

## February 2023: ETF Investors sending Mixed Signals

- U.S. ETF net monthly flow fell below \$10 billion, the first time since April 2022.
- Investors continue to favour international developed markets over the U.S.
- Defensive sector ETFs and low volatility ETFs saw outflows despite rising fear indicators.
- Money flocked to ultra-short-term treasuries as the market expects more rate hikes from the Fed.

**Summary (Table 1, Chart 1):** In February, U.S. ETF net flows shrunk to \$9.6 billion, the lowest point since April 2022 when there were actually outflows. Demand for U.S. equity and fixed income ETFs declined, as investors remained cautious about inflation and policy rates. In addition, the S&P 500 Index slid by 2% and the yield curve between two-year and 10-year treasuries continued to invert.

### Equity ETFs by Geography (Table 3):

U.S. Broad/Large-Cap ETFs extended their outflow-streak for the fourth month, driven almost entirely by SPDR S&P 500 ETF Trust (SPY) which had \$10.5 billion of outflows, the highest among single long ETFs. Demand for Emerging Market equity ETFs also weakened, perhaps due to concern over a stronger USD as the Fed signaled for additional interest rate hikes. Investors continued to favour International Developed equity ETFs. JPMorgan BetaBuilders Europe ETF (BBEU) attracted the most inflows of \$2.1 billion, or 30% of its AUM from the start of the month.

**Equity Sector ETFs (Table 4):** Almost all sectors contributed to the decline of the S&P 500 Index last month, with Energy being the worst performing, down 7%. Technology was the only sector to see a slight gain of 0.5%. The breadth of the bearishness demonstrates investors' overall negative sentiment towards equity risk; for further evidence, this is the third consecutive month for sector ETFs to suffer net outflows; only two sector categories (financials and industrials) saw new creations in February. Even defensive sectors such as Health Care and Energy were among the top outflow sector categories; perhaps persistently disappointing equity performance has prompted investors to seek out alternative portfolio protection strategies.

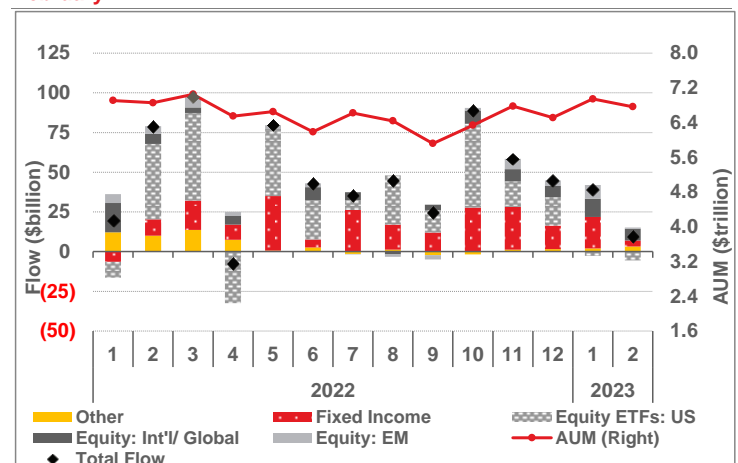
**Equity Factor ETFs (Table 7):** Despite the low-sentiment signals from cap-weighted and sector equity products, \$8.2 billion in new money was invested across small/mid-cap, value, dividend/income, and multi-factor ETF categories. Meanwhile, outflows persisted from low volatility ETFs, particularly from iShares' U.S.- and EM-focused low volatility products (USMV, EEMV). The sluggish performances of these low volatility ETFs may have contributed to the outflows, as low volatility indices generally

**Table 1: ETF Flows by Category**

	AUM (\$B)	Mkt Shr	Feb 2023 Flow (\$B)	Feb 2023 Flow/AUM	Jan-Feb 2023 Flow (\$B)	Jan-Feb 2023 Flow/AUM
Equity	\$5,148		\$2.7	0.1%	\$17.8	0.4%
U.S. Broad/Large-Cap	\$1,582	23%	-\$8.3	-0.5%	-\$10.4	-0.7%
U.S. Other	\$2,358	35%	\$2.8	0.1%	\$0.0	0.0%
Int'l / Global	\$932	14%	\$7.5	0.8%	\$19.0	2.2%
Emerging Markets	\$277	4%	\$0.7	0.2%	\$9.3	3.5%
Fixed Income	\$1,325	20%	\$3.7	0.3%	\$23.4	1.8%
Commodity	\$129	2%	-\$0.7	-0.5%	-\$0.3	-0.2%
Multi-Asset	\$90	1%	\$2.7	3.1%	\$4.4	5.1%
Levered Long	\$49	1%	\$1.0	2.0%	-\$0.8	-1.8%
Inverse	\$25	0%	\$0.3	1.1%	\$4.5	18.8%
Crypto-Asset	\$1	0%	\$0.0	-2.3%	\$0.0	4.9%
<b>Total</b>	<b>\$6,767</b>	<b>100%</b>	<b>\$9.6</b>	<b>0.1%</b>	<b>\$49.1</b>	<b>0.8%</b>

Source: NBF ETF Research, Bloomberg. Data as of February 28, 2023.

**Chart 1: U.S. Listed ETF Flow and AUM by month - \$9.6 billion in February**



Source: NBF ETF Research, Bloomberg. Data as of February 28, 2023.

emphasize defensive sectors, which performed poorly in February. The S&P 500 Low Volatility Index, for example, underperformed the S&P 500 Index by 0.7% in February and 6.9% year-to-date.

**Fixed Income ETFs (Tables 5, 6):** Recent U.S. economic data has produced mixed results. While fourth quarter 2022 GDP figures showed signs of weakness, January's CPI was higher than anticipated, rising by 0.5%, and the unemployment rate fell to a 53-year low. These factors may lead the Fed to consider raising interest rates further, as discussed in the [Monthly Economic Monitor report](#) from National Bank's Economics and Strategy team. In response to growing concerns about additional tightening from the Fed, investors have reduced their credit and duration exposure. They have shifted from broad-term and high-yield ETFs to ultra-short-term treasuries. iShares Short Treasury Bond ETF (**SHV**), iShares 0-3 Month Treasury Bond ETF (**SGOV**) and SPDR Bloomberg Barclays 1-3 Month T-bill ETF (**BIL**) have together enjoyed \$7.5 billion of inflow.

Emerging Market bond ETFs also lost traction. This category experienced an outflow of \$1.7 billion in February, or 5.4% of its starting AUM, representing a sharp reversal from January's asset gains.

**ESG ETFs (Table 18):**

ESG ETFs received \$1.8 billion in February. Most of the inflows went into Putnam's new ESG suite and Nuveen's ESG factor ESG (**NUSG**, **NULG**), which may have received institutional interest. iShares ESG Aware MSCI USA ETF (**ESGU**) had a \$153 million outflow, the most among ESG ETFs. Since October 2022, **ESGU** has experienced nearly \$3 billion in net redemptions. This could be related to iShares unwinding some ESG investments from its platform.

We have recently revised some of our ESG classifications and have introduced a new category called "Energy Transition" for U.S. ESG ETFs. As some believe that carbon-based energy is still necessary to support the energy transition process in the near future, these ETFs have been introduced to invest in not just renewable energy producers, but also traditional energy companies. An example of an "Energy Transition" ETF is the recently launched Horizon Kinetics Energy & Remediation ETF (**NVIR**).

**Top Performing ETFs (Table 2):** The top performers in February were mostly commodity futures-based and their outperformance could be attributed to a combination of market speculation with supply-demand imbalances. Additionally, three rate-hedged ETFs made it to the top 10. They use credit derivatives to position for an increase in the bond market's volatility. The ICE BofA MOVE Index, which measures the implied volatility level for bonds, rose by 24% in February as the market anticipated more rate hikes from the Fed.

**Table 2: Best Performing ETFs\* – February 2023**

Ticker	Name	Total Return (%)	AUM (\$M)	Flow (\$M)
1 <b>KSET</b>	KraneShares Global Carbon Offset Strategy ETF	22.2	3	0
2 <b>TSLY</b>	Yieldmax Tsla Option Income Etf	20.1	4	3
3 <b>BDRY</b>	Breakwave Dry Bulk Shipping ETF	19.5	101	52
4 <b>RRH</b>	Advocate Rising Rate Hedge ETF	13.3	39	1
5 <b>BOAT</b>	Sonicshares Global Shipping ETF	10.7	23	0
6 <b>CTA</b>	Simplify Managed Futures Strategy ETF	9.4	136	-3
7 <b>RATE</b>	Global X Interest Rate Hedge ETF	9.7	3	0
8 <b>PFIX</b>	Simplify Interest Rate Hedge ETF	9.5	355	0
9 <b>NIB</b>	iPath Bloomberg Cocoa Subindex Total Return	7.8	19	-2
10 <b>GRN</b>	iPath Series B Carbon ETN	7.7	55	0

\*Excluding leveraged/inverse ETFs. Source: NBF ETF Research, Bloomberg. Data as of February 28, 2023.

**February 2023 ETF Flows: Tables 3 - 9**

**Table 3 - Equity ETF Flows by Geography - Feb 2023**

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,940		-\$5.5	-0.1%
Broad/Large Cap	\$1,582	31%	-\$3.3	-0.5%
U.S. Other	\$2,358	46%	\$2.8	0.1%
International Developed	\$572		\$7.4	1.3%
Broad Int'l Dev	\$443	9%	\$3.6	0.8%
Broad Europe	\$47	1%	\$3.2	7.1%
Japan	\$20	0%	\$0.0	0.0%
Canada	\$10	0%	-\$0.2	-1.8%
Other Developed	\$52	1%	\$0.8	1.5%
Emerging Markets	\$277		\$0.7	0.2%
Broad Cap Weighted	\$184	4%	\$1.3	0.6%
China (A+H)	\$28	1%	-\$0.4	-1.1%
Other EM	\$65	1%	-\$0.2	-0.3%
Global/Regional	\$360	7%	\$0.1	0.0%
<b>Total Displayed</b>	<b>\$5,148</b>	<b>100%</b>	<b>\$2.7</b>	<b>0.1%</b>

Source: National Bank of Canada, Bloomberg

**Table 4 - Equity ETF Flows by Sector and Themes\* - Feb 2023**

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Financials	\$63	8%	\$1.7	2.7%
Industrials	\$35	4%	\$0.8	2.4%
Materials	\$43	5%	-\$0.3	-0.7%
Consumer Staples	\$30	4%	-\$0.4	-1.3%
Consumer Discretionary	\$26	3%	-\$0.5	-1.7%
Communication Services	\$26	3%	-\$0.6	-2.1%
Technology	\$148	19%	-\$0.7	-0.5%
Utilities	\$24	3%	-\$0.8	-3.2%
Real Estate	\$72	9%	-\$0.9	-1.2%
Health Care	\$98	12%	-\$1.5	-1.4%
Energy	\$81	10%	-\$2.0	-2.3%
ESG	\$85	11%	\$0.9	1.0%
Thematic	\$61	8%	\$0.2	0.3%
<b>Total Displayed</b>	<b>\$792</b>	<b>100%</b>	<b>-\$4.2</b>	<b>-0.5%</b>

\*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 5 - Fixed Income ETF Flows by Type - Feb 2023**

Type	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S. Aggregate	\$304	23%	\$6.0	2.0%
U.S. Government	\$412	31%	\$8.8	2.1%
U.S. Municipals	\$100	8%	-\$0.5	-0.5%
U.S. I.G. Corporate	\$218	16%	-\$2.7	-1.2%
Developed Markets&Global	\$141	11%	\$1.4	1.0%
Emerging Markets	\$28	2%	-\$1.7	-5.4%
Sub-investment Grade	\$81	6%	-\$8.1	-9.0%
Convertibles and Preferreds	\$41	3%	\$0.4	0.8%
<b>Total Displayed</b>	<b>\$1,325</b>	<b>100%</b>	<b>\$3.7</b>	<b>0.3%</b>

Source: National Bank of Canada, Bloomberg

**Table 6 - Fixed Income ETF Flows by Maturity - Feb 2023**

Maturity	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Broad/Mixed	\$641	48%	-\$6.5	-1.0%
Ultra Short Term	\$175	13%	\$10.1	6.2%
Short Term	\$262	20%	-\$1.6	-0.6%
Mid Term	\$145	11%	-\$2.3	-1.5%
Long Term	\$66	5%	\$2.5	3.8%
Target Maturity	\$36	3%	\$1.5	4.2%
Rate Hedged	\$2	0%	\$0.0	-2.5%
<b>Total Displayed</b>	<b>\$1,325</b>	<b>100%</b>	<b>\$3.7</b>	<b>0.3%</b>

Source: National Bank of Canada, Bloomberg

**Table 7 - Equity ETF Flows by Factor\* - Feb 2023**

Factor	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Small/Mid Cap	\$447	24%	\$2.8	0.6%
Value	\$419	23%	\$2.7	0.6%
Income	\$374	20%	\$2.2	0.6%
Growth	\$330	18%	\$0.8	0.2%
Quality	\$38	2%	\$0.3	0.7%
Momentum	\$24	1%	-\$0.3	-1.0%
Low Vol	\$62	3%	-\$2.6	-3.9%
Multi-Factor and Other	\$146	8%	\$2.2	1.5%
<b>Total Displayed</b>	<b>\$1,840</b>	<b>100%</b>	<b>\$8.2</b>	<b>0.4%</b>

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

**Table 8 - Top Single Long ETF Inflows - Feb 2023**

Ticker	Name	Flow (\$B)	Flow/AUM
1 SHV	iShares Short Treasury Bond ETF	\$4.5	23.4%
2 BBEU	JPMorgan BetaBuilders Europe ETF	\$2.1	29.2%
3 JEPI	JPMorgan Equity Premium Income ETF	\$1.9	9.2%
4 BND	Vanguard Total Bond Market ETF	\$1.7	1.9%
5 VOO	Vanguard S&P 500 ETF	\$1.7	0.6%
6 VTI	Vanguard Total Stock Market ETF	\$1.6	0.6%
7 SGOV	iShares 0-3 Month Treasury Bond ETF	\$1.6	24.6%
8 SPTS	SPDR Portfolio Short Term Treasury ETF	\$1.4	35.2%
9 BIL	SPDR Bloomberg Barclays 1-3 Month T-Bill ETF	\$1.4	5.4%
10 AGG	iShares Core U.S. Aggregate Bond ETF	\$1.3	1.5%
11 BKLC	BNY Mellon US Large Cap Core Equity ETF	\$1.2	228.6%
12 SCHD	Schwab US Dividend Equity ETF	\$1.2	2.5%
13 TLH	iShares 10-20 Year Treasury Bond ETF	\$1.2	15.6%
14 UNYI	WisdomTree Voya Yld Enh USD Universal Bond	\$1.1	NA
15 FXO	First Trust Financial AlphaDEX Fund	\$1.1	87.3%
16 JPST	JPMorgan Ultra-Short Income ETF	\$0.9	3.8%
17 VTV	Vanguard Value ETF	\$0.9	0.8%
18 COWZ	Pacer US Cash Cows 100 ETF	\$0.9	7.0%
19 TLT	iShares 20+ Year Treasury Bond ETF	\$0.9	2.7%
20 QQQ	Invesco QQQ Trust Series 1	\$0.8	0.5%

Source: National Bank of Canada, Bloomberg

**Table 9 - Top Single Long ETF Outflows - Feb 2023**

Ticker	Name	Flow (\$B)	Flow/AUM
1 SPY	SPDR S&P 500 ETF Trust	-\$10.5	-2.8%
2 HYG	iShares iBoxx High Yield Corporate Bond ETF	-\$4.9	-27.0%
3 LQD	iShares iBoxx \$ Investment Grade Corporate Bond	-\$4.7	-11.9%
4 IVV	iShares Core S&P 500 ETF	-\$2.5	-0.8%
5 JNK	SPDR Bloomberg Barclays High Yield Bond ETF	-\$2.3	-23.5%
6 EMB	iShares JP Morgan USD EM Bond ETF	-\$1.9	-10.8%
7 USMV	iShares MSCI USA Min Vol Factor ETF	-\$1.2	-3.9%
8 TIP	iShares TIPS Bond ETF	-\$1.1	-4.8%
9 IEF	iShares 7-10 Year Treasury Bond ETF	-\$1.0	-4.2%
10 FXN	First Trust Energy AlphaDEX Fund	-\$1.0	-52.5%
11 SHY	iShares 1-3 Year Treasury Bond ETF	-\$1.0	-3.7%
12 DIA	SPDR Dow Jones Industrial Average ETF Trust	-\$1.0	-3.3%
13 VCSH	Vanguard Short-Term Corporate Bond ETF	-\$0.9	-2.2%
14 XLK	Technology Select Sector SPDR Fund	-\$0.8	-2.0%
15 EEMV	iShares MSCI EM Min Vol Factor ETF	-\$0.8	-12.5%
16 IWF	iShares Russell 1000 Growth ETF	-\$0.7	-1.2%
17 VGIT	Vanguard Intermediate-Term Treasury ETF	-\$0.7	-5.1%
18 XLU	Utilities Select Sector SPDR Fund	-\$0.7	-4.2%
19 SPYD	SPDR Portfolio S&P 500 High Dividend ETF	-\$0.7	-8.2%
20 XBI	SPDR S&P Biotech ETF	-\$0.6	-7.6%

Source: National Bank of Canada, Bloomberg

January - February 2023 ETF Flows: Tables 10 - 16

**Table 10 - Equity ETF Flows by Geography - Jan-Feb 2023**

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,940		-\$10.5	-0.3%
Broad/Large Cap	\$1,582	31%	-\$10.4	-0.7%
U.S. Other	\$2,358	46%	\$0.0	0.0%
International Developed	\$572		\$16.3	3.1%
Broad Int'l Dev	\$443	9%	\$6.8	1.7%
Broad Europe	\$47	1%	\$8.3	23.1%
Japan	\$20	0%	\$0.1	-0.3%
Canada	\$10	0%	\$0.2	-1.9%
Other Developed	\$52	1%	\$1.4	2.8%
Emerging Markets	\$277		\$9.3	3.5%
Broad Cap Weighted	\$184	4%	\$7.8	4.5%
China (A+H)	\$28	1%	\$1.7	6.3%
Other EM	\$65	1%	\$0.1	-0.2%
Global/Regional	\$360	7%	\$2.7	0.8%
<b>Total Displayed</b>	<b>\$5,148</b>	<b>100%</b>	<b>\$17.8</b>	<b>0.4%</b>

Source: National Bank of Canada, Bloomberg

**Table 11 - Equity ETF Flows by Sector and Themes\* - Jan-Feb 2023**

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Financials	\$63	8%	\$1.6	2.8%
Materials	\$43	5%	\$1.1	2.6%
Industrials	\$35	4%	\$1.0	3.1%
Communication Services	\$26	3%	\$0.2	-0.6%
Consumer Discretionary	\$26	3%	\$0.3	-1.3%
Consumer Staples	\$30	4%	\$0.4	-1.2%
Utilities	\$24	3%	\$0.7	-2.7%
Real Estate	\$72	9%	-\$1.3	-1.9%
Health Care	\$98	12%	-\$2.4	-2.3%
Technology	\$148	19%	-\$2.7	-2.0%
Energy	\$81	10%	-\$2.8	-3.2%
ESG	\$85	11%	\$0.0	0.1%
Thematic	\$61	8%	\$0.2	0.4%
<b>Total Displayed</b>	<b>\$792</b>	<b>100%</b>	<b>-\$6.8</b>	<b>-0.9%</b>

\*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-Feb 2023**

Type	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S. Aggregate	\$304	23%	\$8.3	2.8%
U.S. Government	\$412	31%	\$13.8	3.5%
U.S. Municipals	\$100	8%	-\$0.3	-0.3%
U.S. I.G. Corporate	\$218	16%	\$4.7	2.2%
Developed Markets&Global	\$141	11%	\$3.9	2.8%
Emerging Markets	\$28	2%	\$1.1	4.2%
Sub-investment Grade	\$81	6%	-\$7.6	-8.8%
Convertibles and Preferreds	\$41	3%	-\$0.6	-1.4%
<b>Total Displayed</b>	<b>\$1,325</b>	<b>100%</b>	<b>\$23.4</b>	<b>1.8%</b>

Source: National Bank of Canada, Bloomberg

**Table 13 - Fixed Income ETF Flows by Maturity - Jan-Feb 2023**

Maturity	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Broad/Mixed	\$641	48%	\$3.7	0.6%
Ultra Short Term	\$175	13%	\$6.2	3.7%
Short Term	\$262	20%	\$1.1	0.4%
Mid Term	\$145	11%	\$1.7	1.2%
Long Term	\$66	5%	\$7.1	12.2%
Target Maturity	\$36	3%	\$3.9	12.1%
Rate Hedged	\$2	0%	-\$0.3	-14.6%
<b>Total Displayed</b>	<b>\$1,325</b>	<b>100%</b>	<b>\$23.4</b>	<b>1.8%</b>

Source: National Bank of Canada, Bloomberg

**Table 14 - Equity ETF Flows by Factor\* - Jan-Feb 2023**

Factor	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Income	\$374	20%	\$4.0	1.1%
Small/Mid Cap	\$447	24%	\$3.2	0.8%
Value	\$419	23%	\$2.7	0.7%
Quality	\$38	2%	\$1.2	3.4%
Momentum	\$24	1%	\$0.0	0.0%
Growth	\$330	18%	-\$2.0	-0.7%
Low Vol	\$62	3%	-\$5.7	-8.4%
Multi-Factor and Other	\$146	8%	\$4.2	3.1%
<b>Total Displayed</b>	<b>\$1,840</b>	<b>100%</b>	<b>\$7.6</b>	<b>0.4%</b>

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

**Table 15 - Top Single Long ETF Inflows - Jan-Feb 2023**

Ticker	Name	Flow (\$B)	Flow/AUM
1	BBEU JPMorgan BetaBuilders Europe ETF	\$5.7	179.8%
2	JEPI JPMorgan Equity Premium Income ETF	\$4.3	24.6%
3	IEMG iShares Core MSCI Emerging Markets ETF	\$3.9	6.2%
4	SHV iShares Short Treasury Bond ETF	\$3.6	18.2%
5	VTV Vanguard Value ETF	\$3.5	3.6%
6	VTI Vanguard Total Stock Market ETF	\$3.0	1.2%
7	SCHO Schwab Short-Term U.S. Treasury ETF	\$2.9	28.2%
8	TLT iShares 20+ Year Treasury Bond ETF	\$2.8	10.6%
9	SCHD Schwab US Dividend Equity ETF	\$2.7	6.1%
10	AGG iShares Core U.S. Aggregate Bond ETF	\$2.6	3.2%
11	BND Vanguard Total Bond Market ETF	\$2.5	2.9%
12	TLH iShares 10-20 Year Treasury Bond ETF	\$2.3	37.6%
13	VOO Vanguard S&P 500 ETF	\$2.1	0.8%
14	BNDX Vanguard Total International Bond ETF	\$2.1	4.8%
15	COWZ Pacer US Cash Cows 100 ETF	\$2.0	19.4%
16	RSP Invesco S&P 500 Equal Weight ETF	\$1.9	5.8%
17	SPTS SPDR Portfolio Short Term Treasury ETF	\$1.6	40.7%
18	EEM iShares MSCI Emerging Markets ETF	\$1.4	6.1%
19	BKLC BNY Mellon US Large Cap Core Equity ETF	\$1.3	294.2%
20	MBB iShares MBS ETF	\$1.3	NA

Source: National Bank of Canada, Bloomberg

**Table 16 - Top Single Long ETF Outflows - Jan-Feb 2023**

Ticker	Name	Flow (\$B)	Flow/AUM
1	SPY SPDR S&P 500 ETF Trust	-\$8.2	-2.3%
2	IWF iShares Russell 1000 Growth ETF	-\$4.6	-7.8%
3	QQQ Invesco QQQ Trust Series 1	-\$3.6	-2.4%
4	HYG iShares iBoxx High Yield Corporate Bond ETF	-\$3.4	-21.4%
5	IWD iShares Russell 1000 Value ETF	-\$3.4	-6.3%
6	EEMV iShares MSCI EM Min Vol Factor ETF	-\$3.2	-39.2%
7	IVV iShares Core S&P 500 ETF	-\$2.6	-0.9%
8	LQD iShares iBoxx \$ IG Corporate Bond ETF	-\$2.2	-6.2%
9	JNK SPDR Bloomberg Barclays High Yield Bond ETF	-\$2.1	-22.5%
10	IWM iShares Russell 2000 ETF	-\$1.8	-3.5%
11	XLK Technology Select Sector SPDR Fund	-\$1.7	-4.5%
12	TIP iShares TIPS Bond ETF	-\$1.5	-6.4%
13	VIG Vanguard Dividend Appreciation ETF	-\$1.4	-2.1%
14	HDV iShares Core High Dividend ETF	-\$1.3	-9.8%
15	SHY iShares 1-3 Year Treasury Bond ETF	-\$1.1	-4.1%
16	DGRO iShares Core Dividend Growth ETF	-\$1.1	-4.6%
17	VTIP Vanguard ST Inflation-Protected Securities ETF	-\$1.1	-6.9%
18	EFA iShares MSCI EAFE ETF	-\$1.1	-2.4%
19	DIA SPDR Dow Jones Industrial Average ETF Trust	-\$1.1	-3.7%
20	SHYG iShares 0-5 Year High Yield Corporate Bond ETF	-\$1.1	-15.2%

Source: National Bank of Canada, Bloomberg

**Table 17: ETF Provider Table**

Provider	AUM (\$B)	Mkt Shr	Feb 2023		Jan-Feb 2023	
			Flow (\$B)	Flow/AUM	Flow (\$B)	Flow/AUM
1 BlackRock iShares	\$2,259	33%	-\$13.7	-0.6%	-\$13.9	-0.6%
2 Vanguard	\$1,968	29%	\$9.6	0.5%	\$21.7	1.1%
3 State Street SSGA	\$995	15%	-\$12.4	-1.2%	-\$8.6	-0.9%
4 Invesco	\$349	5%	\$2.2	0.6%	\$1.2	0.4%
5 Charles Schwab	\$275	4%	\$1.7	0.6%	\$6.9	2.7%
6 First Trust	\$139	2%	\$0.8	0.5%	\$1.9	1.4%
7 JPMorgan	\$104	2%	\$5.9	5.9%	\$13.4	15.2%
8 Dimensional Holdings	\$81	1%	\$2.1	2.6%	\$4.7	6.5%
9 ProShares	\$61	1%	\$0.8	1.4%	\$2.4	4.2%
10 WisdomTree	\$59	1%	\$1.6	2.7%	\$2.0	3.6%
11 VanEck	\$53	1%	-\$0.4	-0.7%	-\$0.2	-0.3%
12 Global X	\$38	1%	\$0.3	0.8%	\$0.2	1%
13 Fidelity	\$32	0%	\$0.4	1.2%	\$0.8	3%
14 Goldman Sachs	\$28	0%	\$0.7	2.7%	\$0.3	1.1%
15 Direxion	\$25	0%	\$0.0	-0.1%	\$0.6	2.6%
16 Pacer Financial	\$23	0%	\$1.3	5.7%	\$2.7	13.7%
17 American Century	\$22	0%	\$1.0	4.7%	\$1.9	10.1%
18 PIMCO	\$21	0%	\$0.1	0.6%	-\$0.3	-1.3%
19 Northern Trust	\$21	0%	\$0.1	0.6%	\$0.1	0.5%
20 DWS Xtrackers	\$19	0%	\$0.1	0.6%	\$0.4	2.4%
<b>Top 20 Total</b>	<b>\$6,572</b>	<b>97%</b>	<b>\$2.3</b>		<b>\$38.3</b>	
<b>Total ETF</b>	<b>\$6,767</b>	<b>100%</b>	<b>\$9.6</b>		<b>\$49.1</b>	

Source: NBF ETF Research, Bloomberg. Data as of February 28, 2023.

**Table 18: ESG ETF Flows by Categories**

Category	AUM (\$M)	AUM (%)	February 2023		Feb YTD 2023	
			Flow (\$M)	Flow/AUM	Flow (\$M)	Flow/AUM
Equity	\$88,186	90%	\$905	1.0%	-\$25	0.0%
Broad - U.S.	\$47,431	49%	\$569	1.2%	-\$551	-1.2%
Broad - DM	\$8,380	9%	\$141	1.7%	\$54	0.7%
Broad - EM	\$4,679	5%	\$230	4.8%	\$502	12.0%
Broad - Global	\$3,979	4%	\$118	2.9%	\$124	3.3%
Environment	\$6,081	6%	\$51	0.3%	\$135	0.9%
Clean Energy	\$12,205	13%	-\$222	-6.9%	-\$373	-12.7%
Energy Transition	\$1,937	2%	-\$66	-3.2%	-\$50	-0.9%
Social	\$2,897	3%	\$64	2.1%	\$114	2.5%
Other	\$587	1%	\$18	2.2%	\$20	0.6%
Commodities	\$1,119	1%	\$78	7.7%	\$73	7.9%
Multi-Asset	\$63	0%	\$5	8.2%	\$8	7.5%
Fixed Income	\$8,210	8%	\$822	10.8%	\$981	14.1%
<b>Total Displayed</b>	<b>\$97,578</b>	<b>100%</b>	<b>\$1,809</b>	<b>1.8%</b>	<b>\$1,037</b>	<b>1.1%</b>

Source: NBF ETF Research, Bloomberg. Data as of February 28, 2023.

## 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 Cyclical, 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/EBITDA, 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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