadant **returned +23.94%**, bolstered by its Q3 2024 results, which reported robust growth in demand for its sustainability-focused products. Revenue increased significantly year-over-year, reflecting the success of its solutions that enhance resource efficiency and reduce waste. Investors responded positively to the company's ability to execute its strategic growth plans and address sustainability trends across key industries.

The worst-performing stock was **Beyond Meat Inc**, the plant-based meat manufacturer, **which fell by -18.23%**. Despite this, the plant-based food manufacturer reported a 7.6% increase in net revenues to $81 million for the third quarter of 2024, marking its first positive quarter in almost three years. Its business is showing signs of improvement following a new pricing strategy alongside initiatives to reduce operating costs and expand margins. It has successfully managed to cut operating losses by almost a half and has reduced net loss by about two-thirds from the previous year, setting a more positive trajectory for Q4 2024.

Source: Bloomberg, November 2024.

MARKET COMMENTARY

In November 2024, the European Union unveiled its Food System Monitoring Dashboard, a pioneering tool to track progress towards environmental, economic, and social sustainability goals in the food sector. This is assessed using over 300 indicators that collectively inform on the most important aspects of the EU food system's sustainability, covering aspects of climate, pollution, biodiversity, economic viability, food environment, nutrition and their respective health impacts. The indicators originate from public data sources or scientific research and will develop over time in line with science and policy developments. By enhancing transparency and accountability, this initiative strengthens investor confidence in the region's commitment to sustainable food systems. Meanwhile, innovative approaches to managing food waste, which is estimated to cost around $USD 1 trillion annually, have gained traction. Irish start-up Senoptica has developed cost-effective sensors that detect meat freshness, aiming to reduce waste caused by arbitrary "use by" dates. These sensors are set to undergo real-world testing with a major online grocer in the upcoming spring. This marks a major step towards commercialisation and could be a gamechanger in supermarkets.

Sources: European Commission, FT, November 2024.

KEY METRICS
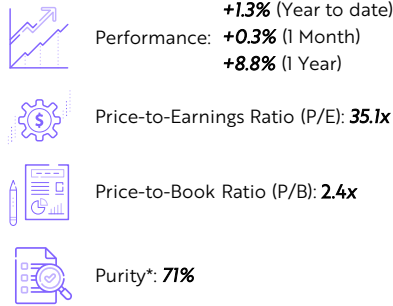
+1.3% (Year to date)
Performance: **+0.3%** (1 Month)
+8.8% (1 Year)

Price-to-Earnings Ratio (P/E): **35.1x**

Price-to-Book Ratio (P/B): **2.4x**

Purity*: **71%**

*Bloomberg, as of close 29 November 2024. P/E is positive estimated P/E for the year end. Purity is the weighted average revenue purity to the theme.

GICS SECTOR ALLOCATION

Sector	Allocation
I.T.	1.59%
Health Care	3.16%
Real Estate	4.97%
Cons. Staples	19.46%
Industrials	26.30%
Materials	44.52%
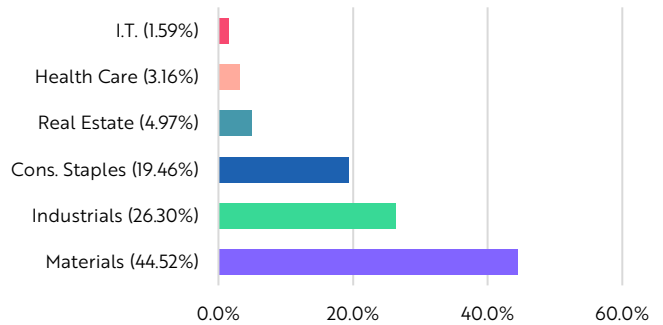
All numerical data throughout this page relates to the Foxberry Tematica Research Sustainable Future of Food USD NTR Index. Source: Foxberry as of close 29 November 2024.

MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

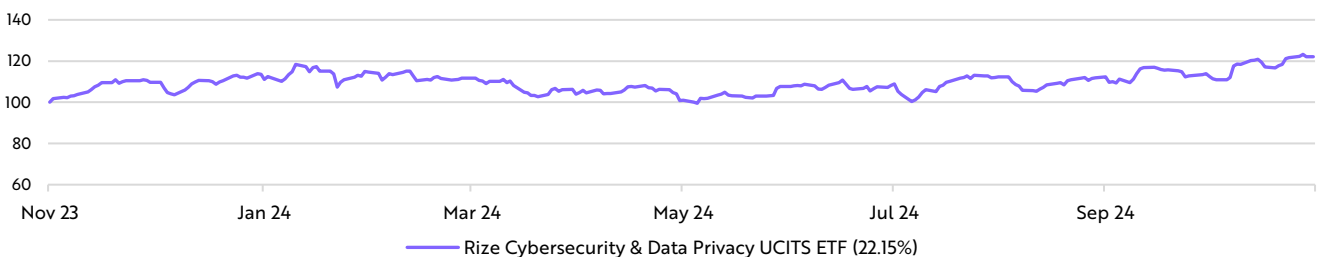| TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
KADANT INC	+23.94%	GRAINCORP LTD-A	-11.20%
CASCADES INC	+16.27%	LINEAGE INC	-14.34%
DEERE & CO	+15.13%	OATLY GROUP AB	-14.44%
O-I GLASS INC	+13.41%	EVONIK INDUSTRIES AG	-16.47%
JOHN BEAN TECHNOLOGIES CORP	+13.10%	BEYOND MEAT INC	-18.23%

1 YEAR ETF PERFORMANCE

Rize Sustainable Future of Food UCITS ETF (8.84%)

LUSA

RIZE USA ENVIRONMENTAL IMPACT UCITS ETF

Rize etf | ARK INVEST

PERFORMANCE HIGHLIGHTS

The Rize USA Environmental Impact UCITS ETF returned +7.1% in November.

The best-performing stock was **Bloom Energy Corp returning +185.94%**. Bloom Energy, a company specialising in solid oxide fuel cell systems for clean energy generation, reported Q3 2024 revenue of $330.4 million, a 17.5% decrease from the same quarter in the previous year. Despite this decline, the company announced plans for the world's largest single-site fuel cell installation in partnership with SK Ecoplant, expected to commence operations in 2025. This strategic move reflects Bloom Energy's commitment to expanding its global footprint and advancing clean energy solutions, which likely contributed to the significant stock appreciation.

The worst-performing stock was **Montrose Environmental Group**. Montrose, a provider of environmental services including air quality testing and PFAS remediation, reported mixed Q3 2024 results. Adjusted EBITDA of $28.3 million slightly exceeded expectations, but revenue of $179 million fell short, due largely to lower emergency response revenue and delays in customer approvals for treatment technology projects. Despite this, management highlighted double-digit organic growth in most business lines and noted steady quarterly increases in treatment technology revenue following new PFAS limits set by the EPA in April 2024.

Source: Bloomberg, November 2024.

MARKET COMMENTARY

In November, Swedish battery manufacturer Northvolt filed for Chapter 11 bankruptcy protection in the United States, citing $5.8 billion in debt and only $30 million in available cash, sufficient to operate for just one more week. Northvolt, founded in 2016 by former Tesla executives, aimed to position Europe as a leader in battery production, reducing reliance on Asian manufacturers. Despite securing investments and partnerships with major automakers, the company faced significant challenges, including production inefficiencies and financial mismanagement. Whilst Northvolt faced systemic obstacles in Europe that stifle innovation such as regulation and restrictive policies, China continues to reap the rewards of its renewable energy initiatives. Take, its "Solar Great Wall" project in Inner Mongolia. Announced in November, this ambitious endeavour aims to generate 48 billion kWh of clean electricity annually by 2030, while combating desertification and promoting sustainable land use. The project exemplifies how strategic investments and supportive policies can drive large-scale renewable energy development. Europe can draw valuable lessons from China's approach by fostering a pro-innovation environment that includes streamlined regulations, increased access to financing, and enhanced collaboration among governments, private enterprises, and academia.

Source: GE Vernova, November 2024.

KEY METRICS

Performance:
+6.6% (Year to date)
+7.1% (1 Month)
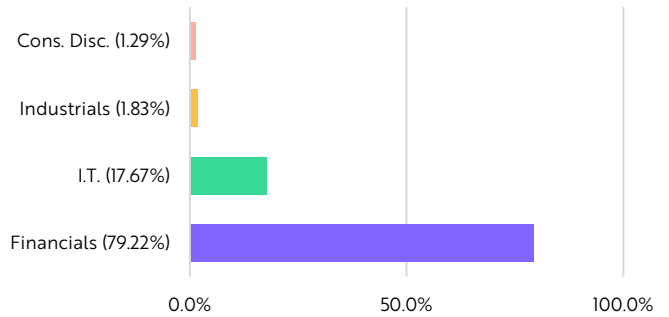**+18.3%** (1 Year)

Price-to-Book Ratio (P/B): **2.5x**

Purity*: **89%**

*Bloomberg, as of close 29 November 2024. Purity is the weighted average revenue purity to the theme.

GICS SECTOR ALLOCATION

Sector	Allocation
Energy (0.63%)	0.63%
Financials (1.19%)	1.19%
Cons. Staples (1.26%)	1.26%
Real Estate (3.48%)	3.48%
Utilities (7.57%)	7.57%
I.T. (9.44%)	9.44%
Materials (9.63%)	9.63%
Cons. Disc. (9.66%)	9.66%
Industrials (57.14%)	57.14%

(Scale: 0.0% — 20.0% — 40.0% — 60.0%)
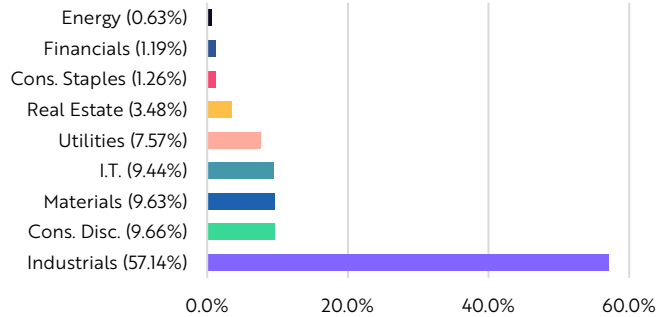
All numerical data throughout this page relates to the Foxberry SMS USA Environmental Impact USD NTR Index. Source: Foxberry as of close 29 November 2024.

MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

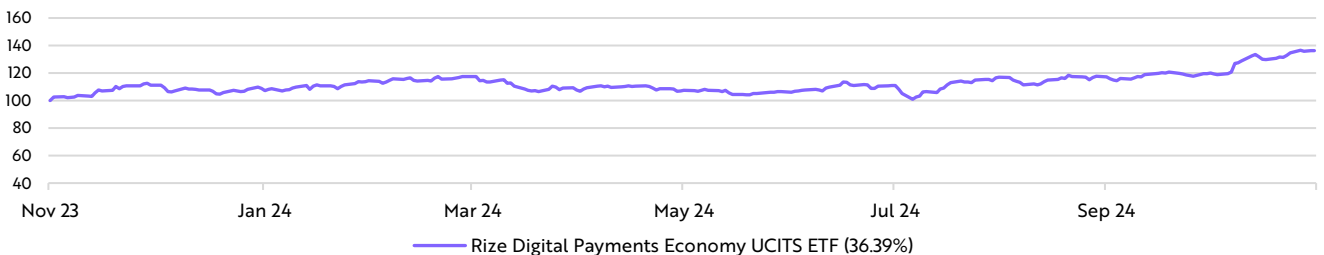| TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
BLOOM ENERGY CORP- A	+185.94%	MONTAUK RENEWABLES INC	-20.07%
FREYR BATTERY INC	+113.40%	SUNRUN INC	-20.21%
PLANET LABS PBC	+77.83%	LANZATECH GLOBAL INC	-26.63%
ARIS WATER SOLUTIONS INC-A	+63.03%	WOLFSPEED INC	-28.02%
TESLA INC	+38.15%	MONTROSE ENVIRONMENTAL GROUP	-28.63%

1 YEAR ETF PERFORMANCE

Rize USA Environmental Impact UCITS ETF (18.26%)

CYBR

RIZE CYBERSECURITY AND DATA PRIVACY UCITS ETF

Rize etf | ARK INVEST

SFDR Article 8

PERFORMANCE HIGHLIGHTS

The Rize Cybersecurity & Data Privacy UCITS ETF returned +9.7% in November.

The best-performing stock was Qualys Inc, which achieved a return of +28.82%. Qualys, a provider of cloud-based IT, security, and compliance solutions, reported robust financial results for Q3 2024. The company announced revenues of $153.9 million, marking an 8% year-over-year increase, and a GAAP net income of $46.2 million, or $1.24 per diluted share. This growth was attributed to the successful adoption of their security solutions and expansion into new markets. Additionally, Qualys raised its 2024 revenue guidance to a range of $602.9 million to $605.9 million, reflecting confidence in its ongoing growth trajectory.

The worst-performing stock was Akamai Technologies Inc, which experienced a decline of -6.98%. Akamai, specialising in cybersecurity and cloud computing services, reported Q3 2024 revenue of $1.00 billion, a 4% increase over the same period in the previous year. The company's security revenue grew by 14% year-over-year, while its compute revenue saw a 28% increase. However, the delivery segment faced challenges, with a 16% decline in revenue due to macroeconomic headwinds. Despite these mixed results, Akamai continues to focus on expanding its cloud computing capabilities and enhancing its security offerings to drive future growth.

Source: Bloomberg, November 2024.

MARKET COMMENTARY

A notable challenge in cybersecurity and data privacy involves vishing or "voice phishing" which is a critical attack vector in the broader realm of social engineering. These scams exploit human vulnerabilities rather than technical systems, using psychological manipulation to trick individuals into disclosing sensitive information, such as passwords. In November, leading British telecommunications services provider O2, in partnership with Jim Browning, a software engineer also known as a "scambaiter," introduced an innovative approach to tackle this issue. "Daisy" is an AI-powered "granny," designed to engage phone scammers in prolonged, time-wasting conversations, leveraging advanced conversational AI technology. By mimicking an elderly persona, Daisy convincingly interacts with fraudsters, keeping them occupied for up to 40 minutes and preventing them from targeting real victims. Trained on anonymised scammer data, Daisy provides false personal information to sustain the interaction, gathering valuable insights into fraudulent tactics. While its long-term impact is yet to be determined, Daisy represents an offensive cybersecurity and data privacy strategy within the realm of fraud prevention, precisely the kind of innovation needed to address the ever-growing sophistication of cyber threats.

Source: Perplexity, November 2024.

KEY METRICS

Performance:
- +11.3% (Year to date)
- +9.7% (1 Month)
- +22.2% (1 Year)

Price-to-Earnings Ratio (P/E): 38.4x

Price-to-Book Ratio (P/B): 7.8x

Purity*: 96%

*Bloomberg, as of close 29 November 2024. P/E is positive estimated P/E for the year end. Purity is the weighted average revenue purity to the theme.

GICS SECTOR ALLOCATION

I.T. (100.00%)
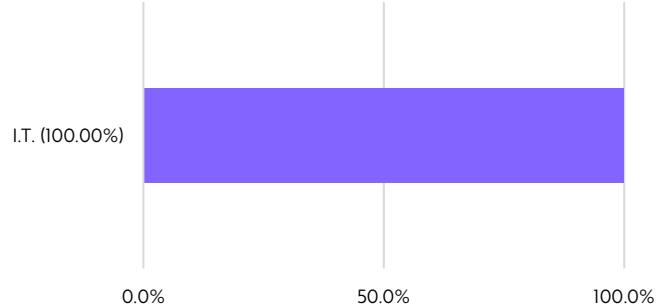
All numerical data throughout this page relates to the Foxberry Tematica Research Cybersecurity & Data Privacy USD NTR Index. Source: Foxberry as of close 29 November 2024.

MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
QUALYS INC	+28.82%	NETSCOUT SYSTEMS INC	+4.04%
COGNYTE SOFTWARE LTD	+25.12%	TREND MICRO INC	+3.33%
FORTINET INC	+20.84%	VARONIS SYSTEMS INC	-0.81%
CYBERARK SOFTWARE LTD/ISRAEL	+16.99%	AHNLAB INC	-1.13%
A10 NETWORKS INC	+16.81%	AKAMAI TECHNOLOGIES INC	-6.98%

1 YEAR ETF PERFORMANCE

— Rize Cybersecurity & Data Privacy UCITS ETF (22.15%)
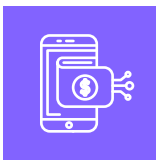
PMNT

RIZE DIGITAL PAYMENTS ECONOMY UCITS ETF

Rize etf | ARK INVEST

SFDR Article 8

PERFORMANCE HIGHLIGHTS

The Rize Digital Payments Economy UCITS ETF returned +14.3% in November.

The best-performing stock was Remitly Global Inc returning +34.28%. Remitly, a digital financial services company specialising in cross-border money transfers, reported strong Q3 2024 earnings. The company announced a 39% year-over-year revenue increase to $336.5 million and a 35% rise in active customers, reaching 7.3 million. This growth was driven by a 42% increase in transaction volume and Remitly also implemented effective cost management, reducing transaction expenses to 34% of revenue. Consequently, Remitly achieved a GAAP net income of $1.9 million, marking its first profitable quarter. The company raised its full-year 2024 revenue guidance to a range of $1.250 billion to $1.254 billion, reflecting confidence in sustained growth.

WEX Inc, a provider of payment processing and information management services, was the worst-performing stock, returning -17.70%. In its Q3 2024 earnings report, WEX reported a 2% year-over-year revenue increase to $665 million. However, the company lowered its full-year revenue growth guidance to 3%, down from the previous 5-7%, due to declining fuel prices and the transition of a key online travel client. The Mobility segment's revenue fell short of estimates, with Corporate Payments down 6%. Despite these challenges, WEX continues to focus on expanding its services and client base to drive future growth.

Source: Bloomberg, November 2024.

MARKET COMMENTARY

This year's Black Friday, the annual shopping event known for massive sales and consumer frenzy, didn't disappoint in terms of transactions. In Brazil, the instant payment system Pix reported a remarkable 120.7% increase in transaction value compared to last year, reaching 130 billion reais ($21.60 billion). Meanwhile, in the United States, online Black Friday sales reached $10.8 billion, marking a 10.2% year-on-year increase. These impressive feats have coincided with the significant growth of the Buy Now Pay Later market, as consumers increasingly embrace flexible financing options whilst relying on fast and secure digital payments during peak shopping periods.

Meanwhile in Europe, November marked the debut of 'Wero,' a cutting-edge mobile payment system introduced in Belgium as part of the European Payments Initiative. This ambitious project aims to harmonise cross-border transactions across the single market, offering seamless and instant payment capabilities between countries. As Europe strives for greater financial sovereignty, Wero represents a significant step towards reducing reliance on non-European systems while fostering a unified digital payment landscape.

Sources: Reuters, Euronews, November 2024.

KEY METRICS

Performance:
+22.6% (Year to date)
+14.3% (1 Month)
+36.4% (1 Year)

Price-to-Earnings Ratio (P/E): 24.6x

Price-to-Book Ratio (P/B): 2.4x

Purity*: 73%

*Bloomberg, as of close 29 November 2024. P/E is positive estimated P/E for the year end. Purity is the weighted average revenue purity to the theme.

GICS SECTOR ALLOCATION

Sector	Allocation
Cons. Disc. (1.29%)	
Industrials (1.83%)	
I.T. (17.67%)	
Financials (79.22%)	

(Chart axis: 0.0%, 50.0%, 100.0%)

All numerical data throughout this page relates to the Foxberry Digital Payments Economy USD NTR Index. Source: Foxberry as of close 29 November 2024.

MONTHLY STOCK RETURNS

Bloomberg, as of close 29 November 2024.

TOP 5 PERFORMERS		BOTTOM 5 PERFORMERS	
COINBASE GLOBAL INC -CLASS A	+65.24%	GREEN DOT CORP-CLASS A	-9.60%
AFFIRM HOLDINGS INC	+59.66%	GMO PAYMENT GATEWAY INC	-13.40%
BILL HOLDINGS INC	+54.59%	STONECO LTD-A	-14.59%
SHOPIFY INC - CLASS A	+47.94%	NU HOLDINGS LTD/CAYMAN ISL-A	-16.96%
TOAST INC-CLASS A	+44.99%	MARQETA INC-A	-31.45%

1 YEAR ETF PERFORMANCE

— Rize Digital Payments Economy UCITS ETF (36.39%)

ROLLING ETF PERFORMANCE
29 November 2024

ARK INVEST

Fund	Inception Date	30 Nov 2023 – 29 Nov 2024	30 Nov 2022 – 30 Nov 2023	30 Nov 2021 – 30 Nov 2022	30 Nov 2020 – 30 Nov 2021	29 Nov 2019 – 30 Nov 2020
ARKG US	31-Oct-14	-6.29%	-14.90%	-48.72%	-22.15%	+133.80%
ARKK US	31-Oct-14	+25.72%	+23.09%	-64.57%	-5.83%	+122.89%
CYCL LN	24-May-23	+19.34%	+4.11%	-	-	-
LIFE LN	14-Jul-21	+10.05%	+3.13%	-17.24%	+4.00%	-
NFRA LN	17-Aug-23	+5.37%	+1.47%	-	-	-
FOOD LN	27-Aug-20	+8.84%	-10.72%	-23.67%	+4.05%	-
LUSA LN	17-Aug-23	+18.26%	-8.55%	-	-	-
CYBR LN	12-Feb-20	+22.15%	+25.11%	-28.52%	+22.09%	-
PMNT LN	05-Nov-21	+36.39%	+4.43%	-29.16%	-10.23%	-

Source: Bloomberg as of close 29 November 2024. Where past performance and projected performance information is shown, it must be noted that past performance is not a reliable indicator of future performance.

ARKK US is ARK Innovation ETF, which is the US-domiciled version of the ARK Innovation UCITS ETF. ARKG US is the ARK Genomic Revolution ETF, which is the US-domiciled version of the ARK Genomic Revolution ETF. CYBR LN is the Rize Cybersecurity & Data Privacy UCITS ETF; FOOD LN is the Rize Sustainable Future of Food UCITS ETF; PMNT LN is the Rize Digital Payments Economy UCITS ETF; LIFE LN is the Rize Environmental Impact 100 UCITS ETF; CYCL LN is the Rize Circular Economy Enablers UCITS ETF; LUSA LN is the Rize USA Environmental Impact UCITS ETF; NFRA LN is the Rize Global Sustainable Infrastructure UCITS ETF.

All performance data is in USD, unless otherwise stated. Please note that the value of an investment and any income taken from it is not guaranteed and can go down as well as up. You may not get back the amount you originally invested. If your investment currency is different to USD, then the return you will get from the investment may increase or decrease as a result of currency fluctuations between USD and your investment currency.

Innovation is Key to Growth.

DISCLAIMER