

For professional clients only. Capital at risk.
This is a marketing communication. Please refer to the
prospectus of the fund and to the key investor information
document before making any final investment decisions. Unless
otherwise stated all data is as at 29 December 2023.

Thematic ETFs performance

Q4 2023

Key risk

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.
Simulated and past performance is not a guide to the future.



Contents

3	L&G Thematic ETFs
5	Macro update
7	ETF updates
9	Artificial Intelligence
12	Battery Value-Chain
15	Clean Energy
18	Clean Water
21	Cyber Security
24	Digital Payments
27	Ecommerce Logistics
30	Emerging Cyber Security
33	Global Thematic
36	Healthcare Technology
39	Hydrogen Economy
42	Optical Technology & Photonics
45	Pharma Breakthrough
48	Robotics and Automation
51	Glossary





L&G Thematic ETFs



Visit lgim.com/uk-etf for further information and latest updates.

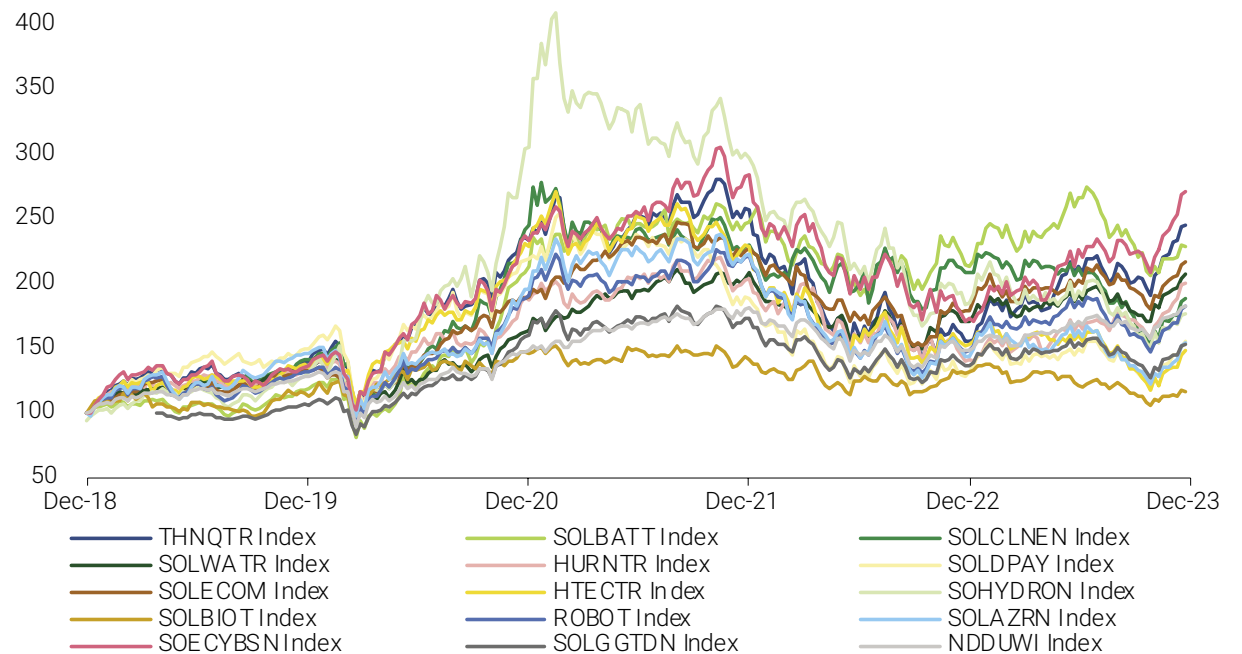
Performance commentary

In the last quarter of 2023, all sectors but energy delivered positive returns, led by Technology. All themes delivered double-digit returns, with the exception of Battery Value-Chain and Pharma Breakthrough, which nonetheless closed in positive territory. The strongest performers were Robotics and Automation and Emerging Cyber Security, and themes such as Clean Energy and Hydrogen Economy had a strong recovery in December.

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Historical and simulated index performance*



Source: Bloomberg, as of 29 December 2023, all values are based in USD.

*The back-tested index data have been sourced from the index providers; they are based on what they perceive to be reasonable assumptions and objective data.



L&G Thematic ETFs

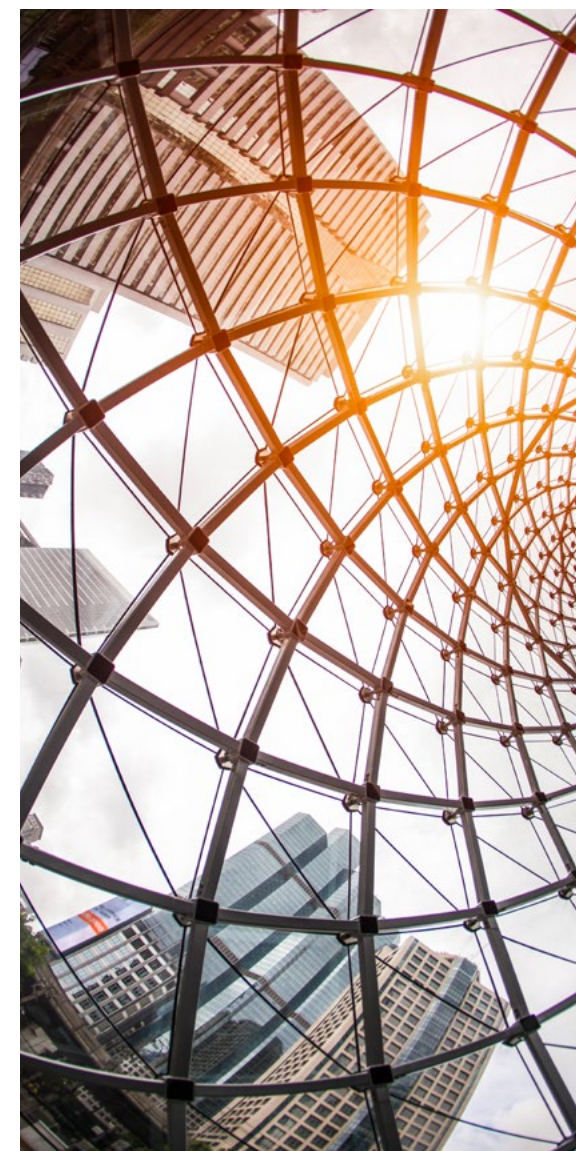
Rolling 12 month performance to 29/12/2023

Index ticker	ETF ticker	2018	2019	2020	2021	2022	2023
THNQTR Index	AIAI	13.5%	37.6%	68.2%	10.0%	-39.1%	57.0%
SOLBATT Index	BATT	-20.4%	17.9%	80.7%	15.9%	-13.9%	8.8%
SOLCLNEN Index	RENV	-14.9%	40.3%	74.0%	-6.0%	-9.1%	-8.4%
SOLWATR Index	GLUG	-9.1%	36.3%	19.7%	26.8%	-18.0%	21.9%
HURNTR Index	USPY	10.1%	31.2%	42.5%	8.7%	-30.6%	40.7%
SOLDPAY Index	DPAY	10.9%	47.2%	47.4%	-13.8%	-30.4%	19.5%
SOLECOM Index	ECOM	-18.0%	32.0%	43.6%	19.8%	-21.4%	22.2%
HTECTR Index	DOCT	25.2%	34.9%	66.5%	0.3%	-33.1%	-2.4%
SOHYDRON Index	HTWO	-	-	132.1%	-2.4%	-37.6%	-3.2%
SOLBIOT Index	BIOT	-4.3%	13.5%	27.7%	-3.4%	-6.9%	-9.9%
ROBOT Index	ROBO	-20.3%	30.3%	45.3%	16.3%	-33.1%	24.8%
SOLAZRN Index	LAZR	-18.0%	44.5%	34.5%	13.7%	-35.3%	7.9%
SOECYBSN Index	ESPY	11.6%	33.1%	73.2%	21.7%	-38.8%	55.4%
SOLGGTDN Index	THMZ	-	-	-	8.4%	-21.2%	13.5%
NDDUWI Index	MSCI World	-8.7%	27.7%	15.9%	21.8%	-18.1%	23.8%

Source: Bloomberg, all values are based in USD; as at 29 December 2023. Performance based on index levels gross of fees but net of dividend withholding taxes, where applicable. The effect of fees and charges would reduce the returns shown.

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Macro update

Economy and policy

Overall equity markets displayed strong performance during the quarter. In October most equity sectors were weak due to deteriorating consumer sentiment and the conflict in the Middle East. The US 10-year yield touched 5% and gold rallied, hitting \$2,000/oz. However, equities recovered steadily from the end of October, boosted by dovish monetary policy. The Fed decided to leave the target interest rate unchanged at 5.25%-5.50%, the Bank of England maintained the bank rate at 5.25%, and the ECB left interest rates unchanged at 4%, breaking an unprecedented streak of 10 consecutive hikes. The US dollar weakened along with government bond yields, gold rallied past the \$2,040/oz mark and the VIX Index closed the year at 12.5 – one of its lowest levels in the year.

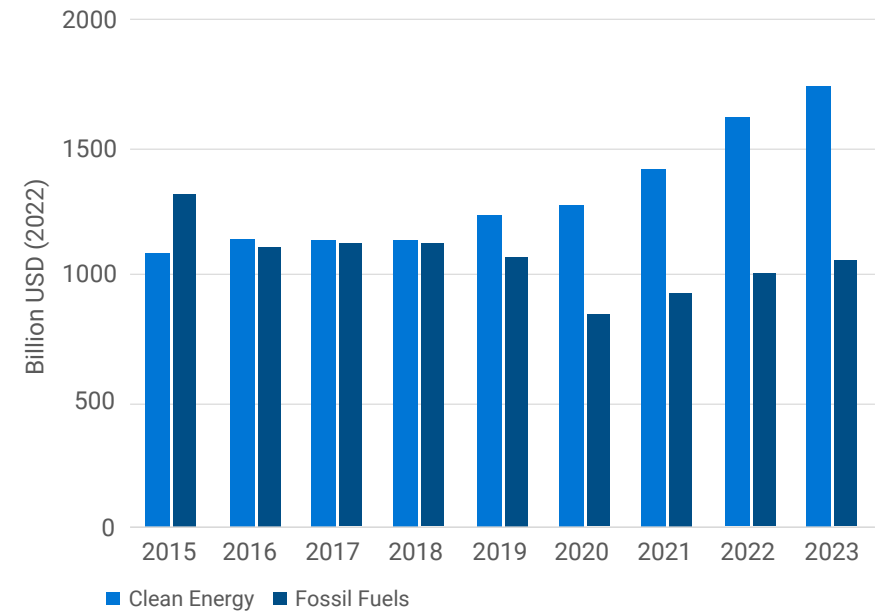
Source: LGIM, IEA, December 2023.

Climate news

Five years ago, for every \$1 invested in fossil fuels, the same amount was invested in clean energy. This started to change in 2019 and in 2023, for every \$1 invested in fossil fuels, \$1.8 is invested in clean energy.

Source: IEA, December.

Global energy investment in clean energy and in fossil fuels, 2015-2023



Source: IEA, December 2023.

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Macro update

Investment themes

Clean energy

The world needs more clean energy to improve energy security and reduce emissions. According to data from the IEA, since 2020 investment in clean energy has risen by 40%, and more than 500 gigawatts (GW) of renewables generation capacity are set to be added in 2023 – a new record.

Source: IEA, World Energy Outlook 2023, October 2023.

Ecommerce logistics

According to Eurostat the industries that could offer most growth potential in early 2024 are consumer-focussed. The e-commerce segment benefits from continued innovation and consumer base growth, and deliveries for smaller products could rebound quicker, due to low savings impacting larger purchases. Additionally, green supply chains keep attracting investment regardless of macro conditions.

Source: LGIM, Eurostat, Transport Intelligence, December 2023.

Digital payments

Global non-cash volumes are expected to grow at a 10.7% CAGR from 2022 to 2027, led by APAC, according to Capgemini. A key driver has been the development of digital payments infrastructure, from instant payments to open banking regulations and digital wallets.

Source: [Payments Cards and Mobile](#), September 2023.

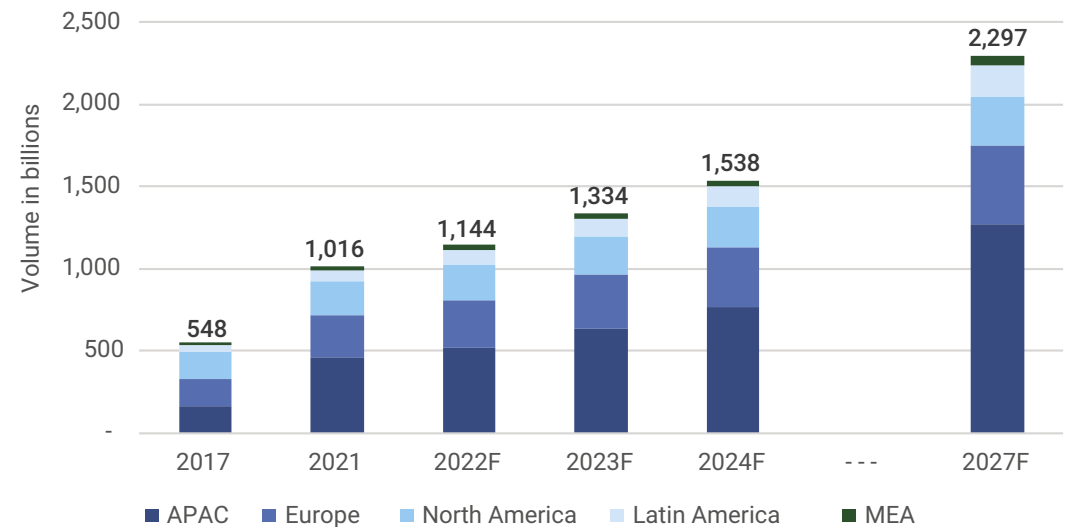


Did you know?

COP28, held in Dubai, concluded in December. Parties were encouraged to triple clean energy capacity and double energy efficiency improvements, and they agreed to the creation of funding worth over \$700 million for a loss and damage fund, to assist developing countries that are particularly vulnerable to climate change. The Green Climate Fund (GCF) received a boost with total pledges now standing at a record \$12.8 billion, and new commitments were announced to the Least Developed Countries Fund and Special Climate Change Fund, totalling more than \$174 million to date, and to the Adaptation Fund, totalling nearly \$188 million.

Source: LGIM, COP28, December 2023

Non-cash transaction volume growth



Source: [Payments Cards and Mobile](#), September 2023

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ETF updates



Thematic investment insights

Want to stay ahead of the latest developments shaping the future of technology, energy and resources, and demographics? Our regular blogs and podcasts cover a wide range of key thematic investment topics.



Cyber Security blog:

Cyber security growth, AI and valuations: a story in three charts

[Read here](#)



Artificial Intelligence blog:

Identifying upstream enablers in the AI revolution

[Read here](#)



Investment strategy blog:

Threading the needle: finding balance in a concentrated investment world

[Read here](#)



Battery Value-Chain whitepaper:

The battery value-chain - How batteries and lithium are powering the energy transition

[Read here](#)



Battery Value-Chain blog part 2:

LGIM Blog: Could lithium supply constraints delay the energy transition?

[Read here](#)



Battery Value-Chain blog part 1:

What role will batteries and lithium play in the energy transition?

[Read here](#)



Battery Value-Chain podcast:

Positively charged: lithium and the electric vehicle revolution

[Listen here](#)



Thematic investing blog:

Technology overconcentration versus thematic diversification

[Read here](#)



Artificial Intelligence podcast:

Artificial Intelligence, investing, and you

[Listen here](#)



Clean Energy blog:

Capturing the energy transition opportunities

[Read here](#)



ETF overlaps

Overlap across our themes

The following chart shows the overlap across our thematic range of investment strategies. When we design an investment strategy, we aim to provide pure exposure to the theme, which results in our thematic ETFs usually having little to no overlap, where possible. This allows investors to allocate according to their preferences and aim to reduce concentration risks in a portfolio.



	Artificial Intelligence	Battery Value-Chain	Clean Energy	Clean Water	Cyber Security	Digital Payments	Ecommerce Logistics	Emerging Cyber Security	Global Thematic	Healthcare Breakthrough	Hydrogen Economy	Pharma Breakthrough	Optical Technology & Photonics
Battery Value-Chain	2% (1)												
Clean Energy	2% (1)	7% (3)											
Clean Water	0% (0)	0% (0)	0% (0)										
Cyber Security	9% (6)	0% (0)	0% (0)	0% (0)									
Digital Payments	5% (3)	0% (0)	0% (0)	0% (0)	2% (2)								
eCommerce Logistics	5% (3)	0% (0)	0% (0)	0% (0)	0% (0)	3% (1)							
Emerging Cyber Security	15% (8)	0% (0)	0% (0)	0% (0)	44% (23)	4% (2)	0% (0)						
Global Thematic	14% (59)	13% (27)	14% (30)	9% (47)	9% (24)	1% (5)	11% (37)	15% (37)					
Healthcare Breakthrough	5% (3)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	16% (65)				
Hydrogen Economy	0% (0)	0% (0)	5% (2)	1% (1)	0% (0)	0% (0)	0% (0)	0% (0)	1% (3)	0% (0)			
Pharma Breakthrough	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	16% (32)	6% (5)	0% (0)		
Photonics	4% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	2% (11)	1% (1)	0% (0)	0% (0)	
Robotics and Automation	15% (11)	2% (2)	1% (1)	1% (1)	0% (0)	2% (1)	4% (3)	1% (1)	13% (70)	11% (8)	0% (0)	0% (0)	15% (10)

Source: LGIM, Bloomberg as at 29 December 2023. Figures represent % weight and number of stocks. Percentage overlap is calculated as the minimum of weight overlap between two portfolios.

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Artificial Intelligence

Company spotlight

*Taiwanese Global Unichip (GUC)

Taiwanese Global Unichip (GUC) has emerged as a significant player in the AI technology landscape, specialising in providing semiconductor design services, including fabless ASIC (Application Specific Integrated Circuit) design, IP (intellectual property) development and SoC (System on Chip) solutions. **GUC's revenue has surged 57% since 2021, and is projected to hit approximately \$850 million by year-end 2023, with net income estimated to more than double from \$52 million in 2021 to \$116 million in 2023.

This growth trajectory is notably linked to GUC's partnership with Taiwan Semiconductor Manufacturing Company (*TSMC), which strengthens the firm's presence in AI, 5G, cryptocurrency mining and high-performance computing. TSMC is a major chip maker and GUC's biggest backer as GUC's single largest shareholder, with 35% of the company's total shares. TSMC is also GUC's sole foundry supplier and closest partner in advanced process and packaging technologies. While GUC's direct client list isn't publicly detailed, its close association with TSMC suggests it serves many of TSMC's major clients.

GUC's diverse customer base includes 70% from System Houses – companies that integrate GUC's ASIC Design, IP Cores, and other services into their complete systems. The remaining 30% comes from fabless semiconductor customers. GUC's wide range of services includes designing low-power and embedded CPU systems, integrating entire SoC solutions, and employing advanced packaging technologies. GUC's continued development of AI-specific chips augments GUC's strategic focus on AI applications, backed by robust financial growth and strong industry partnerships. In our view this presents a compelling case for continued revenue expansion.

Last quarter performance commentary

The ROBO Global Artificial Intelligence Index returned +21.3% over the quarter.

Full-year 2023 saw a +57.0% return, the second-best annual performance since inception, after what had been a tougher 2022 for high-growth technology leaders. AI dominated headlines in 2023 and generative AI tools were adopted by hundreds of millions worldwide. The world is exiting the first stage of the initial "GPU acquisition frenzy" and "testing phase" into the larger "inference phase", otherwise known as live deployment (beyond "simple" text-based consumer interfaces such as *ChatGPT).

All subsectors posted gains, which, alongside a strong earnings season, saw major product announcements and customer wins across the board. The latest earnings season, with 92% of members profitable, saw 88% beat expectations with a weighted average EPS of +54% and sales of +11.85%, with an average surprise of +2% and +22.5%, respectively. Network and Security (16% weighting, +26.3% gain), saw continued strength and resilience, seeing upwards revisions across the board, led by *Crowdstrike, *Varonis, *Snowflake and *Arista Networks. AI-focused Semiconductor leaders (22.7% weighting, +24.8% gain) rebounded from a tough (-12%) Q3. Leaders such as *Advanced Micro Devices, *Taiwan Semiconductor, *Global Unichip and *MediaTek have continued recent outperformance against *NVIDIA. Big Data / Analytics (11.1% weighting, +17.1% gain) saw its third takeout via acquisition with the acquisition of *Alteryx for \$4.4B, led by *Clearlake Capital Group and Insight Partners. There have now been 17 takeouts since inception via M&A.

Investment and deployment of AI technologies are rapidly solidifying, promising transformative impacts across diverse industries, regulatory landscapes and global markets. The future is not just driven by AI but is interwoven with a complex and necessary network of supporting technologies that will adapt and change over time.

Source: LGIM, Bloomberg, ROBO Global®, as at 29 December 2023.

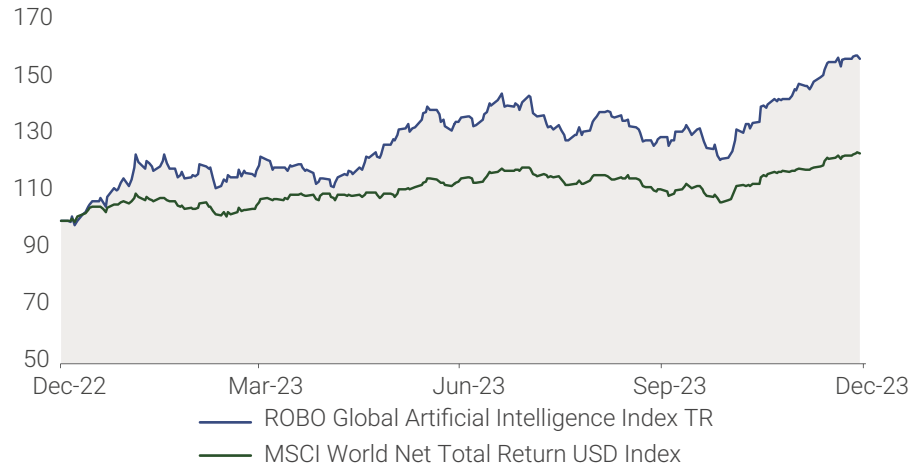
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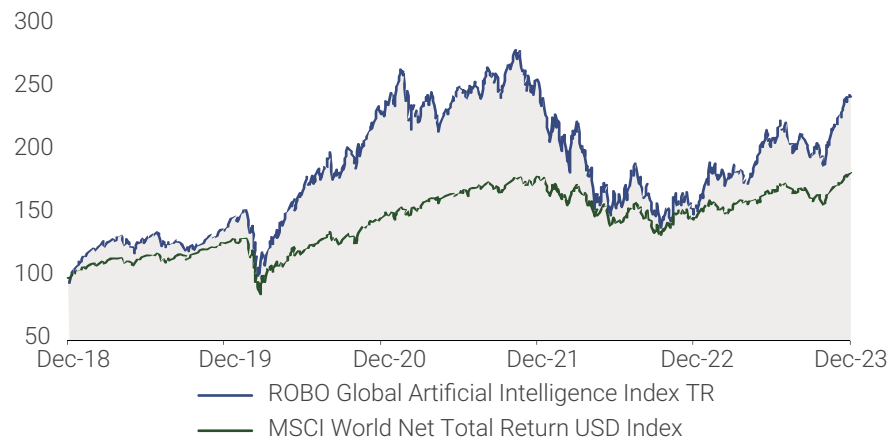
Artificial Intelligence

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	21.32%	56.98%	5.08%	143.19%
Annualized Return			1.67%	19.48%
Volatility	20.54%	22.13%	29.16%	28.91%
Sharpe Ratio	570.62%	258.62%	5.72%	67.36%
Max Drawdown	-8.92%	-15.99%	-50.09%	-50.09%

Index total return contribution (QtD)

Top 5		Bottom 5	
Crowdstrike Ho-A	▲ 1.12%	Alibaba Grp-Adr	▼ -0.14%
Adv Micro Device	▲ 0.91%	Veeva Systems-A	▼ -0.10%
Block Inc	▲ 0.77%	Darktrace Plc	▼ -0.09%
Varonis Systems	▲ 0.74%	Cognex Corp	▼ -0.06%
Mediatek	▲ 0.74%	Tesla Inc	▼ -0.04%

Portfolio composition

Latest additions	Latest deletions
Qualcomm	Splunk (acquired)
	Electronic Arts

Fund information

Ticker	AIAI LN	ISIN	IE00BK5BCD43
TER	0.49%	Inception date	02/07/2019
Currency	USD	Index inception date	14-Dec-18
Securities lending	No	Replication method	Physical

Key risk

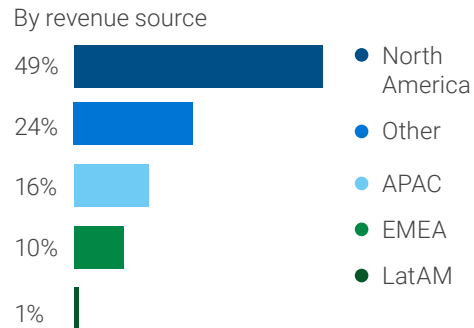
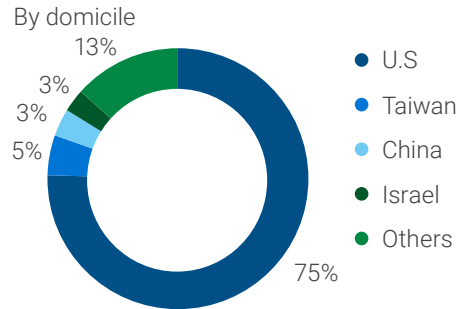
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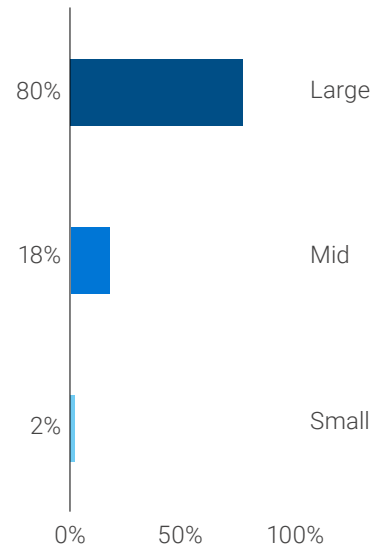
Artificial Intelligence

Characteristics

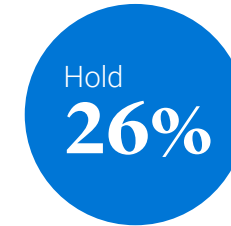
Geographical breakdown



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.81	1.09
Price/Sales	7.90	5.78
BPS	14.44	13.48
P/E Positive	39.69	36.41
ROE	10.77	7.05
Price/Book	8.46	6.43
P/E (1y fwd)	84.34	55.81
P/E (3y fwd)	51.20	37.43
Sales (1y fwd)	22,401	19,470
Sales (3y fwd)	30,963	27,282

Constituents overlap

S&P 500	14.7%
MSCI World	13.6%
Nasdaq 100	20.9%
Total stocks = 61	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

Consensus ratings do not constitute a recommendation to buy or sell any security.
The consensus ratings presented in this chart are not in relation to the L&G Thematic ETFs.

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Battery Value-Chain

Company spotlight

*TDK

TDK is a Japan-based comprehensive electronic components manufacturer, operating across Asia, Europe, North and South America. The company was founded in 1935 and operates a passive components business, which manufactures ceramic capacitors, aluminium electrolytic capacitors and piezo materials; a sensor application products business, which supplies temperature/pressure, magnetic and Micro Electronic Mechanical Systems (MEMS) sensors; a magnetic application products business, which produces Hard Disk Drive (HDD) heads/suspensions and magnets; and an energy application products business, which manufactures secondary electron and power supply products.

The company offers both lithium-ion and solid-state batteries. Across its solid-state batteries, its flagship product is the *CeraCharge, which is the world's first solid-state rechargeable battery with no liquid electrolyte. The battery is based on a multilayer technology, which means that relatively high energy density and small volume are combined with the safety and high-volume manufacturing benefits of ceramic multilayer components. Given that the battery does not use any liquid electrolytes, this mitigates the risk of fire, explosion or leakage of liquid electrolytes.

TDK's robust battery manufacturing facilities and technology allow it to work with leading brands globally. For example, in December 2023, the company announced that it will manufacture lithium-ion battery cells for *Apple iPhones in India. TDK is also an active investor in leading battery innovations via its investing arm TDK Ventures. A recent investment of the company was in battery and charging system start-up Exponent Energy in December 2023. Exponent Energy is re-engineering the complete energy stack – the battery pack, charging station and connector – for the Indian last-mile logistics market.

Last quarter performance commentary

The Solactive Battery Value-Chain Index returned +0.8% over the quarter.

After discovering two lithium deposits this year, India set a 3% royalty rate on lithium mining based on London Metal Exchange (LME) lithium price. One of the deposits is believed to contain almost 6mt of lithium, and the government has started to auction mining rights.

In the Critical Raw Materials Act, the EU Commission identified 34 critical raw materials (including 16 strategic ones) and set targets to increase the EU

contribution of these substances (10% for the extraction; 40% for the processing and 15% for the recycling). In November the recycling target was upgraded to at least 25%. Parliament negotiators also said the European Commission would pass a related act in 2027 that set a recycling target related to annual waste collected, rather than consumption.

Within the portfolio, mining companies were the main detractors, on the back of weaker demand from refineries and falling lithium prices - the Lithium Price Index closed December around 263, the lowest level in two years. Mineral Resources was the only miner with positive performance. Within the energy storage technology group, automobiles were mixed. The main contributors to performance were *TDK Corp (returned +28.6%), *HD Hyundai Electric (+30.1%) and *ABB (+23.9%). The main detractors were *EOS Energy (-49.3%), *Panasonic Holdings (-11.9%) and *Core Lithium (-34.5%).

Despite these headwinds, the EV market continues to be an important driver of the battery value-chain. In 2020, one in 25 cars sold was electric; in 2023, one in five was, and according to *BNEF, the global EV market might achieve a 18.8% CAGR from 2022 to 2030 to over 40 million cars sold in 2030 from 10.5 million.

Source: LGIM, Bloomberg, FastMarkets, Benchmark Mineral Intelligence, as at 29 December 2023.

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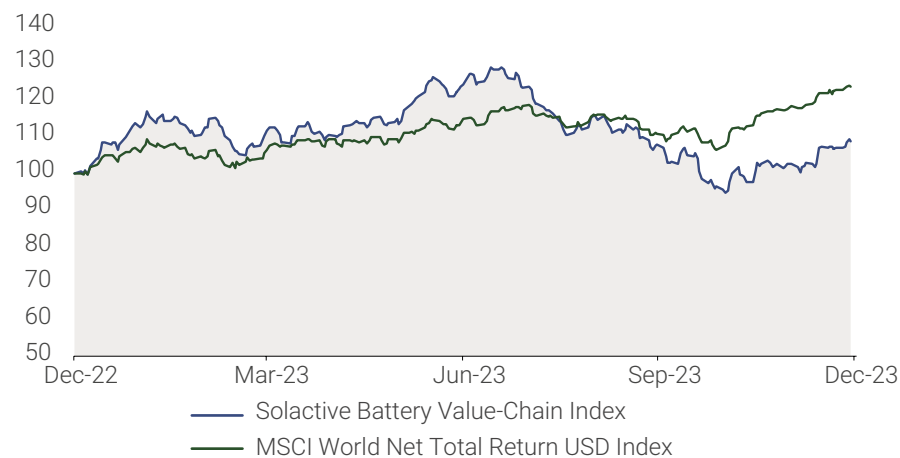
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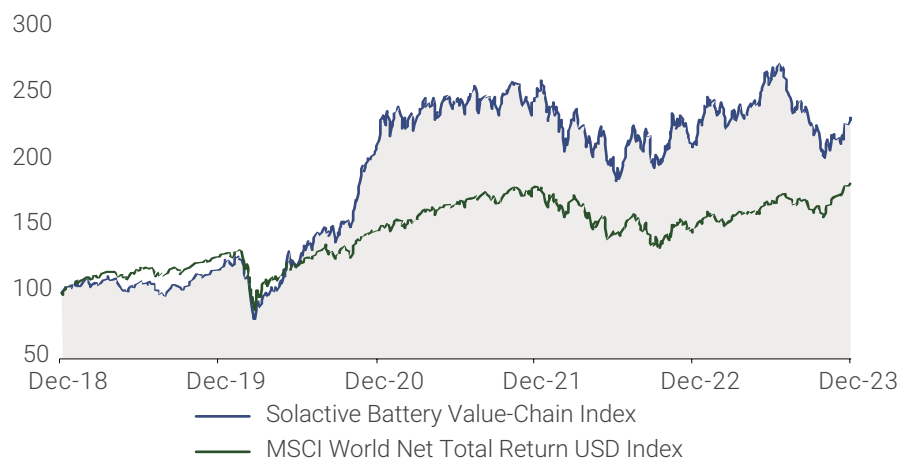
Battery Value-Chain

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



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Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	0.75%	8.80%	8.57%	131.34%
Annualized Return			2.79%	18.29%
Volatility	21.43%	17.53%	19.90%	21.17%
Sharpe Ratio	14.29%	50.38%	14.00%	86.38%
Max Drawdown	-12.09%	-26.53%	-29.07%	-37.30%

Index total return contribution (QtD)

Top 5		Bottom 5	
Tdk Corp	▲ 1.13%	Eos Energy Enter	▼ -1.00%
Hd Hyundai Elect	▲ 0.99%	Panasonic Holdin	▼ -0.60%
Abb Ltd-Reg	▲ 0.92%	Core Lithium Ltd	▼ -0.54%
Wartsila Oyj Abp	▲ 0.90%	Nissan Motor Co	▼ -0.52%
Arcadium Lit-Cdi	▲ 0.43%	Byd Company	▼ -0.42%

Portfolio composition

Latest additions	Latest deletions
Honda Motor	Toshiba
Arcadium Lithium (post merger)	CALB
	Allkem (merger)

Fund information

Ticker	BATT LN	ISIN	IE00BF0M2Z96
TER	0.49%	Inception date	23/01/2018
Currency	USD	Index inception date	03-Jan-18
Securities lending	No	Replication method	Physical

Key risk

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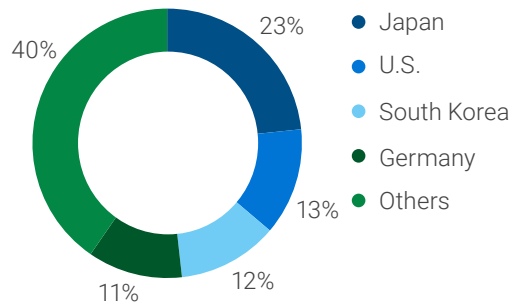


Battery Value-Chain

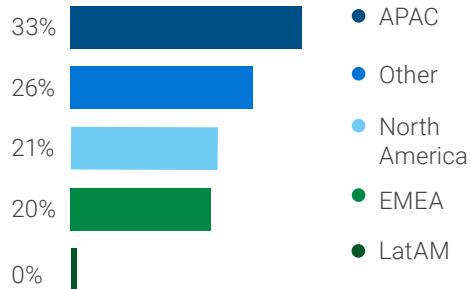
Characteristics

Geographical breakdown

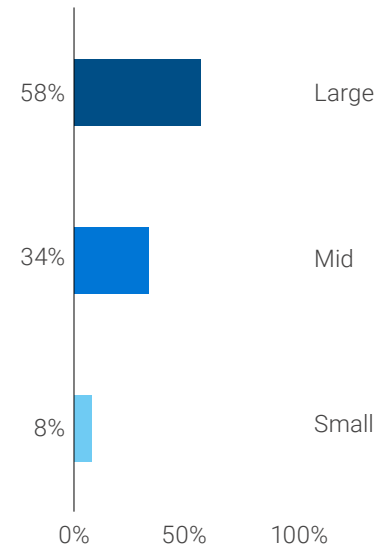
By domicile



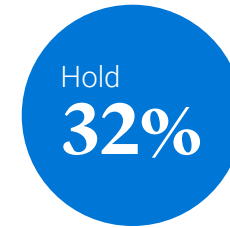
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.59	1.34
Price/Sales	1.20	0.84
BPS	16.87	13.46
P/E Positive	13.43	14.70
ROE	10.89	10.65
Price/Book	1.56	2.14
P/E (1y fwd)	26.99	14.00
P/E (3y fwd)	17.72	19.53
Sales (1y fwd)	38,754	47,477
Sales (3y fwd)	42,878	42,873

Constituents overlap

S&P 500	1.7%
MSCI World	1.7%
Nasdaq 100	3.7%
Total stocks = 31	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

Consensus ratings do not constitute a recommendation to buy or sell any security.
The consensus ratings presented in this chart are not in relation to the L&G Thematic ETFs.

Key risk

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.



Clean Energy

Company spotlight

*Vestas Wind Systems

Founded in 1945, Vestas Wind Systems (Vestas) is a Denmark-based global leader in onshore and offshore wind turbines, with over 173 GW of wind turbines installed in 88 countries. Vestas offers a range of products across three wind turbine platforms: the *EnVentus (launched in 2019), 4 MW (launched in 2010) and 2 MW platforms (launched in 2000). Each is suited to specific conditions and requirements.

In addition to its products, Vestas has the largest fleet of wind turbines under service globally. The company's services include maintenance, parts and repairs, and fleet optimisation for in-house and external wind turbines. Vestas services over 57,000 wind turbines via its 12,000 dedicated service technicians across 78 countries. This equates to ~151 GW under service, helping to remove over 100m tonnes of CO2 annually.

Vestas also offers digital solutions, including *Blade Asset Management and *Utopus Insights. Blade Asset Management systematically gathers blade inspection data and recommended actions across sites and turbines into one collective overview regardless of the wind turbine brand. With Utopus Insights, Vestas offers customers a suite of best-in-class analytics

applications across energy sources that support the digitalisation of renewable energy assets.

In December 2023, Vestas secured its first project with *Repsol, a Spanish multinational energy and petrochemical company. The contract includes the supply and installation of five EnVentus wind turbines. Once installed, the wind turbines are expected to become the most powerful wind power facility ever built in Spain. The project is expected to begin in H2 2024 and once completed it should deliver enough clean energy to cover the electricity demand of 29,000 households in Spain, preventing ~29,600 tons of CO2 from being emitted into the atmosphere per year.

Last quarter performance commentary

The Solactive Clean Energy Index NTR returned +10.1% over the quarter.

Cheap capital with low interest rates and renewable costs in steady decline have boosted the renewable energy industry in for several years. More recently, however, the steady rise in interest rates made projects harder to finance and inflation has raised the costs of raw materials. Clean energy projects are subject to high upfront costs and have high sensitivity to interest rates. Assets have a ~30 years duration and are

contracted for the first 10-15 years, but are financed with debt at an average maturity of seven years. Existing assets developed and financed during a period of lower interest rates became harder to finance in today's current rate environment.

In the solar market overcapacity left manufacturers less profitable and having to face tougher competition, especially smaller manufacturers and non-integrated firms. This is despite strong demand: according to the IEA, more than \$1 billion a day is being spent on solar deployment, and for the first time in 2023 solar attracted more investment than oil production, just shy of \$400bn.

In the wind market higher input costs, as well as financing costs, led to developers negotiating prices and incurring delays and cancellations. Some clean energy auctions were left undersubscribed, which caused further uncertainty. Offshore wind was particularly impacted given its complex nature.

The main contributors to performance were *Alfen N.V. (returned +57.0%), *Vestas Wind Systems (+48.0%) and *Solaria Energia y Medio Ambiente (+32.9%). The main detractors were *Babcock & Wilcox (-65.3%), *SolarEdge Technologies (-27.7%) and *Array Technologies (-24.3%).

Source: LGIM, Bloomberg, as at 29 December 2023.

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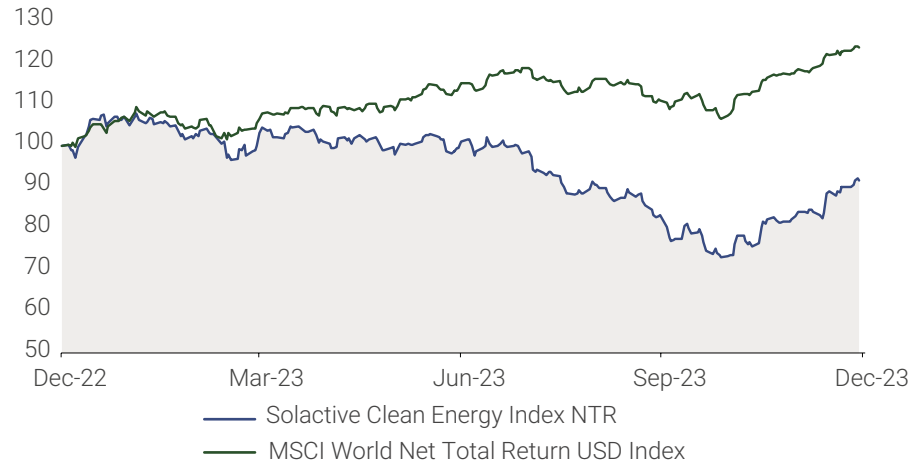
Past performance is not a guide to the future.



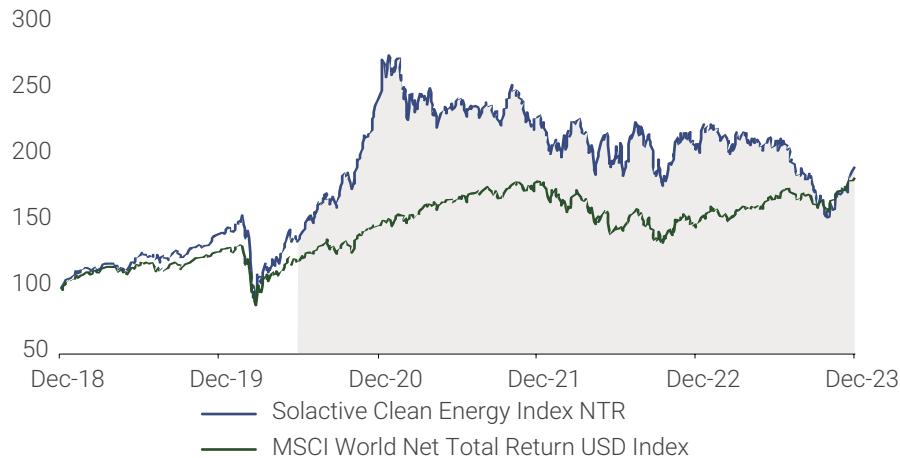
Clean Energy

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	10.11%	-8.36%	-21.74%	91.07%
Annualized Return			-7.87%	13.84%
Volatility	26.15%	20.07%	22.46%	23.11%
Sharpe Ratio	180.44%	-41.78%	-35.02%	59.90%
Max Drawdown	-11.98%	-32.10%	-44.82%	-44.82%

Index total return contribution (QtD)

Top 5		Bottom 5	
Alfen N.V.	▲ 1.32%	Babcock & Wilcox	▼ -1.61%
Vestas Wind Syst	▲ 1.31%	Solaredge Techno	▼ -0.76%
Solaria Energia	▲ 1.08%	Array Technologi	▼ -0.70%
Hanwha Solutions	▲ 0.89%	Ameresco Inc-A	▼ -0.51%
Erg Spa	▲ 0.88%	Emeren Group Ltd	▼ -0.32%

Portfolio composition

Latest additions	Latest deletions
no rebalance in Q4	no rebalance in Q4

Fund information

Ticker	RENW LN	ISIN	IE00BK5BCH80
TER	0.49%	Inception date	11/11/2020
Currency	USD	Index inception date	26-Jun-20
Securities lending	No	Replication method	Physical

Key risk

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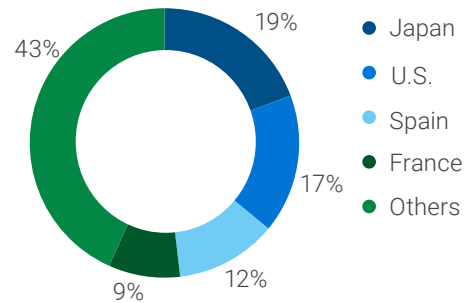


Clean Energy

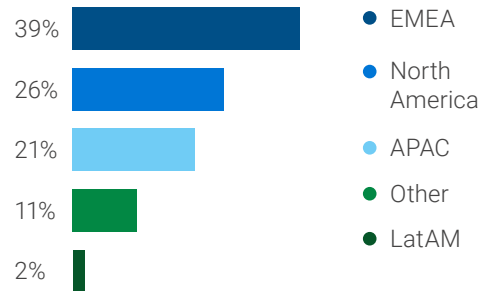
Characteristics

Geographical breakdown

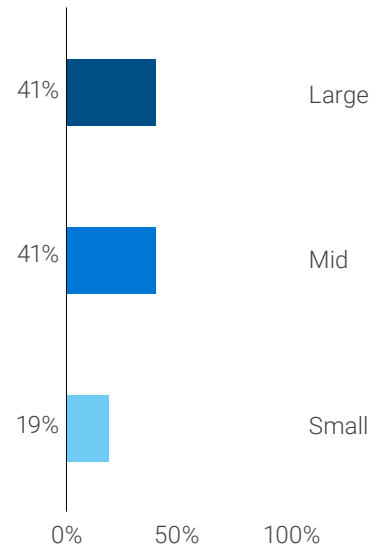
By domicile



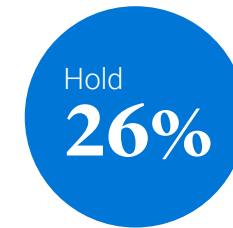
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.07	1.11
Price/Sales	1.42	1.93
BPS	13.05	11.80
P/E Positive	19.01	20.87
ROE	10.99	10.75
Price/Book	1.83	2.27
P/E (1y fwd)	28.41	37.03
P/E (3y fwd)	19.18	31.79
Sales (1y fwd)	16,513	16,598
Sales (3y fwd)	17,738	16,098

Constituents overlap

S&P 500	2.1%
MSCI World	1.9%
Nasdaq 100	2.7%
Total stocks = 38	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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Key risk

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Clean Water

Company spotlight

*Nomura Micro Science

Nomura Micro Science is a Japanese water and wastewater treatment equipment manufacturer and systems integrator, founded in 1969. The company uniquely specialises in 'ultrapure' water (high-grade water that is free from impurities, only contains H₂O molecules and has a purity of, or very near, 100%), which is used mainly by its semiconductor and liquid crystal manufacturing clients.

Nomura's products and services can be classified into two verticals: Electronics/High Precision Devices and Pharmaceuticals. Within the first vertical, operations include pure water and ultrapure water systems, wastewater treatment systems, gravity filtration equipment, and ozone water production systems. Within the second vertical, operations include pharmaceutical water production systems, ion exchange systems, pure steam generator for sterilization and heat regenerative filtration equipment.

In addition to its headquarters in Japan, Nomura operates across Asia (including Korea, Taiwan and China) and in the US. To further expand its international footprint, the company acquired Chinese company *Swing Shanghai Engineering (Swing) in Q1 2023. Swing supplies systems for ultrapure water and

wastewater treatment, serving a range of industries ranging from semiconductors and electronics to printing and dyeing. The acquisition is expected to fuel new ultrapure water contracts in the region for Nomura, as the microelectronics industry expands.

Nomura has further diversified its offerings by establishing *Agu Plastics and *Qiandongnan Kaichuang Water (QKR). Agu Plastics is a supplier of plastic piping products for water and sewage networks, agriculture, and ultrapure water systems. Additionally, QKR was established to undertake the design, construction and operation of water purifying and wastewater treatment plants in the Guizhou Province of China.

Last quarter performance commentary

The Solactive Clean Water Index NTR returned +17.1% over the quarter.

The conflict on the Gaza strip focused attention on the theme of clean water scarcity, as it displaced children who are estimated to have access to only 1.5/2L of water per day, well below the minimum 3L required for survival and 15L recommended in an emergency situation.

California, a drought-sensitive region, approved wastewater drinking with the help of water agencies.

While wastewater is currently treated and reused in agriculture and sporting facilities, the water should soon be available for drinking use. The water will be treated for any pathogens and viruses, and then it will have minerals added back at the end of the process.

The latest EPA Drinking Water Needs Survey identified a need for \$473 billion to maintain and improve the drinking water infrastructure in the US over the next 20 years, including a distribution and transmission investment of \$313 billion, a treatment investment of \$83 billion, a storage investment of \$48 billion and a source investment of \$22 billion. According to GWI, the US is the second-largest market for water CAPEX growth until 2030 (source: GWI, December 2023).

In the UK, water utility companies set out plans to almost double their spending on the network during asset management period (AMP) 8, 2025 to 2030, and they asked the regulator for permission to hike customer bills to allow them to invest a combined £96bn over the period.

The main contributors to performance were *Nomura Micro Science (returned +160.1%), *Organo Corp (+47.5%) and *Core & Main (+40.1%). The main detractors were *Energy Recovery (-11.2%), *Cadiz (-15.4%) and *Trimble (-1.2%).

Source: LGIM, Bloomberg, Global Water Intelligence, as at 29 December 2023.

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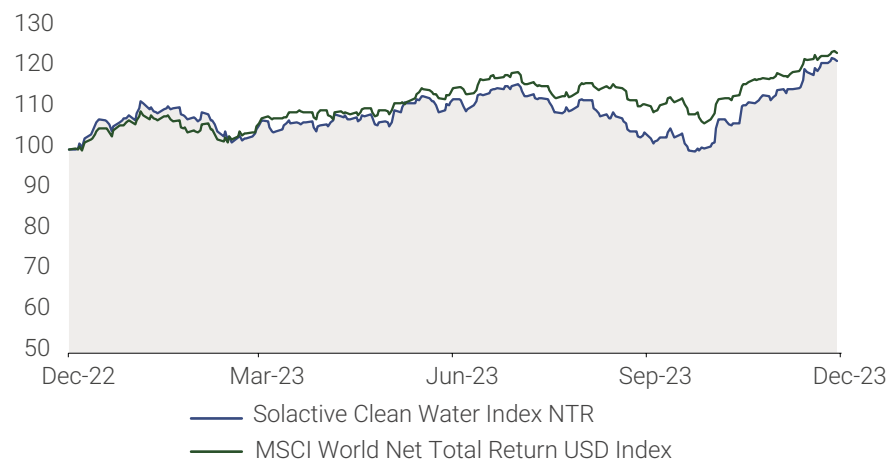
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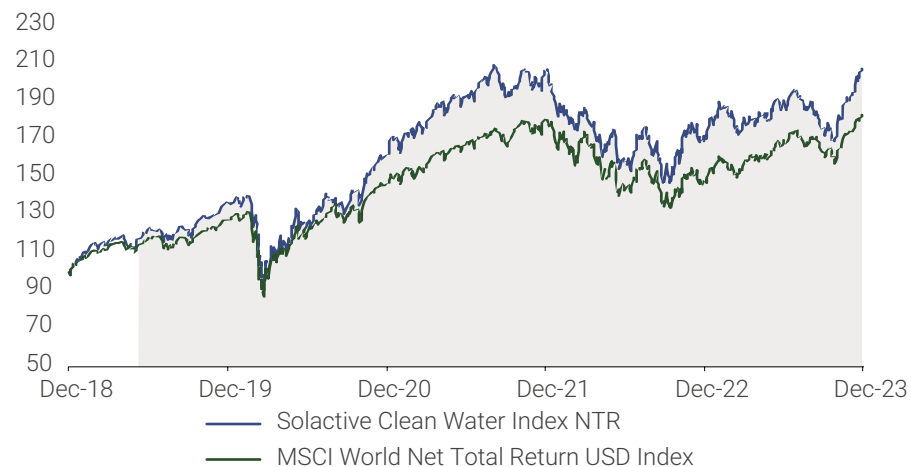
Clean Water

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	17.10%	21.86%	26.81%	106.94%
Annualized Return			8.26%	15.68%
Volatility	16.08%	13.91%	16.38%	19.93%
Sharpe Ratio	550.08%	157.72%	50.44%	78.67%
Max Drawdown	-5.41%	-14.26%	-29.87%	-36.00%

Index total return contribution (QtD)

Top 5		Bottom 5	
Nomura Micro Sci	▲ 3.60%	Energy Recovery	▼ -0.24%
Organo Corp	▲ 1.13%	Cadiz Inc	▼ -0.14%
Core & Main In-A	▲ 0.81%	Trimble Inc	▼ -0.08%
Pennon Grp Plc	▲ 0.73%	Metso Corp	▼ -0.08%
Cons Water Co-Or	▲ 0.64%	China Lesso	▼ -0.05%

Portfolio composition

Latest Additions	Latest Deletions
no rebalance in Q4	no rebalance in Q4

Fund information

Ticker	GLUG LN	ISIN	IE00BK5BC891
TER	0.49%	Inception date	02/07/2019
Currency	USD	Index inception date	07-Jun-19
Securities lending	No	Replication method	Physical

Key risk

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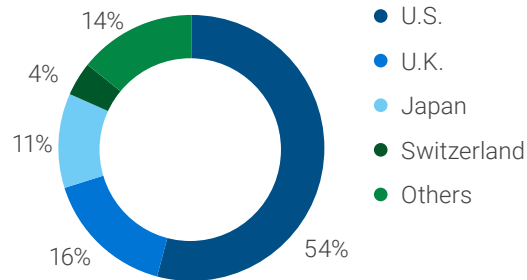


Clean Water

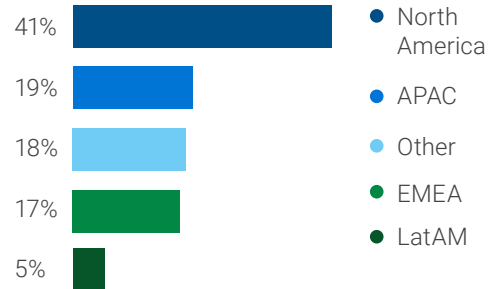
Characteristics

Geographical breakdown

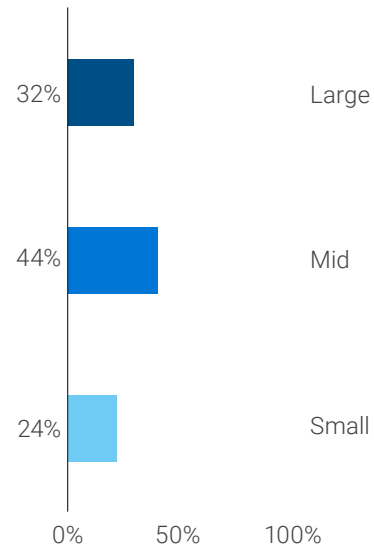
By domicile



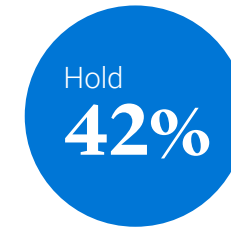
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.84	1.55
Price/Sales	3.24	2.43
BPS	14.06	12.53
P/E Positive	24.37	27.19
ROE	12.63	12.84
Price/Book	3.10	2.96
P/E (1y fwd)	31.48	25.79
P/E (3y fwd)	27.64	26.50
Sales (1y fwd)	2,537	2,628
Sales (3y fwd)	2,790	2,202

Constituents overlap

S&P 500	0.6%
MSCI World	0.5%
Nasdaq 100	0.5%
Total stocks = 53	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
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Key risk

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Cyber Security

Company spotlight

*Gen Digital

Gen Digital is a pureplay cyber security company with dual headquarters in Arizona and Czech Republic and operations in more than 150 countries.

In September 2022 it merged with *Avast and changed its name from *NortonLifeLock to *Gen Digital. Since then, the company has scaled up its cyber security business and increased its global footprint. The number of customers post acquisition reached 500 million from 80 million one year ago, out of which 65 million pay for its Cyber Safety solutions and 38 million have a direct billing relationship with the company.

Gen Digital has three growth drivers: extending reach by leveraging its omnichannel strategy and building international partnerships, increasing value by cross-selling and addressing customer needs, and growing loyalty to increase retention and offer comprehensive protection for all devices rather than point product protection.

Gen Digital's solutions are grouped into Security and Performance, which includes real-time protection for PCs and mobile devices from online threats; Identity Protection, which includes protection from identity threat and restoration solutions for personal

information; and Online Privacy, which includes VPN solutions and protection from malicious websites, phishing and similar attacks.

Gen Digital is a founding member of the *Open Wallet Foundation (OWF), the first global collaboration to open-source code for interoperable, multi-purpose digital wallets. This year it earned an award for the Best Home Anti-Malware Solution for Norton 360 and another for the Best Free Anti-Malware Solution for Avast Free Antivirus.

Last quarter performance commentary

The ISE Cyber Security UCITS NTR Index returned +16.2% over the quarter.

In 2023 cyber security spending growth slowed by about two-thirds from the spending growth seen in 2022. However, the share of IT budgets dedicated to cyber security continued to grow and reached 11.6% in 2023 from 8.6% in 2020, and while the related workforce grew by 8.7% in 2023 from the previous year, the shortfall between workers needed and those available grew, reaching 12.6%.

The US Cybersecurity and Infrastructure Security Agency and the UK National Cyber Security Centre, along with other 17 nations, released the Guidelines for Secure AI System Development,

The LockBit ransomware gang infiltrated Boeing's distribution business and stole 40 GB of data that was made available for download. Other victims of data breaches were electronics maker *Casio and *Air Canada. *Sony was also hit by a ransomware attack. Hackers managed to break into the support case management system of identity and access management company *Okta, and stole sensitive data; however, the company took measures to protect its customers.

Palo Alto announced the acquisition of *Talon Cyber Security, an Israeli startup with secure access technology.

*Trend Micro and *CyberArk announced the addition of cloud risk management to their core solutions and introduced a generative AI tool; *Den Digital announced *Norton Small Business; *Qualys introduced new tools to protect small to medium-sized businesses and enterprises; and Palo Alto introduced some industry-first products such as an AI powered zero trust management and operations solution, along with five new next-generation firewalls.

The main contributors to performance were *SentinelOne (returned +62.8%), *CrowdStrike (+52.5%) and *Trend Micro (+41.3%). The main detractors were *NetScout Systems (-21.7%), *BlackBerry (-24.8%) and *Fastly (-7.2%).

Source: LGIM, Bloomberg, Nasdaq, as at 29 December 2023.

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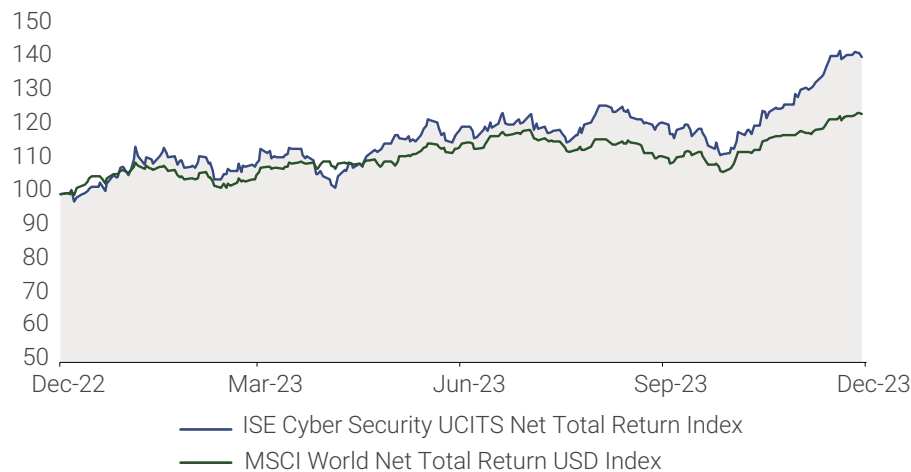
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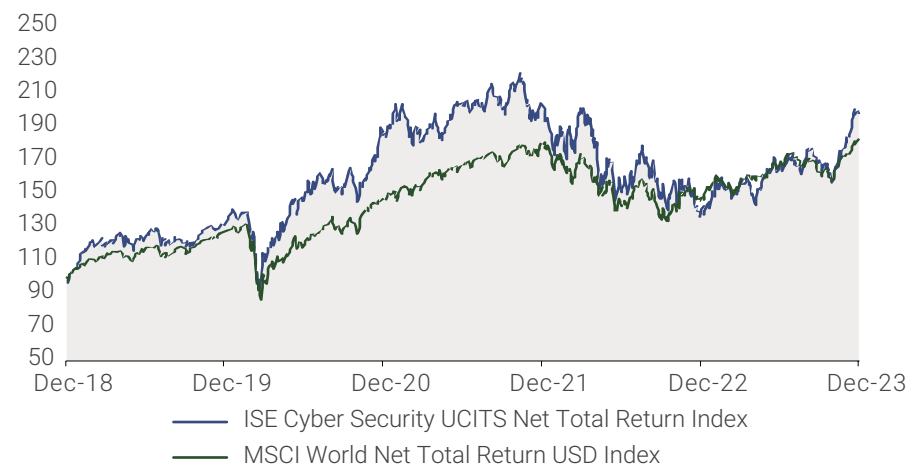
Cyber Security

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	16.17%	40.74%	6.11%	98.40%
Annualized Return			2.00%	14.70%
Volatility	19.46%	20.33%	24.57%	24.77%
Sharpe Ratio	424.03%	201.17%	8.14%	59.36%
Max Drawdown	-8.02%	-11.65%	-38.67%	-38.67%

Index total return contribution (QtD)

Top 5		Bottom 5	
Sentinelone In-A	▲ 2.66%	Netscout Systems	▼ -0.92%
Crowdstrike Ho-A	▲ 2.37%	Blackberry Ltd	▼ -0.89%
Trend Micro Inc	▲ 1.89%	Fastly Inc -CI A	▼ -0.54%
Cyberark Softwar	▲ 1.49%	Darktrace Plc	▼ -0.41%
Broadcom Inc	▲ 1.42%	Cisco Systems	▼ -0.26%

Portfolio composition

Latest additions	Latest deletions
Broadcom	Splunk (acquired)

Fund information

Ticker	USPY LN	ISIN	IE00BYPLS672
TER	0.69%	Inception date	28/09/2015
Currency	USD	Index inception date	31-Aug-15
Securities lending	No	Replication method	Physical

Key risk

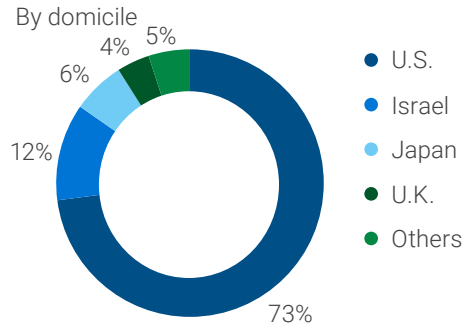
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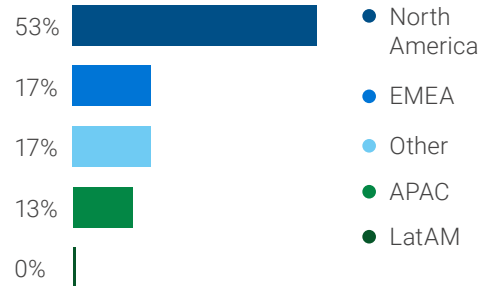
Cyber Security

Characteristics

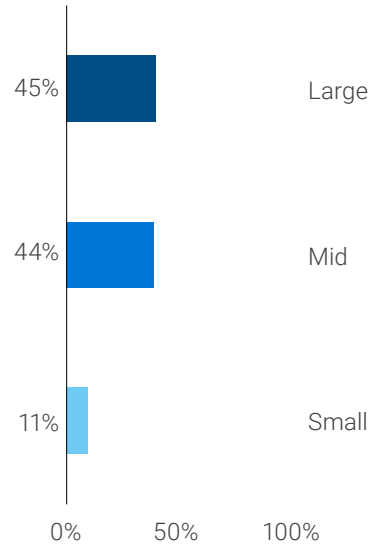
Geographical breakdown



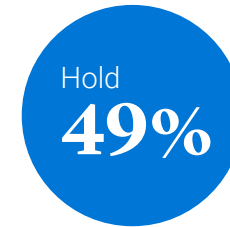
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	0.58	0.17
Price/Sales	3.98	3.77
BPS	6.92	6.47
P/E Positive	24.13	26.36
ROE	3.41	-0.05
Price/Book	4.52	3.48
P/E (1y fwd)	31.64	24.48
P/E (3y fwd)	25.19	24.03
Sales (1y fwd)	3,815	4,130
Sales (3y fwd)	4,002	3,732

Constituents overlap

S&P 500	2.2%
MSCI World	1.7%
Nasdaq 100	7.6%
Total stocks = 41	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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Key risk

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Digital Payments

Company spotlight

*Block

Founded in 2009 and previously known as Square, Block serves merchants and consumers with payment solutions and related services through its two core ecosystems, *Square and *Cash App. In December 2021 Square changed name to Block, symbolising the building block of the various businesses that the firm runs to deliver digital payments solutions. Square remained the name of its integrated ecosystem for sellers that empowers business owners through 30+ payment and commerce tools across point-of-sale hardware, software & financial services. Initially serving micro and small and midsize businesses *(SMB) with the release of the *Square Card Reader in 2009, Square has since expanded its seller base to include mid-market merchants. The Cash App ecosystem gives individuals the ability to send and receive, store, spend, and invest their money and manage debit cards, rewards programmes, and tax preparation.

Block also owns *Spiral, a tool that funds free open-source projects to advance the use of *Bitcoin for economic empowerment; *TIDAL, a global platform to help musicians succeed as entrepreneurs; and *TBD, which is building a platform to make Bitcoin and blockchain technologies more accessible. In the US,

both Square and Cash App maintain a leading market position. In the third quarter Square generated \$899 million in gross profit, increasing by 15% yoy, and Cash App generated \$984 million in gross profit, increasing by 27% yoy.

To further strengthen its position within the payments solutions sector, Block acquired global Buy *Now, Pay Later (BNPL) provider *Afterpay in 2022. Block integrated Afterpay's BNPL functionality directly onto the Cash App ecosystem, which drove growth in larger sellers and geographies and provided more spending options to Cash App users.

Last quarter performance commentary

The Solactive Digital Payments Index NTR returned +17.3% over the quarter.

According to *Nexi, digital payments are essential to deliver customer value and offer the opportunity to foster loyalty, anticipating customer needs and deliver personalised, relevant content and products. Within this space, *Alternate Payment Methods (APM) such as mobile wallets are taking share from card transactions in the person-to-merchant market and are set to grow twice as fast from 2022 to 2027 ([source](#)). The cross-border payments market also keeps

growing. In 2023 the global remittances market value is set to reach \$810bn, from \$794 in 2022 ([source](#)).

Globally, at least 90% of central banks are currently exploring CBDCs. The ECB decided to begin the preparation phase of the digital euro, to explore design and distribution of a digital coin that would be available to citizens and businesses under the supervision of intermediaries. CBDCs offer easy and free accessibility off and online, instant settlements with high privacy levels, flexibility to be used between individuals, at POS, in e-commerce and government transactions.

*Visa acquired Brazilian fintech *Pismo for \$1 billion to improve core banking and issuer solutions.

On the open banking front, payment network *TrueLayer partnered with *Stripe and *Shopify to embed Account to Account (A2A) payments at the checkout, to let merchants add open banking linked transactions as a payment option in the UK and Europe and enable faster, more secure and cheaper payments.

The main contributors to performance were *Block (returned +74.8%), *StoneCo (+69.9%) and *Lightspeed Commerce (+49.6%). The main detractors were *Remitly Global (-23.0%), *Flywire Corp (-27.4%) and *Worldline (-38.5%).

Source: LGIM, Payments Cards and Mobile, Bloomberg, as at 29 December 2023.

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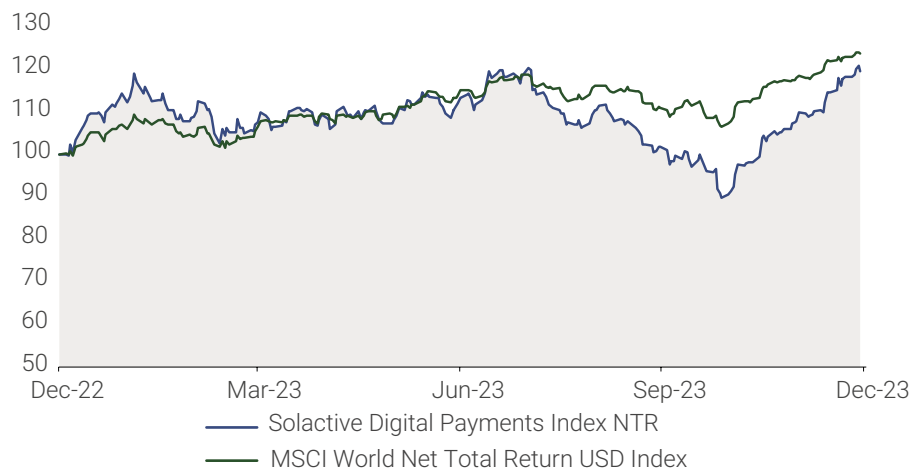
Past performance is not a guide to the future.



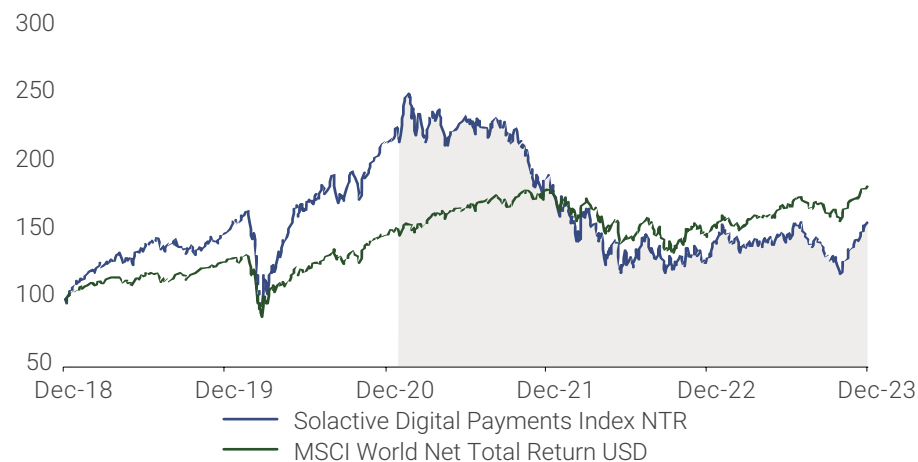
Digital Payments

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	17.26%	19.53%	-28.24%	55.69%
Annualized Return			-10.50%	9.27%
Volatility	22.59%	20.97%	26.18%	27.18%
Sharpe Ratio	396.13%	93.48%	-40.09%	34.11%
Max Drawdown	-11.74%	-25.25%	-53.56%	-53.56%

Index total return contribution (QtD)

Top 5		Bottom 5	
Block Inc	▲ 1.58%	Remit Global Inc	▼ -1.03%
Stoneco Ltd-A	▲ 1.57%	Flywire Corp-Vot	▼ -0.87%
Lightspeed Comme	▲ 1.33%	Worldline	▼ -0.76%
Nuvei Corp-Sub V	▲ 1.15%	Payoneer Global	▼ -0.66%
Shopify Inc - A	▲ 1.15%	Green Dot Corp-A	▼ -0.61%

Portfolio composition

Latest additions	Latest deletions
EML Payments	Nexi
Mitek Systems	Expensify

Fund information

Ticker	DPAY LN	ISIN	IE00BF92J153
TER	0.49%	Inception date	27/05/2021
Currency	USD	Index inception date	26-Jan-21
Securities lending	No	Replication method	Physical

Key risk

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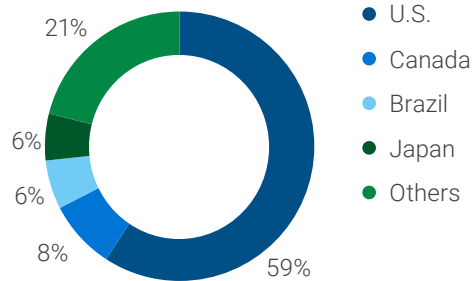


Digital Payments

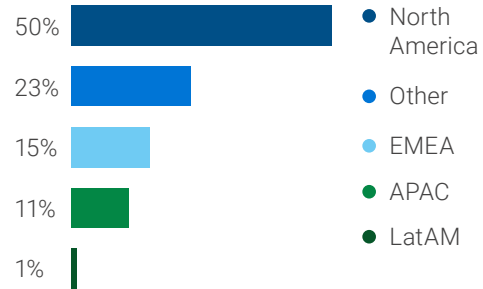
Characteristics

Geographical breakdown

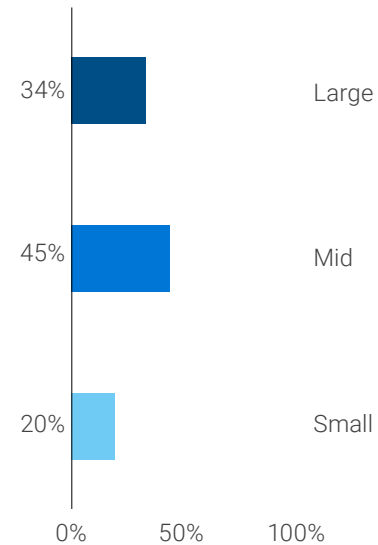
By domicile



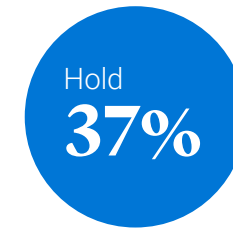
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	0.52	0.46
Price/Sales	2.76	3.00
BPS	7.66	7.16
P/E Positive	29.62	27.84
ROE	4.20	2.71
Price/Book	2.83	3.02
P/E (1y fwd)	37.33	22.56
P/E (3y fwd)	18.69	23.36
Sales (1y fwd)	4,925	5,046
Sales (3y fwd)	5,612	4,938

Constituents overlap

S&P 500	2.7%
MSCI World	2.1%
Nasdaq 100	0.5%
Total stocks = 40	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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The consensus ratings presented in this chart are not in relation to the L&G Thematic ETFs.

Key risk

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Ecommerce Logistics

Company spotlight

*CJ Logistics

CJ Logistics is a Korea-based integrated shipping and logistics company, founded in 1930. It is the oldest and largest parcel delivery company in South Korea, delivering over 5.3 million domestic packages per day. Currently, CJ Logistics operates technology-driven logistics businesses at 280 bases in 40 countries. The company offers a one-stop service platform with air and sea international freight forwarding, warehousing and transportation contract logistics, asset-based trucking, parcel and express delivery, and supply chain consulting.

One of the company's core operations is its ecommerce and e-fulfilment solution. CJ Logistics uses smart fulfilment centres and hub terminals that handle picking, packaging and shipping preparation autonomously, ensuring efficient delivery times. Additionally, the company offers its digital ecommerce platform *eFLEXs, which allows customers to gain visibility across inventory management, orders received, package tracking and payment to service metrics.

CJ Logistics has also pioneered the optimisation of cross-border ecommerce logistics through advanced technologies and services. For example, in June 2023, CJ Logistics partnered with Korea *Ocean Business Corporation (KOBC) to construct a \$457m large-scale

logistics centre in the US. The logistics centre will focus on handling the import and export cargo of global and South Korean companies and ecommerce sellers, facilitating their overseas expansion and trade activation into the US.

Additionally, in May 2023, CJ Logistics announced its plans to build a Global Distribution Centre (GDC) in Saudi Arabia by 2024. The GDC will be the first dedicated ecommerce logistics facility in Saudi Arabia. The facility will span 18,000 square meters of floor area capable of handling a daily throughput of 15,000 boxes in the country.

Last quarter performance commentary

The Solactive eCommerce Logistics Index returned +11.6% over the quarter.

Supply chains in the Middle East were disrupted by attacks on merchant ships in the Red Sea, likely by the 'Houthi' rebels based in Yemen in response to the ongoing conflict in the Gaza strip. This pushed freight rates to the benefit of shipping giants such as Maersk, although it increases disruption risk.

In November the Biden administration announced nearly 30 new upcoming actions to strengthen supply chains critical to America's economic and national

security. These would include the creation of a Council on Supply Chain Resilience and a Department of Transport Multimodal Freight Office.

According to a study by TI, Real Time Visibility (RTV) is one of the top three criteria that shippers require from carriers, after price and past on-time performance, something that was put under the spotlight during the pandemic, as only a small proportion of carriers offer full visibility.

*GXO Logistics completed the acquisition of *PFSweb at a 56% premium to expand in high-growth verticals such as cosmetics and luxury goods and announced a partnership with *Blue Yonder to improve warehouse management capabilities and real-time visibility on inventory and orders. It also carried out an industry-leading test of "*Digit" in a plant in Georgia. Digit is an Agility Robotics device that can carry out warehouse tasks such as lifting and moving items of more than 15kg, creating a safer and more productive environment for human colleagues.

The main contributors to performance were *CJ Logistics (returned +66.0%), *Shopify (+42.8%) and *Ocado (+32.1%). The main detractors were *NTG Nordic Transport Group (-15.4%), *Alibaba (-9.4%) and *DSV (-5.9%).

Source: LGIM, Bloomberg, Transport Intelligence Logistics, as at 29 December 2023.

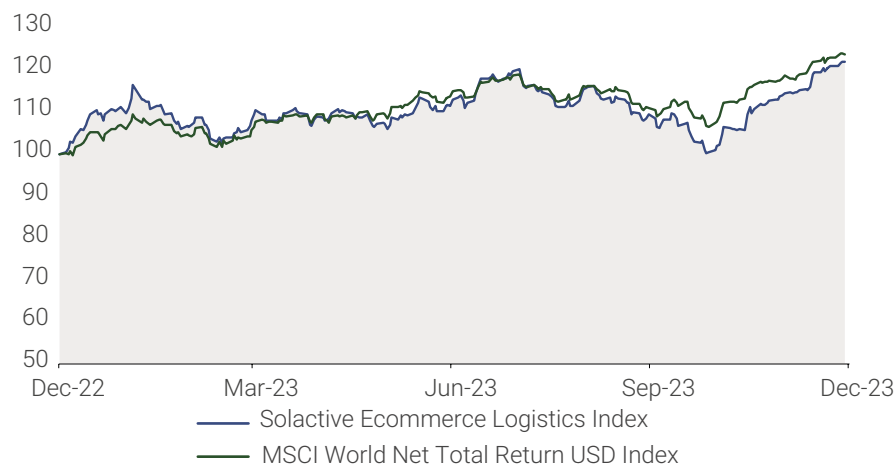
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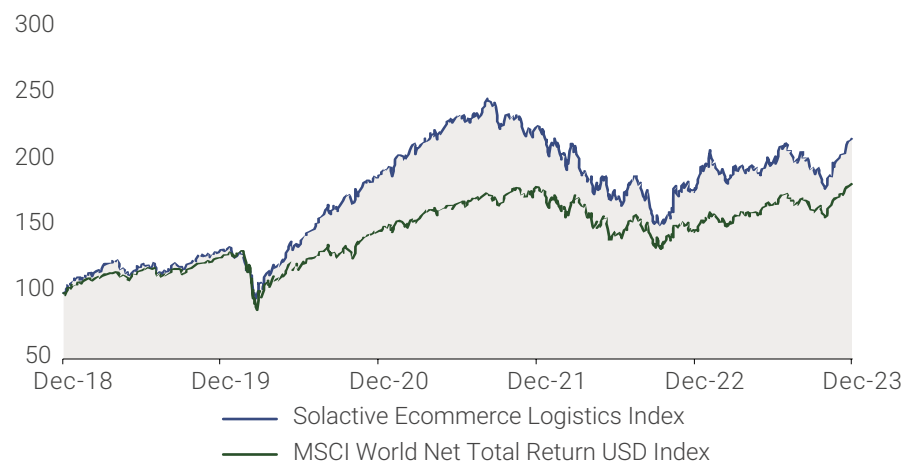
Ecommerce Logistics

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	Qtd	1 year	3 years	5 years
Cumulative Return	11.59%	22.16%	15.05%	118.08%
Annualized Return			4.80%	16.90%
Volatility	15.58%	15.01%	17.26%	17.47%
Sharpe Ratio	354.86%	148.18%	27.79%	96.71%
Max Drawdown	-8.58%	-16.67%	-39.20%	-39.20%

Index total return contribution (QtD)

Top 5		Bottom 5	
Cj Logistics	▲ 1.80%	Ntg Nordic Trans	▼ -0.26%
Shopify Inc - A	▲ 1.26%	Alibaba Grp-Adr	▼ -0.26%
Ocado Group Plc	▲ 0.87%	Dsv A/S	▼ -0.23%
Segro Plc	▲ 0.86%	Fedex Corp	▼ -0.15%
Concentrix Corp	▲ 0.70%	Ap Moller-B	▼ -0.09%

Portfolio composition

Latest additions	Latest deletions
no additions in Q4	Dimerco Express

Fund information

Ticker	ECOM LN	ISIN	IE00BF0M6N54
TER	0.49%	Inception date	23/01/2018
Currency	USD	Index inception date	03-Jan-18
Securities lending	No	Replication method	Physical

Key risk

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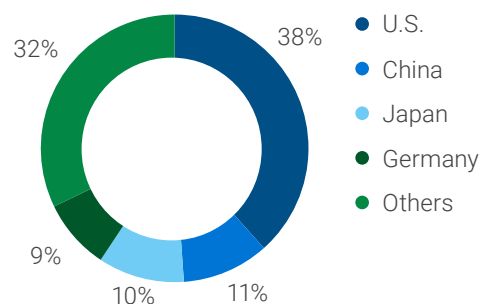


Ecommerce Logistics

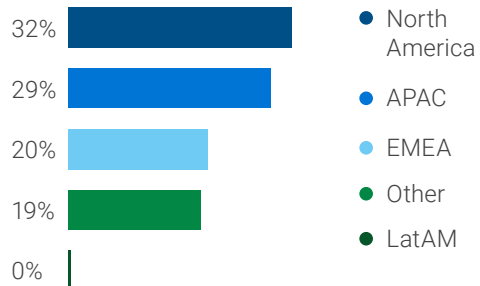
Characteristics

Geographical breakdown

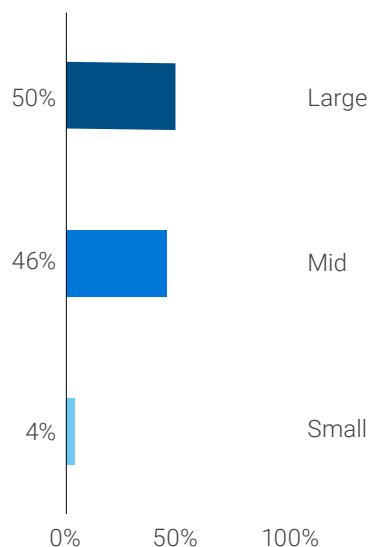
By domicile



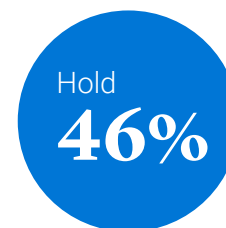
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	2.44	3.17
Price/Sales	0.77	0.82
BPS	17.13	14.76
P/E Positive	16.58	10.97
ROE	11.75	12.06
Price/Book	2.35	2.17
P/E (1y fwd)	26.34	29.71
P/E (3y fwd)	13.28	15.12
Sales (1y fwd)	48,020	43,110
Sales (3y fwd)	56,211	51,913

Constituents overlap

S&P 500	4.8%
MSCI World	4.3%
Nasdaq 100	3.0%
Total stocks = 37	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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Key risk

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Emerging Cyber Security

Company spotlight

*eMemory

eMemory is a Taiwanese hardware security company from the emerging segment of our portfolio. The company delivers semiconductor Intellectual Property (IP) and specialises in Physical Unclonable Function (PUF) security, one of the most advanced protections in cryptography. A PUF is a physical object that provides a challenge-response pair (CRP), which is a combination of an output (response) that serves as unique identifier for given inputs and conditions (challenge), for microprocessors. PUFs are used heavily in cryptography, Internet of Things (IoT) devices and other complex security applications within integrated circuits.

eMemory was founded in 2000, as the next practical step to develop academic research. Today it has shipped 54 million wafers, it has 25 foundry partners, covers 10 Integrated Design Manufacturers (IDMs), has over 2,400 verified Non Volatile Memory (NVM) IPs and over 6,800 design licences worldwide.

Today it is leading in the hardware security space, and with its subsidiary *PUFsecurity it aims to safeguard the next generation of computing. With the proliferation of IoT devices, hardware security is essential to provide faster response times, less vulnerability and simpler protection than a software-based approach. eMemory

integrates confidentiality, data integrity and authenticity features in every chip to ensure a comprehensive level of protection in wireless devices. As well as building in security features such as storing codes directly into semiconductor processors, eMemory creates security solutions such as key generation and encryption in the circuits.

eMemory's solutions are used in diverse applications including display driver ICs (screens of TVs and laptops), connectivity ICs (essential for WiFi and Bluetooth connections) and autoelectronics ICs (advanced driver assistance systems).

Last quarter performance commentary

The Solactive Emerging Cyber Security Index NTR returned +20.2% over the quarter.

UK Finance, a trade association representing ~300 banking and finance firms, launched the Quantum Risks and the Quantum Opportunities reports, providing seven recommendations to support the creation of a quantum computing taskforce. These include the establishment of a cross-sectoral Quantum Safe taskforce, the understanding of the global picture, growth in the quantum workforce, UK supervisory authorities to start their Quantum Safe journeys, the development of targeted sectoral roadmaps, the

establishment of a Quantum Computing Task Force responsible for monitoring advancements and identifying potential use cases, and encouragement for firms to invest in quantum computing education and training. The report notes sensitive data security as a benefit and the powers of a cryptographically relevant quantum computer (CRQC) as a potential risk. According to Fortune Business Insights, the global quantum cryptography market size is anticipated to grow at a 19.8% CAGR from \$128.9 million in 2023 to \$455.3 million by 2030 ([source](#)).

*Mitek Systems won the Identity Verification and Know Your Customer award at FinTech Finance's 2023 FF Awards in November, on the back of its leadership in identity verification from biometrics and image capture technology to ID verification.

The main contributors to performance were *SentinelOne (returned +62.8%), *Crowdstrike (+52.5%) and * Zscaler (+42.4%). The main detractors were *NetScout Systems (-21.7%), *IonQ (-16.7%) and *A10 Networks (-11.9%).

*CrowdStrike had strong performance throughout 2023, and has benefitted from the contribution that generative AI can bring to its cyber security technologies. Its CEO stated that the company is on track to reach \$10 billion recurring revenue within seven years.

Source: LGIM, Bloomberg, as at 29 December 2023.

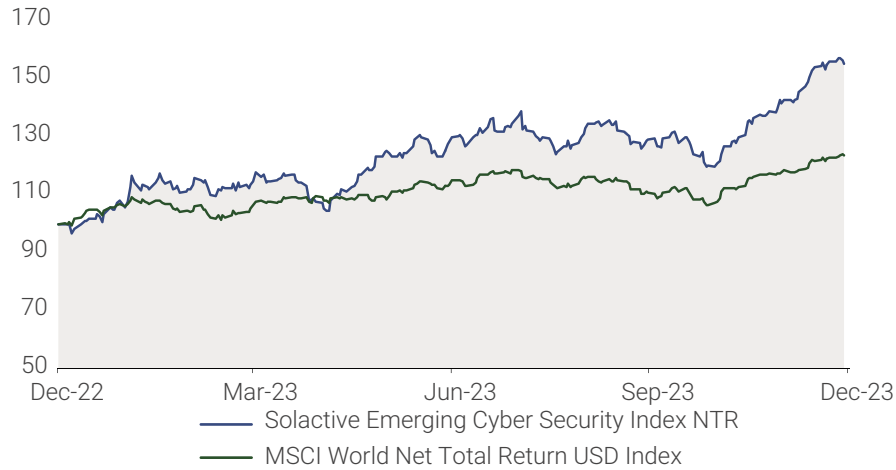
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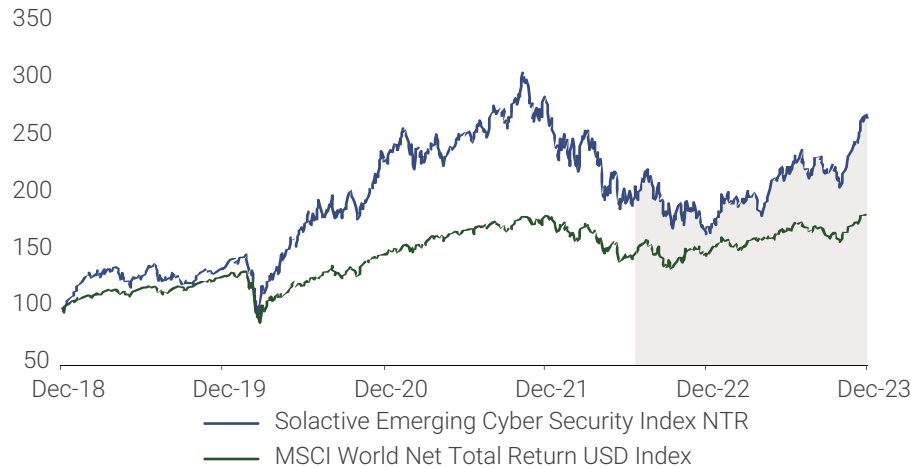
Emerging Cyber Security

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	20.20%	55.45%	15.66%	166.60%
Annualized Return			4.98%	21.70%
Volatility	18.68%	21.71%	27.37%	28.24%
Sharpe Ratio	585.04%	256.48%	18.20%	76.84%
Max Drawdown	-9.23%	-13.90%	-46.08%	-46.08%

Index total return contribution (QtD)

Top 5		Bottom 5	
Sentinelone In-A	▲ 1.80%	Netscout Systems	▼ -0.69%
CrowdStrike Ho-A	▲ 1.62%	Ionq Inc	▼ -0.42%
Zscaler Inc	▲ 1.25%	A10 Networks Inc	▼ -0.39%
Egis Tech	▲ 1.21%	Fastly Inc -CI A	▼ -0.20%
Adv Micro Device	▲ 1.13%	Darktrace Plc	▼ -0.19%

Portfolio composition

Latest additions	Latest deletions
no rebalance in Q4	no rebalance in Q4

Fund information

Ticker	ESPY LN	ISIN	IE000ST40PX8
TER	0.49%	Inception date	07/09/2022
Currency	USD	Index inception date	20-Jul-22
Securities lending	No	Replication method	Physical

Key risk

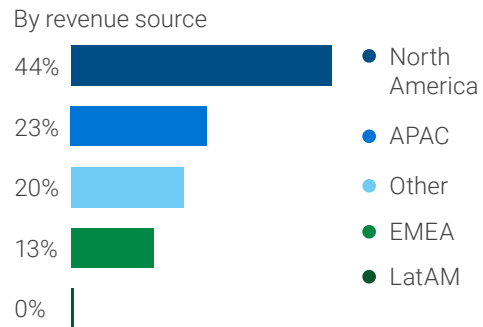
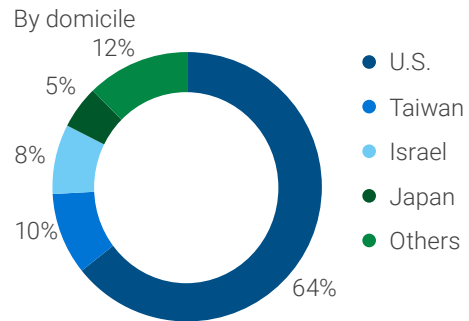
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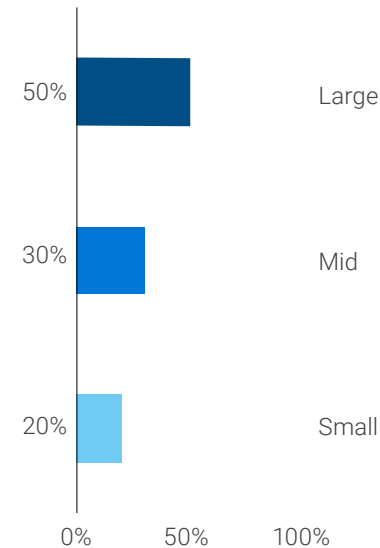
Emerging Cyber Security

Characteristics

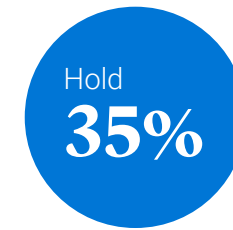
Geographical breakdown



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	0.58	0.42
Price/Sales	5.24	4.63
BPS	6.92	6.02
P/E Positive	27.83	22.97
ROE	4.83	1.34
Price/Book	4.95	3.53
P/E (1y fwd)	42.38	26.26
P/E (3y fwd)	26.48	24.47
Sales (1y fwd)	5,559	5,752
Sales (3y fwd)	6,844	5,928

Constituents overlap

S&P 500	2.6%
MSCI World	2.2%
Nasdaq 100	7.5%
Total stocks = 37	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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Key risk

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Global Thematic

Last quarter performance commentary

The Solactive L&G Global Thematic Index NTR returned +10.1% over the quarter. The Index returned -8.8% in October, +11.9% in November and +7.9% in December.

In October most equity sectors posted negative returns due to deteriorating consumer sentiment and the conflict in the Middle East. In Europe, the ECB left interest rates unchanged, breaking an unprecedented streak of 10 consecutive hikes, and maintained its guidance that signalled steady policy ahead. Price pressures started to ease, inflation more than halved in a year and the European economy slowed down. Over the course of the month, the US 10-year yield touched 5% and gold rallied, hitting \$2,000/oz. The main detractors in October were Battery Value-Chain and Emerging Cyber Security, with *Tesla and *IonQ weighing on performance. *Clean Energy and *Pharma Breakthrough also were significant detractors. Across Clean Energy, solar energy providers detracted most from performance, and labour shortages continued to have a strong impact on Pharma Breakthrough.

In November the Fed decided to maintain the target interest rate unchanged at 5.25%-5.50% and the Bank of England maintained the bank rate at 5.25%. The

Fed's dovish stance boosted equity market sentiment. All sectors but Energy delivered positive returns, led by Information Technology, Real Estate and Consumer Discretionary, and the Legal & General Global Thematic Fund rebounded after the decline over the prior month. The US dollar weakened along with government bond yields, gold rallied past the \$2,040/oz mark and the VIX Index ended the month below 13, the lowest it's been in 2023. All themes delivered positive returns over the month. The main contributors to performance were technology-related themes such as Emerging Cyber and Artificial Intelligence, led by security software company CrowdStrike. Clean Energy also provided a strong contribution to performance, followed by *Clean Water. Clean Energy stocks started to rebound in November, after being broadly range bound for the first half of the year and then declining due to concerns around inflation and interest rates. Within the theme, the strongest segment was wind energy generation, and strong contributions to performance came from component suppliers, *Independent Power Producers (IPPs) and *Original Equipment Manufacturers (OEMs) who announced results ahead of expectations.

In December equity markets delivered strong returns and the VIX Index hit its lowest point in the year. The Fed decided to maintain the federal funds rate at

5.15-5.50% and the Bank of England maintained the Bank rate at 5.25%; however, commodity markets exhibited some volatility due to tensions in the Red Sea. All themes contributed positively to performance, however, the main contributors were Emerging Cyber Security and Clean Energy, followed by Healthcare Breakthrough and Artificial Intelligence. Along with a rally in tech stocks, stocks related to renewable energy started to rebound over the course of the month.

The theme that contributed the most to performance over the quarter was Emerging Cyber Security (returned +20.2%), followed by Artificial Intelligence (+21.3%) and Clean Energy (+10.1%). The only detractors were Battery Value-Chain (+0.8%) and Pharma Breakthrough (+2.6%), which remained flat over the quarter.

On a stock-level basis, the main contributors to performance were *Crowdstrike (returned +52.5%), *Alfen N.V. (+57.0%) and *Shopify (+42.8%). The main detractors were *Babcock & Wilcox (-65.3%), *SolarEdge Technologies (-27.7%) and *IonQ (-16.7%).

Source: LGIM, Bloomberg, as at 29 December 2023.

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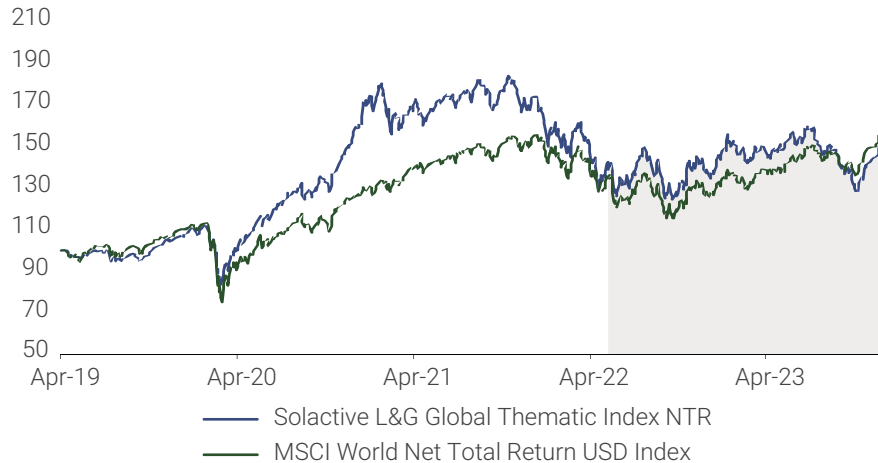
Global Thematic

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years
Cumulative Return	10.09%	13.46%	-3.13%
Annualized Return			-1.06%
Volatility	17.19%	14.81%	18.17%
Sharpe Ratio	273.90%	91.16%	-5.82%
Max Drawdown	-9.21%	-20.01%	-32.55%

Index total return contribution (QtD)

Top 5		Bottom 5	
Crowdstrike Ho-A	▲ 0.29%	Babcock & Wilcox	▼ -0.21%
Alfen N.V.	▲ 0.24%	Solaredge Techno	▼ -0.16%
Shopify Inc - A	▲ 0.23%	Ionq Inc	▼ -0.16%
Sentinelone In-A	▲ 0.23%	Sarepta Therapeu	▼ -0.13%
Vestas Wind Syst	▲ 0.21%	Rackspace Techno	▼ -0.12%

Portfolio composition

Latest additions	Latest deletions
full list available upon request	full list available upon request

Fund information

Ticker	THMZ LN	ISIN	IE000VTOHNZ0
TER	0.6%	Inception date	07/09/2022
Currency	USD	Index inception date	30-May-22
Securities lending	No	Replication method	Physical

Key risk

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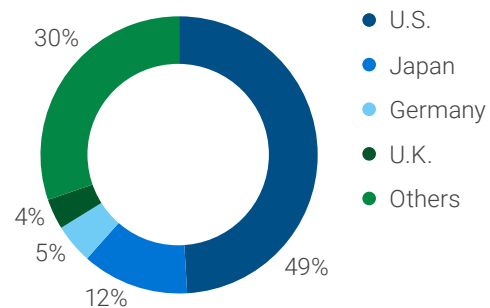


Global Thematic

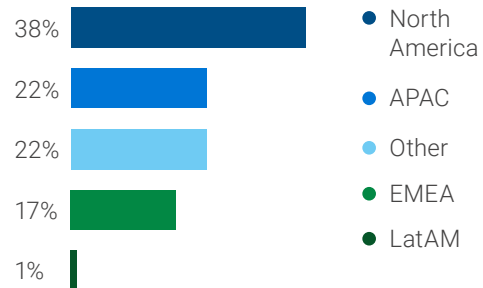
Characteristics

Geographical breakdown

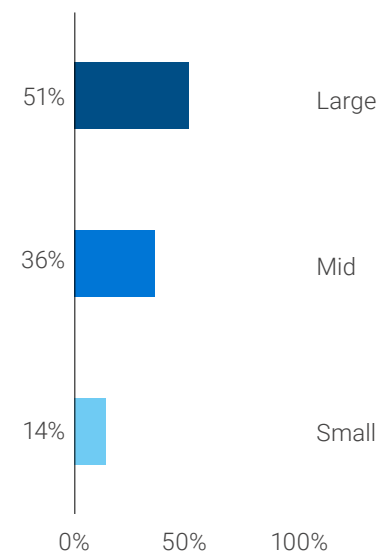
By domicile



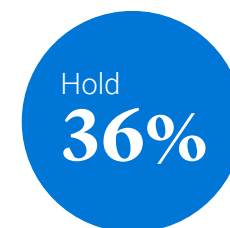
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.46	1.37
Price/Sales	3.38	3.47
BPS	14.41	13.72
P/E Positive	26.29	23.99
ROE	10.18	11.14
Price/Book	3.22	3.45
P/E (1y fwd)	35.79	32.42
P/E (3y fwd)	23.63	25.37
Sales (1y fwd)	13,432	13,484
Sales (3y fwd)	16,318	15,175

Constituents overlap

S&P 500	11.5%
MSCI World	13.5%
Nasdaq 100	10.1%
Total stocks = 362	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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The consensus ratings presented in this chart are not in relation to the L&G Thematic ETFs.

Key risk

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.



Healthcare Technology

Company spotlight

*Natera

Natera is a leading provider of cell-free DNA testing, dedicated to women's health, oncology and organ health. Natera is at the forefront of revolutionising how genetic and cancer risks are assessed, and how the progression of cancer therapy is tracked. Their key products are Panorama™, a non-invasive prenatal test (NIPT), and Horizon™, a carrier screening test, both identifying possible genetic disorders in newborns. Natera is also a pioneer in liquid biopsies, with Signatera™ detecting cancer relapse early, and Prospera™ assessing kidney transplant rejection risk through a minimally invasive blood draw.

Natera's trajectory in the field of oncology and organ health represents a significant growth opportunity, outpacing even their advancements in women's health. Q3 saw the publication of results from a *RenaCARE™ study, demonstrating the significant diagnostic and clinical utility of the *Renasight™ test in chronic kidney disease. *Signatera continues to gain progress in other trials and increase evidence of improving outcomes for other cancers (i.e. breast and colorectal), and recently in Q4 submitted for premarket approval as a Companion Diagnostic (CDx). This move aims to guide cancer treatment plans, potentially expanding Natera's market reach and boosting revenue streams,

highlighting its evolving role in revolutionising cancer management.

In the past year Natera expanded coverage for their MRD technology from CMS/Medicare and the Department of Veterans Affairs. Additionally, their competitive edge has been further solidified through victorious patent disputes against *Invitae and a recent preliminary injunction against *NeoGenomics. In Q3 2023, Natera showcased robust growth and the CFO announced that they are on track to reach cashflow breakeven in 2024.

Last quarter performance commentary

The ROBO Global Healthcare Technology and Innovation Index returned +11.1% over the quarter.

The index saw a positive contribution from eight of the nine subsectors. The sector is rebounding from historically low valuations, primarily influenced by the Q3 selloff, which was driven by widespread GLP-1 related concerns.

The Medical Instruments (25.5% weighting, +10% return) subsector saw *Becton Dickinson announce *FDA 510(k) clearance for its *MiniDraw blood collection device, which sees the samples run on Diagnostic subsector (21% weighting, +9.4% return) leader *Siemens Healthineers' vetted lab diagnostics

technology. Masimo won a major patent infringement case against Apple regarding the proprietary pulse oximetry technology.

Within *Genomics (10.6% weighting, +28.8% return), *Twist Bioscience Corp posted revenue and earnings beats and raised expectations coupled with the launch of launch *Express Genes, which aims to tap into the market of organisations currently producing their own DNA due to time constraints—an estimated \$1.4 billion market.

Within *Precision Medicine (12% weighting, +6.8% return), *Vertex achieved two ground-breaking milestones. In partnership with *CRISPR Therapeutics (CRSP), it received FDA approval for the first CRISPR treatment in the US, *Casgevy, as a single-shot, gene-editing cure for sickle-cell disease. The company also saw pipeline candidate *VX-548, a non-opioid pain medication, clear a phase two medical trial, which could pave the path for a much-needed alternative to the addictive opioid class. Meanwhile, Moderna's RNA cancer vaccine showed a 50% reduction in reoccurrence or death in Melanoma when paired with Merck's Keytruda.

Process automation (14.6%, +15.1% return) showed positive normalization across constituents. *Charles River received a world-first FDA and European Medicines Agency (EMA) regulatory clearance to be the first CDMO to manufacture *Vertex's Casgevy.

Source: LGIM, Bloomberg, ROBO Global®, as at 29 December 2023.

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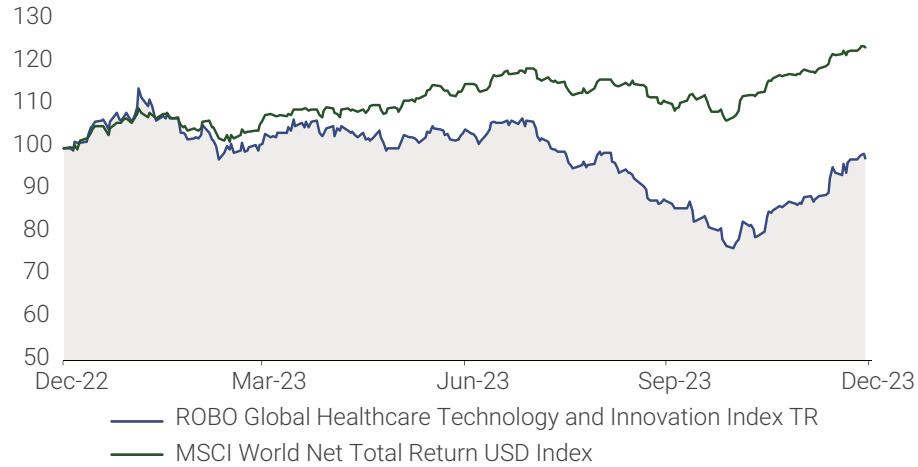
Past performance is not a guide to the future.



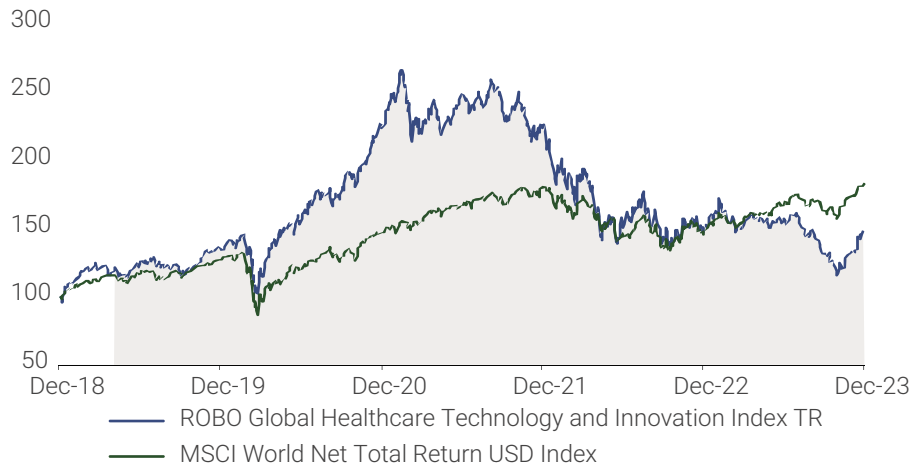
Healthcare Technology

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	11.05%	-2.41%	-34.51%	47.15%
Annualized Return			-13.19%	8.04%
Volatility	24.10%	20.11%	25.63%	25.59%
Sharpe Ratio	217.05%	-12.02%	-51.47%	31.43%
Max Drawdown	-12.88%	-32.88%	-56.67%	-56.67%

Index total return contribution (QtD)

Top 5		Bottom 5	
Twist Bioscience	▲ 1.11%	Staar Surgical	▼ -0.46%
Carex Inc	▲ 0.98%	Omniceil Inc	▼ -0.30%
Dexcom	▲ 0.68%	Bio-Rad Labs-A	▼ -0.20%
Insulet Corp	▲ 0.65%	Bristol-Myer Sqb	▼ -0.17%
Natera Inc	▲ 0.64%	Guardant Health	▼ -0.17%

Portfolio composition

Latest additions	Latest deletions
Arrowhead Pharma	Nevro
Artivion	Tactile Systems
Catalent	

Fund information

Ticker	DOCT LN	ISIN	IE00BK5BC677
TER	0.49%	Inception date	02/07/2019
Currency	USD	Index inception date	01-May-19
Securities lending	No	Replication method	Physical

Key risk

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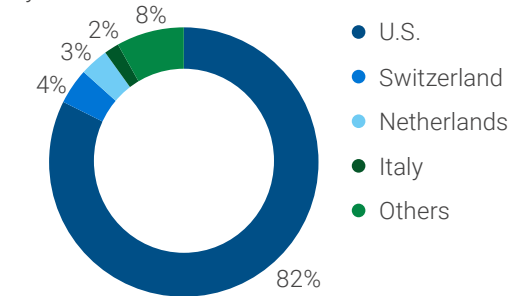


Healthcare Technology

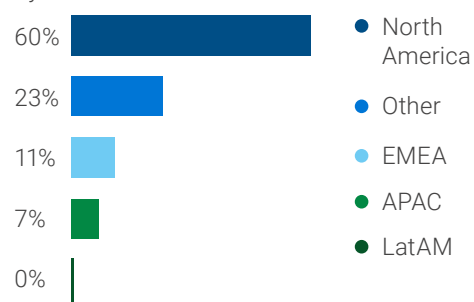
Characteristics

Geographical breakdown

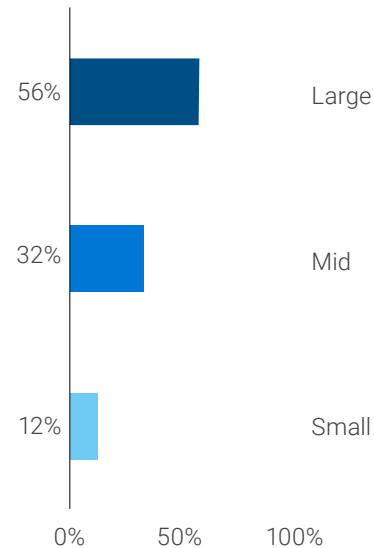
By domicile



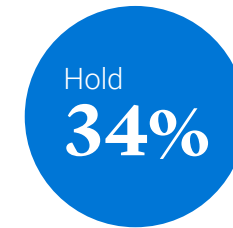
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.64	2.10
Price/Sales	4.47	4.86
BPS	20.38	20.10
P/E Positive	33.59	29.15
ROE	7.00	10.06
Price/Book	3.49	4.16
P/E (1y fwd)	33.43	35.85
P/E (3y fwd)	23.85	23.31
Sales (1y fwd)	6,252	5,557
Sales (3y fwd)	7,825	7,336

Constituents overlap

S&P 500	4.0%
MSCI World	3.3%
Nasdaq 100	3.7%
Total stocks = 68	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
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Key risk

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Hydrogen Economy

Company spotlight

*Weichai Power

Chinese-based Weichai Power (Weichai) is the combustion engine subsidiary of industrial equipment group *Weichai Holding Group. It is one of the leading comprehensive automotive and equipment manufacturing industry groups in China and the leading Heavy Duty Truck (HDT) engine provider with >30% domestic market share. Its products include engines, gearboxes, axles and hydraulics for trucks, forklifts and excavators.

One of Weichai's key focus areas is hydrogen fuel cell manufacture. In FY2022, the company completed the development of the full series of industry-leading 15-260kW fuel cell products, it launched the hydrogen fuel-cell HDT project in Qingdao Port, which was the first amongst the ports in China, and launched China's first highway hydrogen refuelling station. The 49-ton fuel cell HDT equipped with Weichai technology began operations along the Jinan-Qingdao Expressway and had an operating mileage of over 240,000km.

Building partnerships has been a key strategy for Weichai. Via a partnership with *Sinotruk, the Chinese state-owned truck manufacturer, Weichai jointly launched China's first high-end HDT equipped with a 13L hydrogen internal combustion engine. In Q4 2022,

Source: LGIM, Bloomberg, as at 29 December 2023.

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Past performance is not a guide to the future.

Weichai and Sinotruk further signed strategic cooperation agreements with three of the leading automotive manufacturers in China to produce 1,100 hydrogen fuel cell equipped commercial vehicles, including logistics vehicles and tractors. The agreement also involves the operational handover of an additional 200 hydrogen fuel cell commercial vehicles.

Currently, Weichai is well positioned to benefit from the rebound in the Chinese HDT market. YTD HDT sales growth is now 35% yoy v. 30% estimate, and *JP Morgan estimates that Weichai's market leadership could rise to >40% in H2 2023.

Last quarter performance commentary

The Solactive Hydrogen Economy Index NTR returned +7.6% over the quarter.

The US Treasury Department and IRS proposed guidance for claiming the 45V Clean Hydrogen Production Tax Credit established last year by the IRA. The European Commission launched the first European Hydrogen auction, with EUR 800 million of subsidies for green hydrogen production. The UK ran the first green hydrogen auction in December, after which it committed £2 billion to 11 projects.

*Korea Southern Power and the local government scheduled a demonstration of *Bloom Energy's

electrolyser technology to produce green hydrogen at scale and use it as transport fuel, from 2025. This will be the first demonstration of this kind in South Korea and will take place on Jeju Island, known as a leading market for renewable energy projects.

*PlugPower completed the first installation of an electrolyser at an *Amazon fulfilment centre. The hydrogen produced can fuel over 225 fuel-cell-powered forklift trucks and will help Amazon produce hydrogen directly on site rather than getting it delivered. The company's share price was volatile as it filed a going concern warning in November, stating that cash might not be sufficient to fund operations in the next 12 months. Other hydrogen producers are also exposed to profitability delays and cash shortages. The subsidies promised in the US were not yet distributed.

Hydrogen OEMs are down ~40% in 2023 on higher interest rates, delayed adoption and a deterioration in hydrogen economics.

*Linde's McIntosh hydrogen facility increased production to up to 30 tons a day to meet demand.

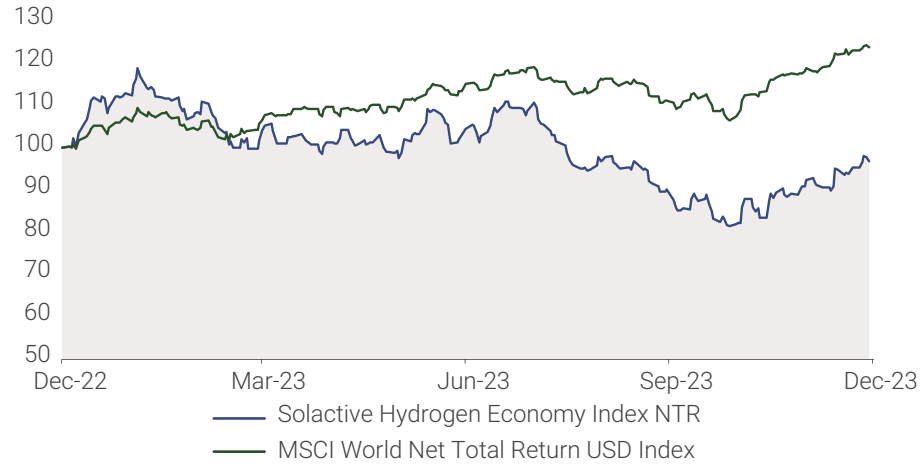
The main contributors to performance were *Weichai Power (returned +13.8%), & *FuelCell Energy (+25.0%) and *Nippon Sanso (+13.0%). The main detractors were Plug Power (-40.8%), *Ceres Power (-39.1%) and *NEL ASA (-13.5%).



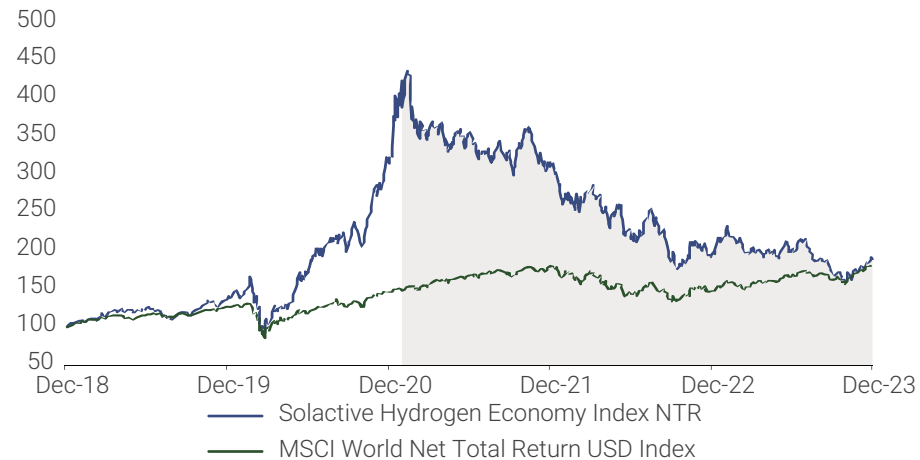
Hydrogen Economy

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	7.55%	-3.19%	-41.08%	89.85%
Annualized Return			-16.20%	13.70%
Volatility	25.30%	21.62%	27.27%	29.22%
Sharpe Ratio	134.11%	-14.81%	-59.40%	46.88%
Max Drawdown	-9.55%	-31.46%	-63.62%	-63.62%

Index total return contribution (QtD)

Top 5		Bottom 5	
Weichai Power-H	▲ 1.40%	Plug Power Inc	▼ -2.00%
Fuelcell Energy	▲ 1.37%	Ceres Power Hold	▼ -0.51%
Nippon Sanso Hol	▲ 0.93%	Nel Asa	▼ -0.43%
Air Liquide Sa	▲ 0.82%	Itm Power Plc	▼ -0.30%
Kyocera Corp	▲ 0.76%	Air Prods & Chem	▼ -0.16%

Portfolio composition

Latest additions	Latest deletions
Thyssenkrupp Nucera AG	SFC Energy
	Hyzon Motors

Fund information

Ticker	HTWO LN	ISIN	IE00BMYDM794
TER	0.49%	Inception date	10/02/2021
Currency	USD	Index inception date	26-Jan-21
Securities lending	No	Replication method	Physical

Key risk

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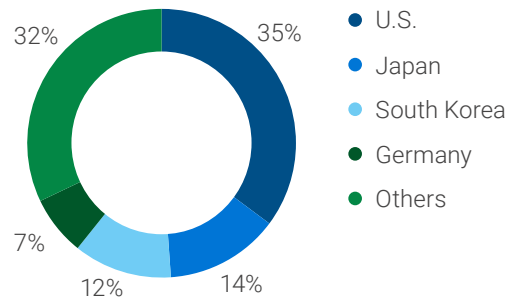


Hydrogen Economy

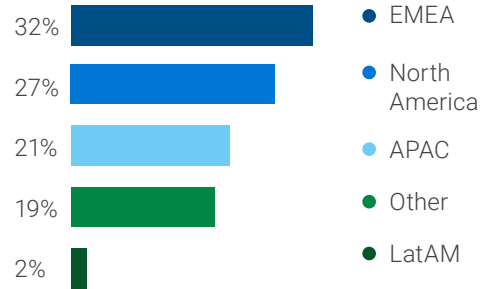
Characteristics

Geographical breakdown

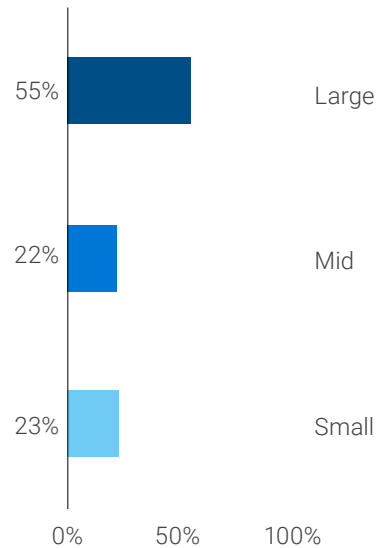
By domicile



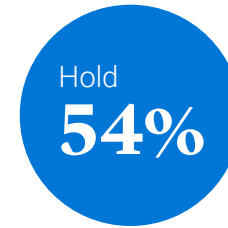
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	0.23	0.47
Price/Sales	2.88	3.18
BPS	5.92	7.27
P/E Positive	17.22	15.10
ROE	2.58	5.21
Price/Book	1.82	2.14
P/E (1y fwd)	21.26	14.82
P/E (3y fwd)	20.56	16.95
Sales (1y fwd)	26,684	26,417
Sales (3y fwd)	23,776	22,875

Constituents overlap

S&P 500	0.7%
MSCI World	1.0%
Nasdaq 100	0.0%
Total stocks = 26	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
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Key risk

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Optical Technology & Photonics

Company spotlight

*Horiba

Founded in 1945, the Japanese-based Horiba manufactures and sells an extensive array of instruments and systems for applications ranging from automotive R&D, process and environmental monitoring, in-vitro medical diagnostics, semiconductor manufacturing and metrology, to a broad range of scientific R&D and quality control measurements.

Optical technology and photonics are one of the core sectors that the company specialises in. Horiba deploys these technologies across three key operations: 1) spectroscopic analysis, technology to analyse materials by using ultraviolet light, visible light and near-infrared light; 2) infrared measurement technology to analyse components in gases in real time; and 3) particle analysis technology to measure particles (diameter, weight and components).

Within the company's spectroscopic analysis operations, one of the flagship products is the *Raman spectrometer, which has a global market share of 30%. This product uses a light-scattering technique to provide detailed information about chemical structure, phase and polymorphy, and molecular interactions of a material, aiding scientific research. Chemical concentration monitors are another flagship product with an 80% global market share. Optical fiber technology is used in the

Source: LGIM, Bloomberg, as at 29 December 2023.

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critical cleaning and etching processes of high-tech industries such as semiconductor manufacturing.

To continue strengthening its market position within the optical technology sector, Horiba acquired the US-based industrial process monitoring company *Process Instruments in October 2023. Process Instrument's robust devices and data analysis capabilities will allow Horiba to realise high-precision real-time monitoring across its line-up of spectroscopy solutions, an achievement that has typically been difficult to achieve in industrial processes. Horiba will be able to expand its Raman analyser offering for the renewable energy, environmental, material and pharmaceutical markets.

Last quarter performance commentary

The Solactive EPIC Optical Technology & Photonics Index NTR returned +13.7% over the quarter.

The European Union was called by executives of the region's largest photonics semiconductor companies to support the industry with £4.54bn funding through an eight-year plan.

The University Hospital Birmingham reported improved outcomes in operations of head and neck cancer patients thanks to *Stratasys' 3D printer J5 MediJet, which delivered custom cutting guides that resulted in reduced surgery times by up to three hours.

*Carl Zeiss announced for the first time over EUR 10 billion in revenues and incoming orders, and 15% revenue increase yoy, along with an almost +30% growth in R&D.

*Lumentum acquired *Cloud Light Technology, a developer of advanced optical modules for automotive sensors and data centre interconnect applications. Lumentum will integrate automated packaging and manufacturing technologies with its portfolio of laser transmitters and data centre transceivers and expects to deliver a more than fivefold expansion in its cloud intra data centre served opportunity, which is expected to grow at a CAGR of over 30% and exceed \$10 billion through 2028, driven by investments to support the rapid proliferation of AI and ML applications.

Horiba acquired Process Instruments to leverage its data analysis capabilities in high precision and real time applications in industrial processes and potentially other applications such as pharmaceutical and material.

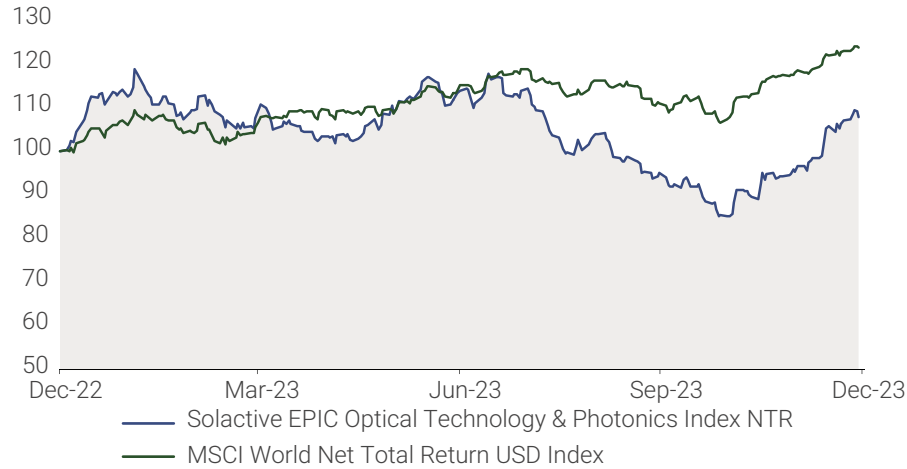
The strongest returns came from the Electricals & Manufacturing and Semiconductors sectors. Semiconductor companies had a positive quarter and rallied in November and December. The main contributors to performance were *Lasertec (returned +69.5%), *Horiba (+46.9%) and *FARO Technologies (+47.9%). The main detractors were *Desktop Metal (-48.6%), *Vuzix (-42.6%) and *Lumina Technologies (-25.9%).



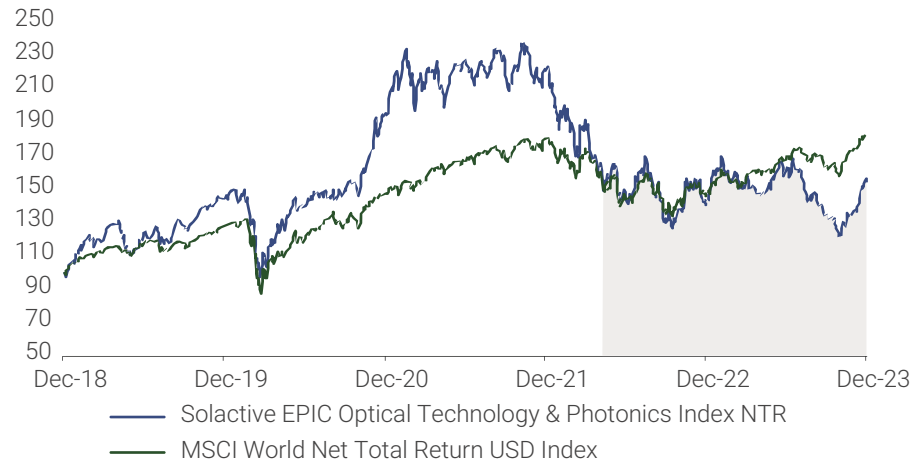
Optical Technology & Photonics

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	13.66%	7.92%	-20.68%	54.20%
Annualized Return			-7.45%	9.06%
Volatility	21.50%	19.15%	23.01%	23.31%
Sharpe Ratio	312.45%	41.52%	-32.38%	38.86%
Max Drawdown	-10.46%	-28.53%	-48.94%	-48.94%

Index total return contribution (QtD)

Top 5		Bottom 5	
Lasertec Corp	▲ 2.58%	Desktop Metal-A	▼ -1.49%
Horiba Ltd	▲ 1.58%	Vuzix Corp	▼ -1.17%
Faro Tech	▲ 1.36%	Luminar Technolo	▼ -0.65%
Hexagon Ab-B	▲ 1.27%	Nikon Corp	▼ -0.22%
Asml Holding Nv	▲ 0.89%	Topcon Corp	▼ -0.16%

Portfolio composition

Latest additions	Latest deletions
no rebalance in Q4	no rebalance in Q4

Fund information

Ticker	LAZR LN	ISIN	IE000QNJAOX1
TER	0.49%	Inception date	07/09/2022
Currency	USD	Index inception date	09-May-22
Securities lending	No	Replication method	Physical

Key risk

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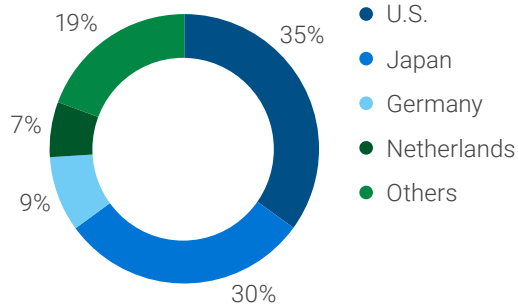


Optical Technology & Photonics

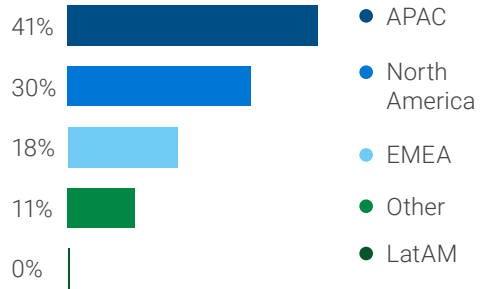
Characteristics

Geographical breakdown

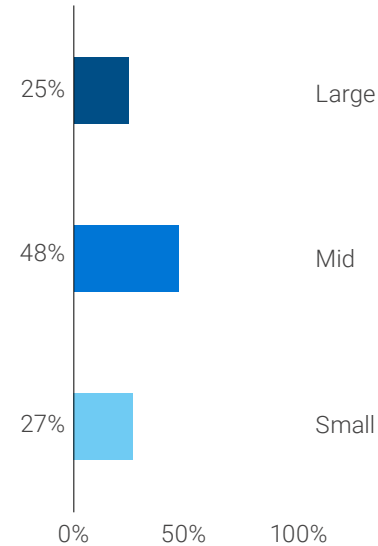
By domicile



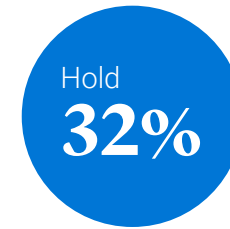
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.09	1.33
Price/Sales	2.81	2.59
BPS	13.22	13.12
P/E Positive	29.72	21.72
ROE	7.59	13.58
Price/Book	2.70	2.43
P/E (1y fwd)	39.52	25.48
P/E (3y fwd)	23.63	28.00
Sales (1y fwd)	2,745	2,835
Sales (3y fwd)	3,301	3,176

Constituents overlap

S&P 500	0.1%
MSCI World	0.9%
Nasdaq 100	0.0%
Total stocks = 34	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023. Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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Key risk

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Pharma Breakthrough

Company spotlight

*Swedish Orphan Biovitrum AB (Sobi)

Founded in 1939, Swedish Orphan Biovitrum AB (Sobi) is a specialised international biopharmaceutical company focused on rare and debilitating diseases. The company's therapies are concentrated within the areas of haematology, immunology and specialty care.

Within haematology, Sobi provides extended half-life recombinant replacement clotting factor treatments for haemophilia A and haemophilia B, and a treatment for thrombocytopenia, a condition characterised by abnormally low levels of platelets in the blood. The company's immunology portfolio allows the treatment of serious, disabling or even life-threatening diseases. Additionally, Sobi provides important specialty treatments in the areas of genetics and metabolism.

As of Q4 2023, Sobi has a combined portfolio of 16 marketed medicines, a couple of which it developed with *Sanofi, and 10 medicines in its pipeline, of which one is in Phase 2, six are in Phase 3 and three are in the registration phase. Given that many of its products are now in the later stages of development, Sobi expects many of its pipeline medicines to gain regulatory approval in 2024 in countries/regions including the US, Europe, China and Japan.

Source: LGIM, Bloomberg, Evaluate Pharma, as at 29 December 2023.

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Acquisitions have been a key element of Sobi's growth and leading market position. A recent example includes the acquisition of *CTI BioPharma for \$1.2bn at a 89% premium in June 2023 (source). *CTI BioPharma is a US-based biopharmaceutical company focused on the development and commercialisation of novel targeted therapies for blood-related cancers. The acquisition is highly complementary to Sobi's existing portfolio and specifically expands Sobi's leading position in rare haematology. The acquisition also crucially adds *VONJO to *Sobi portfolio, a differentiated product in the treatment of myelofibrosis.

Last quarter performance commentary

The Solactive Pharma Breakthrough Value Index returned +2.6% over the quarter.

Within the ecosystem of Digital Health ventures partnering with *Biopharma, 72% share of ventures are using AI or generative AI (GenAI) technology, and more than 260 private ventures using AI or GenAI have announced partnerships with Biopharma over the past five years, making Biopharma the second most popular partner (source: Evaluate Pharma, November 2023).

*Eisai and *Biogen announced the launch of Leqembi in Japan, following approval in the US. The drug is the first and only approved treatment shown to reduce the rate of Alzheimer's progression and to slow cognitive and functional decline. *Vertex had positive results on the trial of its Casgevy gene therapy for sickle cell disease, which could launch in 2024. In the meantime, *Genmab awaits key clinical data in 2024 on the Rybrevant lung cancer therapy developed with *Johnson & Johnson and readouts on the HexaBody drug for multiple myeloma.

The third quarter reporting period that ended between August and November was positive for index companies, which delivered on average a 4.06% sales growth and 8.91% earnings growth year-on-year. Index companies delivered positive growth also over the previous reporting quarters in 2023, showing more consistent results compared with broader health care companies that have, on average, reported negative earnings growth in all 2023 reporting quarters. The average earnings surprise was also very strong at 26.17%.

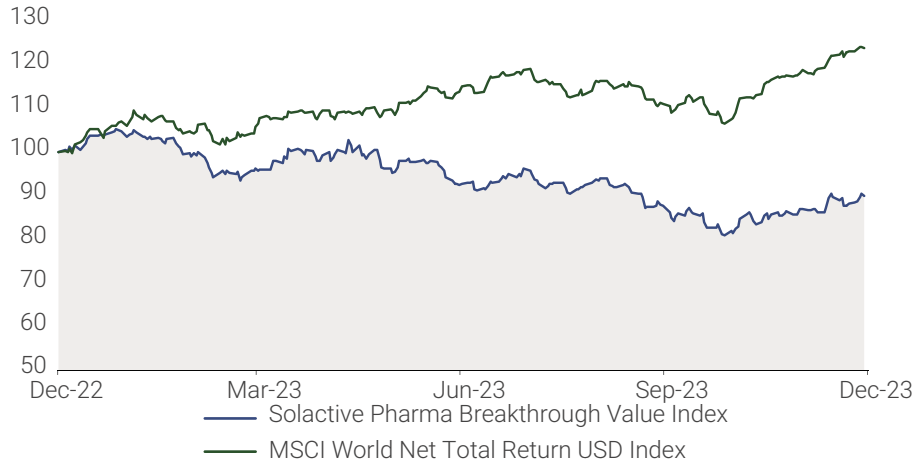
The main contributors to performance were *Sobi (returned +29.9%), *Pharma Mar (+33.8%) and *Sino Biopharmaceutical (+23.9%). The main detractors were *Sarepta Therapeutics (-20.5%), *JCR Pharmaceuticals (-17.9%) and *Nippon Shinyaku (-16.3%).



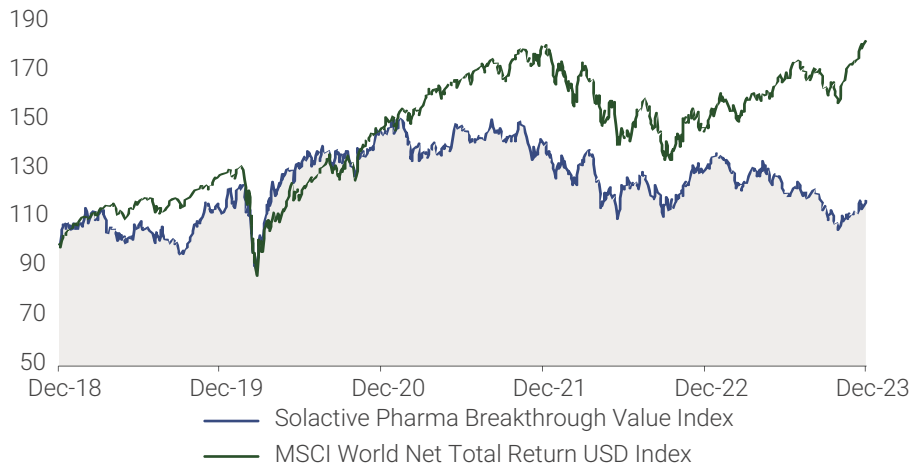
Pharma Breakthrough

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



*Source: Bloomberg as at 29 December 2023, all values are based in USD. The backtested index data has been sourced from the index provider and is based on what they perceive to be reasonable assumptions and objective data; The index data is gross of fees/costs but is net of withholding taxes. The effect of fees and charges would reduce the returns shown. Shaded area indicates live period of the index.

Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	2.63%	-9.94%	-19.01%	17.36%
Annualized Return			-6.80%	3.26%
Volatility	16.15%	14.30%	16.42%	19.21%
Sharpe Ratio	67.93%	-69.78%	-41.45%	16.96%
Max Drawdown	-7.68%	-23.01%	-30.32%	-30.32%

Index total return contribution (QtD)

Top 5		Bottom 5	
Swedish Orphan B	▲ 1.07%	Sarepta Therapeu	▼ -0.75%
Pharma Mar Sa	▲ 1.03%	Jcr Pharmaceutic	▼ -0.66%
Sino Biopharm	▲ 0.81%	Nippon Shinyaku	▼ -0.54%
Chugai Pharma Co	▲ 0.81%	Biocryst Pharm	▼ -0.50%
Vertex Pharm	▲ 0.57%	Pharming Grp Nv	▼ -0.37%

Portfolio composition

Latest additions	Latest deletions
no rebalance in Q4	no rebalance in Q4

Fund information

Ticker	BIOT LN	ISIN	IE00BF0H7608
TER	0.49%	Inception date	23/01/2018
Currency	USD	Index inception date	03-Jan-18
Securities lending	No	Replication method	Physical

Key risk

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. Simulated and past performance is not a guide to the future. The above information does not constitute a recommendation to buy or sell any security.

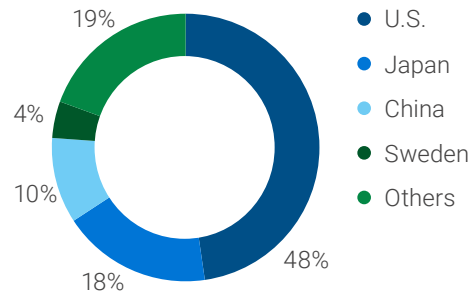


Pharma Breakthrough

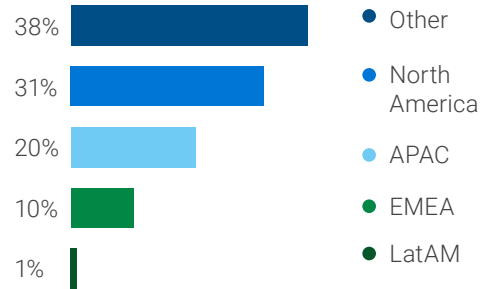
Characteristics

Geographical breakdown

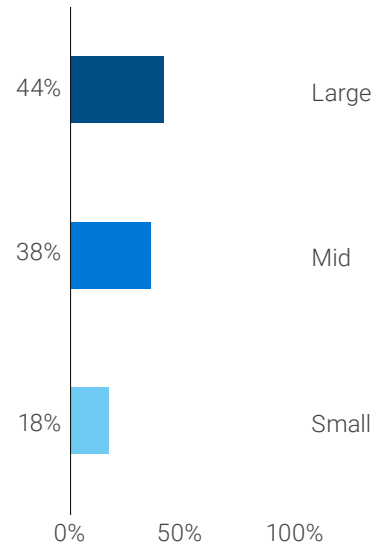
By domicile



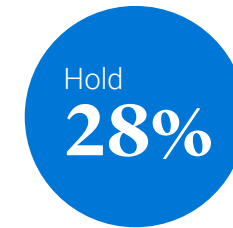
By revenue source



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	0.80	0.88
Price/Sales	4.27	5.39
BPS	9.71	10.13
P/E Positive	27.43	22.57
ROE	7.01	11.72
Price/Book	2.87	4.17
P/E (1y fwd)	19.77	27.21
P/E (3y fwd)	16.76	22.82
Sales (1y fwd)	5,055	3,903
Sales (3y fwd)	5,876	5,570

Constituents overlap

S&P 500	0.6%
MSCI World	1.1%
Nasdaq 100	1.1%
Total stocks = 32	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

Consensus ratings do not constitute a recommendation to buy or sell any security.
The consensus ratings presented in this chart are not in relation to the L&G Thematic ETFs.

Key risk

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Robotics & Automation

Company spotlight

*ServiceNow

ServiceNow, based in California, has established itself as a leading force in business process automation. The company is renowned for its robust infrastructure solutions that facilitate the development, operation and management of applications, significantly streamlining organisational processes across diverse industries. ServiceNow is at the forefront of digital transformation, increasingly incorporating AI into its offerings. The recent launch of *"Now Assist," an AI-powered tool for workflow enhancement, reflects this trend, with generative AI emerging as a key factor driving their pipeline. As a result, ServiceNow is frequently at the top of Chief Technical Officers' agendas (source: ROBO Global, December 2023).

Financially, ServiceNow has shown remarkable growth, doubling its 2020 revenue from \$4.5 billion to an estimated \$9 billion by year-end 2023, with a 24.5% Y/Y growth in constant currency as per its latest Q3 earnings. The company's customer base is also expanding, now boasting over 1,800 clients with more than \$1 million in annual contract values, adding 83 new deals in Q3 alone. In terms of profitability, ServiceNow improved its gross margin from 78.3% in 2022 to 81.8% in 2023, and its net margin saw a significant jump from 4.5% to 24%.

Source: LGIM, Bloomberg, ROBO Global®, as at 29 December 2023.

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ServiceNow is also experiencing robust growth in sectors such as manufacturing and logistics, where it plays a crucial role in merging Information Technologies with Operational Technologies (IT/OT), as well as in education. A noteworthy development is its success with the US Federal Government, where agencies are increasingly standardising on ServiceNow's platform, resulting in a 75% Y/Y increase in new annual contract values. This diverse range of applications and continued financial success position ServiceNow as a key player in the evolving landscape of business process automation and digital transformation.

Last quarter performance commentary

The ROBO Global Robotics and Automation UCITS Index returned +14.4% over the quarter.

The top two performing subsectors were *Business Process Automation (5.2% weighting, +25% gain), led by *Dassault Systems, ServiceNow, *PTC and *Autodesk; and *Sensing (10.5% weighting, +20.2% gain), led by *Koh Young, *Hexagon, *Samsara and *Keyence.

2024 is poised to see the start of large-scale production of technical and financially viable humanoid robotics, such as *Agility's Digit robot and *Tesla's Optimus. These robots rely on custom components,

particularly in motion control mechanics, as seen in the Actuation Subsector (12.3% weighting). For example, Japan-based *Harmonic Drive Systems is already receiving orders for humanoids. Similarly, companies in the Computing and AI subsector (10.5% weighting), such as *Ambarella, provide AI-designed and focused system-on-chip to allow high-performance, low power vision capabilities for robots, drones, vehicles and even static cameras.

2023 brought its share of challenges and temporary headwinds, particularly in the largest subsector, Manufacturing and Industrial Automation (16.2% weighting, +6% return). This sector, still heavily reliant on industrial China market (though shifting more global), experienced slower growth than anticipated. Long-time member and industry-leading robot-maker *FANUC shipped their millionth robot (for context, Amazon has close to 750,000 deployed).

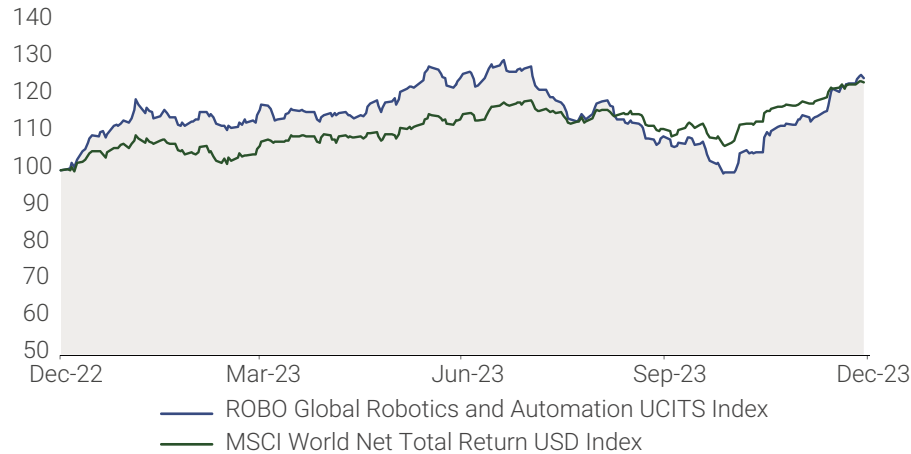
Within Integration (6% weighting, +19.0%), *Rockwell completed its acquisition of *Clearpath Robotics, a leader in autonomous mobile robots. The Logistics Automation subsector (14.5% weighting, +19.3% gain) closed out an incredible year with the strongest YTD performance. After a pandemic surge, the subsector experienced a general slowdown which has started to enter a new cycle. All 11 members reported a positive performance in Q4.



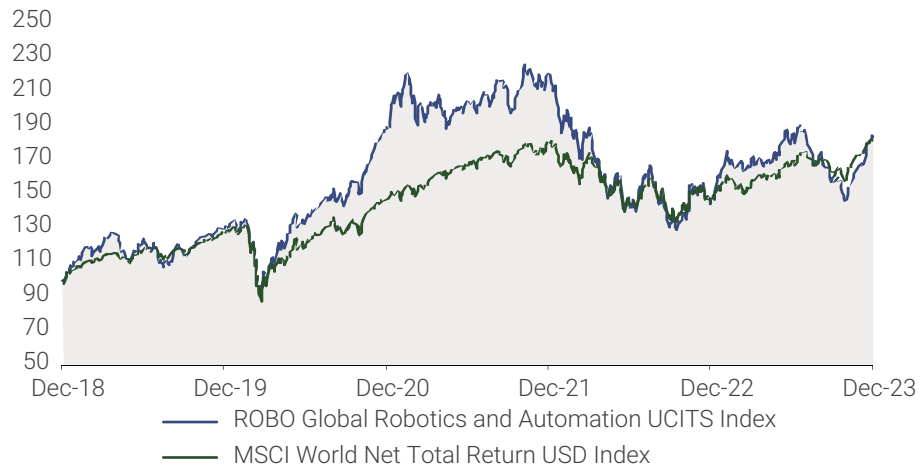
Robotics & Automation

Performance

Historical and simulated performance (1y)



Historical and simulated performance (5y)



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Index performance*

Index performance*	QtD	1 year	3 years	5 years
Cumulative Return	14.38%	24.76%	-3.03%	83.59%
Annualized Return			-1.02%	12.94%
Volatility	17.19%	15.81%	20.34%	21.14%
Sharpe Ratio	415.63%	157.22%	-5.03%	61.19%
Max Drawdown	-9.13%	-23.54%	-42.65%	-42.65%

Index total return contribution (QtD)

Top 5		Bottom 5	
Hexagon Ab-B	▲ 0.68%	Omniceil Inc	▼ -0.26%
Symbolic Inc	▲ 0.53%	Luminar Technolo	▼ -0.25%
Azenta Inc	▲ 0.52%	Duerr Ag	▼ -0.17%
Autostore Holdin	▲ 0.51%	Shibaura Machine	▼ -0.12%
Servicenow Inc	▲ 0.49%	Aptiv Plc	▼ -0.12%

Portfolio composition

Latest additions	Latest deletions
no additions in Q4	Iflitek

Fund information

Ticker	ROBO LN	ISIN	IE00BMW3QX54
TER	0.8%	Inception date	27/10/2014
Currency	USD	Index inception date	17-Jun-14
Securities lending	No	Replication method	Physical

Key risk

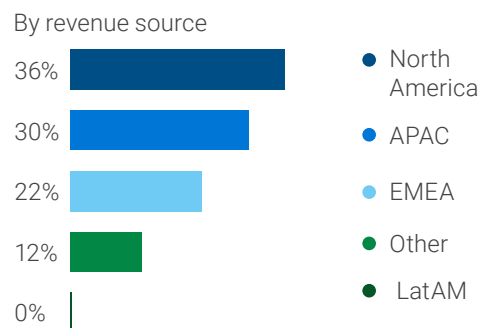
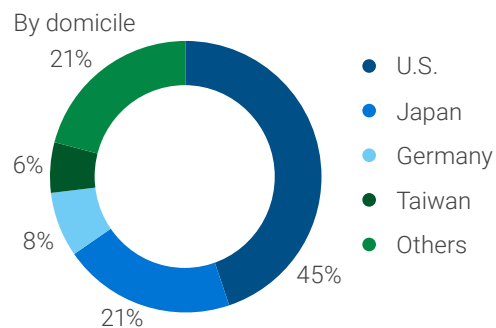
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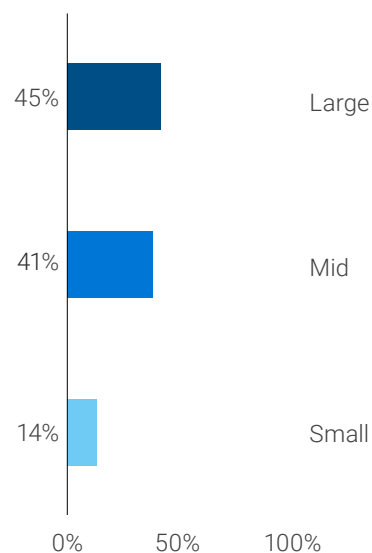
Robotics & Automation

Characteristics

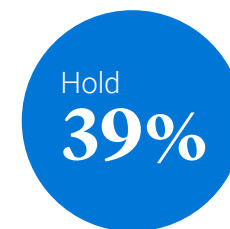
Geographical breakdown



Market cap breakdown



Third party analyst stock consensus ratings**



Key ratios

	Current	Q4 2022
EPS	1.90	1.69
Price/Sales	3.40	2.87
BPS	15.67	14.51
P/E Positive	27.31	24.67
ROE	11.69	12.08
Price/Book	3.39	3.56
P/E (1y fwd)	40.34	29.59
P/E (3y fwd)	27.40	26.11
Sales (1y fwd)	6,366	6,812
Sales (3y fwd)	7,455	6,924

Constituents overlap

S&P 500	4.7%
MSCI World	4.6%
Nasdaq 100	5.1%
Total stocks = 77	

Source: Bloomberg, LGIM; All values are based in USD; As close of 29 December 2023.
Please refer to end of this report for all definitions. **Consensus ratings are based on the average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months.

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Key risk

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Glossary

Calculation methodology for performance statistics:

Cumulative return: Total return of the index net of withholding taxes over the given period.

Annualized return: Annualized total return of the index net of withholding taxes over the given period.

Volatility: Annualized standard deviation of daily returns over the given period.

Max drawdown: Maximum % loss from the peak to the trough in the given period.

Large cap: Companies whose market cap is larger than \$5bn.

Mid cap: Companies whose market cap is comprised between \$2bn and \$5bn.

Sharpe ratio: Annualised excess return divided by annualised volatility.

Small cap: Companies whose market cap is lower than \$2bn.

Third party analyst stock consensus ratings: Average of recommendations for each underlying stock made by analysts on Bloomberg within the last 12 months. Consensus ratings do not constitute a recommendation to buy or sell any security. The consensus ratings presented in this chart are not in relation to the L&G Thematic ETFs.

Calculation methodology for key ratios statistics:

EPS: Median of last 12 months earnings per share for each index component.

Price/sales: Median of stock prices divided by sales per share of all index components.

BPS: Median of total equity divided by the number of shares of all index components.

P/E positive: Median of stock price divided by positive earnings per share for each index components.

ROE: Median of net income divided by the average total common equity for each index component.

Price/book: Median of stock prices divided by the total equity per share for each index component.

P/E (1y fwd): Median of stock price divided by index estimated earnings next year for each index component.

P/E(3y fwd): Median of stock price divided by index estimated earning in three years for each index component.

Sales (1y fwd): Average of estimated sales next year for each index component.

Sales (3y fwd): Average of estimated sales in three years for each index component.

Contact us:

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Key risks

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