JANUARY 2023

Q1 THEMATIC NAVIGATOR

Rizeetf

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RIZE ETF AND OUR APPROACH TO THEMATIC INVESTING

Rize ETF brings you the Rize Quarterly Thematic Navigator, featuring our latest research and insights on the trends driving the world of thematic investing. As Europe's first specialist thematic ETF issuer, we are committed to guiding investors through the complex and rapidly evolving world of thematic investing. In this issue, we delve into the latest flows and trends in the thematic ETF market, including insights on ESG regulation and sustainable ETF investing. We also highlight three investment themes that we believe show strong potential for long-term growth and attractive earnings, with interviews from industry experts. Stay ahead of the game with Rize ETF and the Rize Quarterly Thematic Navigator.

WHO ARE WE?

→ Rize ETF is Europe's first specialist thematic ETF issuer.

→ We were founded in 2019 by thematic ETF pioneers Rahul Bhushan, Stuart Forbes, Anthony Martin and Jason Kennard.

→ We specialise in building (from scratch) high-quality, research-driven thematic indices and ETFs that leverage the insights and expertise of the world's most credible thematic and sustainability research experts.

→ For us, thematic investing is about investing in the future we want to live in. Acute change in the way capital is currently being deployed is needed if we want to capitalise the most important and meaningful growth stories of tomorrow.

→ We believe good corporate citizens and companies that deploy sustainable business strategies will have advantages over their peers and will be best positioned to perform well in the long-term. By allocating capital to such companies, we allow investors to enact positive change by enhancing the potential for positive outcomes for both our society and the natural world.

WHAT IS AN INVESTMENT THEME?

An investment theme is a broad trend or idea that is expected to drive the performance of a particular group of assets or companies. Investment themes can be based on a wide range of factors, including macroeconomic trends, technological innovations, shifts in consumer behaviour and changes in regulatory environments. Investors may use investment themes to identify opportunities and guide their investment decisions. For example, an investor who believes that the increasing adoption of renewable energy will drive demand for solar power could use this as an investment theme to identify companies involved in the production and installation of solar panels. Investment themes are typically long-term in nature and are driven by a multitude of forces.

WHAT IS A THEMATIC ETF

A thematic ETF is a type of ETF that invests in a specific investment theme, such as a particular industry or sector, a geographic region or a global megatrend. Thematic ETFs offer investors the ability to gain exposure to a specific investment theme and benefit from its potential growth and performance.

→ Thematic ETFs are often focused on a specific industry or sector (e.g. pet care, cybersecurity, digital payments, etc.). These ETFs invest in companies that are relevant to (i.e. derive revenue from) the investment theme and offer investors the ability to gain exposure to the specific industry or sector without having to buy the individual stocks.

→ Thematic ETFs can also focus on a geographic region, such as emerging markets or a specific country (e.g. the growth of the emerging market consumer, the parabolic rise of a frontier country, etc.). These ETFs invest in companies based in the region and offer investors the ability to gain exposure to the economic growth and performance of the region.

→ Finally, thematic ETFs can also focus on global megatrends, such as the rise of artificial intelligence or the fight against climate change. These ETFs invest in companies that are relevant to the megatrend and offer investors the ability to benefit from the growth and performance of the megatrend.

Overall, thematic ETFs can be a useful tool for investors who want to diversify their portfolios and benefit from the growth and performance of specific investment themes.

WHAT IS A SUSTAINABLE/IMPACT THEMATIC ETF?

A sustainable or impact thematic ETF is a thematic ETF that has a specific environmental or social objective and incorporates additional components to the stock selection process that differentiate it from a thematic ETF.

For example, an ETF that simply selects companies because they are relevant to i.e. derive revenue from) the renewable energy sector would be a thematic ETF, but it would not a sustainable/ impact thematic ETF.

Why? Because it is not enough to simply identify the economic materiality that a company makes to the environmental or social theme. You have to determine the contribution to sustainability/ impact on a net basis, by assessing both the company's positive economic contribution to the environmental or social theme and any negative contribution that it might be making to any environmental or social objective that you are not directly targeting with the theme.

You also need to take into account whether the company is well governed and not wrapped up in controversies that present material risks to the company's performance in the traditional ESG sense.

For example, a company involved in manufacturing solar panels would be eligible for a thematic ETF whose objective is to provide exposure to the solar power industry. However, if that company is using forced labour from the Uighur community to produce its polysilicon, then it would not be eligible for selection by any sustainable thematic ETF because it would clearly be violating a number of social objectives and therefore have a net negative impact.

Sustainable thematic ETFs can be a useful tool for investors who want to diversify their portfolios and benefit from the growth and performance of specific investment themes that are also making a net positive impact in the world.

WHAT DO WE LOOK FOR IN AN INVESTMENT THEME?

→ **RELATABILITY**

Investment themes need to have the power of relatability. Where an investment theme has a clear connection to the way we live and work, the probability of an accretive dynamic playing out in the investment theme over the long run is dramatically increased.

→ **LONGEVITY**

Investment themes need to demonstrate long-term, secular growth characteristics. As some investment themes take several decades to play out, we look for those that have research/market consensus forecasts projecting annual compound growth rates equivalent to 10% or more over at least a five-year period.

→ **INVESTABILITY**

Investment themes need to be investible. One, we need to see a sufficient number of companies with meaningful economic exposure to the theme (to ensure diversity). Two, we need to see evidence that they are sufficiently liquid and mature such that they can collectively form an index composition that is focused, yet diversified. In short, not all investment themes are investible, and not all investment themes are investible right now.

→ **MULTIPLICATIVE**

Investment themes need to be powered by multiple megatrends. As a general rule, we look for investment themes that are buoyed by at least three megatrends. Megatrends could include things like the rise of artificial intelligence, the ageing of the population and the fight against climate change.

→ **SUSTAINABILITY/IMPACT**

We also specialise in investment themes that are making a positive contribution to environmental and/or social objectives. Our approach to impact assessment is forward-looking and multi-dimensional. Accordingly, we look beyond a simple assessment of the economic contribution that a company makes to the environmental or social theme and we assess whether that company is both well governed and not harming any environmental or social objectives that we are not directly targeting with the theme.

MACRO BRIEFING

Long-term investment returns are shaped at the intersection of expectation and reality. The key question for 2023 will be whether central banks can successfully curb inflation without cratering the global economy precisely at a time of heightened volatility and geopolitical tensions running high.

Currently, we appear to have widespread agreement among economists that the combination of inflation, interest rate hikes, weakness in the Chinese economy and geopolitical uncertainty is going to lead to a global recession. However, we note that economists have a pretty poor track record in predicting recessions since at least the 1970s. For example, 2022 was supposed to be a year where the world made a full recovery from Covid-19, with the lifting of containment measures and a return to normality. Instead we had a year marred by war, inflation, energy and commodity price shocks, droughts and floods.

And so it follows that making predictions is tough. 2023 isn't shaping up to be any easier. But here's what we do know – our list of five things that should help investors position their thematic portfolios for the long run based on what we know today rather than have to rely on the prophecies of experts.

1. We know that we have had a regime change in the global economic and political order. In terms of the economy, it is expected that inflation will decrease in 2023 but remain stubbornly above target due to the challenges of globalisation and increased government spending, which is likely to keep interest rates high. On the political front, increased competition and rivalry among big powers is expected to reshape industries that are deemed strategically important.

2. We know that deglobalisation trends are leading to the reshoring and nearshoring of industries, but domestic politics and geopolitics are creating even greater disruption. Industrial policy has turned into protectionism, with policies like the Inflation Reduction Act and CHIPS and Science Act in the US, and similar industrial support packages in the EU, as well as China's development of national champions, expected to continue contributing to a fractured global economy in 2023.

3. We know that the role and size of government is expanding, as reflected in the pandemic and energy crisis support packages. This shift in the expectation of government's role is likely to be difficult to reverse, particularly in a slowing economy. Governments have pledged to increase military spending, made significant investments in the transition to Net Zero and are actively working to boost local technological supremacy.

4. We know that technology will be a crucial focus for big powers as they strive to gain a competitive advantage. The US, EU, and China are all investing in increasing their strategic autonomy in key technological areas. For example, the US has imposed restrictions and sanctions on China's semiconductor industry in a bid to support its national champions.

5. We know that through 2023, there will be a surge in energy investment, particularly renewables. Economies that can move rapidly to renewables (electricity, green hydrogen) are likely to be advantaged. The US is likely to benefit from its high level of energy independence compared to Europe. Those countries that can combine energy leadership with a secure supply of critical commodities and materials will likely outperform. As energy becomes increasingly viewed in strategic terms, the rate of change in this sector will accelerate, presenting numerous investment opportunities.

2022 THEMATIC ETF FLOWS SUMMARY

NETFLOWS $USD 3.7BN

Source: Data from etfbook.com, as of 31 December 2022

→ 2022 inflows ($USD 5.5bn YTD) were dominated by 5 themes that comprised 76% of the total inflows.

→ Investors heavily allocated to Clean Energy ($USD 956m), Infrastructure ($USD 913m), Cybersecurity ($USB 876m) and Food & Agriculture ($USD 716m). While Gender Equity appeared in the top 5 with $USD 780m, we observed that this was mostly driven by a single investor trade into an ETF, therefore we wouldn't stipulate that this shows a trend in the thematic market.

→ From an inflows perspective we have noted 4 key trends:

1. Investors allocated significantly to sustainable themes focused on the green transition and protection of the environment. This wasn't just via Clean Energy ($USD 956m) which took the #1 spot for 2022 flows. This was highlighted by Hydrogen ($USD 237m), Alternative Energy ($USD 208m), Solar Energy ($USD 65m), and Biodiversity ($USD 28m) ETFs all attracting flows.

2. Investors allocated to multiple Infrastructure ETFs ($USD 913m). It's clear that in the current market environment investors have been looking to hedge their market risk with more defensive exposures. This could also be seen as a response to the Inflation Reduction Act and the Infrastructure & Jobs act in the US that have promised significant assets in the infrastructure space. For similar reasons we also saw flows into Mining ($USD 201m), Metals ($USD 57m) and Uranium ($USD 30m).

3. Cybersecurity ($USD 876m) ETFs consistently attracted assets throughout 2022. With the number of cyber-attacks, the severity and the frequency increasing investors continue to see opportunities in this space. Many commentators have also highlighted the resilience of the cybersecurity industry vs. other areas of technology associated stocks. We have seen the flip side of this with -$USD 379m out of Robotics & AI ETFs and -$USD 287m out of Internet & Ecommerce.

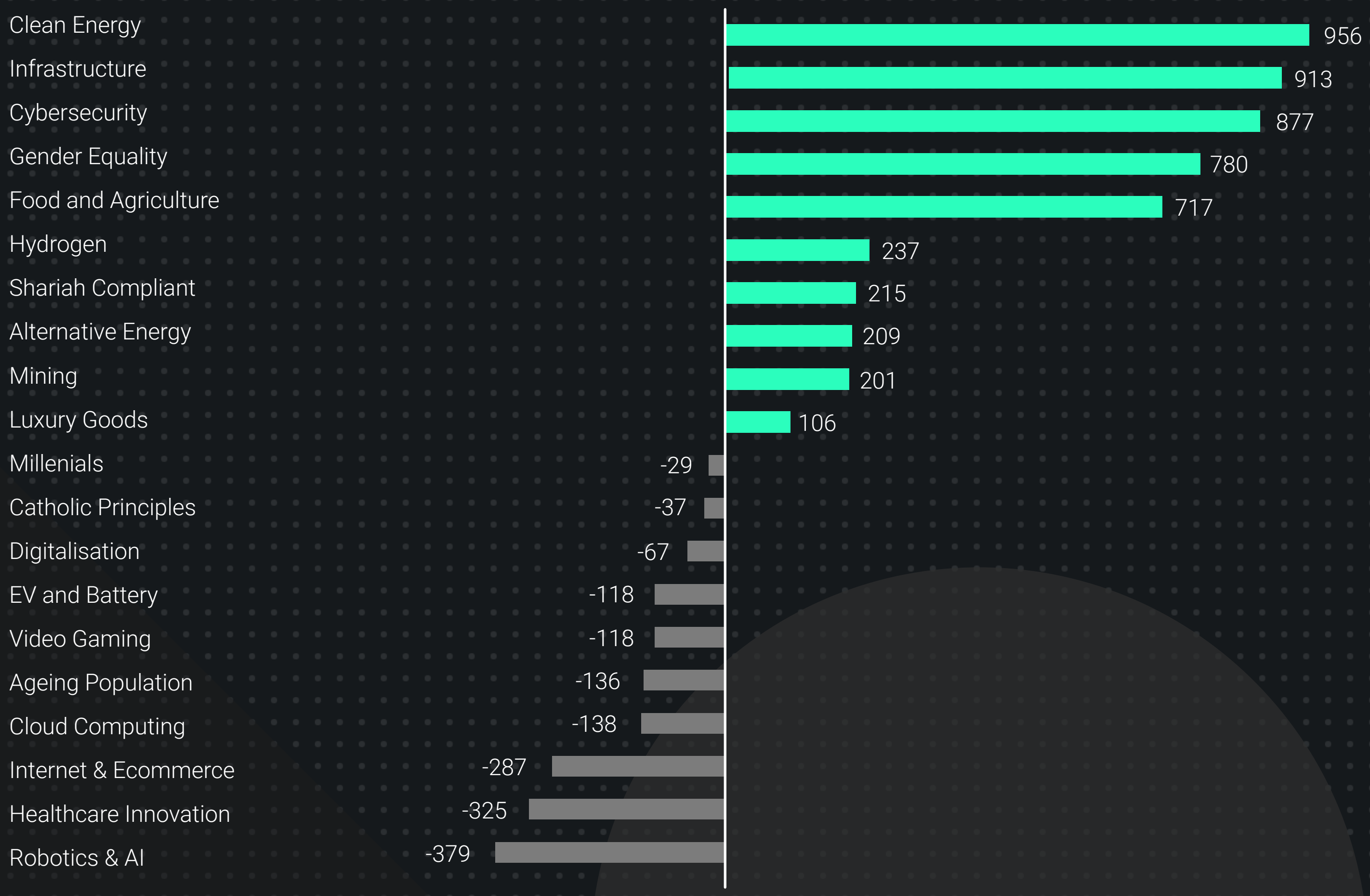
4. Food and Agriculture saw a meteoric rise ($USD 716m), as investors looked to gain access to stocks benefiting from food inflation, reduced supply of food and rising populations.

→ From an outflow perspective ($USD -1.8bn), themes that struggled were those focused on cyclical growth. We saw this with Robotics & AI ($USD -379m), Internet & Ecommerce ($USD -287m), Video Gaming ($USD -118m) and Digitalisation ($USD -66m). You could call these the "nice to have themes".

→ The second worst performing theme in 2022 (in terms of outflows) was Healthcare Innovation ($USD -325m). This was a theme that saw success in the year following the Covid-19 outbreak, however since has lagged broad indices with investors favouring broad GICS Healthcare.

→ Finally, we would note that none of the 10 largest outflows included themes focusing solely on the green energy transition or the protection of the environment. One exception could be EV and Battery ($USD -118m) although our view is that this is not a pure play environmental impact theme and does not reflect the inflows seen into more sustainable and impactful themes such as clean energy and hydrogen.

TOP 10 UCITS THEMATIC ETF WINNERS & LOSERS 2022 ($USD IN MILLIONS)



Source: Data from etfbook.com, as of 31 December 2022

Classification based on the internal Rize ETF Megatrend Sub Theme Classification

SUSTAINABILITY UPDATE

Disclaimer: Unless specifically cited as being sourced from a third party, the commentary in this section is the opinion of Rize ETF.

On 1 January 2022, Level 2 of SFDR was implemented across the European Union. Billions of dollars of assets under management have been subject to SFDR downgrades, far exceeding our expectations in early 2022 when we were discussing the possibility of vast swathes of downgrades as the level 2 deadline approached.

Asset managers have been quick to blame the downgrades on SFDR itself and the back-to-front manner in which it has been rolled out by the European Commission. Whilst we would agree with the sentiment around the back-to-front nature of SFDR's implementation, we do think it is disingenuous to blame the regulation, mainly because SFDR classifications were (and are) self-assigned. Asset managers chose to assign Article 9 classifications to their funds knowing full well that the detailed rules (technical standards) had yet to be issued and having little idea how they would comply with those detailed rules if they turned out to be more onerous than they had hoped. A second point worth mentioning is that a large number of asset managers, particularly those managing ETFs replicating third party indices, had no ability to comply even with the Level 1 principles of SFDR.

More specifically, funds tracking third party indices that do not incorporate SFDR-centric, purpose-built selection criteria were simply unable to comply with two of the three mandatory characteristics of a "sustainable investment", as defined by Article 2 (17) of SFDR, namely, that portfolio companies (1) must not significantly harm any environmental or social objectives; and (2) must follow good governance practices.

The definition demands that any companies that are found to be in breach of these principles, must be sold. Engagement without the ability to divest does not satisfy the foregoing principles. And the foregoing principles have not changed since SFDR was first implemented in March 2021.

Future clarifications with respect to SFDR are anticipated with respect to various aspects of the regulation, including the first (and primary) characteristic of the definition of "sustainable investment", which is how to measure the contribution to an environmental or social objective.

We expect that further clarifications issued by the European Commission and/or ESMA may well lead to a further wave of SFDR re-classifications that no asset manager can be fully immune to, but such re-classifications (if they happen) shouldn't be driven by a need to comply with first level principles that were clear when SFDR was first implemented in March 2021.

LAUNCH OF THE NEW RIZE FUTURE FIRST POLICY

In March 2022, we launched an expanded version of the Rize Future First Policy outlining how Rize ETF incorporates sustainable investing practices into its business and index construction process. We also established our six pillars of sustainability:

1. Directing capital to the enablers of the transition towards a sustainable economy and the good corporate citizens
2. Activism
3. Targeted, pragmatic engagement
4. Consistency in approach
5. Transparency
6. Diversity, inclusiveness and collaboration

All of our ETFs are classified as either Article 8 or 9 and incorporate the extensive suite of standard ESG screens set out in the Rize Future First Policy relating to product/industry involvement, controversies and governance. Our Article 9 ETFs incorporate additional selection criteria that are used to assess a company's contribution to the relevant sustainable investment objective.

In March, we also launched our Sustainability Committee which met 6 times through the end of December 2022 and whose principal function is to oversee Rize ETF's approach to sustainability, including the integration of sustainability matters within the business and the screening process prescribed by the Rize Future First Policy.

Voting - Our stewardship program was substantially expanded in March 2022 to include the launch of a new proxy voting program pursuant to which socially responsible investment principles and climate change mitigation take centre stage. Between March 2022 and December 2022, we voted at 289 of 306 total votable meetings. We also voted against management 231 times and against ISS's benchmark policy recommendation in 118 meetings in line with our more aggressive climate-oriented policy.

Engagement - Our engagement program was also expanded beyond collective engagement activities to include engagement on company-specific matters of interest/concern.

On the collective engagement front, Rize ETF is one of CDP's "Forest Champions" and actively involved in CDP's annual collective engagement programs focussed on Climate, Water and Forests. As part of CDP's 2022 Non-Disclosure Campaign, we were the lead investor for engagement purposes for 76 companies that our ETFs were invested in or which were contained in the corresponding thematic stock universes, of which 17% of them responded with completed questionnaires. We were also co-signor for 1,168 companies, of which 27% responded with completed questionnaires. At the March 2022 rebalance of the Rize Sustainable Future of Food UCITS ETF, four companies came off of our exclusion list and were eligible for selection by the index due to demonstrable improvements in their transparency/procurement of various Forest Risk Commodities. So, the pressure does work!

With respect to company-specific engagement, we maintain a documented record of our company-specific engagement activities, including a chronological history of engagement for each company that we have engaged with. This enables us to engage with companies that we have flagged for one or more potential ESG issues for which there might not be enough information available to exclude them outright. Of the 91 companies that we engaged with in 2022, 29% responded back.

THEMES IN FOCUS

2023 OUTLOOK FOR SUSTAINABLE FOOD

The Rize Sustainable Future of Food UCITS ETF replicates the Foxberry Tematica Research Sustainable Future of Food Index. An investment in the Fund involves significant risk and is subject to the volatility of the food and agricultural sector and exchange rate fluctuations and you may lose some or all of your capital.

RELATED FUND

The Rize Sustainable Future of Food UCITS ETF ("FOOD") seeks to invest in companies that potentially stand to benefit from the accelerating transition to more sustainable food production systems and consumption patterns and thereby safeguarding our nature and ecosystems, promoting transparency and safety and encouraging plant-based consumption in order to help reduce greenhouse gas emissions. FOOD seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Foxberry Tematica Research Sustainable Future of Food USD Net Total Return Index.

WHY INVEST IN SUSTAINABLE FOOD

Investing in sustainable food has many benefits, both for the environment and for society as a whole.

Here are a few reasons why it is important to invest in sustainable food:

→ ENVIRONMENTAL BENEFITS
Sustainable food production practices can help reduce greenhouse gas emissions, conserve water and protect soil health, all of which are important for mitigating the effects of climate change.

→ SOCIAL BENEFITS
Sustainable food production can help support local communities and promote food security by ensuring a stable and reliable food supply.

→ ECONOMIC BENEFITS
Investing in sustainable food production can create jobs and stimulate economic growth in the agriculture and food industries.

→ HEALTH BENEFITS
Sustainable food production can help reduce the amount of pesticides and other chemicals used in food production, which can have negative health effects. Eating a diet rich in sustainably produced food can also improve overall health and wellbeing.

Overall, investing in sustainable food is a smart decision for the environment, society and the economy. It can help support long-term food security and promote healthy and sustainable communities.

WHY INVEST NOW

We have seen a recent catalyst for change in the UN Climate Change Conference COP27. For some time now, the food system has been the elephant in the room in the climate conversation. However, for the first time in history, a full day was devoted to the topic of food sustainability at the climate change conference.

The first ever Food Systems Pavilion brought together over fifteen international leaders in the food space spanning public, private and not–for–profit sectors, from farmers and youth to policymakers and climate scientists.

The food system is responsible for roughly one third of all greenhouse gas emissions (half of which come from animal agriculture) but currently receives only 3% of climate finance (Global Alliance for the Future of Food October 2022). That's twenty-two times less than the total amount of capital invested in energy and transport! This is an enormous divergence and one that we believe represents a significant opportunity for impact investors. COP27 is finally putting the flaws of the food system back on the table.

Policymakers now have little choice but to engage with these issues, which we believe is likely to unlock significant amounts of capital for the food transition in the months and years ahead.

2023 OUTLOOK FOR KEY SUBSECTORS

PRECISION FARMING

In 2022, we saw a big surge in demand for agriculture and farming machinery. Meanwhile, supply chain bottlenecks delayed production and deliveries. At the same time, demand for commodities such as crops increased not only because of a growing world population, but also as a consequence of the conflict in Ukraine. Two macro trends are now becoming meaningful: scarcity of land as the urbanisation process goes on and scarcity of labour force.

This paints an almost perfect environment for farming machinery manufacturers that hold oligopolistic positions in the agribusiness industry, such as Deere, AGCO and CNH Industrial in FOOD. Furthermore, as there is increased demand for autonomous and precision agriculture that can boost productivity and efficiency without having to use more land or new workers, these companies can be expected to benefit further because of their hugely entrenched positions and sheer market size.

Market is expected to register a CAGR of **12.9%**

35.80% of global market revenue was accounted for by North America in 2021

Based on component, sensing and monitoring device segment is expected to register a CAGR of **13.6%**

The market was valued at **$USD 6.98 billion** in 2021

The market is **fairly fragmented** with few players accounting for majority market revenue share

One of the **key drivers** for market growth is rising popularity of variable rate, remote sensing, and guiding technologies.

Source: Emergen Research, 2022

SUSTAINABLE PACKAGING

The European Green Deal was front and centre in 2022. In part thanks to the European Commission's Platform for Sustainable Finance's draft circular economy technical screening criteria that were published in March 2022. But more recently, on 30 November 2022, the European Commission unveiled its new EU-wide ruling on packaging. On average, each European generates almost 180kg of packaging waste per year (European Commission 2022). Packaging is one of the main users of virgin materials as 40% of plastics and 50% of paper used in the EU is destined for packaging (European Commission 2022).

Without action, the EU would see a further 19% increase in packaging waste by 2030 and for plastic packaging waste even a 46% increase (European Commission 2022). The new ruling on packaging aims to address this problem. For consumers, it ensures reusable packaging options, gets rid of unnecessary packaging, limits overpackaging and provides clear labels to support correct recycling. For the industry, it creates new business opportunities, decreases the need for virgin materials, boosts Europe's recycling capacity as well as makes Europe less dependent on primary resources. It puts the packaging sector on track for climate neutrality by 2050. We expect this to bode well for European sustainable packaging companies such as DS Smith, O-I Glass, SIG Combibloc and BillerudKorsnäs in FOOD that focus on packaging that is reusable recyclable and compostable. Smith, for example, is already working with the Ellen McArthur Foundation to achieve a 100% recyclability target (DS Smith 2022).

NEW EU RULES ON PACKAGING AND PACKAGING WASTE: WHAT TO EXPECT?

THE EUROPEAN COMMISSION PROPOSAL IN A NUTSHELL

REGULATORY HARMONISATION

- Moving from a Directive to a Regulation
- Binding measures for direct and uniform application across all EU Member States

PLASTIC RECYCLED CONTENT

- 2030 and 2040 mandatory minimum recycled content targets for plastic packaging, for each unit of packaging that contains a plastic part

RE-USE AND REFILL

- 2030 and 2040 reuse and refill targets for economic operators and final distributors for a wide range of food and beverage packaging, as well as transport packaging

HARMONISED LABELLING

- Requirements on the labelling of packaging to provide consumers with sorting instructions, information on plastic recycled content and reusability of packaging

PACKAGING RECYCLABILITY

- All packaging to be fully recyclable: designed for recycling by 2030 and recycled by scaled by 2035
- Recyclability of packaging to be assessed against Design for Recycling criteria
- Eco-modulation of EPR based on packaging recyclability and, for plastic packaging, on the percentage of recycled content

PACKAGING MINIMISATION & WASTE PREVENTION

- Waste reduction targets set for EU Member States
- Packaging minimisation obligations for economoic operators
- Restrictions on certain pacakaging formats

Source: Europen, 2022

AGRICULTURAL SCIENCE

Fertiliser availability was a political priority in 2022. Since the onset of the Ukraine war, indeed even in the build up to the war, a global fertiliser crisis has metastasized. Russia is and has been (historically) a key supplier of mineral fertilisers to the world, primarily the EU and Latin America. Disruptions in the supply chain of fertilisers and potash coming from Russia and Belarus created a supply crunch last year: September 2022 saw a 149% price rise on a yoy-basis for nitrogen fertilisers. Some fertiliser companies, including many well-known ones, were unable to absorb the costs, while others thrived due to the price increases. 2022 was a record-breaking year for the world's best-run fertiliser companies, such as Yara in Norway and FMC in the US, both of which are in FOOD.

In Europe, despite record-breaking profits last year, the fertiliser industry saw its needs prioritised by the European Commission at the end of last year. In its Fertiliser Communication on November 15th, 2022, with a view to protect the European fertiliser industry, the European Commission announced that it would ring-fence gas for the agricultural sector and provide permissions for continued and/or new exceptions in financial support for industry and farmers dependent on mineral resources.

The Fertiliser Communication was a response to the US Inflation Reduction Act, which is expected to give America the cheapest green hydrogen in the world over time due to a new tax credit system. Specifically, producers of green hydrogen (i.e. hydrogen made from renewable electricity) will receive a $USD 3 credit for each kg of the zero-carbon fuel they can supply for 10 years after eligible facilities come online (Energy Monitor 2022).

The production tax credits bring green production of steel, fertilisers and shipping fuel to cost competitiveness with current fossil-based commodity prices (Energy Monitor 2022). Cost competitive green hydrogen would be an incredible disruptor to the fertiliser industry as well because hydrogen is a key input in the production of ammonia and it is currently produced from natural gas. Yara in Norway is the fertiliser company that as per our assessment is making the greatest pivot to green hydrogen production. In 2023, we expect to see more of these strategic "green" pivots and while fertiliser prices remain high, companies with their hands in both traditional and future fertilisers are likely to be seen favourable by the market.

PLANT-BASED FOODS AND ORGANIC FOODS

If there was ever a megatrend spurring innovation in food, it is sustainability. Innovative solutions are going to be critical in reducing agriculture's impact on the climate and environment, ecosystems and biodiversity, water and soil. Novel solutions will also be critical in creating efficiencies in food supply chains.

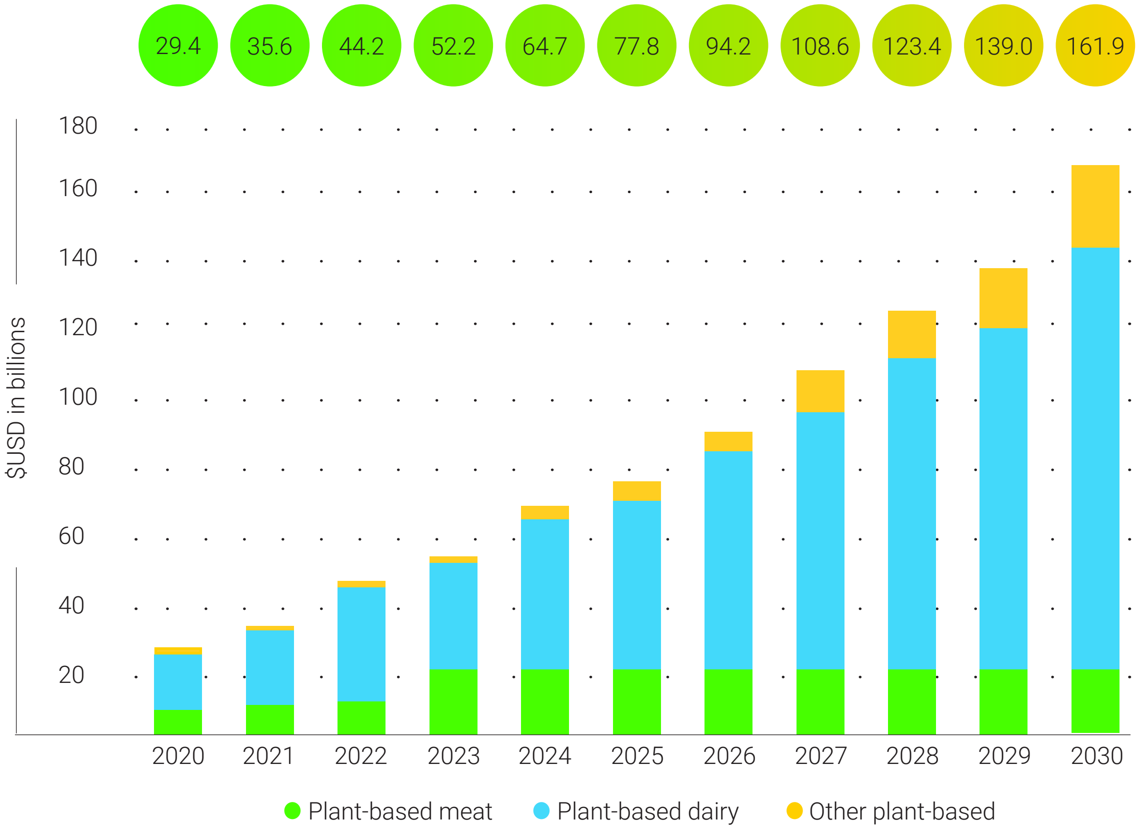
FOOD WASTE

Solving for food waste is one of these solutions. With the significant cost-inflation we saw last year, the best food companies looked to adjust their product formulations. **There was no better example than Lamb Weston in FOOD.**

Alternative ingredient usage has helped food companies maintain production levels in a time of supply shocks. The global supply of wheat, which starch is made from, has been tight this year due to Russia's invasion of Ukraine and extreme weather conditions. Starch was one of the inputs Lamb Weston executives reported high-cost inflation for earlier in the year. As a result, the company began sourcing pea starch, a by-product of pea processing (typically discarded as waste), to replace traditional starch. In tests, pea starch delivered "a nearly identical match to our traditional batters" in taste performance and consumer acceptance (Supply Chain Dive 2022). This alternative starch is now being used in many of the Lamb Weston products, solving a business problem (cost) and an environmental problem (waste).

PLANT-BASED PROTEIN

Solving for our voracious demand for meat is another. According to a new report by Bloomberg Intelligence, the plant-based foods market could make up to 7.7% of the global protein market by 2030, with a value of over $USD 162 billion, up from $USD 29.4 billion in 2020 (Bloomberg 2021).



Source: Bloomberg, 2022

Farming crops rather than animals takes far fewer resources, saving land and water and reducing greenhouse gas emissions. A report by British think tank Chatham House found that if everyone in the world switched to a plant-based diet, 75% of the world's cropland could be freed up and used for other purposes (Chatham House 2021). Some of that land could be restored to nature, providing much-needed habitat for wildlife.

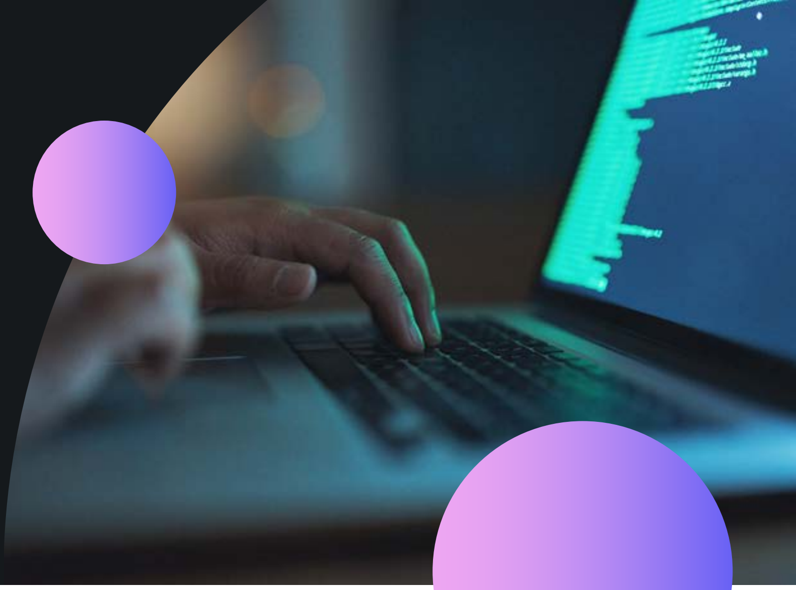
We now have enough scientific literature to show us that plant-based diets are the best way to protect against biodiversity loss. But for consumers, the switch to more sustainable diets is likely to be more driven by the desire to shift to healthier lifestyles.

REASONS FOR FOLLOWING A DAIRY-FREE AND VEGAN DIET GLOBALLY IN 2020

Source: Euromonitor International Health and Nutrition Survey, fielded February 2020

CYBERSECURITY: FIND QUALITY IN GROWTH

The Rize Cybersecurity and Data Privacy UCITS ETF replicates the Foxberry Tematica Research Cybersecurity & Data Privacy Index. An investment in the Fund involves significant risk and is subject to the volatility of technology stocks and exchange rate fluctuations and you may lose some or all of your capital.



RELATED FUND

The Rize Cybersecurity and Data Privacy UCITS ETF ("CYBR") seeks to invest in companies that potentially stand to benefit from the increased adoption of cybersecurity products and services, such as those providing security protocols that help defend computers, servers, mobile devices, electronic systems, networks and data from malicious attacks. CYBR seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Foxberry Tematica Research Cybersecurity & Data Privacy USD Net Total Return Index.

A YEAR IN REVIEW: 2022 BY NUMBERS

28%
Increase

We saw a 28% increase in the total number of **cyber-attacks** in Q3 2022 versus the same period in 2021 (Check Point Research Q3 2022).

$USD 9
Million

The **average cost** of a data breach in the United States was $USD 9.4 million for 2022, compared to a much lower $USD 4.35 million globally (IBM 2022).

10%
CAGR over 5 years

Global **cybersecurity spending** is forecasted to grow at an annual compound growth rate of 10% until 2027 and achieve a total market size of $USD 36.67 billion from $USD 23 billion currently (Insurance Business Magazine 2022).

$USD 6
Trillion

The **total estimated damage** caused by cybercriminals around the world in 2022 was $USD 6 trillion. This is expected to rise to $USD 10.5 trillion by 2025 (Cybersecurity Ventures 2022).

WHY INVEST IN CYBERSECURITY

2022 was an introspective year for cybersecurity companies. The industry managed to hold its head high but was forced to contend with recessionary forces. Demand resilience for cybersecurity products and services was evident and helped a number of companies retain (and grow) annual recurring revenue and power through with positive earnings and even earnings beats. However, there were some instances of Wall Street's overoptimism about earnings growth hurting share price performance. With the rise of cost-inflation, a number of companies chose to trim costs and refocus on core offerings. Others saw clients postpone spending resulting in a temporary setback.

M&A was rife throughout the year. As we gear up for 2023, it is our assessment that cybersecurity companies have emerged either leaner / more focused or stronger / bigger. We have already begun to see more bold decision making from CEOs as well. For example, Cloudflare decided to raise their prices in Q3 for the first time in 12 years which, according to CEO Matthew Prince, had a negligible effect on customer retention and in fact surprised clients who wondered why the company hadn't done it sooner (CNBC 2022).

Here's a look back at 2022.

EARNINGS STAYED RESILIENT FOR (CYBER)SECURITY-AS-A-SERVICE COMPANIES

Earnings seasons during 2022 were characterised by revenue growth and earnings surprises. During the sector's latest (Q3) earnings season, we saw 88% of companies in the Foxberry Tematica Research Cybersecurity & Data Privacy USD Net Total Return Index ("FXBYCYBR") exhibit sales growth yoy (Bloomberg 2022). 65% of these companies even exceeded analyst sales growth forecasts. Even more impressive, 87% of these companies exceeded earnings forecasts too (Bloomberg 2022).

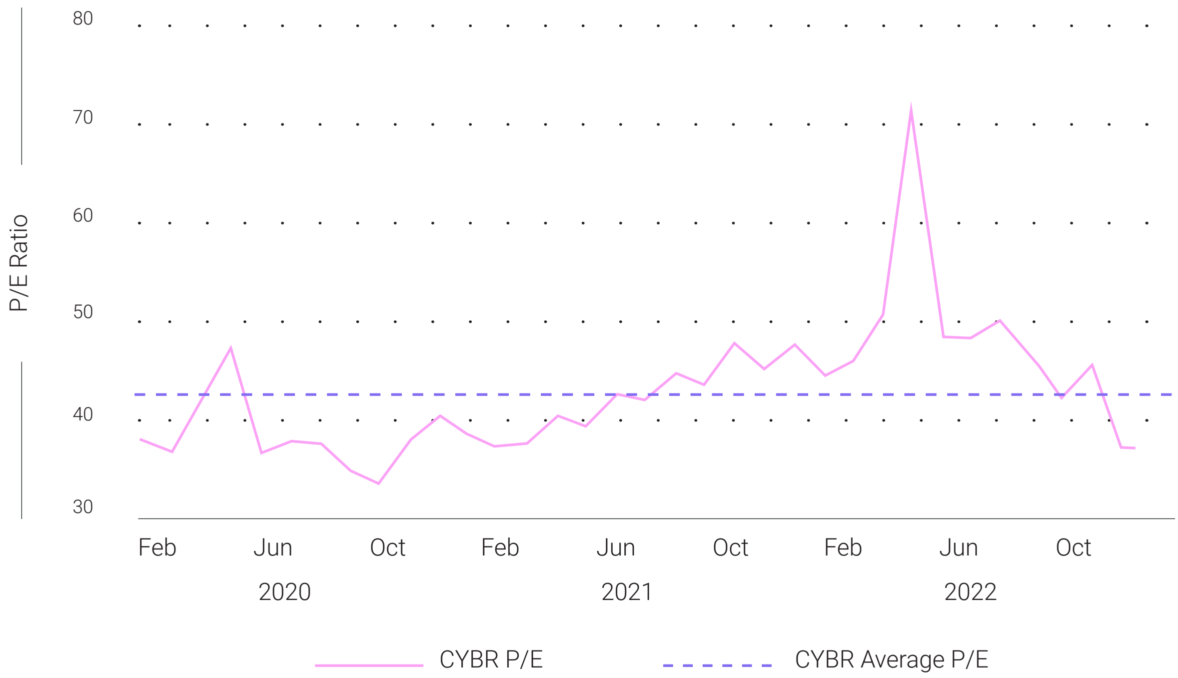
We must also consider metrics that are particularly relevant to cybersecurity companies. These days, most cybersecurity companies have transitioned to Security-as-a-Service (SaaS) business models. Take CrowdStrike, for example, an industry darling best known for its AI-powered endpoint protection platform. In its Q3 numbers, the company announced that net new annual recurring revenue grew by 54% yoy (reaching $USD 2.3 billion, its highest ever).

Furthermore, the company said 1,460 net new subscription customers were added just in the quarter for a total of 21,146 subscription customers as at the end of October (CrowdStrike Q3 Financials 2022). This represented a 44% yoy increase. Despite this, CrowdStrike CEO George Kurtz made the comment that the company had to delay recognition of certain revenue until future quarters due to "elongated sales cycles with smaller customers and… larger customers [pursuing] multiphase subscription start dates" resulting from the prevailing macroeconomic headwinds (CrowdStrike Q3 Financials 2022).

Another example of a company that added net new subscriptions in Q3 was Palo Alto Networks, a provider of cyber-threat detection and prevention. The company saw recurring billings rise by 27% yoy against a market consensus of 23% (SeekingAlpha 2022).

VALUATIONS FELL FROM OLD HIGHS TO NEW LOWS

We believe the price action from last year provides an interesting setup and entry possibility. 12-month forward P/E is now trading below its average since inception of CYBR three years ago (Bloomberg, as of 13 December 2022).



The value of shares and income from them may go down as well as up and is not guaranteed. Past performance is not indicative of future performance.

The cybersecurity sector also continues to show attractive growth potential versus broad tech, e.g. the Nasdaq 100. In particular, we see an expected EPS growth rate that is nearly 2x that of the Nasdaq 100 (Bloomberg, as of 13 December 2022). We would also point to the resilient profitability profile of companies within FXBYCYBR which is in line with the Nasdaq 100.

	FXBYCYBR	NASDAQ 100
Q3 earnings beats	87% (2 left to report)	80.2%
Percentage of profitable stocks based on forward looking earnings	85%	86%
Positive year-end forward P/E	26.71x	20.60x
Sales growth estimate (12M)	4.30%	5.70%
Positive EPS growth estimate (12M)	31.15%	15.73%
FCF Yield	2.62%	3.80%

Source: Bloomberg, as of 13 December 2022

CYBERSECURITY M&A REACHED AN ALL-TIME HIGH

Cybersecurity M&A swelled during 2022. The most high-profile acquisition was Google's $USD 5.4 billion acquisition of Mandiant in September (Techcrunch 2022). Others included Broadcom's $USD 69.2 billion purchase of VMWare and Thoma Bravo's $USD 6.9 billion acquisition of Sailpoint as well as its $USD 2.8 billion acquisition of Ping Identity (SEC 2022). Barracuda Networks was acquired by KKR in October (Reuters 2022). As such, several companies left the index composition of FXBYCYBR in 2022.

But we also saw activity within FXBYCYBR itself. For example, Mitek Systems bought KYC vendor HooYu in March (CSO Online 2022) and SentinelOne announced plans to buy identity platform Attivo Networks the same month (CSO Online 2022). We also saw CrowdStrike announce its intention to acquire external attack surface management platform Reposify in September and Palo Alto Networks enter into an agreement to buy chain security firm Cider Security in November (CSO Online 2022).

M&A activity in the cybersecurity sector truly reached historic highs in 2022 (SecurityWeek 2022).

It is our assessment that active M&A signals health and vitality in the cybersecurity sector. External interest from both bigger tech companies and private equity firms indicates that 2022 saw valuation compression that resulted in certain flagship cybersecurity assets were deemed cheap relative to historical (and we are still at these levels today).

Meanwhile, internal industry M&A prompted by existing index members seeking to acquire private cybersecurity companies to bolt on new product categories and drive up-sells and cross-sells indicates healthy cash flows and balance sheets. We see this as a natural maturation and consolidation in the sector (one we've been waiting to see for several years). It is also a reflection of what appears to be increasingly market consensus around the medium to long term potential of cybersecurity assets, both for companies that have successfully stayed independent and doubled down and got to work to capture new opportunities (while others have pulled back from growth) and those that have consolidated into bigger, more integrated actors.

MANAGEMENT TEAMS SHOW MORE CONSERVATISM

In 2022 we saw notable examples of cybersecurity companies beginning to implement shareholder friendly policies amidst a conservative risk environment. In particular, we saw dividends and share buyback programmes; somewhat atypical of your typical 'growth' stocks and reinforcing our conviction that cybersecurity stocks are increasingly exhibiting quality growth profiles.

For example, A10 Networks announced in Q3 that the company was hiking its quarterly dividend by 20% (A10 Networks Q3 Financials 2022). The firm also upped its share buyback programme repurchasing $USD 80 million in stock (A10 Networks Q3 Financials 2022). The board also declared a new $USD 50 million increase to the buyback authorisation programme for Q3. Meanwhile, cloud-based security platform Qualys beat analyst earnings forecasts and announced, like A10 Networks, share repurchases to the tune of $USD 95 million with $USD 259 remaining as part of its programme (Qualys Q3 Financials 2022). We also had cybersecurity and compliance solutions provider Akamai authorise a $USD 163 million share buyback programme. Not a problem for a company that has a strong balance sheet with cash and cash equivalents to the tune of $USD 1.4 billion (Akamai Q3 Financials 2022).

Such high confidence from management in a year like 2022 is emblematic of a divergence which we believe is likely to come between technology areas that are fast becoming staples (such as cybersecurity) and those with more discretionary-spend characteristics. It is not unreasonable to think that cybersecurity could become the 'comeback kid' of 2023 if we see some normalisation (and less volatility) in the macroeconomic headlines.

PERSPECTIVES FROM THE GREEN FRONTIER

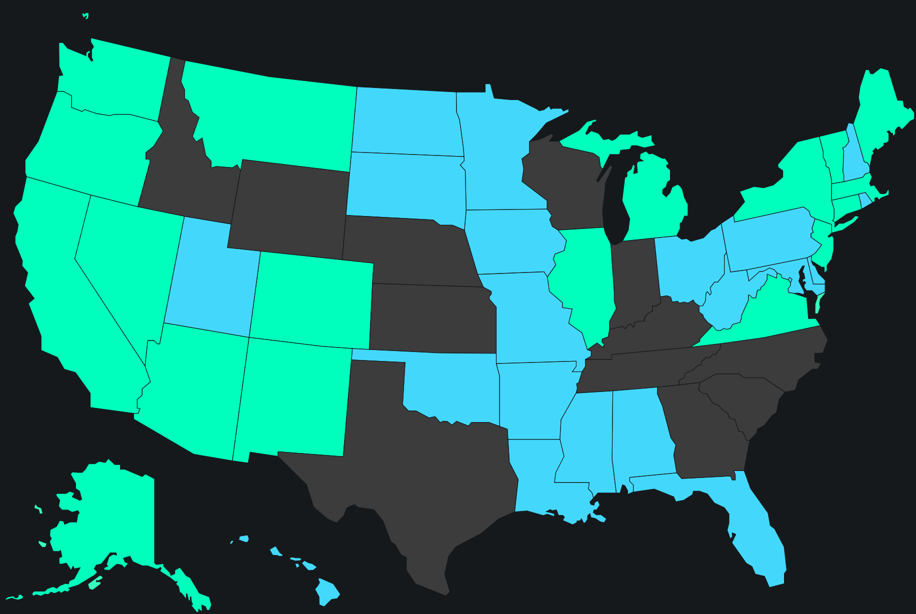
The Rize Medical Cannabis and Life Sciences UCITS ETF replicates the Foxberry Medical Cannabis & Life Sciences Index. An investment in the Fund involves significant risk and is subject to the volatility of cannabis and pharmaceutical stocks and exchange rate fluctuations and you may lose some or all of your capital.

RELATED FUND

The Rize Medical Cannabis and Life Sciences UCITS ETF (“FLWR”) seeks to invest in companies that potentially stand to benefit from the increased adoption of cannabis as a medicine, with a focus on companies in the biotechnology/pharma and hemp and cannabidiol (CBD) sectors. FLWR seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Foxberry Medical Cannabis & Life Sciences USD Net Total Return Index.

MEDICAL CANNABIS PRIMER

Medical cannabis, also known as medical marijuana, is a type of medication that is made from the cannabis plant. The active ingredients in cannabis, known as cannabinoids, interact with the body’s endocannabinoid system to produce a range of therapeutic effects.



LEGALIZED STATES

248 MILLION

People live in states with some form of legalized acces to high-THC cannabis.

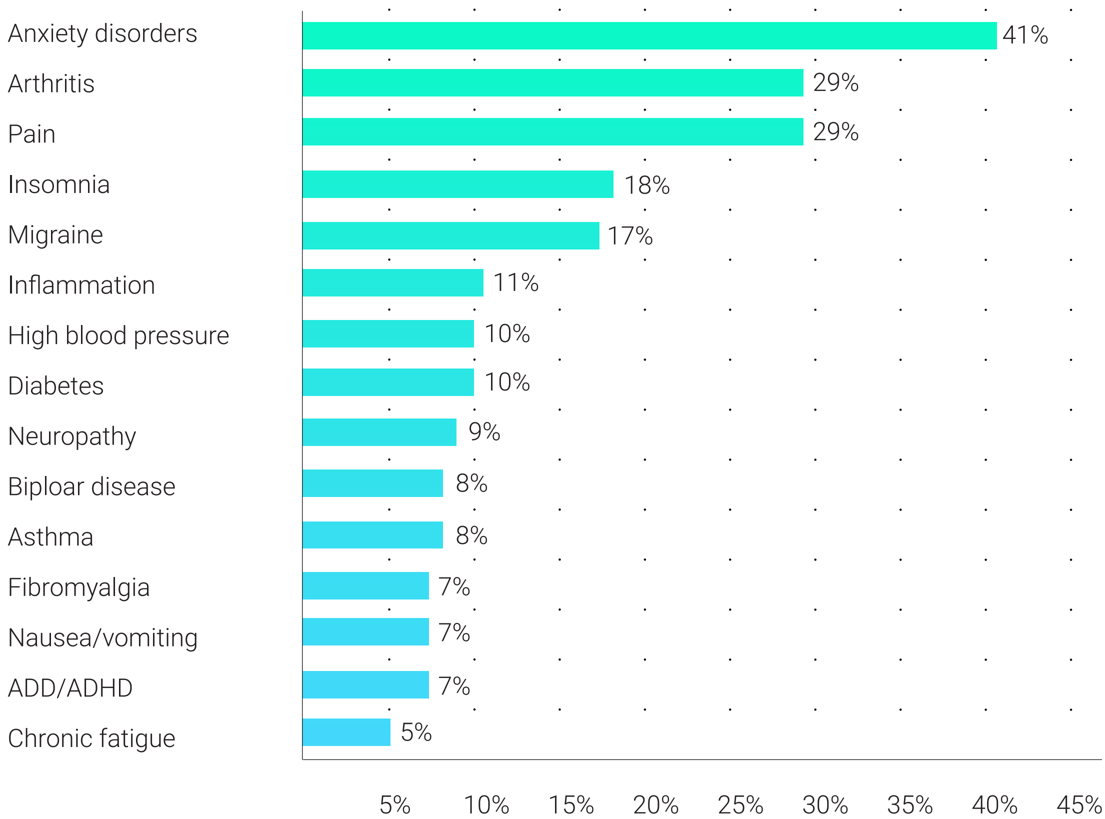
- Legal medical & adult-use
- Legal medical use only
- No legal high-THC market

Source: New Frontier Data, 2022 U.S. Cannabis Report

Medical cannabis is believed to have therapeutic benefits for a number of conditions. Some of the conditions that it is commonly used to treat include chronic pain, anxiety and nausea. It is also used to help improve appetite and sleep and to relieve symptoms of conditions such as multiple sclerosis and epilepsy.

MEDICAL CANNABIS CONSUMERS

By Medical Condition



Source: New Frontier Data, 2022 U.S. Medical Cannabis & Pharmaceuticals

There are already a number of medical cannabis medications available today in pharmacies around the world. Here is a non-exhaustive list of some of these medications.

→ **SATIVEX**
This is a mouth spray that contains a combination of CBD and delta-9-tetrahydrocannabinol (THC). It is used to treat muscle spasms and stiffness in people with multiple sclerosis.

→ **EPIDIOLEX**
This is a medication that contains pure CBD and is used to treat seizures associated with certain rare and severe forms of epilepsy.

→ **DRONABINOL AND NABILONE**
These medications are synthetic versions of THC, the active ingredient in cannabis. They are used to treat nausea and vomiting caused by chemotherapy, as well as to stimulate appetite in people with AIDS.

→ **CANNABIS OIL**
This is a concentrated form of cannabis that is taken orally. It is used to treat a range of conditions, including chronic pain, anxiety and epilepsy.

WHERE POLICY LEADS, INVESTORS FOLLOW

It has been over three years now that we have been covering the cannabis space. Over this period, there have been numerous signs that the modern-day prohibition of cannabis is on borrowed time. However, we have also seen many false flags, competing agendas and regulatory impediments that have kept investors from participating. Impediments to liberalisation, decriminalisation and ultimately, legalisation, that would, if torn down, bring greater regulatory clarity and fresh investor appetite to a market in much need of it.

Despite where we are today, however, we have never before been so close to the tipping point. Just in the last six months, we have seen several reforms that we believe provide a strong foundation for the months ahead.

- → On 6 October 2022, President Biden announced that he would pardon all simple federal cannabis possession cases. The decision echoes cannabis policy at the state level. As many as 31 states (including Washington DC) no longer prosecute or criminalise a person for possessing small amounts of cannabis.
- → On 6 October 2022, President Biden also announced that he would fast-track a review of the federal scheduling of cannabis. Currently, cannabis is classified as a Schedule 1 drug – a category reserved for very dangerous narcotics like heroin. Biden requested that this scheduling review be "expedited". The news triggered an immediate spike in US cannabis stocks which was followed by a price normalisation. The prevailing mindset, still, appears to be that political processes can take a bit more time than expected.
- → On 1 November 2022, Germany, where medical cannabis is already legal, unveiled plans to decriminalise the possession of up to 30 grammes of cannabis and allow the sale of the substance to adults for recreational purposes in a controlled market. This would be the most liberal cannabis liberalisation in Europe.
- → On 2 December 2022, President Biden signed the Medical Marijuana and Cannabidiol Research Expansion Act into law, making history as it remains the first piece of standalone federal cannabis reform legislation in US history.
- → The law gives the US attorney general 60 days to either approve a given application or request supplemental information from the cannabis research applicant. It also creates a more efficient pathway for researchers who request larger quantities of cannabis. Research is foundational for the path forward on cannabis policy. Research is essential to better understand the therapeutic benefits of cannabis that have the potential to help millions of people struggling with chronic pain, multiple sclerosis, anxiety disorders and more.
- → We would rationally expect the passing of subsequent bipartisan, common-sense proposals like the SAFE Banking Act, the Veterans Equal Access Act, the PREPARE Act and the Veterans Medical Marijuana Safe Harbor Act. The SAFE Banking Act, in particular, would provide a major boost to operators in the industry. The SAFE Banking Act is a piece of legislation that was introduced in the US Congress in 2019. The bill aims to protect banks and other financial institutions that provide services to the cannabis industry from being punished by federal regulators. Currently, many banks and financial institutions are hesitant to work with cannabis businesses due to the conflict between state and federal laws regarding cannabis. The SAFE Banking Act would provide a safe harbor for these institutions, allowing them to work with cannabis businesses without fear of legal repercussions.

Cannabis has the potential to be a powerful economic engine in the US over the next decade. However, this is more likely to happen if punitive measures created by the current policy of federal cannabis prohibition are lifted.

GERMANY SET TO IGNITE A EUROPEAN REVOLUTION

When Amsterdam pioneered its "coffee shops" in the 1970s, the European capital was one of very few places where one could openly buy cannabis. But over the last decade, the grass has grown greener on the other side of the Atlantic, with Colorado and Washington state legalising recreational cannabis use in 2012 and Uruguay becoming the first country to legalise it the following year, followed by Canada in 2018.

Europe has fallen behind, with the focus on decriminalisation rather than full legalisation. But now Germany is trying to become the first EU member to legalise cannabis. Its neighbours are watching closely.

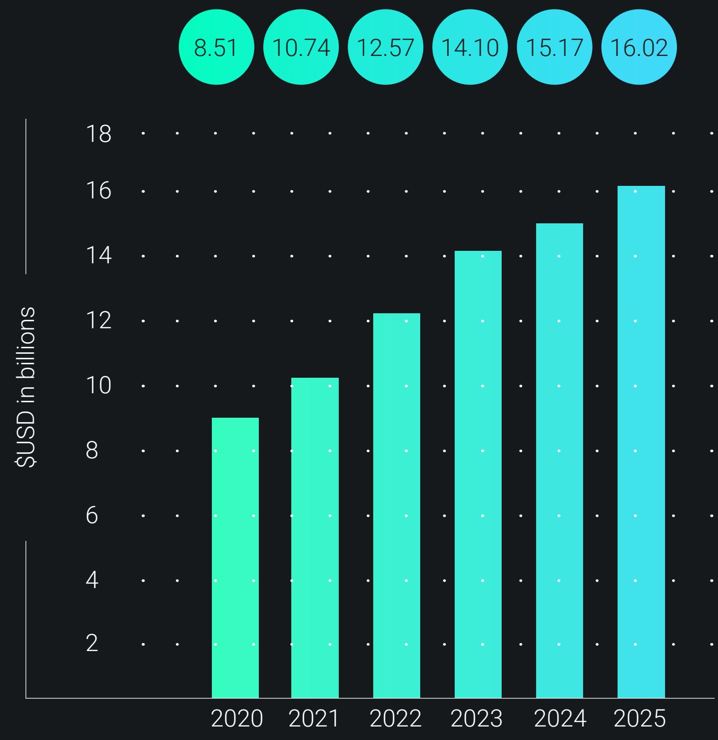
German Health Minister Karl Lauterbach announced in November the outline of a possible cannabis law that roughly follows the Canadian model – declassifying cannabis as a narcotic, creating a state licenced production, delivery and sales system; allowing adults to have 20-30 grams for personal use and creating a federal cannabis tax (Yahoo Finance 2022).

Lauterbach has set 2024 as a possible date for passing legislation. The proposed law is a reflection of the ruling red-yellow-green "traffic light" coalition, made up of the Social Democrats, who see legalisation as a way to free up law enforcement, the Free Democrats, who see legalisation as the key to unlocking more than €EUR 1 billion per year in taxes, and the Greens, who want to undercut the illegal market (Knowledia 2022).

DISRUPTION IN US HEALTHCARE

The availability and use of cannabis for medical purposes has continued to expand across the US as medical markets have come online. Currently, 36 out of 50 US states have established medical markets (New Frontier Data 2021). The medical cannabis market is strong and expected to continue to grow across the medium term. Generating an estimated $USD 8.5 billion in 2020, the medical cannabis market is projected to grow beyond $USD 16 billion by 2025, representing over $USD 78.5 billion in value during that period (New Frontier Data 2021).

MEDICAL CANNABIS MARKET PROJECTED REVENUE 2020-2025* ($USD BILLIONS)



$USD 78.5 BILLION

Total Projected Cumulative Revenue 2020-2025

Source: New Frontier Data, 2022 U.S. Medical Cannabis & Pharmaceuticals

INTERVIEWS

CAN CLIMATE FINANCE ACCELERATE OUR FOOD TRANSITION?

AN INTERVIEW WITH REX RAIMOND - DIRECTOR AT TIFS

Transformational Investing in Food Systems initiative (TIFS) is an impact network that is building a movement for just and sustainable food systems. TIFS is connected with the Global Alliance for the Future of Food and partners with the Agroecology Fund and other values-aligned initiatives.

In this interview, we speak to Rex Raimond, Director of Transformational Investing in Food Systems at the Global Alliance for the Future of Food, where we explore the challenges and opportunities for public policy to drive a meaningful shift in how we produce and consume food.

CAN YOU START BY INTRODUCING YOURSELF TO OUR AUDIENCE?

Sure. I am with the Global Alliance for the Future of Food and in particular I run a partnership project known as TIFS (Transformational Investing in Food Systems). Global Alliance is a group of charitable foundations mostly based in Europe and North America with a collective interest in "How do we transform our food system to achieve better outcomes for people, communities, human health and for the Earth?". We also look at the application of true cost accounting evaluation frameworks to really create insight into the positive and negative externalities of our current food system.

THE EMISSIONS FROM OUR FOOD SYSTEM ARE WELL DOCUMENTED – CAN YOU PLEASE TAKE US THROUGH THE MOST OFFENDING INDUSTRIES?

We are seeing increased focus on food on the back of COP27. The recent climate conference highlighted the role of our food system as a key contributor to climate change and acknowledge the fact that how we produce food is currently the largest contributor to biodiversity loss globally. Beef and dairy production are some of the biggest contributors to climate change and part of that is the conversion of land and forests to commodity production for cattle feed or cattle raising directly. Yet, there are some other really important contributors that especially us in the Western world aren't that familiar with, like the way we produce rice around the world with regards to harvest losses, food waste and infrastructure. Some of the largest commodity producers around the world are also some of the largest emitters of greenhouse gases in the world. In emerging markets, these emissions typically occur due to poor infrastructure on the production end.

WHILST EMISSIONS FROM OUR FOOD SYSTEM ARE STAGGERING, CLIMATE FUNDING GEARED TOWARDS IMPROVING OUR FOOD SYSTEM IS NOT. WHY IS THAT?

Our food system accounts for roughly 30% of emissions and only for 3% of climate finance (Rex Raimond, 2022). So, there's definitely an imbalance there. I would say that it's down to a lack of awareness (or emerging awareness) of the issue. Most people are aware, for example, of the Paris Accord and the structure it created with regard to nationally determined contributions.

So right now, it's down to individual countries to decide how they're going to mitigate against climate change, but also what measures they're going to take to adapt to climate change and address the unsustainability of food systems, agricultural production and production methods as well. In some countries, you see a lot of attention being paid to infrastructure and food waste issues. However, most countries haven't really yet clearly identified a solid strategy and plan for transitioning their own food system to one that's more sustainable. So as a result, it hasn't been identified as a key investment priority.

LET'S LOOK AT THE PUBLIC FINANCE DIRECTED TOWARDS FOOD. IS THIS CURRENTLY BEING CHANNELLED IN THE MOST EFFECTIVE WAY?

As mentioned, only 3% is currently being directed to transform our food systems. And only 1% of that goes to the agriculture sector and not only that but it is conditional on specific environmental criteria. This means that roughly $USD 528 billion per year is spent on agricultural practices that have potentially harmful effects on our climate and the environment (Rex Raimond, 2022). So, you can flip this around and see the potential. However, it also shows how entrenched our current policies are. So be aware of the risk of BAU. Although, as the conversation starts to pick up about redirecting subsidies and using public money to reward public good, this is going to shift. We will see businesses and business models that are part of an agricultural system that is more aware and more intentional about the interdependencies of, like you said, climate biodiversity, water and health, for example.

WHAT LEVEL OF ANNUAL FUNDING IS REQUIRED TO TRANSFORM OUR FOOD SYSTEM?

The estimates are in the range of $USD 300-350 billion per year to implement the actions really needed to transform our food systems. That is just to give some examples: $USD 30 billion towards healthy diets, about $USD 40 billion to regenerative agriculture. A big part is nature protection and restoration with a $USD 65 billion a year price tag on that (Rex Raimond, 2022). Healthy oceans and digitalisation of food systems are in there as well, with many interesting developments in Ag-Tech and at the intersection of Ag-Tech, climate-tech and fintech. There could also be some opportunities that emerge within the context of strengthening regional food systems with the move to direct-to-consumer. For instance, during the pandemic, we saw a huge boost for farmers and creative intermediaries that were getting healthy food to urban consumers.

THE OUTLOOK FOR MEDICAL CANNABIS

AN INTERVIEW WITH DR. AMANDA REIMAN - CHIEF KNOWLEDGE OFFICER AT NEW FRONTIER DATA

New Frontier Data is an independent, technology-driven analytics company specializing in the global cannabis industry. It offers vetted data, actionable business intelligence and risk management solutions for investors, operators, researchers and policymakers. New Frontier Data's reports and data have been cited in over 80 countries around the world to inform industry leaders. Founded in 2014, New Frontier Data is headquartered in Washington, D.C. with additional offices in Denver, CO, and London, UK.

In this interview, we speak to Dr. Amanda Reiman, Chief Knowledge Officer of New Frontier Data who helps us unpack the most recent developments in global cannabis, from President Biden's cannabis pardons and subsequent ratification of America's first standalone cannabis law, Germany's prospective legalisation and what it could mean for Europe and the outlook for medical cannabis use and therapeutics from around the world.

PRESIDENT BIDEN'S PARDON FOR THOSE IMPRISONED FOR SIMPLE CANNABIS POSSESSION SEEMS LIKE ANOTHER SIGN OF CHANGING SENTIMENT TOWARDS ADULT-USE CANNABIS. COULD THIS ALSO ACT AS A TAILWIND FOR MEDICAL CANNABIS?

I agree that President Biden's announcement signaled a change in course around cannabis policy when it comes to criminal justice. However, public support for medical cannabis has been around 80% nationally for some time. In the purely medical realm, we have seen recently seen some nuanced advances. One is the end of the National Institute on Drug Abuse ("NIDA") monopoly on cannabis cultivation for research. Cannabis used to be the only Schedule 1 drug that required researchers to obtain it from NIDA only, not from any other source. Researchers spent decades trying to access that cannabis (which was very poor and not at all representatives of the actual market), but NIDA would refuse anyone looking to study the possible health benefits of cannabis. Then, a few years ago, NIDA announced that they were ending their monopoly and would accept applications from researchers looking for cannabis under a DEA Schedule 1 license and that this cannabis would be able to be used for research in the context of federally funded grants. Dr. Sue Sisley in Arizona was one of the first to be awarded this license and has successfully completed Phase 1 and 2 trials for whole-plant cannabis for pain. As of now she has been unable to secure funding for the Phase 3 trial.

Currently, Biden has signed the first standalone cannabis bill into law. It is a research bill and aimed at medical cannabis. What it does is create a deadline for the US Attorney General to respond to an application and improve efficiencies for researchers who want to study a larger amount of cannabis. To highlight how stalled the federal government has been on the medical cannabis issue, this bill had a tough time in its pathway to the President's desk. The last direction we've had from the Executive Office other than the recent pardons, is a memo promising that the federal government will not interfere in state medical cannabis programs unless certain conditions are met, like evidence of other crimes, firearms, etc. There are other, more comprehensive, research bills but they are struggling to get out of Congress and will likely continue to struggle if the Republicans control the House of Representatives.

So, to answer your question, I believe the medical cannabis ship has already come in. Most states have some sort of medical cannabis program and those that do not are unlikely to adopt one even if there is federal legalisation as long as they can opt out. It is also very possible that the federal government will reschedule cannabis, create a carve out for state programs already in place, give states the option of adopting adult-use programs, tax those programs and then develop an FDA pathway for cannabinoid-based medications to be covered under insurance (like Sativex).

HOW WILL THE SECURE AND FAIR ENFORCEMENT ACT ("SAFE") IN THE US HELP UNLOCK CAPITAL FLOW INTO THE MEDICAL CANNABIS SECTOR?

For both medical and adult-use cannabis businesses and the businesses that serve them, access to banking will help unlock capital flow. For medical cannabis specifically, special loan rates and other health industry related banking options will be available. Furthermore, access to insurance and other business services will likely come with a lower surcharge once access to banking happens. Right now, all cannabis businesses are subject to very high use fees from payment processors because of the risk in doing business with them. These rates should go down once the risk goes down. And because operations in a medical cannabis facility can be held to a higher level of scrutiny and liability than adult-use facilities, more reasonable rates in these areas will benefit medical cannabis facilities the most. Like all cannabis businesses, the SAFE Banking Act would unlock access to small business loans and other financial support services including credit.

COULD THE LEGALISATION OF CANNABIS FOR ADULT-USE USE IN GERMANY SET A PRECEDENT FOR THE REST OF EUROPE?

Absolutely! If you look at the US, states were like dominoes. But when each one passed regulations, they did not reinvent the wheel, rather they adopted versions of the regulations that other states had passed before them. The dominoes started to fall more quickly over time because once states saw the regulations modeled elsewhere, they were more likely to regulate themselves. No one wanted to go first, but once it happened, a lot of states jumped into cannabis all at once.

IF YES, WOULD THIS BENEFIT EUROPE'S MEDICAL CANNABIS SECTOR?

Yes, it will benefit the medical sector because it brings normalisation and mainstreaming to cannabis. The more people see cannabis use out in the open and by a variety of people, the more likely they are to try it themselves or at least change their opinion of it. However, a couple of things will impact adoption. One is the pathway that people must take to obtain medical cannabis. In the US, some states have a very easy pathway to becoming a patient. In others, it is very arduous. If the pathway to patient status is too difficult, people won't use the program, even if it is technically legal.

The other issue is access to capital so that businesses serving the medical cannabis patient population can thrive. A lot of this will depend on the state/nation relationship around medical cannabis access. If a locality and a nation disagree on whether access should exist or what it should look like, it will threaten the program.

Even in nations like Canada where cannabis is legal federally, they have issues in places that want to be more liberal than the federal government and the national regulations are not as business friendly as some would like them to be. So, getting an entire nation in tune with how cannabis should be regulated is hard, but will make for the smoothest transition. This is likely to take some time.

IS THERE LINK BETWEEN CHANGING ATTITUDES TOWARDS ADULT-USE CANNABIS AND GROWTH IN THE MEDICAL CANNABIS SPACE?

Yes, any liberalisation of cannabis access, whether for medical or adult-use purposes has seemed to normalise use and lead to additional reforms. That said, there is extremely high support for medical cannabis. So, it's not just about the changing of attitudes, it's also that politicians have to push forward with changing laws and developing subsequent regulations. The public has already voted yes on medical cannabis and increased support for adult-use only reinforces what is already true of public opinion.

WHAT ARE THE FUNDAMENTAL DIFFERENCES BETWEEN THE ADULT-USE AND MEDICAL USE MARKETS? DO BOTH MARKETS COMPLEMENT EACH OTHER?

According to the consumer survey we conduct at New Frontier Data, most consumers say that they are using cannabis for both medical and adult-use purposes. Indeed, the top reasons that consumers say they use cannabis include relaxation and pain management. So, the real difference is driven by the laws. In states that have both medical and adult-use access, the motivation for becoming a medical cannabis patient is driven by cost and increased access. Most states with both programs have financial incentives for patients (breaks on tax usually) and allow patients to purchase and possess higher quantities of cannabis flower in manufactured products. In states with medical only programs and a finite list of approved conditions, there are still many people consuming outside of that regulated market and for medical and adult-use purposes, they are just not captured in the licensed program. In terms of products used by medical versus adult-use consumers, flower is the top product for both groups. We do see more use of tinctures and topicals in medical use populations. Medical only consumers tend to be older and female, so you see products for women geared more towards the medical consumer.

WHAT ROLE DOES MEDICAL CANNABIS PLAY IN THE BIG PHARMA INDUSTRY?

So far, in the US, not a big one. Whole-plant cannabis is, by nature, very difficult to get through the FDA process because of its complex nature. The FDA likes one chemical to be responsible for one effect. Whole-plant cannabis does not work that way. Additionally, because of the Schedule 1 status of cannabis, clinical trial research has been extremely difficult, especially for those looking for the health benefits of cannabis, as NIDA funds 80% of the world's drug research. Countries like Israel and Spain have been way ahead of the US in cannabis research. Sativex is not approved for use in the US for example. If cannabis is rescheduled, I would expect to see a much bigger play made by Big Pharma. This would reduce the barriers to both clinical research and the costs of running trials. It would also give assurance that, if approved, the drug would be available in the US market.

WHAT ARE THE MOST PROMISING (PROVEN) USE CASES FOR MEDICAL CANNABIS CURRENTLY?

Currently, the most proven conditions for use with cannabis are nausea and vomiting, chronic pain and spasticity. Of course, there are a myriad of symptoms and conditions for which people use cannabis and report benefits. However, due to the barriers to research, it has been tough to do controlled studies on other conditions to test efficacy. Research on use for mental health conditions has been even harder to fund. It will be interesting to see how any scheduling plays out!

PERFORMANCE

Index	Index Inception Date	31 Dec 2021 - 30 Dec 2022	31 Dec 2020 - 31 Dec 2021
FXBYFOOD Index	21 Aug 20	- 27.03%	3.07%
FXBYLIFE Index	10 Feb 20	-21.03%	13.66%
FXBYLERN Index	21 May 21	-26.05%	-50.25%
FXBYCYBR Index	24 Jan 20	-32.22%	4.60%
FXBYFLWR Index	21 Aug 20	-47.42%	-19.53%
FXBYPMNT Index	23 Jun 21	-32.24%	-6.25%
FXBYPETZ Index	16 Feb 22	-34.44%	7.26%
FXBYEMRJ Index	16 Feb 22	-40.38%	-20.06%

Source: Bloomberg as of close 2 January 2023

FXBYFOOD is the Foxberry Tematica Research Sustainable Future of Food USD NTR Index. FXBYCYBR is the Foxberry Tematica Research Cybersecurity & Data Privacy USD NTR Index. FXBYPMNT is the Foxberry Digital Payments Economy USD NTR Index. FXBYFLWR is the Foxberry Medical Cannabis & Life Sciences USD NTR Index. FXBYLERN is the Foxberry HolonIQ Education Tech & Digital Learning USD NTR Index. FXBYLIFE is the Foxberry SMS Environmental Impact 100 USD NTR Index. FXBYPETZ is the Foxberry Pet Care Index USD NTR Index. FXBYEMRJ is the Foxberry Emerging Market Internet & Ecommerce Index USD NTR Index. The index performance shown relates to the period between 30 December 2017 and 30 December 2022. The calculation of the index performance began at the corresponding index inception dates provided in the table and it is therefore not possible to show actual performance for any complete 60 month period. Accordingly, the performance shown is back-tested prior to the index inception date. Simulated past performance does not represent actual performance and should not be used as a guide to actual or future performance. All performance data is in USD, unless otherwise stated. The performance data shown does not reflect transaction costs and management fees incurred or charged by financial products such as the Rize Pet Care UCITS ETF. 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.

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