

## ETF Liquidity

### Different Liquidity Strokes for Different ETF Folks

As exchange-traded funds (ETFs) continue to grow in popularity with financial advisors, registered investment advisors (RIAs), pension funds, hedge funds and retail investors alike, an important question in every investors' due diligence of ETFs is:

#### **Can I effectively trade this ETF?**

What is meant by effectively trading an ETF is whether the investor can achieve a fair execution price during the trading day with whatever trade size is relevant to that particular investor's anticipated position size. Effectively trading an ETF can mean different things to different types of investors as it relates to what is most important from an ETF liquidity standpoint. There's a misperception among many ETF investors that a larger AUM (assets under management) or a larger average daily trading volume equates to superior ETF liquidity which, in most cases, tends to be inaccurate. ETF liquidity should be determined by analyzing its bid/ask spreads and size, as well as the ETF implied liquidity on its underlying basket. As we examine each of these components of ETF liquidity, it's important to understand how the ETF is ultimately used by the end investor when judging its liquidity profile.

### ETF Average Daily Trading Volume

The average daily trading volume (ADTV) on an ETF is the most basic liquidity test when analyzing ETF liquidity. Average daily trading volume can be expressed nominally, as in shares traded per day, or notionally, as in dollar value traded per day (ADVT). While average daily volume is the most popular screen that many investors utilize when analyzing ETF liquidity, it can be widely misleading of the true amount the ETF *could* trade on any given day. The ETF's average daily trading volume tends to be more of an overall assessment of the historical demand/supply on the ETF, rather than an applicable liquidity measure. For example, by looking at historical blocks on the ETF that were executed either on the bid, mid or ask price, investors can gauge the level of larger historical activity on the ETF. Blocks on the bid or ask price may be a telling sign of budding or waning interest in the ETF, and that may influence its daily volume going forward. With that said, historical ETF volume has no bearing on how much the ETF *could* trade so this metric is largely futile as an ETF liquidity measure.

Unlike an individual stock or bond, price discovery on an ETF is based on the current (fair) value of the underlying basket of securities. Any price dislocation with the ETF bid price above its fair value or ask price below its fair value, relative to its underlying basket, will typically be arbitrated away by ETF market makers – sometimes also known as Authorized Participants (APs) – resulting in increased ETF volume. The ETF's creation and redemption function acts as a utility for ETF market makers to maintain fair pricing on the ETF and to provide immediate liquidity for investors at certain bid/ask spreads that are displayed on the ETF order book. This is why, theoretically, an ETF can trade much more volume than its historical average as market makers stand ready to take the other side of the trade at or near the ETF's bid/ask spread. Market makers can then utilize the ETF creation and redemption function to replenish or reduce their ETF inventory as a result of the executed trade.

### ETF Average Daily Bid/Ask Spreads and Size

Investors analyzing ETFs tend to look at the *total cost of ownership*, which is expressed as the annual expense ratio plus the roundtrip cost (spread) of buying and selling the ETF on the secondary (open) market. The average daily bid/ask spread for an ETF in the US is typically around 15-30 basis points (bps), per Bloomberg, whereby the roundtrip cost to trade the ETF would be around 30-60 bps, on average. While a mutual fund does not have a bid/ask spread for execution purposes, investors may incur a 12b-1 marketing fee, a front-end load (sales commission), an early redemption fee or even a trading fee assessed by the custodial platform that an ETF typically does not have.

For investors that tend to execute smaller and more frequent trades on an ETF, such as executing 100 shares within a separately managed account (SMA), crossing the ETF bid/ask spread to take (buy)/hit (sell) volume each day can be costly over time for an active trading account. That’s why analyzing ETF bid/ask spreads and sizes within the depth of book is an important part of any ETF liquidity analysis (Note: Level II access to the national exchanges is required to show the ETF order book, which is costly – **see Exhibit 1**). Sometimes finding more ETF liquidity, displayed and hidden, with one tick (penny) higher or lower is common for ETFs and is why broker-dealer platforms and RIAs tend to rely more on average ETF bid/ask spreads, sizes and depth of book as liquidity criteria when assessing an ETF. Investors can generally find on-screen liquidity for a few thousand shares in any ETF without much trading impact, regardless of how much volume the ETF has historically traded.

**Exhibit 1: Level II Order Book with Displayed Bid/Ask Spreads on the ALPS Active REIT ETF (ticker: REIT)**

E	Time	Total Mmkr	Mmkr	Size	Bid	Ask	Size Mmkr	Total	Time E
G	15:21	3	MEMX	3	28.36	28.41	2 ARCX	2	15:22 P
P	15:22	14	ARCX	11	28.35	28.41	1 NSDQ	3	15:22 Q
Z	15:22	23	BATS	9	28.35	28.41	1 NYSE	4	15:22 N
Q	15:22	24	NSDQ	1	28.35	28.42	9 ARCX	13	15:22 P
N	15:22	34	NYSE	10	28.35	28.42	9 BATS	22	15:22 Z
P	15:22	36.01	ARCX	2.01	28.34	28.42	9 EDGA	31	15:21 J
J	15:21	45.01	EDGA	9	28.34	28.42	9 EDGX	40	15:22 K
K	15:22	54.01	EDGX	9	28.34	28.42	9 MEMX	49	15:22 G
Q	15:22	71.01	NSDQ	17	28.34	28.42	17 NSDQ	66	15:22 Q
P	15:21	71.02	ARCX	0.01	28.33	28.45	0.20 NSDQ	66.20	15:18 Q
P	15:17	73.02	ARCX	2	28.23	28.51	2 ARCX	68.20	15:22 P
Q	15:22	74.02	NSDQ	1	28.20	28.52	9 NSDQ	77.20	15:21 Q
Q	15:21	83.02	NSDQ	9	28.19	28.54	18 NSDQ	95.20	15:21 Q
P	15:17	85.02	ARCX	2	28.18	28.55	36 NSDQ	131.20	15:21 Q
Q	15:21	103.02	NSDQ	18	28.17	28.56	4 ARCX	135.20	15:22 P
		<b>222.81</b>		<b>119.79</b>	<b>Under</b>	<b>Over</b>	<b>70.79</b>	<b>205.99</b>	
LD 25.64 - Price Limits - LU 31.34									

Source: Bloomberg, as of 8/29/2024, for illustrative purposes only

ETFs require a lead market maker (LMM) to ensure tighter daily bid/ask spreads. LMMs are beholden to market making rules governed by the ETF’s primary listing exchange (NYSE, NASDAQ, CBOE). Trading rebates are offered to LMMs by the exchanges, who offer disparate “maker-taker” rebate pricing schemes to help incentivize LMM efforts to maintain tighter ETF bid/ask spreads. LMMs are required to maintain the national best bid/offer (NBBO) most of the time on ETFs within average percentage trading spreads and average order sizes, mandated by the primary listing exchanges. They are also required to layer on-screen (displayed) bid/ask liquidity within certain percentage trading spreads to create a depth of book, or tiered pricing, on the ETF. This helps to absorb a larger ETF market order and minimize any temporary price dislocation as a result of a market order “sweeping” the order book to find liquidity. Many times, ETFs may only show a few hundred shares quoted around the bid/ask but, in fact, there is more hidden volume behind it. This is a tactic of many ETF traders looking for opportunistic trades that are slightly above or below the ETFs fair value, relative to the underlying basket.

The ETF pricing models used by LMMs to derive daily ETF bid/ask spreads can be fluid based on market volatility, but they are also a function of many embedded inputs and risks that result in inherent costs for an ETF market maker. ETF issuers need to be mindful of these costs to LMMs when they create the ETF trading baskets and their associated parameters/fees, since the inherent trading costs are typically passed onto their clients in the form of wider ETF bid/ask spreads.

Those costs to LMMs may include:

- The market maker’s internal cost of capital (carrying cost of ETF inventory) – a lower creation/redemption unit size may lower the LMM’s carrying cost with respect to the time to fill one unit.
- The market maker’s cost to transact in the bid/ask spreads and any local taxes/fees on the underlying ETF basket.
- The market maker’s cost to borrow the underlying ETF basket to either deliver into the ETF issuer for a creation unit or to short (hedge) the underlying ETF basket on a redemption unit until the underlying basket shares are received in-kind.
- The market maker’s cost to hedge the ETF by transacting in another proxy (correlated) ETF or its underlying basket.
- The ETF creation/redemption fee and variable fee, if any, that are assessed by the custodian for order processing.
- Any unknown or excessive portfolio management trading impact from an active ETF changing its holdings intraday.

## ETF Implied Liquidity

For investors that anticipate trading larger amounts of ETF shares (a block trade), understanding the liquidity of the ETF’s underlying basket is very important – known as the *ETF implied liquidity*. When quoting an ETF block, the discount/premium that the market maker will assess on the ETF’s bid/ask spread will be a function of the average daily volume, the bid/ask spread and the depth of book on each underlying security in the ETF basket, among other items listed above. An ETF block can be represented by a fixed number of shares on each underlying holding in the basket that needs to be traded by the market maker to equate to those ETF shares, notionally. The amount of ETF shares (block) that can be traded without impacting the most illiquid security by weight in the underlying basket, based on its average daily volume, is the ETF implied liquidity (**see Exhibit 2**). Larger ETF investors like hedge funds, RIAs and pension funds should use an ETF’s implied liquidity to assess the potential cost of executing an ETF block above or below its current bid/ask spread.

**Exhibit 2: ETF Implied Liquidity on Bloomberg for the ALPS Active REIT ETF (ticker: REIT)**

ALPS ACTIVE REIT ETF		Min Portfolio Weight	0	Variable Percentage	10	
Implied Liquidity		Creation Information				
Implied Liquidity (shares)	1.754M	Creation Unit Size	5000	Open For Creations	Yes	
Implied Liquidity (USD)	49.621M	Creation Fee (USD)	150	Settlement Cycle	T+2	
Liquidity Limiting Holding	LXP US	Creation Cutoff Time	16:00 EST	Create/Redeem Process	In-kind/C...	
Holdings (8/29/2024)	Ticker	IDTS (shares)†	Weight (%)	Last (USD)	Volume	30 Day Avg Vol
1) LXP Industrial Trust	LXP US	1,753,644	4.14	10.2550	1,024,928	1,964,081
12) InvenTrust Properties Corp	IVT US	1,801,547	1.75	29.2450	542,424	299,057
13) Broadstone Net Lease Inc	BNL US	2,511,769	3.02	18.0950	581,385	1,165,461
14) Empire State Realty Trust Inc	ESRT US	3,365,621	1.47	10.6650	583,465	1,285,667
15) Macerich Co/The	MAC US	3,539,099	2.19	15.5950	660,985	1,380,249
16) STAG Industrial Inc	STAG US	4,702,367	2.97	40.0800	317,855	968,688
17) Cousins Properties Inc	CUZ US	5,271,856	2.26	28.0400	560,450	1,180,896
18) Kilroy Realty Corp	KRC US	5,579,427	2.19	36.1800	353,545	937,344
19) Sabra Health Care REIT Inc	SBRA US	5,623,105	2.60	16.8250	1,017,668	2,417,935
20) First Industrial Realty Trust	FR US	6,825,324	2.93	55.8300	446,709	996,497
21) Healthpeak Properties Inc	DOC US	8,207,570	4.22	22.0150	3,795,537	4,366,427
22) Brixmor Property Group Inc	BRX US	9,164,713	2.40	27.0950	1,860,607	2,254,520
23) Americold Realty Trust Inc	COLD US	9,676,927	2.29	28.9050	860,983	2,128,924
24) Invitation Homes Inc	INVH US	9,840,333	4.62	36.2400	1,067,168	3,483,478
25) VICI Properties Inc	VICI US	10,658,347	5.13	33.1600	2,120,480	4,583,089
26) Equity LifeStyle Properties In	ELS US	10,696,984	2.59	71.9500	547,168	1,069,698
27) Essential Properties Realty Tr	EPRT US	10,787,981	1.39	31.5400	512,759	1,316,134

Source: Bloomberg, as of 8/29/2024, for illustrative purposes only

In this example, nearly 1.754M shares (*Implied Daily Tradable Shares (IDTS)*) of the ALPS Active REIT ETF (ticker: REIT) (the “Fund”), or about \$49.62M notional value, can be traded in a block without impacting the Fund’s most illiquid position by weight, which is LXP Industrial Trust (LXP). The calculation assumes a variable percentage (upper right corner) of 10% of the average daily volume traded in the underlying ETF basket, which is generally considered a suitable pace to avoid any material impact over the trading day. With the Fund’s average daily trading volume only at about 5,800 shares/day over the past year (**see Exhibit 3**), the implied liquidity calculation tells us that market makers could generally stay fairly tight around the Fund’s displayed bid/ask spread when pricing a block up to 1.8M shares, given the ease of executing that notional amount of \$49.6M in its underlying basket.

**Exhibit 3: The Average 1-Year Daily Trading Volume for the ALPS Active REIT ETF (ticker: REIT)**

ALPS Active REIT ETF				High	28.49	on	08/28/24
Range	08/29/2023 - 08/29/2024	Period	Daily	Low	21.2061	on	10/27/23
Market	Last Price	Volume	Currency	USD	Average	24.9753	5,803
View	Price Table			Net Chg	3.756		15.31%

Source: Bloomberg, as of 8/29/2024, for illustrative purposes only

Let's look at a historical block trade on the Fund to showcase how ETF liquidity works. On January 26, 2024, a block of 104,000 shares of the Fund was executed at 1:50 p.m. ET at \$25.51 (see Exhibit 4). The purchase of about \$2.7M represented roughly 13% of the Fund's assets and over 23x its average daily volume on that date. At the time of the trade, the Fund's bid/ask spread was \$25.45 (bid) by \$25.56 (ask) with the mid-price around \$25.51, which was also the fair value of the Fund at that time based on its *Indicative Optimized Portfolio Value* (IOPV) (see Exhibit 5). The execution price that the investor received from the market maker was at the mid-price of \$25.51, since the Fund's underlying basket of US-listed real estate investment trust (REIT) stocks was liquid enough for the market maker to easily execute the underlying basket shares in the secondary market to then form the required creation units. At 2:15 p.m. ET, SS&C ALPS Advisors received notice of 21 creation units (5,000 shares/unit) for the Fund, where the market maker delivered in-kind the underlying basket shares of the Fund in exchange for 105,000 shares at that day's closing Net Asset Value (NAV).

**Exhibit 4: An Efficient ETF Block Trade on the ALPS Active REIT ETF (ticker: REIT)**

Time	E	Bid/Trd/Ask	E	Size (x100)
13:52:24	UQ	25.43 /		9 x
13:52:24	UQ	25.43 / 25.56	UF	9 x 1
13:52:24	UQ	25.44 / 25.56	UF	9 x 1
13:52:24	UQ	25.43 / 25.56	UF	9 x 1
13:52:24	UQ	25.45 / 25.56	UQ	9 x 1
13:50:58	UD	1 25.51		1.04k
13:49:38	UN	25.45 / 25.56	UF	11 x 1
13:49:36	UN	25.45 / 25.56	UF	11 x 10
13:49:36	UQ	25.45 /		9 x
13:49:36	UQ	25.42 /		9 x
13:49:34	UF	25.45 / 25.56	UF	9 x 10
13:49:34	UP	25.44 / 25.56	UF	10 x 10
13:49:34	UN	25.45 / 25.56	UF	1 x 10
13:49:34	UF	25.45 / 25.56	UF	9 x 10
13:49:31	UN	25.45 / 25.56	UF	1 x 10
13:49:30	UF	25.45 / 25.56	UF	9 x 10
13:49:28	UN	25.45 / 25.56	UF	1 x 10
13:49:28	UN	25.45 / 25.56	UF	2 x 10
13:49:28	UP	25.44 / 25.56	UF	10 x 10

Source: Bloomberg, as of 1/26/2024, for illustrative purposes only

**Exhibit 5: IOPV or Fair Value Price of the ALPS Active REIT ETF (ticker: REIT)**

Time	Price	Time	Price	Time	Price	Time	Price
13:51:08	25.51	13:50:49	25.51	13:50:30	25.51	13:50:11	25.51
13:51:07	25.51	13:50:48	25.51	13:50:29	25.51	13:50:10	25.51
13:51:06	25.51	13:50:47	25.51	13:50:28	25.51	13:50:09	25.51
13:51:05	25.51	13:50:46	25.51	13:50:27	25.51	13:50:08	25.51
13:51:04	25.51	13:50:45	25.51	13:50:26	25.51	13:50:07	25.51
13:51:03	25.51	13:50:44	25.51	13:50:25	25.51	13:50:06	25.51
13:51:02	25.51	13:50:43	25.51	13:50:24	25.51	13:50:05	25.51
13:51:01	25.51	13:50:42	25.51	13:50:23	25.51	13:50:04	25.51
13:51:00	25.51	13:50:41	25.51	13:50:22	25.51	13:50:03	25.51
13:50:59	25.51	13:50:40	25.51	13:50:21	25.51	13:50:02	25.51
13:50:58	25.51	13:50:39	25.51	13:50:20	25.51	13:50:01	25.51
13:50:57	25.51	13:50:38	25.51	13:50:19	25.51	13:50:00	25.51
13:50:56	25.51	13:50:37	25.51	13:50:18	25.51	13:49:59	25.51
13:50:55	25.51	13:50:36	25.51	13:50:17	25.51	13:49:58	25.51
13:50:54	25.51	13:50:35	25.51	13:50:16	25.51	13:49:57	25.51
13:50:53	25.51	13:50:34	25.51	13:50:15	25.51	13:49:56	25.51
13:50:52	25.51	13:50:33	25.51	13:50:14	25.51	13:49:55	25.51
13:50:51	25.51	13:50:32	25.51	13:50:13	25.51	13:49:54	25.51
13:50:50	25.51	13:50:31	25.51	13:50:12	25.51	13:49:53	25.51

Source: Bloomberg, as of 1/26/2024, for illustrative purposes only

In the example above, the cost to the investor was very minimal and basically in-line with the fair value of the Fund at that time. Note that the “UD” exchange code (E) on the trade in **Exhibit 4** is the FINRA alternative display facility (ADF), meaning the trade was executed off-exchange and reported to ADF. With the advent of Request for Quote (RFQ) platforms for institutional investors and market maker intermediaries, who offer price improvement to the large custodial broker-dealer platforms like Schwab, Fidelity and Robinhood, off-exchange ETF block pricing has become extremely competitive among market makers and that has ultimately reduced the bid/ask spreads that ETF investors pay.

## So What Does This All Mean?

For ETF investors, each ETF issuer has a dedicated ETF capital markets team to utilize when placing trades. The ETF capital markets team knows how to negotiate with market makers, help source liquidity and minimize trading costs to achieve best execution for investors. Importantly, ETF capital markets teams can assess the depth of book of displayed ETF liquidity to help guide investors on certain order types and the potential trading impact. They can guide investors on ETF fair value pricing by using the pricing models they have created, while also advising investors to avoid market orders and to always use limit orders around the mid-price or IOPV (if available for domestic ETFs only). They can also engage select market makers to price an ETF block at advantageous pricing with their liquidity provider relationships, while advising the investor to execute ETF trades only after the entire underlying basket has opened for trading that day and to avoid the closing auction in most circumstances. The ETF capital markets team will also suggest trading ETFs in pairs with a buy/sell to help reduce market risk for the market maker that can help with better execution prices, while also avoiding trading ETF blocks on volatile trading days where bid/ask spreads may widen. For ETF transactions that may result in investors owning more than 5% of the ETF’s outstanding (voting) shares, the ETF capital markets team can also help guide the investor on the regulatory filings (13D/13G) that may be required.

It doesn’t matter if the investor has a small or a large trade, the job of the ETF capital markets desk is to ensure the total cost of ownership for each ETF investor is minimized and the entire ETF experience is seamless. It all starts with analyzing the various ETF liquidity measures, while always keeping in mind that what has historically traded on an ETF is not what can be traded on the ETF. Twenty-eight percent of US-listed ETFs trade less than 5,000 shares per day, per Bloomberg, as of June 28, 2024. That’s nearly one-third of the 3,500 US-listed ETFs that barely trade but could trade a lot more volume based on the implied liquidity of their underlying basket. In other words, one-third of the ETF market may potentially offer better outcomes for investors, relative to their more highly traded ETF peers, but are being ignored based on liquidity concerns around their average daily trading volume. There’s an ETF for everything and everyone these days; don’t let the optics of superficial ETF AUM and average daily trading volume get in the way of potentially missing a solid ETF investment.

## Important Disclosures & Definitions

**An investor should consider the investment objectives, risks, charges and expenses carefully before investing. To obtain a prospectus containing this and other information, call 1-866-759-5679 or visit [www.alpsfunds.com](http://www.alpsfunds.com). Read the prospectus carefully before investing.**

*Shares of ETFs are bought and sold at market price (not NAV) and are not individually redeemable.*

*All investments are subject to risks, including the loss of money and the possible loss of the entire principal amount invested. Additional information regarding the risks of this investment is available in the prospectus.*

*Effective 8/22/2023, the Fund will no longer operate as a semi-transparent actively-managed ETF and will instead operate as a traditional, fully transparent actively-managed ETF in reliance on Rule 6c-11 under the Investment Company Act of 1940.*

*Diversification does not eliminate the risk of experiencing investment losses.*

*Ownership of real estate is subject to fluctuations in the value of underlying properties, the impact of economic conditions on real estate values, the strength of specific industries renting properties and defaults by borrowers or tenants. Real estate is a cyclical business, highly sensitive to general and local economic conditions and developments, and characterized by intense competition and periodic overbuilding. Credit and interest rate risk may affect real estate companies' ability to borrow or lend money.*

*The Fund will primarily invest in publicly traded common equity securities of US REITs. The Fund may also invest a portion of its assets in publicly traded common equity of US real estate operating companies (not structured as REITs), publicly traded preferred equity of US REITs and real estate operating companies, and cash and cash equivalents.*

*Basis Point (bps): a unit that is equal to 1/100th of 1% and is used to denote the change in a financial instrument.*

*Real Estate Investment Trust (REIT): companies that own or finance income-producing real estate across a range of property sectors. Listed REITs have characteristics of both the income potential of bonds and growth potential of stocks.*

*ALPS Advisors, Inc. and GSI Capital Advisors, LLC, registered investment advisers with the SEC, are the investment adviser and sub-adviser to the Fund, respectively. ALPS Advisors, Inc. and ALPS Portfolio Solutions Distributor, Inc., affiliated entities, are unaffiliated with GSI Capital Advisors, LLC.*

*ALPS Portfolio Solutions Distributor, Inc. is the distributor for the Fund.*

*Not FDIC Insured • No Bank Guarantee • May Lose Value*

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