

October 2022: Optimism Resurfacing

- U.S.-listed ETFs registered the second highest monthly inflow YTD; 2022 flows set to be second highest in history
- Despite a stronger-than-consensus CPI, investor optimism rose as some positioned for a more dovish Fed
- Factor ETFs enjoyed solid creation activity; inflows to momentum ETFs set a new record high
- Investors signaled renewed confidence in high yield bond ETFs as equity markets rebounded

Summary (Table 1, Chart 1): With October inflows of \$89 billion, the U.S. ETF market had its second best month of inflow in 2022 so far. Year-to-date flows now amount to just over *half a trillion* dollars, surpassing the 2020 full-year figure (\$490 billion), though still shy of the blockbuster inflows of \$946 billion in 2021. Demand for ETFs remains robust despite a year of turmoil and uncertainty, and 2022 is now on track to become the U.S. ETF market’s second best year in history.

Investors are expressing a mix of views through ETF buying and selling. Defensive factor products (dividend/income, low volatility) are still in favour, but cyclical sectors have been riding a possible turnaround in sentiment, leading in terms of performance and flows. Similarly, in the world of fixed income ETFs, signs of market optimism are reflected through increased demand for high yield and longer duration bond ETFs.

Equity ETFs by Geography (Table 3): Although inflation is still elevated in the U.S., some investors are now anticipating dovish signals from the Federal Reserve, expecting that the Fed will follow other central banks, such as the Bank of Canada and the Reserve Bank of Australia, to decelerate the pace of rate hikes. Earnings were also mostly encouraging, despite some disappointing results from big tech firms. After September’s 9.2% decline, in October, the S&P 500 index delivered a strong 8.1% and demand for broad U.S. equity index ETFs remained hot: **SPY** had a remarkable \$14.6 billion inflow, while **IVV** and **VOO** welcomed \$4.4 billion and \$3.5 billion, respectively. After months of outflows, investors returned to Emerging Market equity ETFs, but with caution, as a great share of the inflows went to iShares MSCI Emerging Markets Min Vol Factor ETF (**EEMV**, \$1.1 billion).

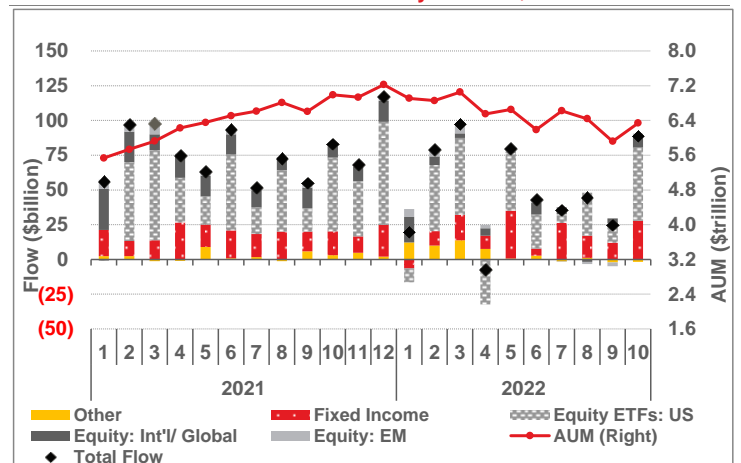
Equity Sector ETFs (Table 4): Every S&P 500 Sector index finished October in the green, including the communication sector, which was able to barely hold on to positive territory despite Meta’s 30% slide. Energy again outpaced other sectors with a whopping 25% return over October. Industrials and financials also had double-digit returns. New money flowed primarily into cyclical sectors (technology, financials) and energy, a reversal of the bearish pattern that has been apparent almost all year.

Table 1: ETF Flows by Category

	AUM (\$B)	Mkt Shr	Oct 2022 Flow (\$B)	Oct 2022 Flow/AUM	Jan-Oct 2022 Flow (\$B)	Jan-Oct 2022 Flow/AUM
Equity	\$4,847		\$62.7	1.4%	\$311.6	5.5%
U.S. Broad/Large-Cap	\$1,553	24%	\$25.0	1.8%	\$92.2	5.0%
U.S. Other	\$2,266	36%	\$27.8	1.4%	\$138.9	5.5%
Int'l / Global	\$798	13%	\$8.3	1.1%	\$58.6	5.9%
Emerging Markets	\$230	4%	\$1.6	0.7%	\$21.8	7.2%
Fixed Income	\$1,234	19%	\$27.8	2.3%	\$153.0	12.0%
Commodity	\$126	2%	-\$3.1	-2.4%	-\$1.1	-0.8%
Multi-Asset	\$64	1%	\$1.9	3.1%	\$19.7	36.0%
Levered Long	\$45	1%	\$0.8	2.1%	\$18.8	24.7%
Inverse	\$24	0%	-\$1.3	-4.6%	\$5.0	42.9%
Crypto-Asset	\$1	0%	\$0.0	7.4%	\$0.2	18.9%
Total	\$6,340	100%	\$89.0	1.5%	\$507.4	7.0%

Source: NBF ETF Research, Bloomberg. Data as of October 31, 2022

Chart 1: U.S. Listed ETF Flow and AUM by month - \$507 billion YTD



Source: NBF ETF Research, Bloomberg. Data as of October 31, 2022

Equity Factor ETFs (Table 7): After a sluggish Q3, value ETFs won some attention in October and pulled in \$6.0 billion. Facing similar demand was the still-popular category of dividend/income ETFs, which had inflows of \$5.8 billion. Investors did not solely play defense; relative to September’s figures, in which more “aggressive” or risky factors were on the outs, in October we observed sales increase for small/mid-cap, growth and momentum ETFs. In fact, momentum ETFs had the highest-ever monthly inflow (\$2.2 billion, 11.4% of the starting AUM), primarily from a single ETF: iShares MSCI USA Momentum Factor ETF (**MTUM**, \$2.0 billion). In fact, **MTUM** had a creation of \$900 million in a single day; sudden inflows of this magnitude are generally institutional in nature, and they can come from any number of sources including opportunistic pre-positioning around the ETF’s semi-annual rebalance (which takes place near the end of May and November). Considering the other prodigious inflows to this ETF throughout October, however, it’s possible that some institutions now see buy-and-hold value in **MTUM**, though there are questions around **MTUM**’s ability to capture market trends in today’s fast-moving markets, given the index’s semi-annual rebalance frequency.

Fixed Income ETFs (Tables 5, 6): Fixed Income ETFs saw strong inflows of \$28 billion in October, spread across multiple categories: treasury, municipals and notably, high yield bond ETFs. The stock market rebound in October perhaps lifted some investor confidence in junk bonds. The top ETFs by flows of the month were Vanguard Tax-Exempt Bond Index ETF (**VTEB**), iShares iBoxx Investment Grade Corporate Bond (**LQD**) and SPDR Bloomberg Barclays High Yield Bond ETF (**JNK**).

ESG ETFs (Table 18): U.S. listed ESG ETFs had \$1.7 billion outflows in October, mostly driven by institutional redemptions from the suite of iShares ESG Aware ETFs, namely, **ESGU** (U.S. equity), **ESGE** (EM equity) and **SUSC** (USD corporate bond). On the inflow side, a newly launched ETF, Harbor Corporate Culture ETF (**HAPI**), received \$200 million right out of the gate. The ETF systematically invests in companies with superior “Human Capital Factor” scores to access the potential alpha opportunity of strong corporate culture. The demand for ESG ETFs that focus on the social factor has been on the rise. The growth rate (flows as a percentage of starting AUM) of social ETFs exceeded that of environmentally-focused ETFs and broad ESG ETFs by a wide margin this year; the total inflow into social ETFs was \$625 million, a whopping 27% of the sub-category’s starting AUM.

Top Performing ETFs (Table 2): In October, energy ETFs occupied the best performing ETF table. The price of crude oil rose on the OPEC+’s announced decision to cut output targets by 2 million barrels per day (bpd). In particular, oilfield service stocks soared in October with ETFs such as **IEZ**, **XES** and **OIH** returning more than 40% on the month, after underperforming oil & gas producers last year. Some stocks in this sub-sector surged on outstanding earnings driven by increased drilling activities and better pricing.

Table 2: Best Performing ETFs* – October 2022

Ticker	Name	Return (%)	AUM (\$M)	Flow (\$M)
1 IEZ	iShares U.S. Oil Equipment & Services ETF	42.7	229	40
2 XES	SPDR S&P Oil & Gas Equipment & Services ETF	42.3	362	70
3 OIH	VanEck Oil Services ETF	41.4	2,716	4
4 PXJ	Invesco Dynamic Oil & Gas Services ETF	35.2	54	22
5 PSCE	Invesco S&P SmallCap Energy ETF	28.2	149	5
6 XLE	Energy Select Sector SPDR Fund	25.0	42,787	812
7 RYE	Invesco S&P 500 Equal Weight Energy ETF	24.1	588	31
8 FENY	Fidelity MSCI Energy Index ETF	24.1	1,680	11
9 VDE	Vanguard Energy ETF	24.1	8,776	67
10 IYE	iShares U.S. Energy ETF	23.0	2,357	-15

*Excluding leveraged/inverse ETFs. Source: NBF ETF Research, Bloomberg. Data as of October 31, 2022

October 2022 ETF Flows: Tables 3 - 9

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,819		\$52.8	1.5%
Broad/Large Cap	\$1,553	32%	\$25.0	1.8%
U.S. Other	\$2,266	47%	\$27.8	1.4%
International Developed	\$480		\$4.9	1.1%
Broad Int'l Dev	\$373	8%	\$5.1	1.5%
Broad Europe	\$32	1%	-\$0.3	-1.2%
Japan	\$18	0%	-\$0.1	-0.7%
Canada	\$10	0%	\$0.0	0.6%
Other Developed	\$47	1%	\$0.3	0.7%
Emerging Markets	\$230		\$1.6	0.7%
Broad Cap Weighted	\$154	3%	\$0.4	0.3%
China (A+H)	\$18	0%	-\$0.5	-2.4%
Other EM	\$58	1%	\$1.7	3.1%
Global/Regional	\$318	7%	\$3.3	1.1%
Total Displayed	\$4,847	100%	\$62.7	1.4%

Source: National Bank of Canada, Bloomberg

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Technology	\$141	18%	\$2.7	2.1%
Energy	\$90	12%	\$1.9	2.6%
Financials	\$60	8%	\$1.4	2.6%
Health Care	\$101	13%	\$1.3	1.4%
Communication Services	\$23	3%	\$0.6	2.5%
Materials	\$38	5%	\$0.3	0.9%
Consumer Staples	\$29	4%	\$0.2	0.9%
Consumer Discretionary	\$26	3%	\$0.2	0.6%
Industrials	\$31	4%	\$0.1	0.4%
Real Estate	\$69	9%	-\$0.3	-0.4%
Utilities	\$25	3%	-\$1.1	-4.4%
ESG	\$82	11%	-\$1.7	-2.1%
Thematic	\$56	7%	-\$0.1	-0.3%
Total Displayed	\$772	100%	\$5.4	0.8%

*Includes all geographic focus; Source: National Bank of Canada, Bloomberg
QQQ is classified as a broad market ETF and does not belong to technology sector

Ticker	Name	Flow (\$B)	Flow/AUM
1	SPY SPDR S&P 500 ETF Trust	\$14.6	4.4%
2	IVV iShares Core S&P 500 ETF	\$4.4	1.7%
3	VOO Vanguard S&P 500 ETF	\$3.5	1.4%
4	VTEB Vanguard Tax-Exempt Bond Index ETF	\$3.4	19.7%
5	LQD iShares iBoxx \$ Investment Grade Corporate Bond	\$3.4	10.6%
6	JNK SPDR Bloomberg Barclays High Yield Bond ETF	\$3.3	63.2%
7	VTI Vanguard Total Stock Market ETF	\$3.1	1.3%
8	MBB iShares MBS ETF	\$2.2	11.3%
9	SHYG iShares 0-5 Year High Yield Corporate Bond ETF	\$2.1	45.3%
10	USFR WisdomTree Floating Rate Treasury Fund	\$2.1	21.9%
11	IYW iShares US Technology ETF	\$2.0	35.5%
12	MTUM iShares MSCI USA Momentum Factor ETF	\$2.0	22.0%
13	MUB iShares National Muni Bond ETF	\$1.8	6.6%
14	TLT iShares 20+ Year Treasury Bond ETF	\$1.7	6.9%
15	IUSB iShares Core Total USD Bond Market ETF	\$1.6	9.4%
16	HYG iShares iBoxx High Yield Corporate Bond ETF	\$1.4	11.1%
17	SCHD Schwab US Dividend Equity ETF	\$1.3	3.6%
18	IJH iShares Core S&P Mid-Cap ETF	\$1.2	2.2%
19	JEPI JPMorgan Equity Premium Income ETF	\$1.1	8.6%
20	VTV Vanguard Value ETF	\$1.1	1.2%

Source: National Bank of Canada, Bloomberg

Type	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S. Aggregate	\$277	22%	-\$0.2	-0.1%
U.S. Government	\$384	31%	\$10.6	2.8%
U.S. Municipals	\$88	7%	\$5.8	6.9%
U.S. I.G. Corporate	\$203	16%	\$1.8	0.9%
Developed Markets&Global	\$133	11%	\$2.0	1.5%
Emerging Markets	\$25	2%	\$0.2	0.9%
Sub-investment Grade	\$84	7%	\$7.7	10.4%
Convertibles and Preferreds	\$40	3%	-\$0.2	-0.4%
Total Displayed	\$1,234	100%	\$27.8	2.3%

Source: National Bank of Canada, Bloomberg

Maturity	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Broad/Mixed	\$599	49%	\$16.8	2.9%
Ultra Short Term	\$161	13%	\$3.1	1.9%
Short Term	\$254	21%	\$2.0	0.8%
Mid Term	\$136	11%	\$1.6	1.2%
Long Term	\$51	4%	\$2.9	5.6%
Target Maturity	\$31	2%	\$1.5	5.2%
Rate Hedged	\$2	0%	\$0.0	-1.1%
Total Displayed	\$1,234	100%	\$27.8	2.3%

Source: National Bank of Canada, Bloomberg

Factor	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Value	\$395	23%	\$6.0	1.7%
Income	\$360	21%	\$5.8	1.8%
Small/Mid Cap	\$413	24%	\$3.8	1.0%
Growth	\$310	18%	\$3.6	1.3%
Momentum	\$24	1%	\$2.2	11.4%
Low Vol	\$65	4%	\$0.9	1.4%
Quality	\$35	2%	\$0.2	0.5%
Multi-Factor and Other	\$131	8%	\$2.0	1.6%
Total Displayed	\$1,735	100%	\$24.4	1.6%

*Includes all geographic focus, excluding sector ETFs; Source: NBC, Bloomberg

Ticker	Name	Flow (\$B)	Flow/AUM
1	QQQ Invesco QQQ Trust Series 1	-\$3.1	-2.1%
2	VCSH Vanguard Short-Term Corporate Bond ETF	-\$2.7	-6.5%
3	TIP iShares TIPS Bond ETF	-\$1.7	-6.4%
4	ESGU iShares ESG Aware MSCI USA ETF	-\$1.6	-8.0%
5	BSV Vanguard Short-Term Bond ETF	-\$1.1	-2.9%
6	IAU iShares Gold Trust	-\$1.1	-4.3%
7	GOVT iShares US Treasury Bond ETF	-\$1.0	-4.5%
8	GLD SPDR Gold Shares	-\$1.0	-2.0%
9	XLU Utilities Select Sector SPDR Fund	-\$1.0	-6.0%
10	ITOT iShares Core S&P Total US Stock Market ETF	-\$0.9	-2.5%
11	MINT PIMCO Enhanced Short Maturity Active ETF	-\$0.9	-8.4%
12	VTIP Vanguard Short-Term Inflation-Protected	-\$0.8	-4.3%
13	HDV iShares Core High Dividend ETF	-\$0.8	-6.9%
14	SRLN SPDR Blackstone Senior Loan ETF	-\$0.6	-8.7%
15	FALN iShares Fallen Angels USD Bond ETF	-\$0.6	-25.2%
16	VGK Vanguard FTSE Europe ETF	-\$0.5	-3.6%
17	EFA iShares MSCI EAFE ETF	-\$0.5	-1.1%
18	VNQT Vanguard Real Estate ETF	-\$0.4	-1.2%
19	JMST JPMorgan Ultra-Short Municipal Income ETF	-\$0.4	-13.0%
20	PDBC Invesco Optimum Yld Diversified Commodity	-\$0.4	-5.0%

Source: National Bank of Canada, Bloomberg

January - October 2022 ETF Flows: Tables 10 - 16

Table 10 - Equity ETF Flows by Geography - Jan-Oct 2022

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,819		\$231.2	5.3%
Broad/Large Cap	\$1,553	32%	\$92.2	5.0%
U.S. Other	\$2,266	47%	\$138.9	5.5%
International Developed	\$480		\$36.1	6.1%
Broad Int'l Dev	\$373	8%	\$40.0	8.9%
Broad Europe	\$32	1%	-\$11.0	-19.4%
Japan	\$18	0%	-\$0.4	-1.8%
Canada	\$10	0%	\$1.1	10.6%
Other Developed	\$47	1%	\$6.5	12.0%
Emerging Markets	\$230		\$21.8	7.2%
Broad Cap Weighted	\$154	3%	\$11.0	5.3%
China (A+H)	\$18	0%	\$5.5	20.0%
Other EM	\$58	1%	\$5.3	7.5%
Global/Regional	\$318	7%	\$22.6	5.6%
Total Displayed	\$4,847	100%	\$311.6	5.5%

Source: National Bank of Canada, Bloomberg

Table 11 - Equity ETF Flows by Sector and Themes* - Jan-Oct 2022

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Health Care	\$101	13%	\$9.3	8.8%
Consumer Staples	\$29	4%	\$6.9	28.6%
Utilities	\$25	3%	\$5.6	26.2%
Energy	\$90	12%	\$0.9	1.5%
Technology	\$141	18%	\$0.0	0.0%
Materials	\$38	5%	\$0.6	-1.2%
Communication Services	\$23	3%	-\$3.4	-7.9%
Real Estate	\$69	9%	-\$3.9	-3.8%
Industrials	\$31	4%	-\$4.5	-11.1%
Consumer Discretionary	\$26	3%	-\$9.0	-18.3%
Financials	\$60	8%	-\$12.4	-14.6%
ESG	\$82	11%	\$3.0	2.9%
Thematic	\$56	7%	\$3.0	4.0%
Total Displayed	\$772	100%	-\$5.0	-0.5%

*Includes all geographic focus; Source: National Bank of Canada, Bloomberg
QQQ is classified as a broad market ETF and does not belong to technology sector

Table 12 - Fixed Income ETF Flows by Type - Jan-Oct 2022

Type	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S. Aggregate	\$277	22%	\$17.8	5.8%
U.S. Government	\$384	31%	\$107.0	32.6%
U.S. Municipals	\$88	7%	\$19.7	25.1%
U.S. I.G. Corporate	\$203	16%	\$11.9	5.2%
Developed Markets&Global	\$133	11%	\$13.5	9.9%
Emerging Markets	\$25	2%	-\$0.9	-2.8%
Sub-investment Grade	\$84	7%	-\$11.5	-10.5%
Convertibles and Preferreds	\$40	3%	-\$4.5	-8.1%
Total Displayed	\$1,234	100%	\$153.0	12.0%

Source: National Bank of Canada, Bloomberg

Table 13 - Fixed Income ETF Flows by Maturity - Jan-Oct 2022

Maturity	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Broad/Mixed	\$599	49%	\$24.9	3.6%
Ultra Short Term	\$161	13%	\$45.7	38.7%
Short Term	\$254	21%	\$26.0	10.5%
Mid Term	\$136	11%	\$24.6	18.1%
Long Term	\$51	4%	\$23.4	48.4%
Target Maturity	\$31	2%	\$9.9	43.5%
Rate Hedged	\$2	0%	-\$1.5	-39.1%
Total Displayed	\$1,234	100%	\$153.0	12.0%

Source: National Bank of Canada, Bloomberg

Table 14 - Equity ETF Flows by Factor* - Jan-Oct 2022

Factor	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Income	\$360	21%	\$77.9	24.5%
Value	\$395	23%	\$35.2	8.8%
Growth	\$310	18%	\$17.3	4.3%
Low Vol	\$65	4%	\$9.7	14.9%
Small/Mid Cap	\$413	24%	\$8.5	1.7%
Momentum	\$24	1%	\$0.4	1.4%
Quality	\$35	2%	-\$0.2	-0.4%
Multi-Factor and Other	\$131	8%	\$12.0	8.3%
Total Displayed	\$1,735	100%	\$160.8	8.5%

*Includes all geographic focus, excluding sector ETFs; Source: NBC, Bloomberg

Table 15 - Top Single Long ETF Inflows - Jan-Oct 2022

Ticker	Name	Flow (\$B)	Flow/AUM
1 VOO	Vanguard S&P 500 ETF	\$39.9	14.3%
2 VTI	Vanguard Total Stock Market ETF	\$22.4	7.5%
3 IVV	iShares Core S&P 500 ETF	\$21.2	6.3%
4 VTV	Vanguard Value ETF	\$15.7	16.9%
5 TLT	iShares 20+ Year Treasury Bond ETF	\$13.8	70.1%
6 SCHD	Schwab US Dividend Equity ETF	\$12.2	39.1%
7 BIL	SPDR Bloomberg Barclays 1-3 Month T-Bill ETF	\$11.9	87.8%
8 BND	Vanguard Total Bond Market ETF	\$10.9	13.0%
9 SHV	iShares Short Treasury Bond ETF	\$10.5	80.1%
10 USFR	WisdomTree Floating Rate Treasury Fund	\$10.0	543.7%
11 SHY	iShares 1-3 Year Treasury Bond ETF	\$10.0	48.5%
12 JEPI	JPMorgan Equity Premium Income ETF	\$9.9	168.9%
13 VEA	Vanguard FTSE Developed Markets ETF	\$8.3	7.6%
14 VYM	Vanguard High Dividend Yield ETF	\$8.2	19.3%
15 GOVT	iShares US Treasury Bond ETF	\$8.2	50.4%
16 VTEB	Vanguard Tax-Exempt Bond Index ETF	\$8.1	53.9%
17 IEF	iShares 7-10 Year Treasury Bond ETF	\$8.0	45.2%
18 DFUV	Dimensional US Marketwide Value ETF	\$7.9	NA
19 VUG	Vanguard Growth ETF	\$7.9	8.7%
20 COWZ	Pacer US Cash Cows 100 ETF	\$7.7	602.8%

Source: National Bank of Canada, Bloomberg

Table 16 - Top Single Long ETF Outflows - Jan-Oct 2022

Ticker	Name	Flow (\$B)	Flow/AUM
1 SPY	SPDR S&P 500 ETF Trust	-\$8.5	-1.9%
2 TIP	iShares TIPS Bond ETF	-\$7.7	-19.9%
3 XLF	Financial Select Sector SPDR Fund	-\$6.5	-14.8%
4 VLUE	iShares MSCI USA Value Factor ETF	-\$6.1	-38.1%
5 HYG	iShares iBoxx High Yield Corporate Bond ETF	-\$5.0	-23.0%
6 IWM	iShares Russell 2000 ETF	-\$4.3	-6.2%
7 BBEU	JPMorgan BetaBuilders Europe ETF	-\$4.2	-43.4%
8 SCHP	Schwab US TIPS ETF	-\$4.0	-18.6%
9 VGK	Vanguard FTSE Europe ETF	-\$3.6	-16.1%
10 MINT	PIMCO Enhanced Short Maturity Active ETF	-\$3.2	-23.6%
11 XLI	Industrial Select Sector SPDR Fund	-\$2.7	-15.3%
12 PFF	iShares Preferred & Income Securities ETF	-\$2.7	-13.0%
13 FALN	iShares Fallen Angels USD Bond ETF	-\$2.6	-51.6%
14 GLD	SPDR Gold Shares	-\$2.3	-4.0%
15 FDN	First Trust Dow Jones Internet Index Fund	-\$2.3	-22.6%
16 EWT	iShares MSCI Taiwan ETF	-\$2.2	-30.3%
17 IYR	iShares U.S. Real Estate ETF	-\$2.2	-29.4%
18 XLY	Consumer Discretionary Select Sector SPDR	-\$2.2	-9.2%
19 HYLB	Xtrackers USD High Yield Corporate Bond ETF	-\$2.1	-32.1%
20 QUAL	iShares MSCI USA Quality Factor ETF	-\$2.1	-8.2%

Source: National Bank of Canada, Bloomberg

Table 17: ETF Provider Table

Provider	AUM (\$B)	Mkt Shr	Oct 2022		Jan-Oct 2022	
			Flow (\$B)	Flow/AUM	Flow (\$B)	Flow/AUM
1 BlackRock iShares	\$2,123	33%	\$30.0	1.5%	\$127.2	5.1%
2 Vanguard	\$1,839	29%	\$16.6	1.0%	\$165.3	7.9%
3 State Street SSGA	\$978	15%	\$28.2	3.2%	\$27.3	2.5%
4 Invesco	\$331	5%	-\$0.7	-0.2%	\$16.9	4.1%
5 Charles Schwab	\$250	4%	\$2.9	1.3%	\$29.0	10.7%
6 First Trust	\$133	2%	\$0.7	0.5%	\$7.7	5.2%
7 JPMorgan	\$83	1%	\$1.2	1.5%	\$21.6	29.9%
8 Dimensional Holdings	\$64	1%	\$2.4	4.3%	\$26.9	59.6%
9 ProShares	\$58	1%	-\$0.9	-1.6%	\$13.0	18.2%
10 WisdomTree	\$53	1%	\$2.1	4.3%	\$12.4	25.7%
11 VanEck	\$48	1%	\$1.0	2.2%	\$1.4	2.3%
12 Global X	\$36	1%	-\$0.2	-0.6%	\$3.6	8%
13 Fidelity	\$30	0%	\$0.2	0.7%	\$2.1	6%
14 Goldman Sachs	\$26	0%	\$0.3	1.1%	\$4.6	16.7%
15 Direxion	\$22	0%	\$0.6	3.2%	\$10.5	35.2%
16 PIMCO	\$21	0%	-\$0.4	-1.8%	-\$2.5	-9.2%
17 Northern Trust	\$20	0%	-\$0.1	-0.5%	\$2.1	10.5%
18 DWS Xtrackers	\$18	0%	\$0.2	0.9%	-\$1.6	-6.6%
19 Pacer Financial	\$17	0%	\$1.1	7.6%	\$9.3	91.2%
20 American Century	\$16	0%	\$1.3	10.2%	\$7.8	78.3%
Top 20 Total	\$6,166	97%	\$86.5		\$484.6	
Total ETF	\$6,340	100%	\$89.0		\$507.4	

Source: NBF ETF Research, Bloomberg. Data as of October 31, 2022

Table 18: ESG ETF Flows by Categories

Category	AUM (\$M)	AUM (%)	October 2022		Jan - October 2022	
			Flow (\$M)	Flow/AUM	Flow (\$M)	Flow/AUM
Equity	\$83,349	92%	-\$1,678	-2.1%	\$3,219	3.1%
Broad - U.S.	\$46,185	51%	-\$1,587	-3.6%	\$763	1.3%
Broad - DM	\$7,153	8%	\$2	0.0%	\$934	10.9%
Broad - EM	\$3,798	4%	-\$212	-5.2%	-\$662	-10.1%
Broad - Global	\$3,348	4%	\$55	1.8%	\$508	12.6%
Environment	\$7,053	8%	\$125	1.9%	\$1,386	18.0%
Clean Energy	\$12,460	14%	-\$318	-2.4%	-\$784	-4.9%
Social	\$2,485	3%	\$217	10.5%	\$625	27.3%
Other	\$620	1%	\$18	2.4%	\$260	54.1%
Commodities	\$1,168	1%	-\$60	-5.5%	-\$447	-23.8%
Multi-Asset	\$158	0%	-\$4	-2.3%	-\$1	-0.6%
Fixed Income	\$6,415	7%	\$1	0.0%	\$1,464	24.0%
Total Displayed	\$91,090	100%	-\$1,741	-2.0%	\$4,235	3.8%

Source: NBF ETF Research, Bloomberg. Data as of October 31, 2022

Appendix 1 - Glossary

Exchange Traded Funds (ETFs) are open-ended mutual funds in continuous distribution. This report also includes other Exchange Traded Products such as notes, grantor trusts, limited partnerships and unit investment trusts.

AUM (Assets Under Management): AUM is expressed in local currency, which is the U.S. dollar for the purpose of this report.

Market Share/AUM (%): AUM as % of category total AUM on the last line of the table.

Flow: The net dollar amount of fund creations and redemptions for the period based on daily NAV and the change in Shares Outstanding. Flows are expressed in local currency, which is the U.S. dollar for the purpose of this report.

Maturity: We categorize fixed income ETFs into the following maturity brackets:

- **Broad/Mixed:** ETF that holds issues from across more than one maturity bucket (short, mid and/or long-term).
- **Floating Rate:** ETF that mainly invests in floating rate issues with periodic interest rate resets.
- **Long-Term:** ETF that mainly invests in long-term issues and has a weighted average maturity greater than 10 years.
- **Mid-Term:** ETF that mainly invests in intermediate-term fixed issues and has a weighted average maturity between three and 10 years.
- **Short-Term:** ETF that mainly invests in short-term issues with weighted average maturity less than three years.
- **Target Maturity:** ETF that has a target maturity, such as a fixed date or year.
- **Rate Hedged:** ETF that uses derivatives to mitigate interest rate risk and to maintain a zero or negative portfolio duration.

NAV (Net Asset Value per share): ETF price is used when NAV is not available.

Flow/AUM (Flow as % AUM): Flow as a percentage of assets under management from the beginning of the period.

Defensive Sectors: We classify Consumer non-cyclicals, Energy, Health Care, Utilities as defensive sectors.

Cyclical Sectors: We classify Consumer Cyclicals, Financials, Real Estate, Industrials, Information Technology, Materials, Communication Services as cyclical sectors.

All numbers are as of last month's final business day.

Appendix 2 - Equity ETF by Factor Categories

We group Factor Equity ETFs (exclude cap-weighted ETFs, sector ETFs, and thematic ETFs) into the categories below. These groupings follow NBF's discretion and can differ from the ETF Provider's definition and classification from other sources.

Small/Mid-Cap: A fund with small/mid-cap focus.

Income: A fund with the primary goal of providing income. We classify a fund as belonging to the Income category when its strategy focuses on providing income or the fund self-identifies as using an income strategy even though it may incorporate other factors in addition to income.

Value: A fund that invests primarily in the stocks that are considered undervalued using metrics such as price-to-earnings, price-to-book, EV/EBITA, etc.

Growth: A fund that invests primarily in fast-growing stocks using metrics such as earnings growth, sales growth, momentum, etc.

Momentum: A fund that invests primarily in high momentum stocks using metrics such as period returns.

Quality: A fund that invests primarily in high quality stocks using metrics like ROE, debt/equity and earnings growth.

Low Vol or Risk: A fund that aims to achieve reduced portfolio volatility, either by screening for low volatility stocks, low beta stocks and/or minimizing the portfolio volatility.

Other: Any non-cap weighted factor strategy that is not covered by otherwise defined categories. This includes equal-weight, multi-factor, AlphaDEX and other fundamental-based ETFs.

DISCLOSURES

Levered and Inverse Exchange-Traded Funds are very different from most ETFs. They pursue leveraged investment goals, and they are riskier than alternatives that do not use leverage because they magnify the performance of the benchmark on an investment. These ETFs seek daily leveraged investment results. The return of an inverse or levered ETF for periods longer than a single day, especially in periods of market volatility, may be completely uncorrelated to the return of the benchmark over such longer periods. Levered and inverse ETFs are intended to be used as short-term trading vehicles for investors managing their portfolios on a daily basis. They are not to be used by, and are not appropriate for, investors who intend to hold positions.

Unless otherwise agreed in writing, National Bank of Canada and its affiliates act solely in the capacity of an arm's length contractual counterparty and not as an adviser or fiduciary. Accordingly, you should not regard transaction proposals or other written or oral communications from us as a recommendation or advice that a transaction is appropriate for you or meets your financial objectives. Any financial transaction involves a variety of potentially significant risks and issues; additionally, please note bitcoin and other crypto assets are extremely risky and highly speculative. Before entering into any financial transaction, you should ensure that you fully understand the terms, have evaluated the risks and have determined that the transaction is appropriate for you in all respects. If you believe that you need assistance, you should consult appropriate advisers before entering into the transaction. The attached material does not constitute an offer to enter into any transaction. Such material is believed by us to be reliable, but we make no representation as to its accuracy or completeness. This brief statement does not purport to describe all of the risks associated with financial transactions and should not be construed as advice to you.

General

This Report was prepared by National Bank Financial Inc. (NBF), a Canadian investment dealer, a dealer member of IIROC and an indirect wholly owned subsidiary of National Bank of Canada. National Bank of Canada is a public company listed on the Toronto Stock Exchange.

The particulars contained herein were obtained from sources which we believe to be reliable but are not guaranteed by us and may be incomplete and may be subject to change without notice. The information is current as of the date of this document. Neither the author nor NBF assumes any obligation to update the information or advise on further developments relating to the topics or securities discussed. The opinions expressed are based upon the author(s) analysis and interpretation of these particulars and are not to be construed as a solicitation or offer to buy or sell the securities mentioned herein, and nothing in this Report constitutes a representation that any investment strategy or recommendation contained herein is suitable or appropriate to a recipient's individual circumstances. In all cases, investors should conduct their own investigation and analysis of such information before taking or omitting to take any action in relation to securities or markets that are analyzed in this Report. The Report alone is not intended to form the basis for an investment decision, or to replace any due diligence or analytical work required by you in making an investment decision.

This Report is for distribution only under such circumstances as may be permitted by applicable law. This Report is not directed at you if NBF or any affiliate distributing this Report is prohibited or restricted by any legislation or regulation in any jurisdiction from making it available to you.

National Bank of Canada Financial Markets is a trade name used by National Bank Financial Inc. and National Bank of Canada Financial Inc.

National Bank Financial Inc. or an affiliate thereof, owns or controls an equity interest in TMX Group Limited ("TMX Group") and has a nominee director serving on the TMX Group's board of directors. As such, each such investment dealer may be considered to have an economic interest in the listing of securities on any exchange owned or operated by TMX Group, including the Toronto Stock Exchange, the TSX Venture Exchange and the Alpha Exchange. No person or company is required to obtain products or services from TMX Group or its affiliates as a condition of any such dealer supplying or continuing to supply a product or service.

Research analysts

The Research Analyst(s) who prepared these reports certify that their respective report accurately reflects his or her personal opinion and that no part of his/her compensation was, is, or will be directly or indirectly related to the specific recommendations or views as to the securities or companies.

NBF compensates its Research Analysts from a variety of sources. The Research Department is a cost centre and is funded by the business activities of NBF including Institutional Equity Sales and Trading, Retail Sales, the correspondent clearing business, and Corporate and Investment Banking. Since the revenues from these businesses vary, the funds for research compensation vary. No one business line has a greater influence than any other for Research Analyst compensation.

Canadian Residents

NBF or its affiliates may engage in any trading strategies described herein for their own account or on a discretionary basis on behalf of certain clients and, as market conditions change, may amend or change investment strategy including full and complete divestment. The trading interests of NBF and its affiliates may also be contrary to any opinions expressed in this Report.

NBF or its affiliates often act as financial advisor, agent, lender or underwriter or provides trading related services for certain issuers mentioned herein and may receive remuneration for its services. As well, NBF and its affiliates and/or their officers, directors, representatives, associates, may have a position in the securities mentioned herein and may make purchases and/or sales of these securities from time to time in the open market or otherwise. NBF and its affiliates may make a market in securities mentioned in this Report. This Report may not be independent of the proprietary interests of NBF and its affiliates.

NBF is a member of the Canadian Investor Protection Fund.

UK Residents

This Report is a marketing document. This Report has not been prepared in accordance with EU legal requirements designed to promote the independence of investment research and it is not subject to any prohibition on dealing ahead of the dissemination of investment research.

In respect of the distribution of this Report to UK residents, NBF has approved the contents (including, where necessary, for the purposes of Section 21(1) of the Financial Services and Markets Act 2000). This Report is for information purposes only and does not constitute a personal recommendation, or investment, legal or tax advice. NBF and/or its parent and/or any companies within or affiliates of the National Bank of Canada group and/or any of their directors, officers and employees may have or may have had interests or long or short positions in, and may at any time make purchases and/or sales as principal or agent, or may act or may have acted as market maker in the relevant investments or related investments discussed in this Report, or may act or have acted as investment and/or commercial banker with respect hereto. The value of investments, and the income derived from them, can go down as well as

DISCLOSURES

up and you may not get back the amount invested. Past performance is not a guide to future performance. If an investment is denominated in a foreign currency, rates of exchange may have an adverse effect on the value of the investment. Investments which are illiquid may be difficult to sell or realise; it may also be difficult to obtain reliable information about their value or the extent of the risks to which they are exposed. Certain transactions, including those involving futures, swaps, and other derivatives, give rise to substantial risk and are not suitable for all investors. The investments contained in this Report are not available to retail customers and this Report is not for distribution to retail clients (within the meaning of the rules of the Financial Conduct Authority). Persons who are retail clients should not act or rely upon the information in this Report. This Report does not constitute or form part of any offer for sale or subscription of or solicitation of any offer to buy or subscribe for the securities described herein nor shall it or any part of it form the basis of or be relied on in connection with any contract or commitment whatsoever.

This information is only for distribution to Eligible Counterparties and Professional Clients in the United Kingdom within the meaning of the rules of the Financial Conduct Authority. NBF is authorized and regulated by the Financial Conduct Authority and has its registered office at 70 St. Mary Axe, London, EC3A 8BE.

NBF is not authorized by the Prudential Regulation Authority and the Financial Conduct Authority to accept deposits in the United Kingdom.

U.S. Residents

With respect to the distribution of this report in the United States of America, National Bank of Canada Financial Inc. ("NBCFI") is registered with the Securities Exchange Commission (SEC), the Financial Industry Regulatory Authority (FINRA), and is a member of the Securities Investor Protection Corporation (SIPC). NBCFI operates pursuant to a 15 a-6 Agreement with its Canadian affiliates, NBF and National Bank of Canada.

This report has been prepared in whole or in part by research analysts employed by non-US affiliates of NBCFI that are not registered as broker/dealers in the US. These non-US research analysts are not registered as associated persons of NBCFI and are not licensed or qualified as research analysts with FINRA or any other US regulatory authority and, accordingly, may not be subject (among other things) to FINRA restrictions regarding communications by a research analyst with the subject company, public appearances by research analysts and trading securities held in a research analyst account.

All of the views expressed in this research report accurately reflects the research analyst's personal views regarding any and all of the subject securities or issuers. No part of the analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed in this research report. The analyst responsible for the production of this report certifies that the views expressed herein reflect his or her accurate personal and technical judgment at the moment of publication.

Because the views of analysts may differ, members of the National Bank Financial Group may have or may in the future issue reports that are inconsistent with this report, or that reach conclusions different from those in this report. To make further inquiry related to this report, United States residents should contact their NBCFI registered representative.

HK Residents

With respect to the distribution of this report in Hong Kong by NBC Financial Markets Asia Limited ("NBCFMA") which is licensed by the Securities and Futures Commission ("SFC") to conduct Type 1 (dealing in securities) and Type 3 (leveraged foreign exchange trading) regulated activities, the contents of this report are solely for informational purposes. It has not been approved by, reviewed by, verified by or filed with any regulator in Hong Kong. Nothing herein is a recommendation, advice, offer or solicitation to buy or sell a product or service, nor an official confirmation of any transaction. None of the products issuers, NBCFMA or its affiliates or other persons or entities named herein are obliged to notify you of changes to any information and none of the foregoing assume any loss suffered by you in reliance of such information.

The content of this report may contain information about investment products which are not authorized by SFC for offering to the public in Hong Kong and such information will only be available to those persons who are Professional Investors (as defined in the Securities and Futures Ordinance of Hong Kong ("SFO")). If you are in any doubt as to your status you should consult a financial adviser or contact us. This material is not meant to be marketing materials and is not intended for public distribution. Please note that neither this material nor the product referred to is authorized for sale by SFC. Please refer to product prospectus for full details.

There may be conflicts of interest relating to NBCFMA or its affiliates' businesses. These activities and interests include potential multiple advisory, transactional and financial and other interests in securities and instruments that may be purchased or sold by NBCFMA or its affiliates, or in other investment vehicles which are managed by NBCFMA or its affiliates that may purchase or sell such securities and instruments.

No other entity within the National Bank of Canada group, including National Bank of Canada and National Bank Financial Inc., is licensed or registered with the SFC. Accordingly, such entities and their employees are not permitted and do not intend to: (i) carry on a business in any regulated activity in Hong Kong; (ii) hold themselves out as carrying on a business in any regulated activity in Hong Kong; or (iii) actively market their services to the Hong Kong public.

Copyright

This Report may not be reproduced in whole or in part, or further distributed or published or referred to in any manner whatsoever, nor may the information, opinions or conclusions contained in it be referred to without in each case the prior express written consent of NBF.

Dissemination policy

[Please click on this link to access NBF's Research Dissemination Policy.](#)