

May 2021: Commodities Back in Demand

- Year-to-date ETF flow has almost crossed \$400 billion, nearly 80% of 2020's total inflow
- Value and dividend ETFs led factor ETF inflow and performance; growth and low vol are laggards
- Investors turned away from ETFs with growthy strategies, seeking profitability
- Gold ETFs enjoyed a month of inflow for the first time in 2021, amid rising concerns on inflation

Summary: The S&P 500 Index finished May up 0.55%, bringing year-to-date return to 11.93%. While sentiment remains optimistic thanks to signs of economic reopening, uncertainty around inflation and policy rates added some volatility to U.S. financial markets. For example, the month-over-month increase for both the U.S. Consumer Price Index (CPI) and the Core CPI in April beat consensus expectation by a large margin, putting inflation rate officially above 2%; but on the other hand, the disappointing April jobs report may be interpreted by the Fed with a view that the current elevated inflation rates would not be sustainable. On the ETF side, we noticed that investors are positioning for inflation by escaping from technology and investing in gold and rate-hedged bonds.

Equity ETFs by Geography: U.S. broad/large-cap equity ETFs suffered net outflows of \$2.2 billion in May, mainly because investors pulled \$10.6 billion from SPDR S&P 500 ETF Trust (SPY). iShares Core S&P 500 ETF (IVV) also had redemptions of \$0.6 billion. However, Vanguard's passive beta products remained popular; a combined \$6.5 billion in new money poured into Vanguard S&P 500 ETF (VOO) and Vanguard Total Stock Market ETF (VTI). Globally, developed-marked equity ETFs (especially Europe-focused) saw large creations. iShares Core MSCI EAFE ETF (IEFA) and JPMorgan BetaBuilders Europe ETF (BBEU) each had \$2.1 billion inflow. Vanguard FTSE Europe ETF (VGK) also gained \$1.3 billion in May.

Equity Sector and Thematic ETFs: Financials and materials sector each had over 6% asset growth in May. Financial Select Sector SPDR Fund (XLF), iShares Global Financials ETF (IXG) and Materials Select Sector SPDR Fund (XLB) all appear on the leaderboard with over of \$1 billion in flows. Technology sector and innovation themed ETFs, which are likely to hold high valuation stocks that could be sensitive to rate hikes, saw outflows of \$2.7 billion and \$0.7 billion, respectively.

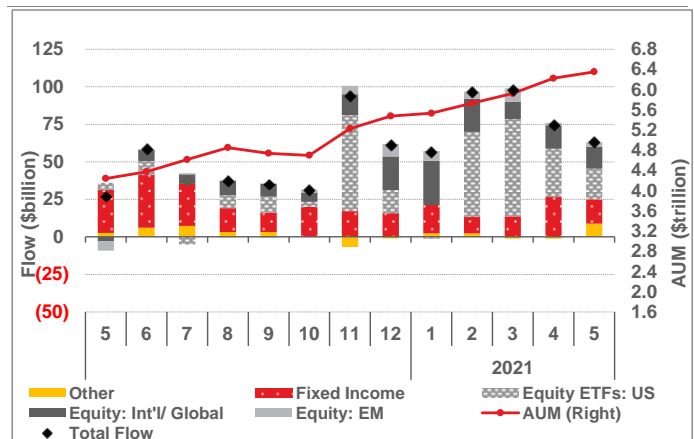
Equity Factor ETFs: Value ETFs continued to take assets and mindshare, hoovering up \$10.0 billion, of which \$2.1 billion went to Vanguard Value ETF (VTV) alone. Perhaps in reaction to mounting inflation fears, investors have turned to companies that have demonstrated stability and profitability: dividend/income ETFs welcomed inflows of \$5.9 billion, whereas \$1.7 billion flowed out of from growth ETFs. Despite its status as a "defensive" strategy, Low volatility extended its outflow streak with outflows of \$1.6 billion outflow. Performance-wise, S&P 500 Value and

Table 1: ETF Flows by Category

	AUM (\$B)	Mkt Shr	May 2021 Flow (\$B)	May 2021 Flow/AUM	Jan-May 2021 Flow (\$B)	Jan-May 2021 Flow/AUM
Equity	\$4,938		\$38.0	0.8%	\$291.5	7.0%
U.S. Broad/Large-Cap	\$1,469	23%	-\$2.2	-0.2%	\$48.4	3.8%
U.S. Other	\$2,204	35%	\$22.6	1.0%	\$124.6	6.8%
Int'l / Global	\$943	15%	\$14.7	1.6%	\$93.4	12.0%
Emerging Markets	\$323	5%	\$3.0	1.0%	\$25.0	9.0%
Fixed Income	\$1,160	18%	\$16.2	1.4%	\$86.3	7.9%
Commodity	\$148	2%	\$5.6	4.2%	-\$0.9	-0.6%
Multi-Asset	\$39	1%	\$1.8	5.0%	\$7.7	25.1%
Levered Long	\$58	1%	\$0.7	1.3%	\$1.9	4.2%
Inverse	\$12	0%	\$0.8	7.1%	\$2.8	25.7%
Total	\$6,355	100%	\$63.2	1.0%	\$389.4	7.1%

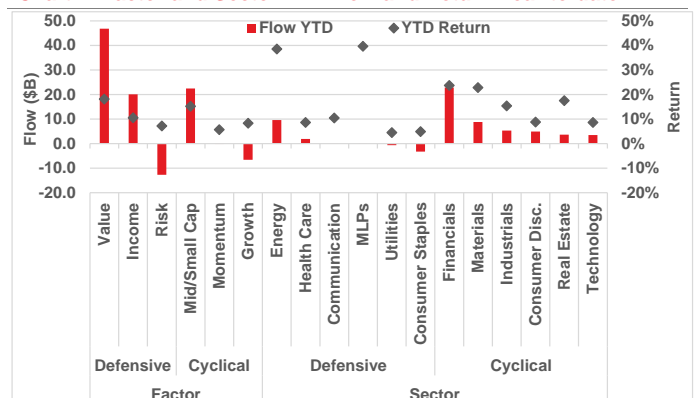
Source: NBF ETF Research, Bloomberg. Data as of May 31, 2021

Chart 1: U.S. Listed ETF Flow and AUM



Source: NBF ETF Research, Bloomberg. Data as of May 31, 2021

Chart 2: Factor and Sector ETF Flow and Return Year-to-date



Source: NBF ETF Research, Bloomberg. Data as of May 31, 2021

Dividend indices each outperformed the S&P 500 Index by at least 4% in May. Growth, momentum and low volatility were among the lagging factors.

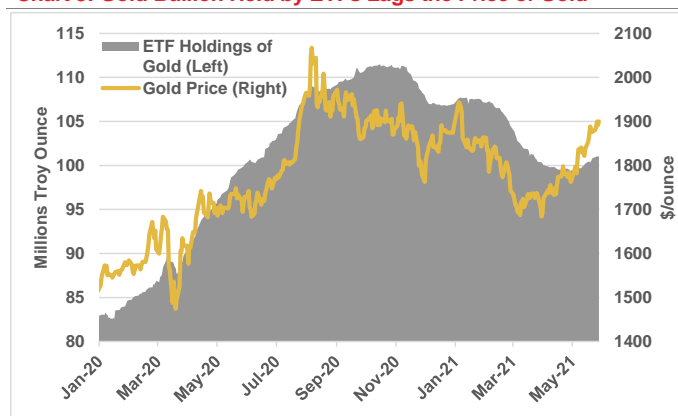
Fixed Income ETFs: Fixed income ETFs had another steady month of inflows to the tune of \$16.2 billion, or 1.4% of starting assets. Mixed-term and short-term bond ETF welcomed \$7.9 billion and \$6.3 billion, respectively. While investors are mainly interested in U.S. aggregate and government bond ETFs, foreign and sub-investment grade bonds also received decent inflows. Rate-hedged ETFs continued to gain traction amid inflation concerns; the category’s year-to-date inflow of \$0.8 billion, while relatively small in dollar terms, represents a 41% jump over 2021’s starting AUM.

Commodity ETFs: Commodity ETFs gained \$5.6 billion, or 4.2% of their starting assets in May. SPDR Gold Shares (GLD) enjoyed \$1.6 billion in creations, while a weaker USD and the growing inflationary pressure pushed the price of gold back to \$1,900/ounce for the first time since early January this year. In recent months, the change in amount of gold held by ETFs has been lagging the price movement of gold (Chart 3), which suggests that gold investors and speculators may be using ETFs to chase its performance, especially in May. Outside precious metals, most other types of commodities have been surging in price since the start of the year. Broad commodity ETFs such as iShares GSCI Commodity Dynamic Roll Strategy ETF (COMT, \$1.3 billion) and Invesco Optimum Yield Diversified Commodity Strategy No K-1 ETF (PDBC, \$0.9 billion) have been picking up assets. This may reflect investors’ growing optimism for a post-pandemic economic expansion. *Note:* ETFs that track underlying commodities besides precious metals must use *futures contracts* to obtain their exposure, which means that contract roll effects from contango and backwardation can make the products deviate from “spot” returns over long holding periods.

Best Performing ETFs:

Precious metal miner ETFs and oil & gas services ETFs have performed well in May; their returns were likely driven by rising commodity prices and increasing demand for goods and travel, thanks to signs of economic reopening across the globe.

Chart 3: Gold Bullion Held by ETFs Lags the Price of Gold



Source: NBF ETF Research, Bloomberg. Data as of May 31, 2021

Chart 4: Best Performing ETFs* – May 2021

Ticker	Name	Total Return (%)	AUM (\$M)	Flow (\$M)
1 SLVP	iShares MSCI Global Silver and Metals Miners	18.4	371	18
2 PSCE	Invesco S&P SmallCap Energy ETF	17.0	158	3
3 SILJ	ETFMG Prime Junior Silver Miners ETF	16.9	1,054	72
4 SIL	Global X Silver Miners ETF	16.8	1,532	155
5 OIH	VanEck Vectors Oil Services ETF	16.4	2,191	781
6 XES	SPDR S&P Oil & Gas Equipment & Services ETF	16.1	165	-14
7 IEZ	iShares U.S. Oil Equipment & Services ETF	16.0	129	-29
8 PXJ	Invesco Dynamic Oil & Gas Services ETF	15.9	43	-22
9 RING	iShares MSCI Global Gold Miners ETF	15.1	593	58
10 GOEX	Global X Gold Explorers ETF	14.8	61	0

*excluding leveraged/inverse ETFs. Source: NBF ETF Research, Bloomberg. Data as of May 31, 2021

May 2021 ETF Flows: Tables 2 - 8 (next page)

Table 2 - Equity ETF Flows by Geography - May 2021

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,673		\$20.3	0.6%
Broad/Large Cap	\$1,469	30%	-\$2.2	-0.2%
U.S. Other	\$2,204	45%	\$22.6	1.0%
International Developed	\$553		\$11.2	2.1%
Broad Int'l Dev	\$414	8%	\$4.8	1.2%
Broad Europe	\$50	1%	\$5.6	13.0%
Japan	\$25	1%	\$0.5	2.2%
Canada	\$10	0%	\$0.1	1.4%
Other Developed	\$53	1%	\$0.3	0.5%
Emerging Markets	\$323		\$3.0	1.0%
Broad Cap Weighted	\$215	4%	\$2.1	1.0%
China (A+H)	\$28	1%	\$1.0	3.6%
Other EM	\$80	2%	-\$0.1	-0.1%
Global/Regional	\$390	8%	\$3.4	0.9%
Total Displayed	\$4,938	100%	\$38.0	0.8%

Source: National Bank of Canada, Bloomberg

Table 3 - Equity ETF Flows by Sector and Themes* - May 2021

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Financials	\$85	10%	\$4.6	6.1%
Materials	\$54	6%	\$3.0	6.3%
Energy	\$56	6%	\$0.6	1.2%
Consumer Staples	\$20	2%	\$0.6	3.1%
Communication Services	\$41	5%	\$0.3	0.7%
Health Care	\$96	11%	\$0.2	0.2%
Industrials	\$46	5%	\$0.1	0.3%
Real Estate	\$80	9%	-\$0.2	-0.3%
Consumer Discretionary	\$46	5%	-\$0.2	-0.5%
Utilities	\$19	2%	-\$0.4	-2.2%
Technology	\$165	19%	-\$2.7	-1.6%
ESG	\$82	9%	\$1.5	1.9%
Thematic	\$76	9%	\$0.5	0.7%
Total Displayed	\$865	100%	\$7.8	0.9%

*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 7 - Top Single Long ETF Inflows - May 2021

Rank	Ticker	Name	Flow (\$B)	Flow/AUM
1	VOO	Vanguard S&P 500 ETF	\$3.8	1.7%
2	VTI	Vanguard Total Stock Market ETF	\$2.7	1.1%
3	VTV	Vanguard Value ETF	\$2.1	2.7%
4	IEFA	iShares Core MSCI EAFE ETF	\$2.1	2.3%
5	BBEU	JPMorgan BetaBuilders Europe ETF	\$2.1	33.4%
6	BSV	Vanguard Short-Term Bond ETF	\$1.7	5.3%
7	XLF	Financial Select Sector SPDR Fund	\$1.6	3.8%
8	XLV	Health Care Select Sector SPDR Fund	\$1.6	6.2%
9	IXG	iShares Global Financials ETF	\$1.6	153.8%
10	GLD	SPDR Gold Shares	\$1.6	2.7%
11	RSP	Invesco S&P 500 Equal Weight ETF	\$1.5	5.8%
12	COMT	iShares GSCI Commodity Dynamic	\$1.3	192.7%
13	VNQ	Vanguard Real Estate ETF	\$1.3	3.3%
14	VGK	Vanguard FTSE Europe ETF	\$1.3	7.5%
15	VXUS	Vanguard Total International Stock ETF	\$1.2	2.8%
16	XLB	Materials Select Sector SPDR Fund	\$1.2	15.3%
17	IUSB	iShares Core Total USD Bond Market ETF	\$1.2	9.7%
18	TIP	iShares TIPS Bond ETF	\$1.2	4.5%
19	BND	Vanguard Total Bond Market ETF	\$1.1	1.4%
20	VVO	Vanguard FTSE Emerging Markets ETF	\$1.1	1.3%

Source: National Bank of Canada, Bloomberg

Table 4 - Fixed Income ETF Flows by Type - May 2021

Type	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S. Aggregate	\$280	24%	\$4.4	1.6%
U.S. Government	\$284	24%	\$5.4	1.9%
U.S. Municipals	\$67	6%	\$0.9	1.3%
U.S. I.G. Corporate	\$226	20%	\$0.2	0.1%
Developed Markets&Global	\$120	10%	\$2.2	1.9%
Emerging Markets	\$34	3%	\$0.7	2.3%
Sub-investment Grade	\$99	9%	\$2.1	2.2%
Convertibles and Preferreds	\$51	4%	\$0.1	0.3%
Total Displayed	\$1,160	100%	\$16.2	1.4%

Source: National Bank of Canada, Bloomberg

Table 5 - Fixed Income ETF Flows by Maturity - May 2021

Maturity	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Broad/Mixed	\$638	55%	\$7.9	1.3%
Ultra Short Term	\$107	9%	\$1.1	1.1%
Short Term	\$225	19%	\$6.3	2.9%
Mid Term	\$127	11%	\$0.3	0.3%
Long Term	\$37	3%	-\$0.1	-0.4%
Target Maturity	\$24	2%	\$0.4	1.7%
Rate Hedged	\$3	0%	\$0.2	9.2%
Total Displayed	\$1,160	100%	\$16.2	1.4%

Source: National Bank of Canada, Bloomberg

Table 6 - Equity ETF Flows by Factor* - May 2021

Factor	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Value	\$364	22%	\$10.0	2.9%
Income	\$276	16%	\$5.9	2.2%
Small/Mid Cap	\$458	27%	\$1.4	0.3%
Quality	\$33	2%	-\$0.1	-0.2%
Momentum	\$27	2%	-\$0.2	-0.6%
Low Vol	\$62	4%	-\$1.6	-2.5%
Growth	\$329	20%	-\$1.7	-0.5%
Multi-Factor and Other	\$126	8%	\$3.0	2.5%
Total Displayed	\$1,675	100%	\$16.7	1.0%

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

Table 8 - Top Single Long ETF Outflows - May 2021

Rank	Ticker	Name	Flow (\$B)	Flow/AUM
1	SPY	SPDR S&P 500 ETF Trust	-\$10.6	-2.9%
2	IYR	iShares U.S. Real Estate ETF	-\$1.8	-27.8%
3	IWF	iShares Russell 1000 Growth ETF	-\$1.4	-2.1%
4	LQD	iShares iBoxx \$ Investment Grade Corporate Bond	-\$1.2	-3.0%
5	USMV	iShares MSCI USA Min Vol Factor ETF	-\$1.2	-4.2%
6	IHI	iShares U.S. Medical Devices ETF	-\$0.9	-10.2%
7	IXN	iShares Global Tech ETF	-\$0.8	-14.8%
8	IEF	iShares 7-10 Year Treasury Bond ETF	-\$0.7	-5.2%
9	ARKW	ARK Next Generation Internet ETF	-\$0.6	-9.0%
10	IVV	iShares Core S&P 500 ETF	-\$0.6	-0.2%
11	ARKG	ARK Genomic Revolution ETF	-\$0.5	-5.4%
12	IWM	iShares Russell 2000 ETF	-\$0.5	-0.7%
13	XLU	Utilities Select Sector SPDR Fund	-\$0.5	-3.8%
14	KBE	SPDR S&P Bank ETF	-\$0.5	-11.3%
15	XLY	Consumer Disc Select Sector SPDR Fund	-\$0.4	-1.9%
16	EFAV	iShares MSCI EAFE Min Vol Factor ETF	-\$0.4	-4.0%
17	XLK	Technology Select Sector SPDR Fund	-\$0.3	-0.8%
18	IMCG	iShares Morningstar Mid-Cap Growth ETF	-\$0.3	-21.2%
19	GDX	VanEck Vectors Gold Miners ETF	-\$0.3	-2.2%
20	XLI	Industrial Select Sector SPDR Fund	-\$0.3	-1.5%

Source: National Bank of Canada, Bloomberg

January - May 2021 ETF Flows: Tables 9 - 15

Table 9 - Equity ETF Flows by Geography - Jan-May 2021

Geography	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S.	\$3,673		\$173.0	5.6%
Broad/Large Cap	\$1,469	30%	\$48.4	3.8%
U.S. Other	\$2,204	45%	\$124.6	6.8%
International Developed	\$553		\$37.7	8.1%
Broad Int'l Dev	\$414	8%	\$22.9	6.5%
Broad Europe	\$50	1%	\$9.0	24.8%
Japan	\$25	1%	\$0.9	4.1%
Canada	\$10	0%	\$1.3	18.9%
Other Developed	\$53	1%	\$3.6	7.8%
Emerging Markets	\$323		\$25.0	9.0%
Broad Cap Weighted	\$215	4%	\$18.4	10.0%
China (A+H)	\$28	1%	\$4.4	18.4%
Other EM	\$80	2%	\$2.3	3.2%
Global/Regional	\$490	8%	\$55.7	17.6%
Total Displayed	\$4,938	100%	\$291.5	7.0%

Source: National Bank of Canada, Bloomberg

Table 10 - Equity ETF Flows by Sector and Themes* - Jan-May 2021

Sector	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Financials	\$85	10%	\$22.9	49.9%
Energy	\$56	6%	\$9.7	29.5%
Materials	\$54	6%	\$8.8	22.0%
Industrials	\$46	5%	\$5.3	15.6%
Consumer Discretionary	\$46	5%	\$4.9	13.1%
Real Estate	\$80	9%	\$3.7	5.6%
Technology	\$165	19%	\$3.5	2.3%
Health Care	\$96	11%	\$1.9	2.1%
Communication Services	\$41	5%	\$0.1	0.3%
Utilities	\$19	2%	-\$0.6	-3.2%
Consumer Staples	\$20	2%	-\$3.2	-14.4%
ESG	\$82	9%	\$17.8	28.4%
Thematic	\$76	9%	\$21.7	40.7%
Total Displayed	\$865	100%	\$96.5	13.9%

*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 14 - Top Single Long ETF Inflows - Jan-May 2021

Ticker	Name	Flow (\$B)	Flow/AUM
1	VOO Vanguard S&P 500 ETF	\$24.3	13.6%
2	VTI Vanguard Total Stock Market ETF	\$16.7	8.3%
3	XLF Financial Select Sector SPDR Fund	\$11.2	44.8%
4	IVV iShares Core S&P 500 ETF	\$11.1	4.7%
5	BND Vanguard Total Bond Market ETF	\$9.2	13.6%
6	VTV Vanguard Value ETF	\$9.0	14.6%
7	IEMG iShares Core MSCI Emerging Markets ETF	\$8.3	12.0%
8	IUSB iShares Core Total USD Bond Market ETF	\$8.2	135.7%
9	ARKK ARK Innovation ETF	\$6.9	38.8%
10	RSP Invesco S&P 500 Equal Weight ETF	\$6.7	36.7%
11	EFV iShares MSCI EAFE Value ETF	\$5.8	80.8%
12	VVO Vanguard FTSE Emerging Markets ETF	\$5.8	8.1%
13	BNDX Vanguard Total International Bond ETF	\$5.7	15.2%
14	SCHD Schwab US Dividend Equity ETF	\$5.4	33.3%
15	AGG iShares Core U.S. Aggregate Bond ETF	\$5.4	6.3%
16	VXUS Vanguard Total International Stock ETF	\$5.1	13.3%
17	XLE Energy Select Sector SPDR Fund	\$5.0	36.4%
18	BSV Vanguard Short-Term Bond ETF	\$4.7	15.9%
19	VLUE iShares MSCI USA Value Factor ETF	\$4.7	50.1%
20	BBEU JPMorgan BetaBuilders Europe ETF	\$4.6	134.8%

Source: National Bank of Canada, Bloomberg

Table 11 - Fixed Income ETF Flows by Type - Jan-May 2021

Type	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
U.S. Aggregate	\$280	24%	\$26.1	10.0%
U.S. Government	\$284	24%	\$18.4	6.8%
U.S. Municipals	\$67	6%	\$7.9	13.2%
U.S. I.G. Corporate	\$226	20%	\$5.9	2.6%
Developed Markets&Global	\$120	10%	\$16.5	15.7%
Emerging Markets	\$34	3%	\$3.0	9.6%
Sub-investment Grade	\$99	9%	\$6.9	7.5%
Convertibles and Preferreds	\$51	4%	\$1.6	3.3%
Total Displayed	\$1,160	100%	\$86.3	7.9%

Source: National Bank of Canada, Bloomberg

Table 12 - Fixed Income ETF Flows by Maturity - Jan-May 2021

Maturity	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Broad/Mixed	\$638	55%	\$46.1	7.6%
Ultra Short Term	\$107	9%	\$5.3	5.3%
Short Term	\$225	19%	\$28.7	14.6%
Mid Term	\$127	11%	\$6.4	5.2%
Long Term	\$37	3%	-\$3.5	-7.9%
Target Maturity	\$24	2%	\$2.5	11.9%
Rate Hedged	\$3	0%	\$0.8	40.9%
Total Displayed	\$1,160	100%	\$86.3	7.9%

Source: National Bank of Canada, Bloomberg

Table 13 - Equity ETF Flows by Factor* - Jan-May 2021

Factor	AUM (\$B)	Mkt Shr	Flow (\$B)	Flow/AUM
Value	\$364	22%	\$46.8	17.9%
Small/Mid Cap	\$458	27%	\$22.5	6.0%
Income	\$276	16%	\$20.1	9.1%
Momentum	\$27	2%	-\$0.1	-0.3%
Quality	\$33	2%	-\$2.5	-7.7%
Growth	\$329	20%	-\$6.6	-2.1%
Low Vol	\$62	4%	-\$12.7	-18.0%
Multi-Factor and Other	\$126	8%	\$9.0	8.9%
Total Displayed	\$1,675	100%	\$76.6	5.5%

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

Table 15 - Top Single Long ETF Outflows - Jan-May 2021

Ticker	Name	Flow (\$B)	Flow/AUM
1	SPY SPDR S&P 500 ETF Trust	-\$13.0	-3.9%
2	LQD iShares iBoxx \$ IG Corporate Bond ETF	-\$12.4	-22.4%
3	USMV iShares MSCI USA Min Vol Factor ETF	-\$7.5	-22.4%
4	GLD SPDR Gold Shares	-\$7.0	-9.9%
5	TLT iShares 20+ Year Treasury Bond ETF	-\$4.5	-23.5%
6	HYG iShares iBoxx High Yield Corporate Bond ETF	-\$3.8	-14.7%
7	IWF iShares Russell 1000 Growth ETF	-\$3.6	-5.6%
8	QUAL iShares MSCI USA Quality Factor ETF	-\$3.2	-14.9%
9	SHV iShares Short Treasury Bond ETF	-\$2.9	-16.5%
10	XLP Consumer Staples Select Sector SPDR Fund	-\$2.6	-19.5%
11	IVW iShares S&P 500 Growth ETF	-\$2.4	-7.3%
12	JNK SPDR Bloomberg Barclays High Yield Bond ETF	-\$2.1	-16.9%
13	EFAV iShares MSCI EAFE Min Vol Factor ETF	-\$2.0	-19.0%
14	IHI iShares U.S. Medical Devices ETF	-\$1.9	-20.4%
15	FDN First Trust Dow Jones Internet Index Fund	-\$1.8	-16.7%
16	GDX VanEck Vectors Gold Miners ETF	-\$1.7	-10.2%
17	USO United States Oil Fund LP	-\$1.6	-44.7%
18	IYR iShares U.S. Real Estate ETF	-\$1.4	-26.6%
19	EWJ iShares MSCI Japan ETF	-\$1.4	-10.2%
20	IAU iShares Gold Trust	-\$1.3	-4.1%

Source: National Bank of Canada, Bloomberg

Table 16: ETF Provider Table

Provider	AUM (\$B)	Mkt Shr	May 2021		Jan-May 2021	
			Flow (\$B)	Flow/ AUM	Flow (\$B)	Flow/ AUM
1 BlackRock iShares	\$2,268	36%	\$13.4	0.6%	\$77.1	3.8%
2 Vanguard	\$1,796	28%	\$26.3	1.5%	\$146.3	9.7%
3 State Street SSGA	\$968	15%	\$0.4	0.0%	\$26.3	3.1%
4 Invesco	\$342	5%	\$6.9	2.1%	\$25.6	8.7%
5 Charles Schwab	\$240	4%	\$3.9	1.7%	\$19.2	9.6%
6 First Trust	\$130	2%	\$2.2	1.7%	\$11.6	10.5%
7 JPMorgan	\$64	1%	\$3.2	5.3%	\$15.6	34.7%
8 VanEck	\$62	1%	\$1.1	1.8%	\$5.0	9.5%
9 ProShares	\$56	1%	\$1.6	3.0%	\$4.6	9.7%
10 WisdomTree	\$45	1%	\$0.5	1.2%	\$2.1	5.6%
11 ARK	\$43	1%	-\$1.9	-4.0%	\$15.1	43.8%
12 Mirae	\$33	1%	\$1.3	4.0%	\$10.7	51.3%
13 Fidelity	\$29	0%	\$0.4	1.6%	\$2.6	11.1%
14 PIMCO	\$27	0%	-\$0.4	-1.3%	\$1.0	3.7%
15 Direxion	\$25	0%	\$0.2	0.6%	\$1.5	8.0%
16 Goldman Sachs	\$23	0%	-\$0.3	-1.2%	-\$0.7	-3.1%
17 DWS Xtrackers	\$22	0%	\$0.3	1.3%	\$0.3	1.7%
18 Northern Trust	\$18	0%	\$0.5	2.8%	\$2.2	15.0%
19 KraneShares	\$10	0%	\$0.7	6.7%	\$4.4	70.4%
20 SS&C	\$10	0%	-\$0.1	-1.6%	\$0.2	2.8%
Top 20 Total	\$6,212	98%	\$60.1		\$370.6	
Total ETF	\$6,355	100%	\$63.2		\$389.4	

Source: NBF ETF Research, Bloomberg. Data as of May 31, 2021

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.

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