

August 2022: Rate Expectations

- U.S. ETF inflows remained strong even though the summer rally in stocks faded in the second half of August
- Investors withdrew from European equity ETFs as inflation and energy concerns intensified
- Bearish bets on the U.S. equity through inverse ETFs piled up in August as traders recalibrate their expectations
- Powell's Jackson Hole speech led to a drastic switch out of longer duration bonds and into short-term treasury

Summary (Table 1, Chart 1): Although the summer rally in U.S. stocks faded in the second half of August, ETF inflows remained strong. Most inflows went to U.S. domestic equity ETFs and U.S. fixed income ETFs. This report also discusses yet another new ETF product category: single-bond U.S. Treasury ETFs. The Washington-based firm *F/m Investments* introduced three of these in August, not long after providers GraniteShares, AXS and Direxion launched single-stock leverage/inverse ETFs in the past two months.

Equity ETFs by Geography (Table 4): Domestic U.S. equity ETFs dominated inflows in August while Europe and China equity ETFs suffered redemptions. In August, Eurozone inflation hit another record high, and energy concerns intensified after Russia halted gas supply through Nord Stream 1 for the second time this summer. Natural gas and electricity prices are now about 10 times higher in Europe than a year ago. Worried about the knock-on effect of the energy shock and ECB's aggressive hiking path, ETF investors withdrew \$3.3 billion from the region in August, which amounted to 9% of the starting AUM. Investors also dumped \$1.3 billion worth of China equity ETFs in August, mostly KraneShares CSI China Internet ETF (**KWEB**), Xtrackers Harvest CSI 300 China A-Shares ETF (**ASHR**) and SPDR S&P China ETF (**GXC**). Geopolitical tension between China and Taiwan escalated after Speaker Pelosi's Taiwan visit, which might have led the largest Taiwan ETF (the \$3.7 billion iShares MSCI Taiwan ETF, **EWT**) to shed \$0.6 billion in August.

Equity Sector ETFs (Table 5): Sector and thematic ETFs flows were mixed in August with financials, technology, and utilities on the positive (inflow) side and communication services, materials and health care on the negative (outflow) side. The net inflows were small at \$4.9 billion, which suggests divergent opinions among investors on the future economic trajectory for the U.S. Performance-wise, energy and utilities were the only two S&P 500 sectors that finished the month in green, and technology was the worst performing sector, implying that growth stocks may still be in the process of a dramatic re-pricing.

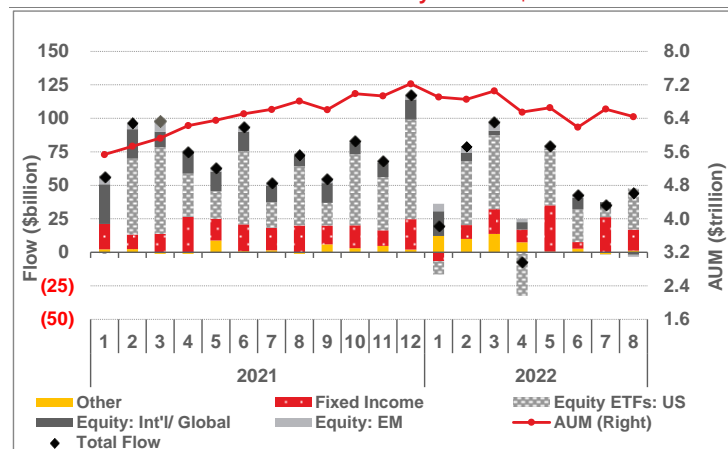
Equity Factor ETFs (Table 8): All S&P factor indices plummeted as the summer rally ended, but despite the weak performance, almost all factor ETF categories enjoyed inflows; in August, factor ETFs brought in \$16.9 billion in total. Investors have been positioning defensively for the past few months, but they may be seeking growth opportunities from the sell-off:

Table 1: ETF Flows by Category

	AUM (\$B)	Mkt Shr	Aug 2022		Jan-Aug 2022	
			Flow (\$B)	Flow/AUM	Flow (\$B)	Flow/AUM
Equity	\$4,915		\$27.7	0.5%	\$229.8	4.1%
U.S. Broad/Large-Cap	\$1,554	24%	\$7.4	0.5%	\$48.1	2.6%
U.S. Other	\$2,263	35%	\$23.6	1.0%	\$112.8	4.4%
Int'l / Global	\$830	13%	-\$1.8	-0.2%	\$46.1	4.6%
Emerging Markets	\$270	4%	-\$1.5	-0.5%	\$22.8	7.5%
Fixed Income	\$1,251	19%	\$15.8	1.3%	\$111.9	8.8%
Commodity	\$137	2%	-\$2.7	-1.9%	\$6.4	4.7%
Multi-Asset	\$63	1%	\$1.9	3.1%	\$16.2	29.6%
Levered Long	\$47	1%	\$0.4	0.7%	\$14.3	18.7%
Inverse	\$26	0%	\$1.6	7.2%	\$9.4	79.9%
Crypto-Asset	\$1	0%	\$0.0	-4.0%	\$0.2	14.2%
Total	\$6,440	100%	\$44.6	0.7%	\$388.2	5.4%

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

Chart 1: U.S.-Listed ETF Flow and AUM by month - \$388 billion YTD



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

dividend/income and growth factor ETFs led the inflows with \$6.8 billion and \$4.6 billion, respectively. Value and small/mid-cap regained some interests, each taking in about \$2 billion.

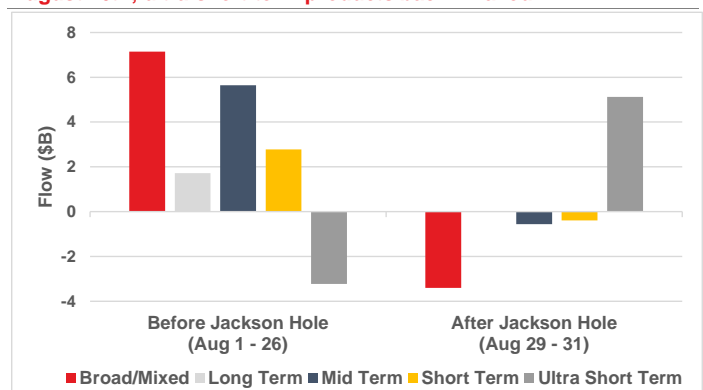
Leverage/Inverse ETFs: Inverse equity ETFs had outsized inflows in August as traders dialled up bearish bets on the U.S. equity market in the face of a more hawkish Federal Reserve. ProShares Short S&P 500 ETF (SH) saw \$559 million in inflows in August, the ETF's highest monthly creation since May 2020. ProShares short QQQ series (-1x, -2x, and -3x) combined saw inflows of nearly \$1 billion. In addition, Tuttle Capital's short ARKK ETF gathered a sizable inflow of \$147 million while Cathie Wood's original ARKK, which has been receiving inflows this year even as the NAV tumbled, finally lost \$803 million through outflows in August, its biggest monthly redemption since October 2021.

Fixed Income ETFs (Tables 6, 7): Fixed Income ETFs had \$15.8 billion of inflows in August. The inflows were well distributed across all maturities, with a tilt towards longer-term products. If we compare the flow pattern before and after Chair Powell's speech at the Jackson Hole Symposium on August 26th (Chart 2), we can see that the fixed income investors were acting optimistically, seeking yield by increasing duration and credit exposure - perhaps CPI data (year-over-year increase of 8.5%, 0.2% below consensus) suggested to some that the inflation has peaked, and the Fed would slow down the pace of tightening. However, after Powell delivered his hawkish outlook and pushed back on the market's pricing-in of interest rate cuts in 2023, the flow trend reversed drastically. SPDR Bloomberg Barclays 1-3 Month T-Bill ETF (BIL) and iShares Short Treasury Bond ETF (SHV) each received \$1.8 billion *after* the Symposium, whereas iShares iBoxx High Yield Corporate Bond ETF (HYG) and SPDR Bloomberg Barclays High Yield Bond ETF (JNK) lost \$2.5 billion and \$2.0 billion, respectively.

In August, F/m Investments debuted three "single-bond" ETFs (UTEN, UTWO, TBIL), the first of their kind in the U.S. Each ETF invests *only* in a single on-the-run U.S. Treasury of a specific maturity, namely ten-year, two-year or three-month, rolling monthly to the next on-the-run issue. These single-bond ETFs might be useful to a trader or institution running a very precise yield curve model, but they may not be ideal for investors simply seeking to add U.S. government bond exposure to their portfolios. One disadvantage is the monthly rolling feature, which results in high portfolio turnover that could generate more capital gains, not to mention slippage and transaction costs. The three ETFs together received a modest but appreciable \$77.6 million in flows since inception.

ESG ETFs (Table 2): ESG ETFs had \$786 million in flows in August, the strongest month since April this year. The broad ESG ETFs (considering all three of the E, S, and G pillars) providing U.S. equity exposure took the lion's share of the inflows in August, led by subscriptions into Nuveen ESG Large-Cap Value ETF (NULV), iShares ESG Aware MSCI USA ETF (ESGU) and Vanguard ESG US Stock ETF (ESGV). Strong demand for clean energy ETFs in August was fueled by the passing of the landmark Inflation Reduction Act, the largest piece of federal legislation ever to address climate change. The act will invest \$300 billion in provisions relating to energy security and climate change. Investors

Chart 2: Investors' sentiments shifted after Powell's speech on August 26th; ultra-short-term products back in favour



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

Table 2: U.S.-Listed ESG ETFs – August 2022

Category	AUM (\$M)	AUM (%)	August 2022		Jan - August 2022	
			Flow (\$M)	Flow/AUM	Flow (\$M)	Flow/AUM
Equity	\$90,154	92%	\$705	0.8%	\$4,743	4.6%
Broad - U.S.	\$49,270	50%	\$515	1.0%	\$2,440	4.2%
Broad - DM	\$7,427	8%	\$6	0.1%	\$876	10.2%
Broad - EM	\$4,633	5%	-\$12	-0.3%	-\$438	-6.7%
Broad - Global	\$3,510	4%	\$13	0.4%	\$389	9.7%
Environment	\$7,258	7%	-\$94	-1.2%	\$1,156	15.3%
Clean Energy	\$14,960	15%	\$258	1.8%	-\$451	-2.8%
Social	\$2,267	2%	\$39	1.7%	\$395	17.3%
Other	\$609	1%	-\$28	-4.3%	\$232	48.2%
Commodities	\$1,307	1%	\$13	1.0%	-\$305	-16.3%
Multi-Asset	\$166	0%	\$1	0.3%	\$2	1.2%
Fixed Income	\$6,768	7%	\$67	1.0%	\$1,442	23.6%
Total Displayed	\$98,397	100%	\$786	0.8%	\$5,882	5.3%

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

poured \$258 million into clean energy ETFs in August, on top of the \$136 million in July when the deal was first announced. Perhaps also in reaction to the implications of the Inflation Reduction Act, KraneShares California Carbon Allowance ETF (**KCCA**) welcomed significant creations (relative to its moderate size), while KraneShares Global Carbon ETF (**KRBN**) had some outflows.

Top Performing ETFs (Table 3): Two interest rate hedged ETFs, Advocate Rising Rate Hedge ETF (**RRH**) and Simplify Interest Rate Hedge ETF (**PFIX**), stood out in August. Both seek to profit in a rising interest rate environment by taking short positions in long-term U.S. treasuries, whose yields rose in August. For instance, the 20-year U.S. Treasury yield rebounded by 40 bps to 3.52% as market participants eyed the possibility of tighter monetary policies in September.

Table 3: Best Performing ETFs* – August 2022

	Ticker	Name	Total Return (%)	AUM (\$M)	Flow (\$M)
1	PSIL	Advisorshares Psychedelics ETF	35.2	11	2
2	TUR	iShares MSCI Turkey ETF	18.2	290	3
3	KSET	KraneShares Global Carbon Offset Strategy ETF	17.9	8	0
4	PSDN	Advisorshares Poseidon Dynamic Cannabis ETF	17.4	6	0
5	BAL	iPath Series B Bloomberg Cotton Subindex TR	17.3	39	0
6	GTEK	The Goldman Sachs Future Tech Leaders Equity	16.3	290	-6
7	RRH	Advocate Rising Rate Hedge ETF	15.6	33	-0
8	PAK	Global X MSCI Pakistan ETF	15.0	15	0
9	UNL	United States 12 Month Natural Gas Fund LP	14.9	44	-5
10	PFIX	Simplify Interest Rate Hedge ETF	14.7	302	0

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

Two single-country ETFs performed well. iShares MSCI Turkey ETF (**TUR**) went up 18.2% as Turkish stocks rallied in August, fueled by local investors seeking protection from skyrocketing inflation and an unexpected 1% rate cut by the central bank. Pakistan is another country that suffered from high inflation and was recently hit by a country-wide flood, which triggered the spike in cotton futures prices (**BAL**). The Pakistan stock market rose in August while the IMF approved the release of the first tranche (\$1.2 billion) of a \$7 billion loan to Pakistan. Global X MSCI Pakistan ETF (**PAK**) gained 15% in the month.

August 2022 ETF Flows: Tables 4 - 10

Table 4 - Equity ETF Flows by Geography - Aug 2022

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,816		\$30.9	0.8%
Broad/Large Cap	\$1,554	32%	\$7.4	0.5%
U.S. Other	\$2,263	46%	\$23.6	1.0%
International Developed	\$493		-\$1.6	-0.3%
Broad Int'l Dev	\$382	8%	\$2.1	0.5%
Broad Europe	\$33	1%	-\$3.3	-8.7%
Japan	\$20	0%	\$0.0	-0.1%
Canada	\$10	0%	-\$0.1	-0.6%
Other Developed	\$49	1%	-\$0.3	-0.6%
Emerging Markets	\$270		-\$1.5	-0.5%
Broad Cap Weighted	\$182	4%	\$0.4	0.2%
China (A+H)	\$27	1%	-\$1.3	-4.4%
Other EM	\$60	1%	-\$0.6	-0.9%
Global/Regional	\$336	7%	-\$0.2	-0.1%
Total Displayed	\$4,915	100%	\$27.7	0.5%

Source: National Bank of Canada, Bloomberg

Table 5 - Equity ETF Flows by Sector and Themes* - Aug 2022

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Financials	\$61	8%	\$4.1	7.0%
Technology	\$150	19%	\$1.0	0.6%
Utilities	\$28	4%	\$1.0	3.7%
Consumer Staples	\$29	4%	\$0.9	3.0%
Industrials	\$31	4%	\$0.3	0.8%
Energy	\$81	10%	\$0.1	0.1%
Real Estate	\$79	10%	-\$0.1	-0.1%
Consumer Discretionary	\$29	4%	-\$0.2	-0.6%
Health Care	\$97	12%	-\$0.3	-0.3%
Materials	\$40	5%	-\$0.6	-1.4%
Communication Services	\$28	3%	-\$0.7	-2.5%
ESG	\$89	11%	\$0.7	0.7%
Thematic	\$58	7%	-\$1.2	-1.9%
Total Displayed	\$800	100%	\$4.9	0.6%

*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 6 - Fixed Income ETF Flows by Type - Aug 2022

Type	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S. Aggregate	\$290	23%	\$6.3	2.2%
U.S. Government	\$374	30%	\$8.9	2.4%
U.S. Municipals	\$86	7%	-\$0.8	-0.9%
U.S. I.G. Corporate	\$213	17%	\$2.9	1.4%
Developed Markets&Global	\$134	11%	\$1.2	0.9%
Emerging Markets	\$28	2%	\$0.7	2.4%
Sub-investment Grade	\$82	7%	-\$3.8	-4.4%
Convertibles and Preferreds	\$44	4%	\$0.4	0.9%
Total Displayed	\$1,251	100%	\$15.8	1.3%

Source: National Bank of Canada, Bloomberg

Table 7 - Fixed Income ETF Flows by Maturity - Aug 2022

Maturity	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Broad/Mixed	\$624	50%	\$3.8	0.6%
Ultra Short Term	\$146	12%	\$1.9	1.3%
Short Term	\$255	20%	\$2.4	0.9%
Mid Term	\$142	11%	\$5.1	3.6%
Long Term	\$54	4%	\$1.9	3.5%
Target Maturity	\$28	2%	\$0.7	2.7%
Rate Hedged	\$2	0%	\$0.0	0.3%
Total Displayed	\$1,251	100%	\$15.8	1.3%

Source: National Bank of Canada, Bloomberg

Table 8 - Equity ETF Flows by Factor* - Aug 2022

Factor	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Income	\$349	20%	\$6.8	1.9%
Growth	\$323	19%	\$4.6	1.4%
Value	\$386	22%	\$2.2	0.5%
Small/Mid Cap	\$412	24%	\$1.7	0.4%
Low Vol	\$62	4%	\$0.5	0.7%
Momentum	\$21	1%	-\$0.1	-0.5%
Quality	\$36	2%	-\$0.2	-0.7%
Multi-Factor and Other	\$132	8%	\$1.5	1.1%
Total Displayed	\$1,721	100%	\$16.9	1.0%

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

Table 9 - Top Single Long ETF Inflows - Aug 2022

Ticker	Name	Flow (\$B)	Flow/AUM
1 XLF	Financial Select Sector SPDR Fund	\$3.7	12.0%
2 VOO	Vanguard S&P 500 ETF	\$3.6	1.3%
3 BND	Vanguard Total Bond Market ETF	\$2.6	3.1%
4 VCSH	Vanguard Short-Term Corporate Bond ETF	\$2.6	6.1%
5 VTI	Vanguard Total Stock Market ETF	\$2.5	0.9%
6 IEF	iShares 7-10 Year Treasury Bond ETF	\$2.3	10.8%
7 IVV	iShares Core S&P 500 ETF	\$2.2	0.7%
8 VGIT	Vanguard Intermediate-Term Treasury ETF	\$2.2	22.7%
9 TLT	iShares 20+ Year Treasury Bond ETF	\$1.8	7.1%
10 AGG	iShares Core U.S. Aggregate Bond ETF	\$1.4	1.6%
11 VGX	Vanguard Information Technology ETF	\$1.3	2.9%
12 SCHD	Schwab US Dividend Equity ETF	\$1.3	3.6%
13 JEPI	JPMorgan Equity Premium Income ETF	\$1.3	11.0%
14 VEA	Vanguard FTSE Developed Markets ETF	\$1.2	1.3%
15 JPST	JPMorgan Ultra-Short Income ETF	\$1.2	5.9%
16 BNDX	Vanguard Total International Bond ETF	\$1.0	2.3%
17 VUG	Vanguard Growth ETF	\$1.0	1.3%
18 SPYG	SPDR Portfolio S&P 500 Growth ETF	\$0.9	6.4%
19 COWZ	Pacer US Cash Cows 100 ETF	\$0.9	12.8%
20 SHV	iShares Short Treasury Bond ETF	\$0.8	4.1%

Source: National Bank of Canada, Bloomberg

Table 10 - Top Single Long ETF Outflows - Aug 2022

Ticker	Name	Flow (\$B)	Flow/AUM
1 BBEU	JPMorgan BetaBuilders Europe ETF	-\$2.7	-47.5%
2 HYG	iShares iBoxx High Yield Corporate Bond ETF	-\$2.1	-13.9%
3 GLD	SPDR Gold Shares	-\$1.8	-3.2%
4 MUB	iShares National Muni Bond ETF	-\$1.3	-4.4%
5 ITOT	iShares Core S&P Total US Stock Market ETF	-\$1.2	-2.7%
6 EFA	iShares MSCI EAFE ETF	-\$1.1	-2.2%
7 JNK	SPDR Bloomberg Barclays High Yield Bond ETF	-\$0.8	-10.4%
8 ARKK	ARK Innovation ETF	-\$0.8	-8.6%
9 QQQ	Invesco QQQ Trust Series 1	-\$0.8	-0.4%
10 SPY	SPDR S&P 500 ETF Trust	-\$0.7	-0.2%
11 SHY	iShares 1-3 Year Treasury Bond ETF	-\$0.7	-2.7%
12 KWEB	KraneShares CSI China Internet ETF	-\$0.7	-9.8%
13 EWT	iShares MSCI Taiwan ETF	-\$0.7	-14.7%
14 VGK	Vanguard FTSE Europe ETF	-\$0.5	-3.4%
15 SPIB	SPDR Portfolio Intermediate Term Corporate Bond	-\$0.5	-7.4%
16 SRLN	SPDR Blackstone Senior Loan ETF	-\$0.5	-5.4%
17 XBI	SPDR S&P Biotech ETF	-\$0.4	-5.9%
18 QUAL	iShares MSCI USA Quality Factor ETF	-\$0.4	-2.1%
19 MINT	PIMCO Enhanced Short Maturity Active ETF	-\$0.4	-3.3%
20 SPTL	SPDR Portfolio Long Term Treasury ETF	-\$0.4	-6.1%

Source: National Bank of Canada, Bloomberg

January - August 2022 ETF Flows: Tables 11 - 17

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,816		\$160.9	3.7%
Broad/Large Cap	\$1,554	32%	\$48.1	2.6%
U.S. Other	\$2,263	46%	\$112.8	4.4%
International Developed	\$493		\$26.1	4.4%
Broad Int'l Dev	\$382	8%	\$29.5	6.6%
Broad Europe	\$33	1%	-\$11.1	-19.4%
Japan	\$20	0%	\$0.3	1.4%
Canada	\$10	0%	\$1.2	11.4%
Other Developed	\$49	1%	\$6.1	11.3%
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Global/Regional	\$336	7%	\$20.0	5.0%
Total Displayed	\$4,915	100%	\$229.8	4.1%

Source: National Bank of Canada, Bloomberg

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Health Care	\$97	12%	\$9.1	8.6%
Consumer Staples	\$29	4%	\$6.5	27.2%
Utilities	\$28	4%	\$6.0	28.0%
Materials	\$40	5%	\$0.4	0.7%
Energy	\$81	10%	\$0.6	-1.1%
Technology	\$150	19%	-\$0.7	-0.4%
Communication Services	\$28	3%	-\$2.7	-6.3%
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4	VTV Vanguard Value ETF	\$13.8	14.9%
5	TLT iShares 20+ Year Treasury Bond ETF	\$10.9	55.6%
6	BND Vanguard Total Bond Market ETF	\$9.6	11.4%
7	SCHD Schwab US Dividend Equity ETF	\$9.6	30.7%
8	GOVT iShares US Treasury Bond ETF	\$8.4	51.9%
9	DFUV Dimensional US Marketwide Value ETF	\$7.9	#DIV/0!
10	JEPI JPMorgan Equity Premium Income ETF	\$7.7	131.8%
11	IEF iShares 7-10 Year Treasury Bond ETF	\$7.6	43.2%
12	SHV iShares Short Treasury Bond ETF	\$7.5	57.0%
13	VUG Vanguard Growth ETF	\$7.1	7.8%
14	XLV Health Care Select Sector SPDR Fund	\$6.7	18.9%
15	VEA Vanguard FTSE Developed Markets ETF	\$6.7	6.1%
16	HYM Vanguard High Dividend Yield ETF	\$6.5	15.2%
17	COWZ Pacer US Cash Cows 100 ETF	\$6.4	504.8%
18	USFR WisdomTree Floating Rate Treasury Fund	\$6.2	335.5%
19	SHY iShares 1-3 Year Treasury Bond ETF	\$6.0	29.0%
20	BIL SPDR Bloomberg Barclays 1-3 Month T-Bill ETF	\$5.2	38.1%

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Ticker	Name	Flow (\$B)	Flow/AUM
1	SPY SPDR S&P 500 ETF Trust	-\$31.5	-6.8%
2	HYG iShares iBoxx High Yield Corporate Bond ETF	-\$6.6	-30.4%
3	VLUE iShares MSCI USA Value Factor ETF	-\$5.5	-34.3%
4	BBEU JPMorgan BetaBuilders Europe ETF	-\$5.1	-52.2%
5	TIP iShares TIPS Bond ETF	-\$5.0	-12.9%
6	IWM iShares Russell 2000 ETF	-\$4.4	-6.4%
7	XLF Financial Select Sector SPDR Fund	-\$3.9	-8.8%
8	SCHP Schwab US TIPS ETF	-\$3.5	-16.3%
9	VGK Vanguard FTSE Europe ETF	-\$2.9	-13.2%
10	FDN First Trust Dow Jones Internet Index Fund	-\$2.6	-25.7%
11	XLY Consumer Discretionary Select Sector SPDR Fund	-\$2.4	-10.1%
12	PFF iShares Preferred & Income Securities ETF	-\$2.3	-11.1%
13	XLI Industrial Select Sector SPDR Fund	-\$2.2	-12.7%
14	HYLB Xtrackers USD High Yield Corporate Bond ETF	-\$2.2	-33.6%
15	MINT PIMCO Enhanced Short Maturity Active ETF	-\$2.1	-15.7%
16	IWD iShares Russell 1000 Value ETF	-\$2.1	-3.6%
17	MTUM iShares MSCI USA Momentum Factor ETF	-\$2.0	-13.8%
18	MBB iShares MBS ETF	-\$2.0	-7.8%
19	EWT iShares MSCI Taiwan ETF	-\$1.9	-26.3%
20	IWN iShares Russell 2000 Value ETF	-\$1.9	-11.8%

Source: National Bank of Canada, Bloomberg

Table 18: ETF Provider Table

Provider	AUM (\$B)	Mkt Shr	Aug 2022		Jan-Aug 2022	
			Flow (\$B)	Flow/ AUM	Flow (\$B)	Flow/ AUM
1 BlackRock iShares	\$2,167	34%	\$4.1	0.2%	\$88.7	3.6%
2 Vanguard	\$1,879	29%	\$24.2	1.3%	\$139.8	6.7%
3 State Street SSGA	\$966	15%	\$3.4	0.3%	-\$2.2	-0.2%
4 Invesco	\$350	5%	\$0.8	0.2%	\$19.6	4.8%
5 Charles Schwab	\$251	4%	\$2.8	1.1%	\$22.0	8.1%
6 First Trust	\$134	2%	\$1.6	1.2%	\$6.9	4.6%
7 JPMorgan	\$82	1%	-\$0.2	-0.3%	\$17.8	24.6%
8 ProShares	\$62	1%	\$1.3	2.1%	\$14.7	20.7%
9 Dimensional Holdings	\$60	1%	\$1.9	3.1%	\$22.5	49.8%
10 WisdomTree	\$50	1%	\$0.9	1.7%	\$8.4	17.7%
11 VanEck	\$49	1%	-\$0.6	-1.1%	\$1.2	2.0%
12 Global X	\$39	1%	\$0.7	1.8%	\$3.9	9%
13 Fidelity	\$31	0%	\$0.4	1.1%	\$1.9	6%
14 Goldman Sachs	\$26	0%	\$0.5	1.7%	\$3.8	13.8%
15 PIMCO	\$23	0%	-\$0.3	-1.3%	-\$2.0	-7.3%
16 Direxion	\$22	0%	\$0.6	2.3%	\$8.6	29.0%
17 Northern Trust	\$21	0%	\$0.0	0.0%	\$2.5	12.2%
18 DWS Xtrackers	\$19	0%	-\$0.4	-2.1%	-\$1.7	-7.2%
19 Pacer Financial	\$16	0%	\$1.1	6.9%	\$7.7	75.4%
20 ARK	\$15	0%	-\$1.0	-5.8%	-\$0.2	-0.6%
Top 20 Total	\$6,263	97%	\$41.7		\$363.9	
Total ETF	\$6,440	100%	\$44.6		\$388.2	

Source: NBF ETF Research, Bloomberg. Data as of August 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 a 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.

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