

GLOBAL X

by Mirae Asset



European Thematic ETFs Report

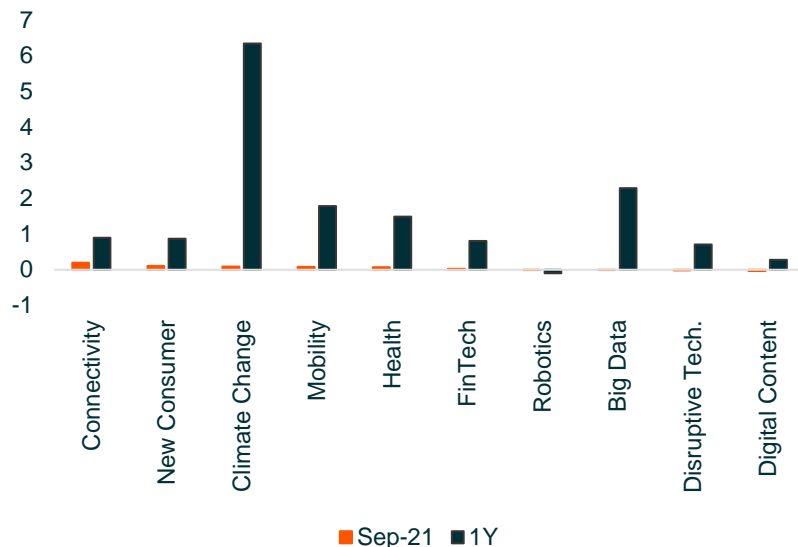
September 2021



European Thematic UCITS ETFs Flow

- In September, UCITS Thematic ETFs recorded US\$475m of net inflows, after attracting US\$559m in August
- Connectivity themes continued to attract the largest net inflows this month (US\$197m), with the bulk of net new inflows going into emerging market internet themes (US\$176m) as investors likely see buying opportunities in Asian assets amid regulatory-led selloff
- Resource scarcity themes recorded strong net inflows on the month (US\$131m) after the US Department of Energy released its Solar Futures Study examining the role solar could play in completely decarbonising the grid by 2050. The report found that the US could generate as much as 37% of its electricity from solar by 2035 and 44% by 2050, up from about 3% today
- E-commerce saw significant net inflows of US\$103m this month, as online retailers are preparing for the holiday season which is the busiest period of the year for online sellers

Top Mega Themes by monthly flows (US\$bn)



Source: Bloomberg. As of September 30, 2021.

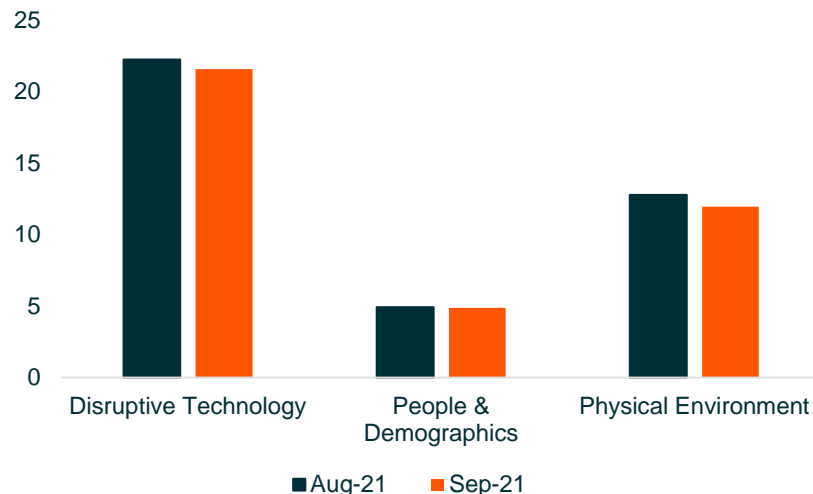
Top/Bottom 5 UCITS Thematic ETFs by monthly flows

Funds	Sep-2021 (US\$m)
KraneShares CSI China Internet UCITS ETF	175.6
L&G Ecommerce Logistics UCITS ETF	97.8
iShares Ageing Population UCITS ETF	63.9
L&G Cyber Security UCITS ETF	60.2
iShares Global Water UCITS ETF	54.5
iShares Global Clean Energy UC	-87.3
iShares Digital Security UCITS ETF	-87.2
Vaneck Vectors Video Gaming & eSports UCITS ETF	-39.6
First Trust Cloud Computing UCITS ETF	-30.8
Lyxor MSCI Disr. Tech. ESG Filtered DR UCITS ETF	-21.8

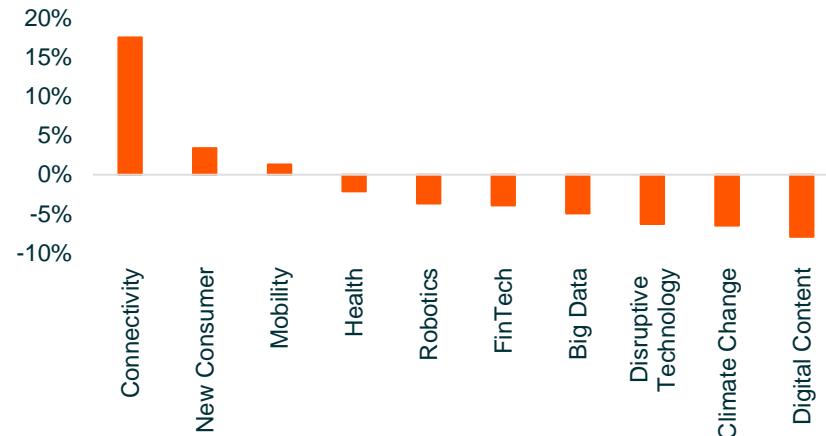


European Thematic UCITS ETFs AUM

Categories (AUM, US\$bn)



Mega Themes by AUM growth (monthly % chg.)



Top 5 UCITS Thematic ETFs by AUM growth

Funds	AUM (monthly % chg.)
KraneShares CSI China Internet UCITS ETF	50%
HANetf S&P Global Clean Energy	41%
FinEx Video Gaming & Esports UCITS ETF	21%
Solar Energy UCITS ETF	20%
WisdomTree Cybersecurity UCITS ETF	18%

Bottom 5 UCITS Thematic ETFs by AUM growth

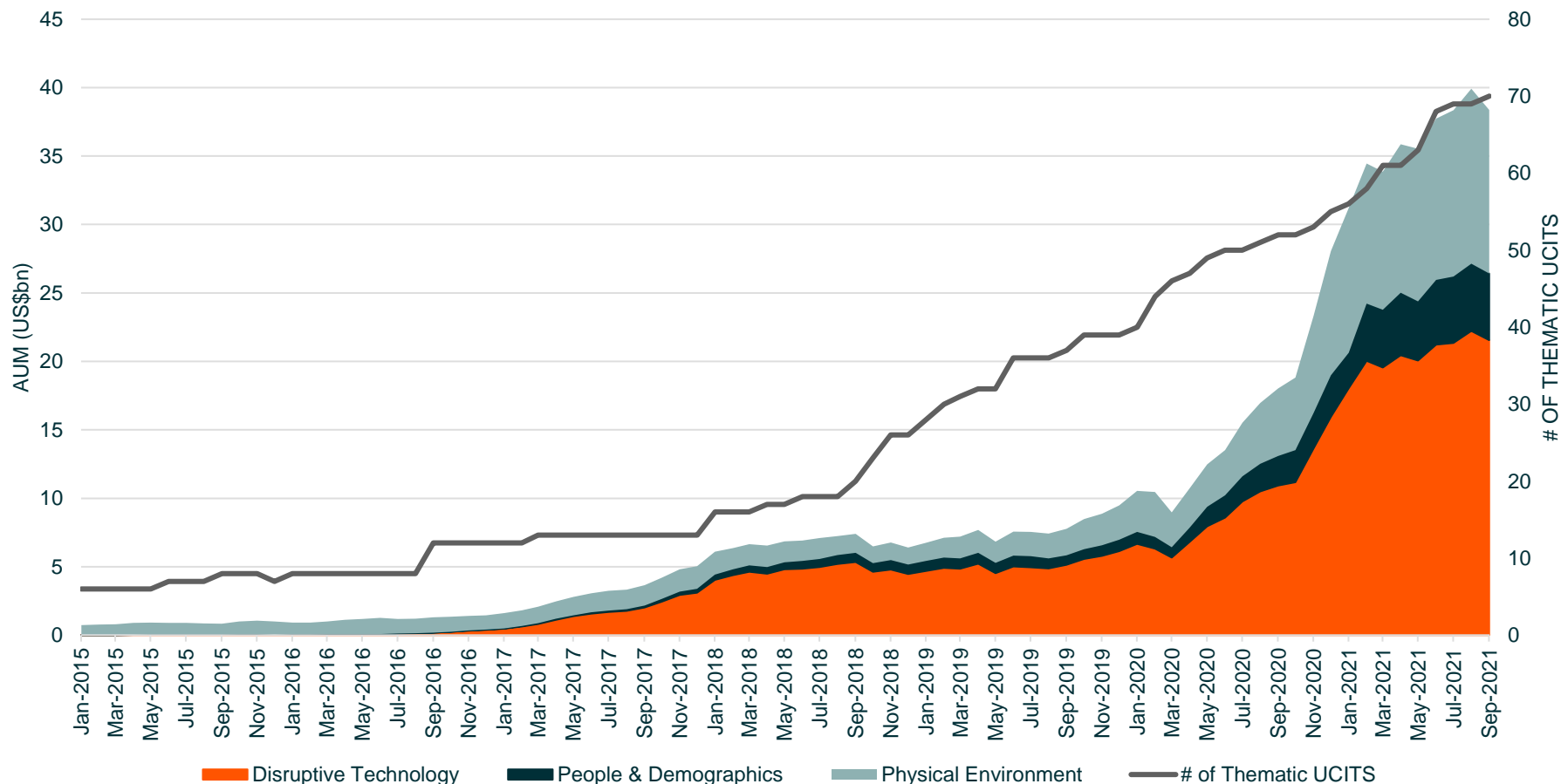
Funds	AUM (monthly % chg.)
Digital Infrastructure & Connectivity UCITS ETF	-20%
Global X Telemedicine & Digital Health UCITS ETF	-14%
Rize Medical Cannabis and Life Sciences UCITS ETF	-11%
Lyxor MSCI Disr. Tech. ESG Filtered DR UCITS ETF	-10%
iShares Digital Security UCITS ETF	-9%

Source: Bloomberg. As of September 30, 2021.



European Thematic UCITS ETFs AUM

At the end of August 2021, there were 70 thematic UCITS ETFs totalling US\$38bn in assets under management (AUM), decreasing 3.9% on the month. Themes in the physical environment category recorded the largest monthly decrease of AUMs in September (6.5%), followed by disruptive technologies (3.0%), and people & demographics (0.8%) themes.



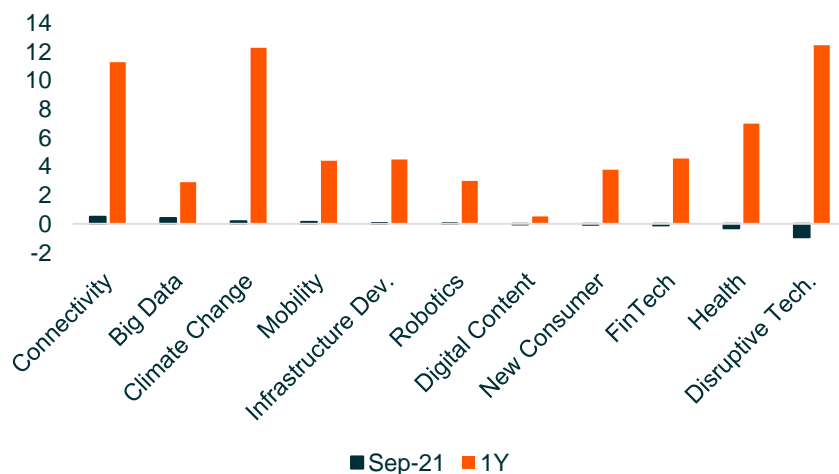
Source: Bloomberg. As of September 30, 2021.



US Thematic ETFs Flow

- In September, US Thematic ETFs recorded net outflows (US\$88m), led by broad disruptive themes
- Like in Europe, emerging markets connectivity and resource scarcity themes recorded strong net inflows this month, of US\$510m and US\$151m respectively
- Cybersecurity themes recorded US\$457m of net inflows on the month. On 27 September, the US Department of Energy (DOE) has announced an investment of over US\$1m in five projects TO strengthen the cybersecurity infrastructure of advanced manufacturing
- Broad disruptive technology ETFs continue to see net outflows this month (US\$928m), mostly reflecting the significant net outflows from ARK ETFs

Top Mega Themes by monthly flows (US\$bn)



Top/Bottom 5 Thematic ETFs by monthly flows

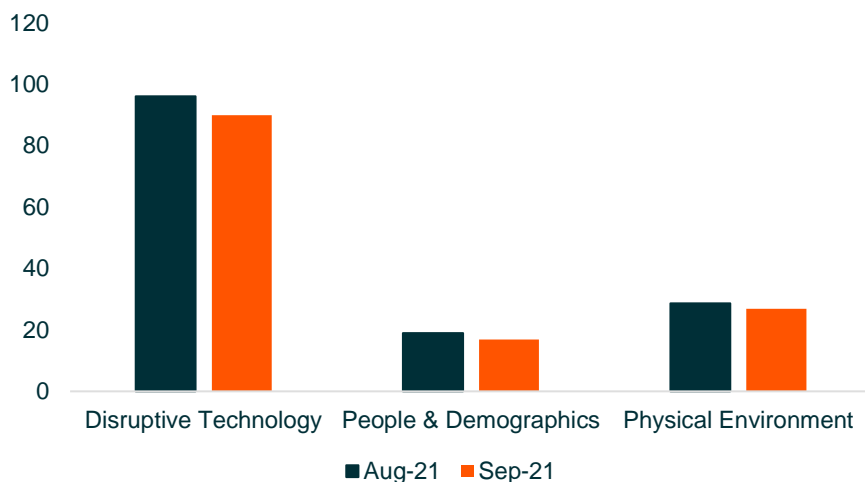
Funds	Sep-2021 (US\$m)
KraneShares CSI China Internet ETF	876.0
First Trust NASDAQ Cybersecurity ETF	198.6
Global X Lithium & Battery Tech ETF	148.5
Global X Cybersecurity ETF	139.2
Global X Robotics & Artificial Intelligence ETF	99.8
ARK Innovation ETF	-905.5
ARK Next Generation Internet ETF	-355.5
Genomic Revolution ETF	-304.2
Fintech Innovation ETF	-178.2
Amplify Online Retail ETF	-79.4

Source: Bloomberg. As of September 30, 2021.

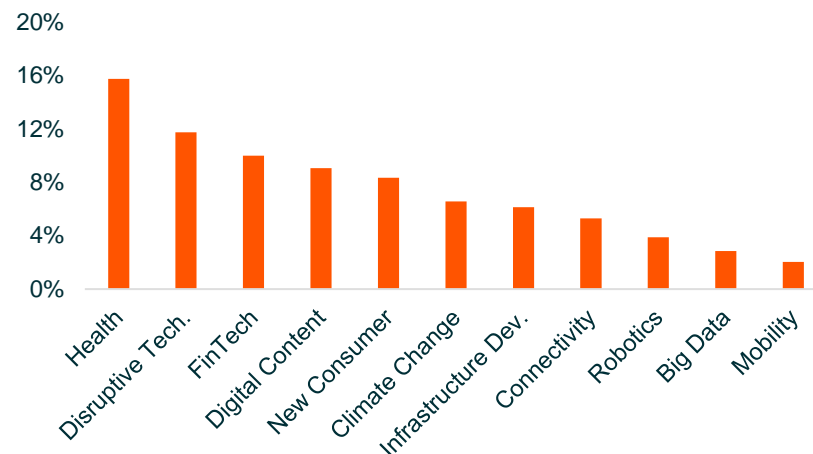


US Thematic ETFs AUM

Categories (AUM, US\$bn)



Mega Themes by AUM growth (monthly % chg.)



Top 5 Thematic ETFs by AUM growth

Funds	AUM (monthly % chg.)
Roundhill Ball Metaverse ETF	67%
Global X Blockchain ETF	40%
ETFMG Travel Tech ETF	16%
Global X Cybersecurity ETF	11%
Franklin Genomic Discovery ETF	10%

Bottom 5 Thematic ETFs by AUM growth

Funds	AUM (monthly % chg.)
Global X Thematic Growth ETF	-30%
Amplify International Online Retail ETF	-20%
KraneShares China 5G and Tech. leaders ETF	-17%
The Cannabis ETF	-17%
VanEck Vectors Digital Transformation ETF	-17%

Source: Bloomberg. As of September 30, 2021. US Thematic ETFs with minimal AUM of US\$10m as of the beginning of the previous month and excludes fund closures.



Disruptive Trends

Category	Description
Disruptive Technology	<ul style="list-style-type: none"> Connectivity (IoT) drives the digitisation of the economy and enables new disruptive technologies that are profoundly changing the way we live and work Digitisation is changing business models and empowers companies to modernise in order to meet the new demand The Digital Economy generated almost half of value added and half of the new employment in G20 economies between 2006 and 2017, according to OECD estimates
People & Demographics	<ul style="list-style-type: none"> Millennials' increased wealth from peak working years and inheritance makes them targeted consumer demographic Rising middle-class consumers in Emerging Markets Urbanisation and on-demand purchasing favour E-commerce retail channels and next generation products and services Heightened focus on longevity and quality of life, coupled with rising health care costs are driving people to engage in physical activity, healthy eating, and embrace health technologies Desire for personalised medicine is giving rise to genomics, while efforts to improve convenience, patient outcomes, cost efficiency are driving towards telemedicine and digital health
Physical Environment	<ul style="list-style-type: none"> 2020 was one of the hottest years on record Over 75% of warming comes from carbon dioxide emissions (CO2) and humans are responsible for a 47% increase of such emissions since the start of the industrial revolution In 2020, most of advanced and developing nations have renewed their commitments to transition to a carbon neutral global economy by 2030-2050 Clean technologies are essential to making carbon neutrality a reality Falling costs and rising production of lithium-ion batteries catalyses shift to renewable energy and electric vehicles

Risk Information

The Global X Thematic Classification System is based on the expertise, views, and opinions of the Global X Thematic Classification Committee and are subject to change.

Global X defines thematic investing as the process of identifying powerful disruptive macro-level trends and the underlying investments that stand to benefit from the materialisation of those trends. By nature, thematic investing is a long term, growth-oriented strategy, that is typically unconstrained geographically or by traditional sector/industry classifications, has low correlation to other growth strategies, and invests in relatable concepts.

The process of identifying themes consists of three inexorable principles:

- 1) There must be high conviction that the theme will materialise and have a meaningful impact on segments of the economy or markets. Often this is due to observable structural changes in technology, demographics, consumer behavior, or the physical environment, but can also be influenced by other factors.
- 2) A theme must be investable, meaning there are publicly traded companies that provide exposure to the concept. Ideally, the group of companies is broad, have high liquidity, and attribute a substantial portion of their business operations (revenues, assets, research & development) to the theme.
- 3) A theme must be expected to express itself over a medium to long-term time horizon, generally considered to be five years or longer. A longer-term time horizon makes market timing less of a factor in the success of identifying a theme.

Notably, and taking into consideration the principles above, thematic investing does not consist of ESG, values-based, or policy-driven strategies, unless they otherwise represent a disruptive structural trend (e.g. climate change). Further, funds that adhere to traditional sector or industry classifications, or that are used primarily to gain exposure to cyclical trends (e.g. currencies, valuations, inflation) are not considered thematic. Finally, alternative asset classes, such as listed infrastructure, MLPs, and ubiquitous commodities are not considered thematic. We recognise that these exclusions may differ from other third-party definitions of thematic investing, but it is consistent with, and core to, Global X's thematic classification system and process.

Based on the definition and principles of thematic investing above, Global X has established a thematic classification system that seeks to identify powerful themes and organise them by common traits and drivers. The system consists of four layers of classifications: 1) Categories; 2) Mega-Themes; 3) Themes; and 4) Sub-Themes, with each layer becoming sequentially narrower in its focus.

'Categories' is the broadest layer and represents three fundamental drivers of disruption: exponential advancements in technology (Disruptive Technology), changing consumer habits and demographics (People & Demographics), and the evolving physical landscape (Physical Environment). One layer down are 'Mega-Themes,' which serve as a foundation to multiple transformative forces that are causing substantial changes in a common area. Conceptually, Mega-Themes are a collection of more narrowly targeted Themes. For example, Big Data is a Mega-Theme that consists of Machine/Deep Learning, Cybersecurity, Quantum Computing, and Cloud/Edge Computing. Further down, we identify 'Themes' as the specific areas of transformational disruption that are driving technology forward, changing consumer demands, or impacting the environment. 'Sub-Themes' are more niche areas, such as specific applications of themes or upstream forces that are driving themes forward.

The number and categories, mega-themes, themes, and sub-themes is expected to evolve over time as new drivers of structural changes emerge or fade. Such decisions will be made by the Global X Thematic Classification Committee ("the committee") and take into account internal and external research and data about potential themes.

Thematic ETF Landscape

Global X's classification system establishes a consistent framework for identifying and categorising the growing thematic ETF space.

Category	Mega-Theme	Theme	Sub-Theme
Disruptive Technology	Big Data	Machine/Deep Learning	
		Cybersecurity	
		Quantum Computing	
		Cloud/Edge Computing	Remote Work, MarTech
	Mobility	Autonomous Vehicles	
		Electric Vehicles	Lithium/Batteries
	Digital Content	AR/VR	
		Video Games	E-sports
		Social Media	
		Streaming	
	FinTech	Mobile Payments	
		Peer-to-Peer Lending	
		Crowdfunding	
		Blockchain	
	Connectivity	Digital Infrastructure	
		5G/Next Gen Networking	
		Emerging Markets Internet	
		Internet of Things	Smart Devices, Smart Cities, IIoT
	Robotics	Space/Satellite Communications	
		AI/Automation	
		3D Printing	
		Drones	
People & Demographics	New Consumer	Millennials & Gen Z	
		Emerging Market Consumers	
		Urbanisation	
		E-commerce	
		Education	
		Sharing/Gig Economy	
		Safety and Security	
		Cannabis	
		Sports Betting	
		Professional Sports	
	Health	Healthcare Innovation	Telemedicine & Digital Health, Genomics, Immunotherapy, Public Health
		Aging Population	Senior Care, Senior Economy
		Health & Wellness	Obesity, Organics
		Emerging Markets Healthcare	
Physical Environment	Climate Change	Alternative Medicine	
		CleanTech	
		Clean & Renewable Energy	Solar, Wind, Hydrogen
	Infrastructure Development	Resource Scarcity	Water, Waste/Recycling, Rare Earths, Sustainable Food

Source: Global X ETFs As of June 30, 2021.

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For more research please visit:

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