Vanguard

ETF TRADING

Thirty years of improvement

At the end of 2022, U.S.-listed ETFs amounted to $6.5 trillion in U.S. assets under management (AUM), or 25% of the entire U.S. open-end fund market, and their footprint is only getting bigger.[1]

Not only have their assets compounded, but ETFs have also made their mark on the secondary market.

In 2022, total ETF trading in the U.S. was $46.7 trillion, from $17.4 trillion in 2017, and accounted for more than 30% of trading on exchanges.[2]

How ETFs are traded can be just as important as how they achieve investment exposure. Developments in the trading ecosystem as well as the growth in assets are key to the ETF story.

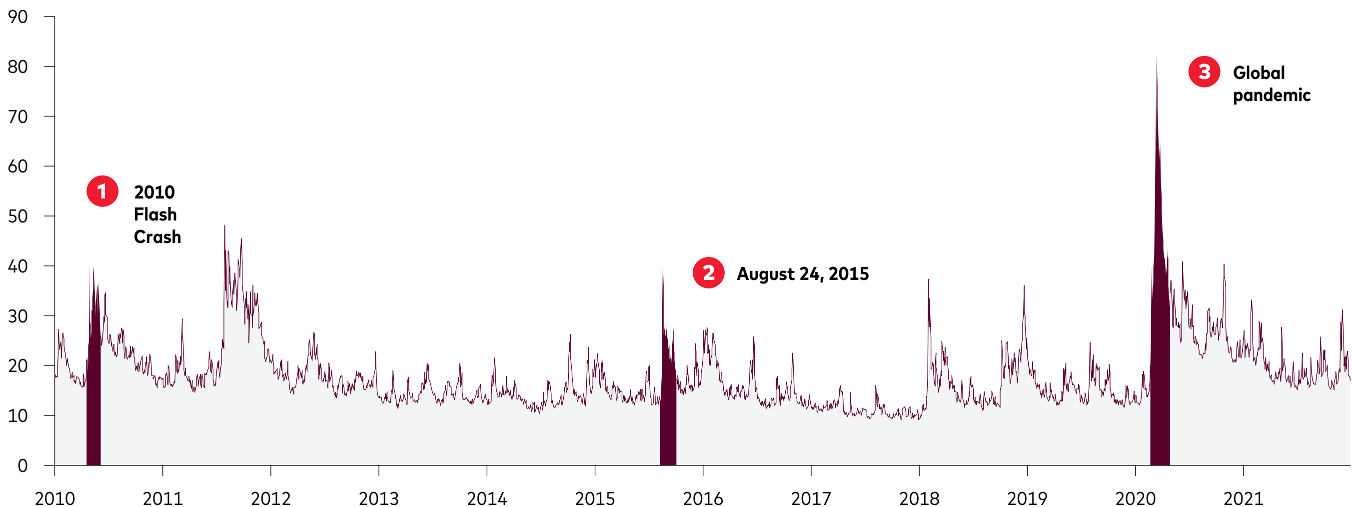
The 30-year history of ETF trading and the vehicle's current growth trajectory can be charted through a series of trading-related trials along the way. The original idea for an ETF-like security came out of the "Black Monday" crash in October 1987. The persistence of the key players in the ETF ecosystem—the issuers, the exchanges, the market makers, and, of course, the investors—enabled the ETF to rise above those challenges and to become better for it.

The trials included:

1. The "Flash Crash" of 2010
2. August 24, 2015, or "8/24"—the Asian market volatility and mini crash of 2015
3. The pandemic-induced volatility of 2020

ETFs were put to the test in each of these major events, none of which was specific to the vehicle but nonetheless affected the ETF by helping improve the market structure that governs the product.

CBOE Volatility index (2010–2021)



Source: Chicago Board Options Exchange, from January 4, 2010, through December 31, 2021.

1 Morningstar, Inc., as of December 31, 2022.
2 Bloomberg, from 2017 through 2022.

The Flash Crash wakeup call

As investors were becoming more comfortable with ETFs, the events of May 6, 2010, gave pause. By this time, ETFs had gathered more than $800 billion in assets across approximately 900 products.[3] On that day, asset prices were dramatically disconnected from net asset values in a volatile 40-minute episode that became known as the Flash Crash. The event raised doubts and concerns about the exchange trading infrastructure of the time.

Heavy trading in E-Mini S&P Futures contracts on the Chicago Board Options Exchange had a ripple effect across the entire equity market, causing a steep market decline followed by a quick market reversion.

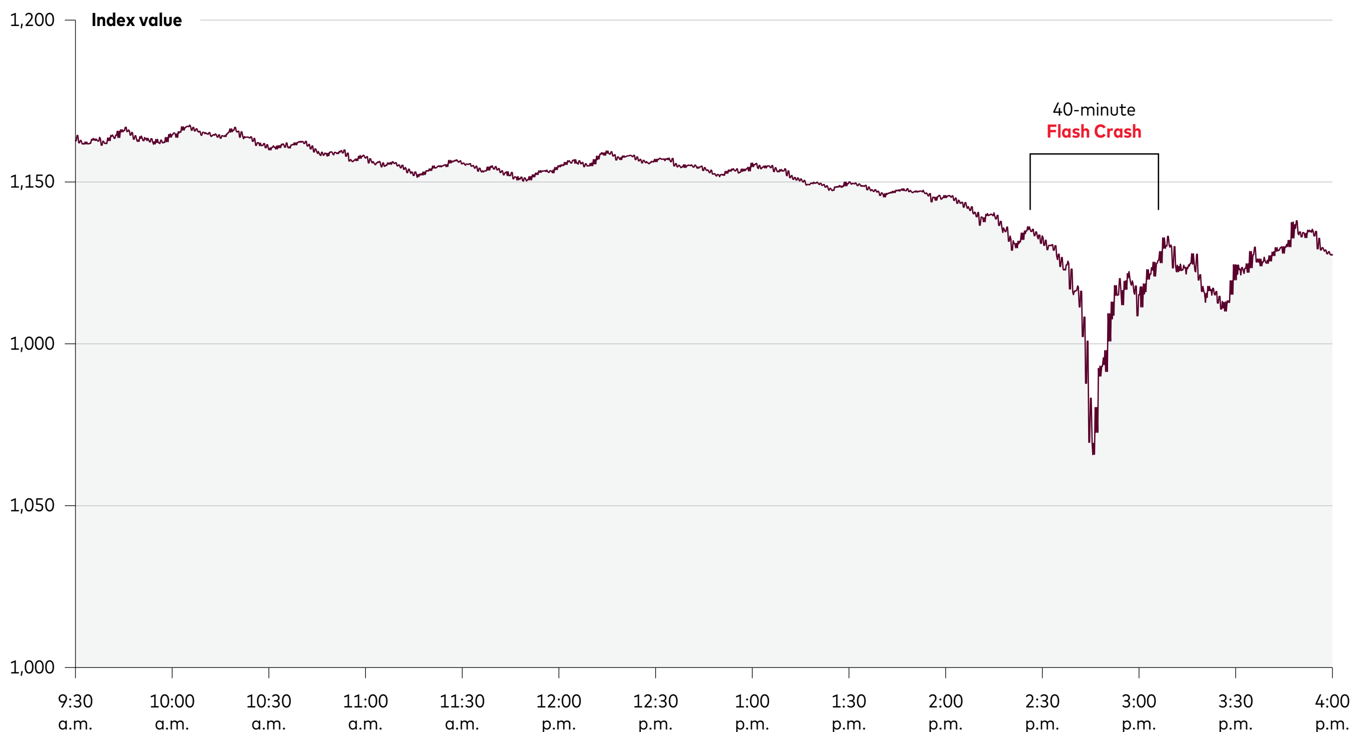
During that unhinged hour, ETFs experienced extreme discounts before moving back in line with fair value.

As a result, the Securities and Exchange Commission implemented the Single Stock Circuit Breaker program to help curb market volatility. The pilot program eventually led to the creation of Limit-Up Limit-Down (LULD), which was intended to prevent trades in ETFs and other equities from executing outside of specified price bands.

Five years later, LULD had its first severe test.

S&P 500 (SPX) intra-day prices

May 6, 2010



Source: Bloomberg, May 6, 2010.

3 Morningstar, Inc., as of May 6, 2010.

August 24, 2015, mini crash

On the morning of August 24, 2015, volatility in Asian markets spilled over into the U.S. market, leading to an extremely volatile open.

The heightened volatility caused many U.S. stocks and ETFs to hit LULD bands that triggered trading halts. While the halting of ETF trading worked as intended and provided markets time to react, inconsistent reopening procedures led to additional volatility. Instead of reducing ETF volatility, LULD did just the opposite in many cases.

Industry leaders, including Vanguard, came together to draft new trading rules to prevent similar market disruptions. That effort led to the implementation of Amendment 12 to the LULD plan.

The new market structure rules were created to improve the response of the equity market (including ETFs) to volatile market events. The new rules were designed to establish more orderly halts and consistent reopening procedures across exchanges.

The COVID-19 global pandemic—March 2020

Just as Aug. 24, 2015, was a true test for LULD rules, market dislocation because of COVID-19 was a test for Amendment 12.

The COVID outbreak created unprecedented market volatility, triggering the first Market Wide Circuit Breaker (MWCB) since 1997 as the CBOE S&P Volatility Index (VIX) spiked to levels reminiscent of the Great Depression.

The MWCB's trigger of a 7% decline in the Standard & Poor's 500 Index activated four times in a two-week period in March 2020, highlighting just how extreme volatility was at the time.

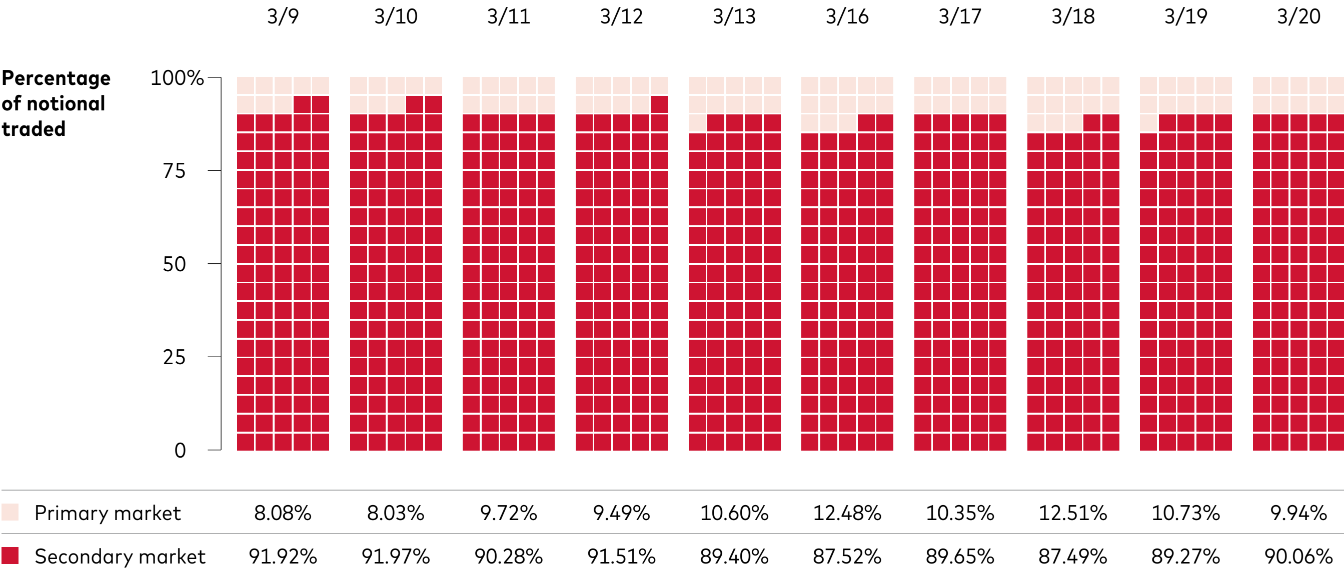
In addition to the MWCB, numerous LULD bands were triggered across various individual equities. Amendment 12 worked as designed, creating more orderly halts and reopening experiences for ETF investors.

In the volatility surrounding the 2020 pandemic, ETFs turned the question of their liquidity on its head, providing an additional source of liquidity in otherwise illiquid markets.

Crucially, ETFs acted as shock absorbers. Most ETF trading took place in the secondary market rather than with their underlying securities in the primary markets. Specifically, about 90% of their trading volume was in the secondary market, preventing increased trading in the underlying securities, which could have created additional market volatility.

From a historical perspective, the original purpose of ETFs—to dampen market volatility and to prevent a replay of the 1987 Black Monday stock market crash—played out well in March 2020.

Primary versus secondary market activity (% notional)



	3/9	3/10	3/11	3/12	3/13	3/16	3/17	3/18	3/19	3/20
Primary market	8.08%	8.03%	9.72%	9.49%	10.60%	12.48%	10.35%	12.51%	10.73%	9.94%
Secondary market	91.92%	91.97%	90.28%	91.51%	89.40%	87.52%	89.65%	87.49%	89.27%	90.06%

Source: Bloomberg, from March 9, 2020, through March 20, 2020.

Ready for the future

Individual investors, advisors, and institutions have benefited from the ETF over the last 30 years. ETF trading today for most investors takes place with nary a thought to the behind-the-scenes operations. That itself is testament to how far the vehicle has come.

As more dollars are entrusted to ETFs, and competition grows among issuers and other key actors, the flurry of activity fuels innovation. New structures, strategies, and names continue to leverage the ETF wrapper. If past is prologue, investor trust must be continually earned for any product to remain viable.

While the original structure was robust, the enhancements made since the ETF's inception have only added to its resilience and its value. It should surprise no one that a product that was created out of extreme market volatility has come to perform so well in volatile markets.

It seems a fair bet that ETFs can potentially handle the most extreme volatility in the future, and that they'll continue to provide crucial liquidity when the market needs it most.

For more information about Vanguard funds or ETF Shares, visit vanguard.com to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

Vanguard ETF Shares are not redeemable with the issuing Fund other than in very large aggregations worth millions of dollars. Instead, investors must buy and sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.

All investing is subject to risk, including possible loss of principal. Be aware that fluctuations in the financial markets and other factors may cause declines in the value of your account. There is no guarantee that any particular asset allocation or mix of funds will meet your investment objectives or provide you with a given level of income. Diversification does not ensure a profit or protect against a loss.

Vanguard is investor-owned, meaning the fund shareholders own the funds, which in turn own Vanguard.

The Value of Ownership

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