

The Next Big Theme: October 2021

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Topic: **Disruptive Technology**, Physical Environment, People & Demographics



Electric Vehicles & Cleantech

U.S. Zeroes In On Emissions From East to West

California and New York are responsible for two of the latest developments in the global effort to reduce production and use of internal combustion engine vehicles. California set a mandate for light-duty autonomous vehicles to be emission-free by 2030.¹ Autonomous vehicles represent only a small percentage of California's vehicles, but in a future where driverless taxi services are poised to thrive, this mandate could prevent a major source of pollution. On the opposite coast, New York set a goal of zero-emission passenger cars by 2035 and zero-emission medium and heavy-duty vehicles by 2045.²



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Lithium & Battery Tech

EV Revolution Charges Lithium Demand

Lithium demand is expected to outpace global supply as the economy moves toward an all-electric future. The imbalance is already pushing lithium prices meaningfully higher.³ Lithium prices hit a three-year high with sales of electric vehicles up 150% to just over 3 million units in the first seven months of the year.⁴ In the first half of September, domestic prices in China, the largest lithium market, increased more than 20%. With lithium-ion batteries expected to remain the primary battery technology, mining capabilities must increase. Leading lithium producer Albemarle, recently announced that it would double lithium production at its facility in Silver Peak, Nevada.⁵

Genomics

Human Trials Progress

Excision BioTherapeutics continues to make progress on CRISPR-based gene editing to treat patients with HIV. After promising results in early trials, the Food & Drug Administration (FDA) cleared the therapy for human testing.⁶ Gene editing has the potential to replace the standard retroviral therapy most HIV patients receive. The FDA also approved a trial that uses CRISPR genome editing to eradicate cancer cells in



patients with acute myeloid leukemia.⁷ To treat patients with sickle cell disease, doctors at Boston Children's Hospital are using gene therapy to activate healthy fetal genes and deactivate mutated adult genes as part of a clinical trial.⁸

E-commerce

Warehouses Wanted

New data from commercial real estate services firm CBRE confirmed a post-pandemic e-commerce trend: soaring online sales are quickly filling industrial warehouse space. In Canada, industrial vacancy rates in the Greater Montreal Area dipped to a record low of 1.2% in Q3, compared to 8% just five years ago.⁹ The U.S. has a similar squeeze; to match package volume, the country must add at least 330 million square feet of warehouse space dedicated to e-commerce by 2025.¹⁰ For now, in a bid to handle the package surplus, logistics provider DHL Supply Chain expects to hire 20% more seasonal workers this year.¹¹ DHL, like many other providers, is also turning to collaborative robots to help automate order picking.

Internet of Things

Biden Launches Initiative to Secure Semiconductor Supply

The Biden administration announced a new initiative to increase transparency in the semiconductor supply chain, which remains hamstrung by the global production shortage. The shortage has inflated the prices of vehicles and other electronic goods. It even caused manufacturers to halt the production of some electronic devices in September. Tech giants such as Intel, Samsung, Apple, GM, Ford, TSMC, and Stellantis attended the President's virtual event and pledged \$75 billion to mitigate long-term supply chain deficiencies, but the hope is that the initiative helps alleviate some of the bottlenecks sooner.¹² Tesla CEO Elon Musk recently claimed that new semiconductor plants in the works will effectively make the chip shortage a short-term issue.¹³

Social Media & Blockchain

Twitter Promotes Crypto Tips

Twitter CEO Jack Dorsey views cryptocurrency as the internet's "native currency," so the company integrating Bitcoin on its platform is a natural fit. As part of its ongoing monetization push, Twitter announced that users will be able to send and receive tips using Bitcoin. Twitter is also looking into authenticating users' nonfungible tokens (NFTs). Crypto continues to gain legitimacy with users attracted to its decentralized finance and blockchain technology, particularly users in developing markets. Africa is one of the fastest-growing markets for crypto with adoption increasing by a hefty 1,200% over the past year.¹⁴ Also, India made headlines as the country with the most crypto holders at 100 million, which is 7.3% of its population.¹⁵

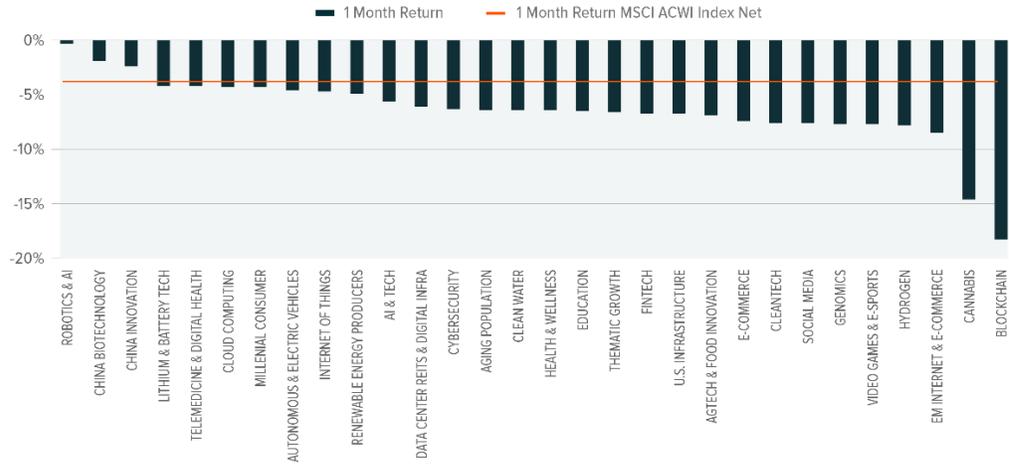


THE NUMBERS

The following charts examine returns and sales growth expectations by theme, based on their corresponding ETFs.

SEPTEMBER 2021 THEMATIC ETF RETURNS

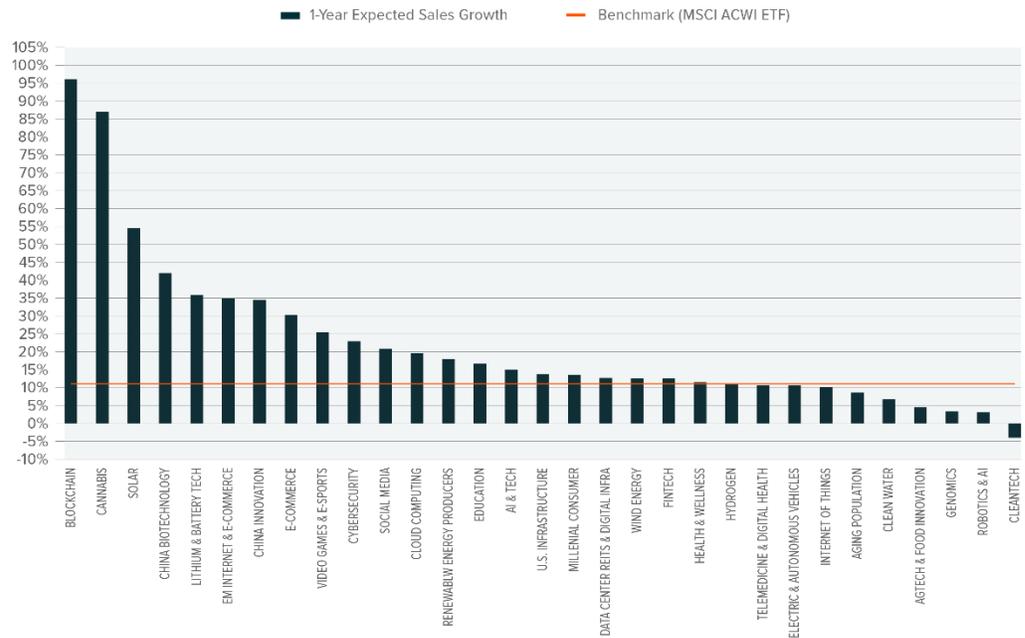
Source: Bloomberg, September 30, 2021, Global X ETFs.



Note: The performance data quoted represents past performance and does not guarantee future results.

THEMATIC SALES GROWTH

Source: Bloomberg, September 30, 2021, Global X ETFs.



Note: Forward looking based on data and analysis from 09/30/2021.
1 year annualized forward sales growth is the consensus analyst expectations for total sales growth in the next 12 months.



Performance data quoted represents past performance and does not guarantee future results. Investment return and principal value of an investment will fluctuate so that an investors' shares, when sold or redeemed, may be worth more or less than their original cost. Current performance may be higher or lower than the performance quoted. High short-term performance of the fund is unusual and investors should not expect such performance to be repeated. For performance data current to the most recent month end, please call 1-888-493-8631 or visit www.globalxetfs.com.

Standard Performance			Cumulative % Data as of month end 9/30/21			Avg. Annualized % Data as of quarter end 9/30/21				
	Gross Expense Ratio		1 Month	3 Month	Since Inception	1 Year	3 Year	5 Year	10 Year	Since Inception
Robotics & Artificial Intelligence Inception Date 9/12/2016	0.68%	NAV	-0.08%	4.89%	154.12%	32.03%	18.03%	19.98%	-	20.28%
		Market Price	-0.27%	4.64%	153.44%	31.34%	17.99%	19.76%	-	20.22%
		Index	-0.10%	5.34%	158.37%	33.05%	18.45%	20.39%	-	20.67%
Fintech Inception Date 9/12/2016	0.68%	NAV	-6.64%	0.75%	219.78%	26.63%	18.77%	25.76%	-	25.88%
		Market Price	-6.65%	0.73%	219.38%	26.37%	18.75%	25.65%	-	25.85%
		Index	-6.63%	0.86%	230.11%	27.41%	19.50%	26.55%	-	26.67%
Internet Of Things Inception Date 9/12/2016	0.68%	NAV	-4.58%	1.43%	151.34%	38.75%	22.36%	19.44%	-	20.02%
		Market Price	-4.70%	1.79%	151.76%	38.55%	22.51%	19.31%	-	20.06%
		Index	-4.54%	1.58%	155.62%	39.38%	22.76%	19.85%	-	20.41%
Cloud Computing Inception Date 4/12/2019	0.68%	NAV	-4.25%	2.52%	94.45%	22.57%	-	-	-	30.94%
		Market Price	-4.28%	2.56%	95.30%	22.61%	-	-	-	31.17%
		Index	-4.21%	2.68%	97.34%	23.36%	-	-	-	31.66%
Social Media Inception Date 11/14/2011	0.65%	NAV	-7.45%	-15.70%	319.82%	25.41%	24.02%	19.85%	-	15.63%
		Market Price	-7.63%	-15.69%	319.34%	24.68%	24.10%	19.70%	-	15.62%
		Index	-7.42%	-15.61%	342.98%	26.10%	24.72%	20.54%	-	16.25%
Artificial Intelligence & Technology Inception Date 5/11/2018	0.68%	NAV	-5.01%	-1.25%	104.44%	29.17%	24.63%	-	-	23.51%
		Market Price	-5.56%	-1.38%	104.10%	28.57%	24.54%	-	-	23.45%
		Index	-5.01%	-1.11%	107.01%	29.80%	25.07%	-	-	23.93%
Autonomous & Electric Vehicles Inception Date 4/13/2018	0.68%	NAV	-4.60%	-3.11%	91.44%	63.08%	25.01%	-	-	20.62%
		Market Price	-4.59%	-3.14%	91.58%	62.81%	24.93%	-	-	20.65%
		Index	-4.57%	-2.94%	92.60%	63.86%	25.28%	-	-	20.80%
Lithium And Battery Tech Inception Date 7/22/2010	0.75%	NAV	-3.66%	13.25%	210.63%	107.81%	38.05%	30.15%	13.37%	10.66%
		Market Price	-4.22%	13.11%	209.32%	105.14%	37.81%	29.78%	13.43%	10.62%
		Index	-3.63%	13.41%	226.62%	108.43%	38.08%	30.28%	13.75%	11.15%
Genomics And Biotechnology Inception Date 4/5/2019	0.50%	NAV	-7.93%	-10.82%	45.29%	24.02%	-	-	-	16.21%
		Market Price	-7.71%	-10.57%	48.60%	24.04%	-	-	-	17.27%
		Index	-7.94%	-10.73%	47.17%	24.47%	-	-	-	16.79%
Millennial Consumer Inception Date 5/4/2016	0.50%	NAV	-4.23%	-0.67%	194.17%	38.10%	22.36%	22.52%	-	22.09%
		Market Price	-4.31%	-0.65%	193.53%	38.26%	22.41%	22.53%	-	22.04%
		Index	-4.19%	-0.56%	201.80%	38.85%	23.00%	23.13%	-	22.65%
Aging Population Inception Date 5/10/2016	0.50%	NAV	-5.47%	-4.17%	99.35%	14.19%	10.02%	13.06%	-	13.65%
		Market Price	-6.39%	-5.01%	102.09%	13.41%	9.59%	12.84%	-	13.94%
		Index	-5.48%	-4.18%	102.28%	14.43%	10.23%	13.35%	-	13.94%
Health And Wellness Inception Date 5/9/2016	0.50%	NAV	-5.97%	-5.91%	100.46%	32.05%	14.31%	14.09%	-	13.77%
		Market Price	-6.42%	-5.93%	101.54%	31.28%	14.13%	13.91%	-	13.88%
		Index	-5.98%	-5.84%	105.04%	32.54%	14.72%	14.54%	-	14.23%
E-Commerce Inception Date 11/27/2018	0.50%	NAV	-7.08%	-12.11%	103.25%	11.71%	-	-	-	28.35%
		Market Price	-7.39%	-12.54%	102.44%	11.06%	-	-	-	28.17%
		Index	-7.05%	-12.03%	105.97%	12.18%	-	-	-	28.93%
Us Infrastructure Development Inception Date 3/6/2017	0.47%	NAV	-6.72%	-1.28%	73.79%	51.55%	14.72%	-	-	12.86%
		Market Price	-6.65%	-1.32%	73.85%	51.43%	14.78%	-	-	12.87%
		Index	-6.72%	-1.20%	77.71%	52.45%	15.29%	-	-	13.40%
Cannabis Inception Date 9/17/2019	0.51%	NAV	-14.46%	-34.91%	-60.61%	26.00%	-	-	-	-36.71%
		Market Price	-14.61%	-35.12%	-61.51%	24.91%	-	-	-	-37.43%
		Index	-14.40%	-35.38%	-64.97%	23.28%	-	-	-	-40.23%
Video Games & Esports Inception Date 10/25/2019	0.50%	NAV	-7.34%	-12.92%	89.74%	4.84%	-	-	-	39.29%
		Market Price	-7.74%	-13.28%	88.60%	3.93%	-	-	-	38.85%
		Index	-7.30%	-12.78%	91.67%	5.42%	-	-	-	39.98%
Cybersecurity Inception Date 10/25/2019	0.50%	NAV	-6.37%	5.73%	101.16%	39.92%	-	-	-	43.57%
		Market Price	-6.27%	5.83%	105.18%	40.26%	-	-	-	45.04%
		Index	-6.34%	5.89%	101.22%	40.51%	-	-	-	43.55%
Thematic Growth Inception Date 10/25/2019	0.50%	NAV	-6.38%	-3.86%	99.32%	47.90%	-	-	-	42.88%
		Market Price	-6.63%	-4.29%	100.30%	47.10%	-	-	-	43.25%
		Index	-6.45%	-4.00%	98.32%	47.27%	-	-	-	42.47%
Education Inception Date 7/10/2020	0.50%	NAV	-6.22%	-22.68%	-27.51%	-32.44%	-	-	-	-23.13%
		Market Price	-6.49%	-23.05%	-27.91%	-32.81%	-	-	-	-23.47%
		Index	-6.15%	-22.56%	-27.06%	-32.10%	-	-	-	-22.71%
Telemedicine & Digital Health Inception Date 7/29/2020	0.68%	NAV	-3.90%	-8.04%	16.52%	5.82%	-	-	-	13.93%
		Market Price	-4.22%	-8.19%	16.39%	5.26%	-	-	-	13.82%
		Index	-3.81%	-7.89%	17.44%	6.61%	-	-	-	14.70%



China Biotech Innovation Date Inception Date 9/22/2020	NAV	-1.70%	-13.27%	7.42%	5.81%	-	-	-	7.26%
	Market Price	-1.89%	-14.32%	6.63%	4.14%	-	-	-	6.48%
	Index	-1.59%	-13.12%	8.14%	6.50%	-	-	-	7.96%
Cleantech Inception Date 10/27/2020	NAV	-6.75%	-9.45%	24.70%	-	-	-	-	-
	Market Price	-7.63%	-10.47%	23.84%	-	-	-	-	-
	Index	-7.12%	-9.69%	21.80%	-	-	-	-	-
Data Center Reits & Digital Infrastructure Inception Date 10/27/2020	NAV	-6.71%	-2.97%	12.20%	-	-	-	-	-
	Market Price	-6.12%	-2.15%	13.47%	-	-	-	-	-
	Index	-6.76%	-2.92%	12.21%	-	-	-	-	-
Emerging Markets Internet & E-Commerce Inception Date 11/09/2020	NAV	-9.68%	-24.76%	-20.49%	-	-	-	-	-
	Market Price	-8.48%	-24.50%	-20.42%	-	-	-	-	-
	Index	-9.56%	-24.59%	-20.00%	-	-	-	-	-
Renewable Energy Producers Inception Date 05/27/2015	NAV	-4.57%	-3.51%	32.94%	8.87%	12.58%	10.30%	-	4.59%
	Market Price	-4.93%	-3.82%	32.48%	8.44%	12.63%	10.14%	-	4.53%
	Index	-4.56%	-3.41%	36.21%	9.43%	13.17%	10.79%	-	4.99%
China Innovation Inception Date 02/22/2021	NAV	-3.11%	-17.09%	-25.28%	-	-	-	-	-
	Market Price	-2.36%	-17.09%	-25.48%	-	-	-	-	-
	Index	-2.71%	-13.34%	-20.10%	-	-	-	-	-
Clean Water Inception Date 04/08/2021	NAV	-6.48%	1.39%	6.79%	-	-	-	-	-
	Market Price	-6.42%	2.15%	7.79%	-	-	-	-	-
	Index	-6.45%	1.47%	6.97%	-	-	-	-	-
Atech & Food Innovation ETF Inception Date 07/12/2021	NAV	-7.32%	-	-14.05%	-	-	-	-	-
	Market Price	-6.93%	-	-13.58%	-	-	-	-	-
	Index	-7.27%	-	-13.98%	-	-	-	-	-
Hydrogen Inception Date 07/12/2021	NAV	-7.44%	-	-13.06%	-	-	-	-	-
	Market Price	-7.80%	-	-12.62%	-	-	-	-	-
	Index	-7.44%	-	-13.01%	-	-	-	-	-
Blockchain Inception Date 07/12/2021	NAV	-18.69%	-	-5.56%	-	-	-	-	-
	Market Price	-18.25%	-	-5.44%	-	-	-	-	-
	Index	-18.66%	-	-5.43%	-	-	-	-	-
Solar ETF Inception Date 09/08/2021	NAV	-	-	-2.94%	-	-	-	-	-
	Market Price	-	-	-2.48%	-	-	-	-	-
	Index	-8.50%	-	-2.89%	-	-	-	-	-
Wind Energy ETF Inception Date 09/08/2021	NAV	-	-	0.24%	-	-	-	-	-
	Market Price	-	-	0.48%	-	-	-	-	-
	Index	-1.46%	-	0.28%	-	-	-	-	-

P/S AND EV/S

Source: Bloomberg, data is as of 9/30/21 and 8/31/21, Global X ETFs.

Ticker	Name	P/S		EV/S	
		9/30/21	8/31/21	9/30/21	8/31/21
BKCH	Global X Blockchain ETF	16.70	21.10	21.05	25.19
GNOM	Global X Genomics & Biotechnology ETF	11.14	12.10	10.67	11.65
CLOU	Global X Cloud Computing ETF	10.28	10.73	10.72	11.20
BUG	Global X Cybersecurity ETF	8.78	9.40	9.05	9.78
FINX	Global X FinTech ETF	7.47	8.06	8.61	9.33
CHB	Global X China Biotech Innovation ETF	7.45	7.54	7.59	7.73
VPN	Global X Data Center REITs & Digital Infrastructure ETF	7.09	7.67	9.70	10.40
SOCL	Global X Social Media ETF	6.51	6.87	6.38	6.75
KEJI	Global X China Innovation ETF	5.25	5.21	4.43	4.55
POTX	Global X Cannabis ETF	5.02	6.05	10.99	12.45
AGNG	Global X Aging Population ETF	4.77	5.07	5.49	5.79
EDOC	Global X Telemedicine & Digital Health ETF	4.56	4.73	4.87	5.05
BOTZ	Global X Robotics & Artificial Intelligence ETF	4.36	4.49	4.31	4.47
HERO	Global X Video Games & Esports ETF	4.06	4.38	3.93	4.27
AIQ	Global X Artificial Intelligence & Technology ETF	3.92	4.15	4.08	4.33
RNRG	Global X Renewable Energy Producers ETF	3.60	3.78	5.86	6.06
MILN	Global X Millennial Consumer ETF	3.47	3.61	3.91	4.06
EWEB	Global X Emerging Markets Internet & E-commerce ETF	3.17	3.41	3.08	3.36
LIT	Global X Lithium and Battery Tech ETF	3.11	3.22	3.40	3.52
RAY5	Global X Solar ETF	3.05	-	4.26	-
SNSR	Global X Internet of Things ETF	3.05	3.19	3.62	3.77
SPX	S&P 500 Index	2.97	3.12	3.29	3.44
AQWA	Global X Clean Water ETF	2.76	3.03	3.75	4.08
EDUT	Global X Education ETF	2.41	2.59	2.50	2.70
ACWI	ACWI Index	2.16	2.26	2.55	2.66
EBIZ	Global X E-commerce ETF	2.15	2.32	2.30	2.46
WNDY	Global X Wind Energy ETF	1.75	-	2.56	-
BFIT	Global X Health & Wellness ETF	1.68	1.81	1.88	2.01
CTEC	Global X Cleantech ETF	1.67	1.82	1.96	2.27
PAVE	Global X U.S. Infrastructure Development ETF	1.65	1.77	1.97	2.09
KROP	Global X AgTech & Food Innovation ETF	1.64	1.76	2.10	2.32
DRIV	Global X Autonomous & Electric Vehicles ETF	1.20	1.26	1.35	1.42
HYDR	Global X Hydrogen ETF	0.75	0.77	183.56	190.01

P/S and EV/S refer to price-to-sales and enterprise value-to-sales, respectively.



F12 MONTH SALES GROWTH, PSG, AND EVSG

Source: Bloomberg, data is as of 9/30/21 and 8/31/21, Global X ETFs.

Ticker	Name	F12M Sales (%)		PSG		EVSG	
		9/30/21	8/31/21	9/30/21	8/31/21	9/30/21	8/31/21
BKCH	Global X Blockchain ETF	96.1%	115.4%	0.17	0.18	0.22	0.22
POTX	Global X Cannabis ETF	87.0%	86.5%	0.06	0.07	0.13	0.14
RAY5	Global X Solar ETF	54.5%	-	0.06	-	0.08	-
CHB	Global X China Biotech Innovation ETF	42.0%	38.6%	0.18	0.20	0.18	0.20
LIT	Global X Lithium and Battery Tech ETF	35.9%	30.2%	0.09	0.11	0.09	0.12
EWEB	Global X Emerging Markets Internet & E-commerce ETF	34.9%	33.2%	0.09	0.10	0.09	0.10
KEJI	Global X China Innovation ETF	34.5%	31.6%	0.15	0.17	0.13	0.14
EBIZ	Global X E-commerce ETF	30.3%	28.6%	0.07	0.08	0.08	0.09
HERO	Global X Video Games & Esports ETF	25.5%	25.1%	0.16	0.17	0.15	0.17
BUG	Global X Cybersecurity ETF	22.9%	21.7%	0.38	0.43	0.40	0.45
SOCL	Global X Social Media ETF	20.9%	18.5%	0.31	0.37	0.30	0.36
CLOU	Global X Cloud Computing ETF	19.6%	17.8%	0.52	0.60	0.55	0.63
RNRG	Global X Renewable Energy Producers ETF	18.0%	17.8%	0.20	0.21	0.33	0.34
EDUT	Global X Education ETF	16.7%	17.5%	0.14	0.15	0.15	0.15
AIQ	Global X Artificial Intelligence & Technology ETF	15.0%	15.0%	0.26	0.28	0.27	0.29
PAVE	Global X U.S. Infrastructure Development ETF	13.7%	12.4%	0.12	0.14	0.14	0.17
MILN	Global X Millennial Consumer ETF	13.5%	13.6%	0.26	0.27	0.29	0.30
VPN	Global X Data Center REITs & Digital Infrastructure ETF	12.7%	14.1%	0.56	0.55	0.76	0.74
WNDY	Global X Wind Energy ETF	12.6%	-	0.14	-	0.20	-
FINX	Global X FinTech ETF	12.5%	14.2%	0.60	0.57	0.69	0.66
BFIT	Global X Health & Wellness ETF	11.5%	14.0%	0.15	0.13	0.16	0.14
SPX	S&P 500 Index	11.2%	10.2%	0.26	0.30	0.29	0.34
ACWI	ACWI Index	11.0%	10.3%	0.20	0.22	0.23	0.26
HYDR	Global X Hydrogen ETF	10.8%	11.1%	0.07	0.07	17.07	17.14
EDOC	Global X Telemedicine & Digital Health ETF	10.7%	10.0%	0.43	0.47	0.46	0.51
DRIV	Global X Autonomous & Electric Vehicles ETF	10.7%	10.7%	0.11	0.12	0.13	0.13
SNSR	Global X Internet of Things ETF	10.1%	9.4%	0.30	0.34	0.36	0.40
AGNG	Global X Aging Population ETF	8.6%	8.2%	0.55	0.62	0.64	0.70
AQWA	Global X Clean Water ETF	6.7%	6.4%	0.41	0.47	0.56	0.64
KROP	Global X AgTech & Food Innovation ETF	4.5%	3.5%	0.36	0.50	0.46	0.66
GNOM	Global X Genomics & Biotechnology ETF	3.4%	3.4%	3.28	3.58	3.14	3.45
BOTZ	Global X Robotics & Artificial Intelligence ETF	3.2%	5.2%	1.36	0.86	1.34	0.86
CTEC	Global X Cleantech ETF	-4.0%	-1.0%	-0.42	-1.76	-0.49	-2.18

Note: F12 Sales Growth refers to the consensus analyst expectations for total sales growth in the next 12 months. PSG and EVSG refer to Price-to-Sales over F12 Sales Growth and Enterprise Value over F12 Sales Growth, respectively. N/As reflect a negative growth number in the

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