



SIFMA Insights

The Cboe Trading Floor Reopened – Revisiting Volume Data

Why the Disparity in Index vs. Equity Options Volume Growth?

September 2020

Key Takeaways

- Index volumes have been on the decline since March, while equity options full year ADV +50% Y/Y
- SPX and VIX still have Y/Y ADV increases for the year (+5%, +4.5%), but have experienced negative monthly ADV growth in the latter half of the year
- Conversely, the SPY full year ADV +71% Y/Y, with no negative monthly declines until August
- Why? Partly OTC trading; largely the explosion of retail trading, estimated up ~50% to last year



Contents

Setting the Scene	3
Background	3
Executive Summary	3
Market Volumes: A 2020 vs. 2019 Comparison	5
Options Volumes by Category	5
Percent of Total by Category	7
Contract Volumes: SPX & VIX vs. SPY	8
SPX Volumes	9
VIX Volumes.....	10
SPY Volumes	11
Why the Decline?	12
Revisiting the Great Debate	12
A New Factor Enters the Debate.....	12
Appendix: Market Volumes & Volatility	13
Appendix: Market Landscape	15
Appendix: Terms to Know	16
Appendix: SIFMA Insights Research Reports	17
Author.....	18

SIFMA Insights can be found at: <https://www.sifma.org/insights>

SIFMA is the leading trade association for broker-dealers, investment banks and asset managers operating in the U.S. and global capital markets. On behalf of our industry's nearly 1 million employees, we advocate on legislation, regulation and business policy, affecting retail and institutional investors, equity and fixed income markets and related products and services. We serve as an industry coordinating body to promote fair and orderly markets, informed regulatory compliance, and efficient market operations and resiliency. We also provide a forum for industry policy and professional development. SIFMA, with offices in New York and Washington, D.C., is the U.S. regional member of the Global Financial Markets Association (GFMA). For more information, visit <http://www.sifma.org>.

This report is subject to the Terms of Use applicable to SIFMA's website, available at <http://www.sifma.org/legal>. Copyright © 2020

Setting the Scene

Background

The emergence of the global pandemic COVID-19 in the first quarter of 2020 caused severe economic and capital markets shocks. This turmoil was evidenced by heightened volatility and spikes in volumes in U.S. options markets. In light of the health crisis, many exchanges temporarily closed their physical trading floors. This included the Cboe exchange (floor closed March 16), which executes >99% of index options volumes.

While markets remained opened and functioning as a whole, we wondered what impact the floor closings had on order execution, particularly for more complex orders. We analyzed this question in our May [report](#), “A Deeper Look at US Listed Options Volumes.” We found there was a decline in index options, while equity options volumes were increasing throughout the year.

With the Cboe trading floor now reopened since June 15, we revisit index options volumes trends throughout 2020.

Executive Summary

In general, options volumes increased with market turmoil, and remain elevated in 2020. Total options monthly ADV peaked in June at 30.9 million contracts. Full year ADV is up 45% Y/Y, with an average monthly increase of 47%. Yet, the increases in volumes continues to not be equal across products:

- **Equity:** Full year ADV is up 50% Y/Y, average monthly increase 52%; peaked in June at 29.2M contracts, +32% to January ADV and +70% to 2019 ADV
- **Index:** Full year ADV up 6% Y/Y, average monthly increase 3%; peaked in March at 3.2M contracts, +60% to January ADV and +77% to 2019 ADV
- **Index** volumes have been on the decline since March, every month from April to August had a Y/Y decline

The difference in volume trends is not equal across specific index options contract suites either:

- **SPX:** Full year ADV +5% Y/Y, average monthly increase 5%; but volumes have been on the decline since April, each month from May to August saw a Y/Y decline
- **VIX:** Full year ADV + 4.5% Y/Y, average monthly change -2%; Y/Y volume declines in April, May, July and August, with June positive at +3%
- **SPY:** Continues to perform well with full year ADV +71% Y/Y, average monthly increase 75%; positive every month, until seeing a slight decline in the first half of August (-1%)

On one hand, market participants attribute some of the decline in index options volumes, and specifically the SPX and VIX decline, to the acceptance of over-the-counter (OTC) trading. This was forced upon traders during floor closures, yet it is viewed as working for now. A larger factor impacting index volumes is the explosion of retail

trading, estimated up ~50% to last year. Retail investors mostly trade the SPY, not the SPX. Additionally, retail money has been chasing story stocks, such as Tesla (TSLA) and Apple (AAPL).

If you remove the growth of all these story stock contracts, the growth disparity in equity versus index options would come down. That said, market participants do not expect much change in index volume growth for the rest of this year. With retail remaining hot, SPY and, more prominently, equity option volumes will continue to grow. The equity versus index options volume growth disparity will persist.

Market Volumes: A 2020 vs. 2019 Comparison

Options Volumes by Category

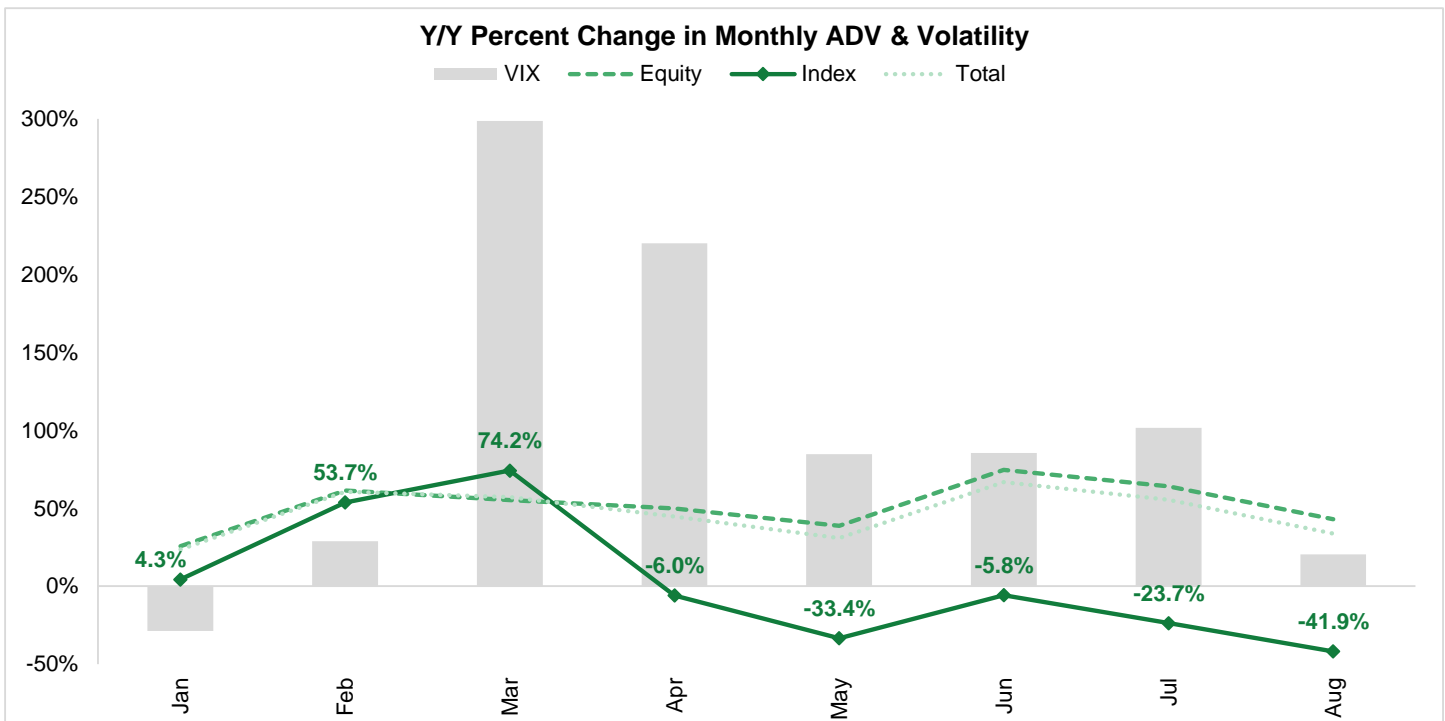
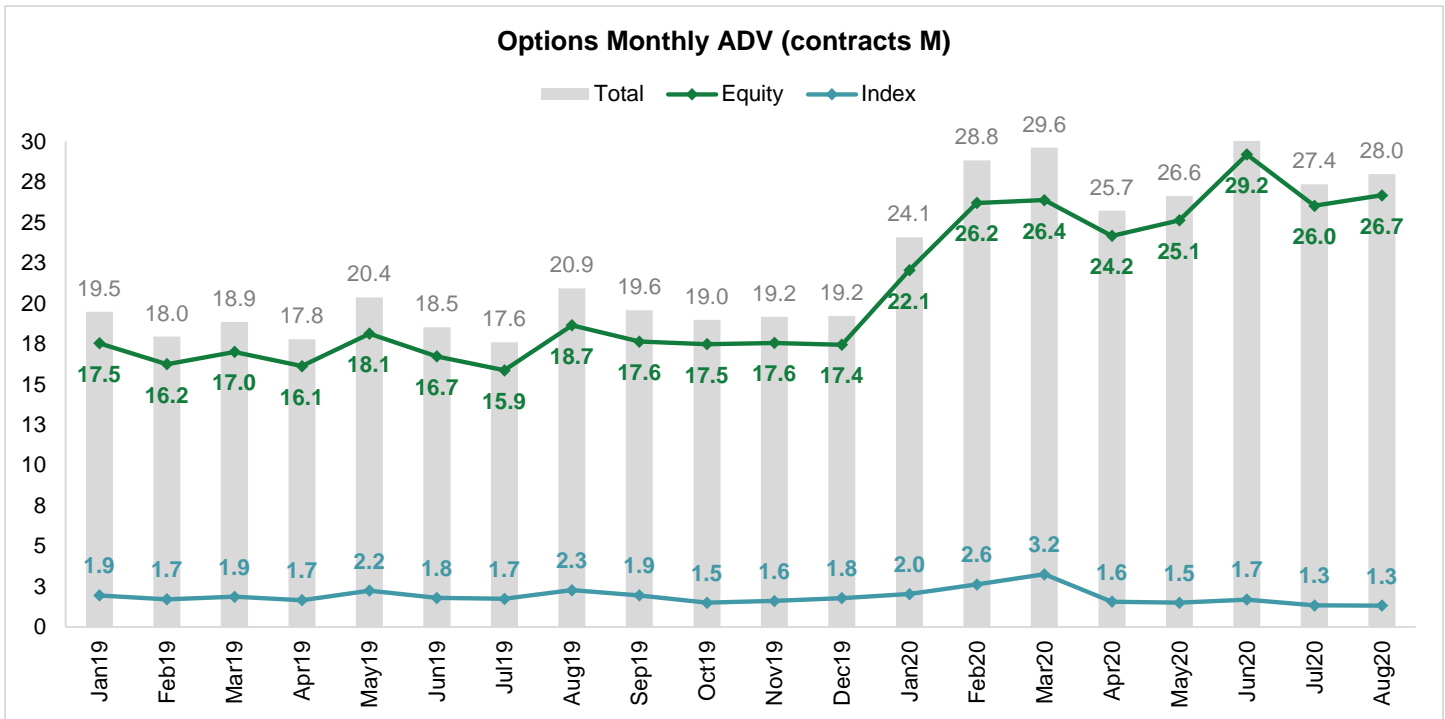
While total options volumes are up this year, this is driven by a strong performance in equity options. After starting the year off well, index options volumes continued their post-March decline into August:

- **Total:** Options started the year off strong, January ADV +26% to the 2019 average
 - Full year ADV is up 45% Y/Y; average monthly increase +47%
 - Peaked in June at 30.9 million contracts; +28% to January ADV, +62% to 2019 ADV
- **Equity:** Equity options also started the year off strong, January ADV +28% to the 2019 average
 - Full year ADV is up 50% Y/Y; average monthly increase 52%
 - Peaked in June at 29.2 million contracts; +32% to January ADV, +70% to 2019 ADV
- **Index:** Index options actually started the year off well, January ADV +10% to the 2019 average
 - Full year ADV is still up 6% Y/Y, despite the decline over the last five months; average monthly increase 3%
 - Peaked in March at 3.2 million contracts; +60% to January ADV, +77% to 2019 ADV
 - Volumes have been on the decline since March; every month from April to August saw a decline Y/Y, with the largest decline seen in the first half of August (-42%)

ADV (M)	2020 VIX	2019 VIX	2020 Equity	2020 Index	2020 Total	2019 Equity	2019 Index	2019 Total	Equity Y/Y	Index Y/Y	Total Y/Y	VIX Y/Y
Full Year	31.39	15.39	25.8	2.0	27.7	17.2	1.8	19.1	49.6%	6.0%	45.4%	104.0%
January	13.94	19.57	22.1	2.0	24.1	17.5	1.9	19.5	25.8%	4.3%	23.6%	-28.8%
February	19.63	15.23	26.2	2.6	28.8	16.2	1.7	18.0	61.4%	53.7%	60.6%	28.8%
March	57.74	14.49	26.4	3.2	29.6	17.0	1.9	18.9	55.2%	74.2%	57.1%	298.6%
April	41.45	12.95	24.2	1.6	25.7	16.1	1.7	17.8	49.9%	-6.0%	44.7%	220.1%
May	30.90	16.72	25.1	1.5	26.6	18.1	2.2	20.4	38.7%	-33.4%	30.8%	84.8%
June	29.39	15.84	29.2	1.7	30.9	16.7	1.8	18.5	74.6%	-5.8%	66.8%	85.6%
July	26.84	13.31	26.0	1.3	27.4	15.9	1.7	17.6	64.1%	-23.7%	55.4%	101.7%
August	22.85	18.98	26.7	1.3	28.0	18.7	2.3	20.9	43.1%	-41.9%	33.8%	20.4%
September		15.56				17.6	1.9	19.6				
October		15.47				17.5	1.5	19.0				
November		12.52				17.6	1.6	19.2				
December		13.76				17.4	1.8	19.2				
Average	30.34	15.37	25.7	1.9	27.6	17.2	1.8	19.0	51.6%	2.7%	46.6%	101.4%
Maximum	57.74	19.57	29.2	3.2	30.9	18.7	2.3	20.9	74.6%	74.2%	66.8%	298.6%
Minimum	13.94	12.52	22.1	1.3	24.1	15.9	1.5	17.6	25.8%	-41.9%	23.6%	-28.8%

Source: Bloomberg, Cboe Global Markets, SIFMA estimates

Note: ADV = contracts in millions; August 2020, Full Year 2020 = as of 8/14

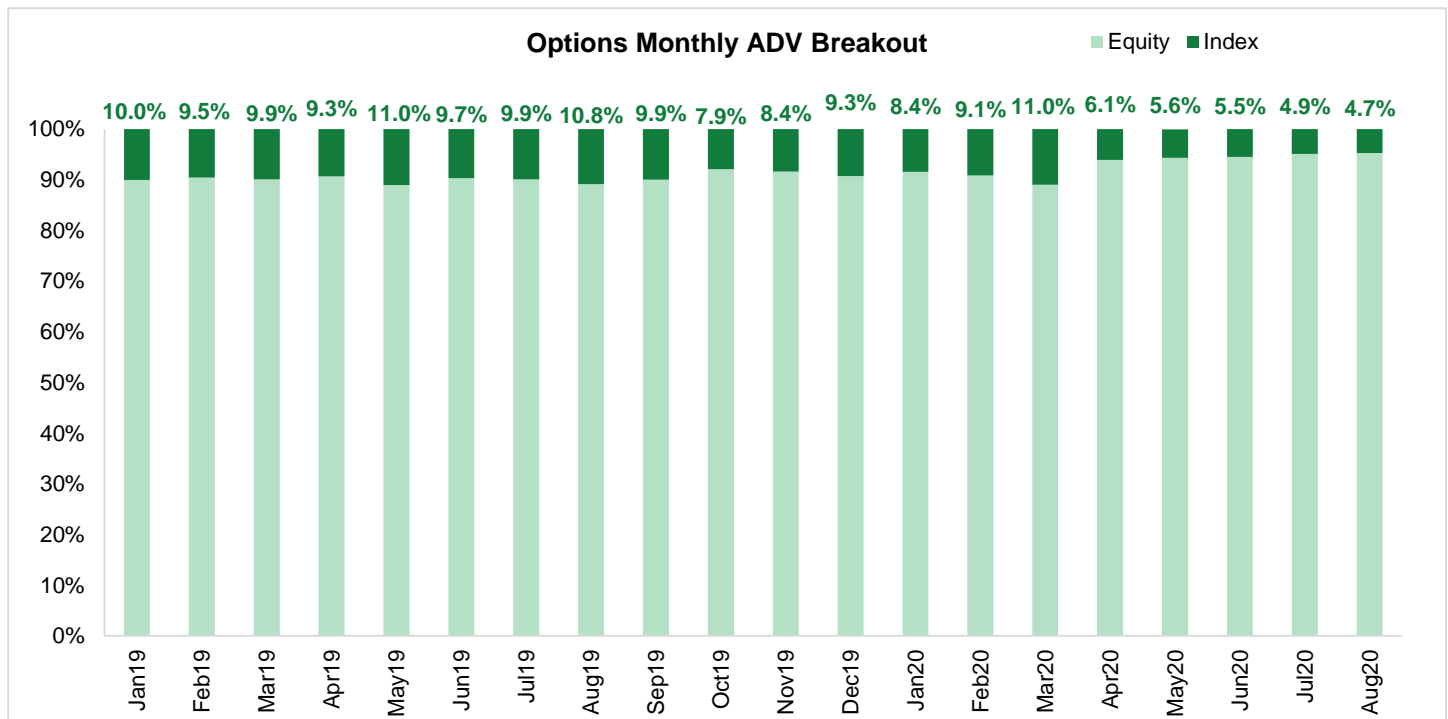


Source: Bloomberg, Cboe Global Markets, SIFMA estimates

Percent of Total by Category

As one would expect, with the decline in volumes comes a decline in percent of total/ the index volumes – the dark green portion in the chart below – continues to shrink as we move through 2020:

- **2019**
 - Index: average 9.6%, maximum 11.0%, minimum 7.9%
 - Equity: average 90.4%, maximum 92.1%, minimum 89.0%
- **2020**
 - Index: average 6.9%, maximum 11.0%, minimum 4.7%
 - Equity: average 93.1%, maximum 95.3%, minimum 89.0%
- **Comparison**
 - The average percent of total for index options is down 2.7 pps Y/Y; just looking at the first quarter, the years are more inline (9.5% in 1Q20, 9.8% in 1Q19)
 - While index options met the same maximum as last year, the minimum was 3.2 pps lower
 - The trend has worsened since March, continuing to decline after the physical Cboe trading floor reopened on June 15



Source: Cboe Global Markets, SIFMA estimates

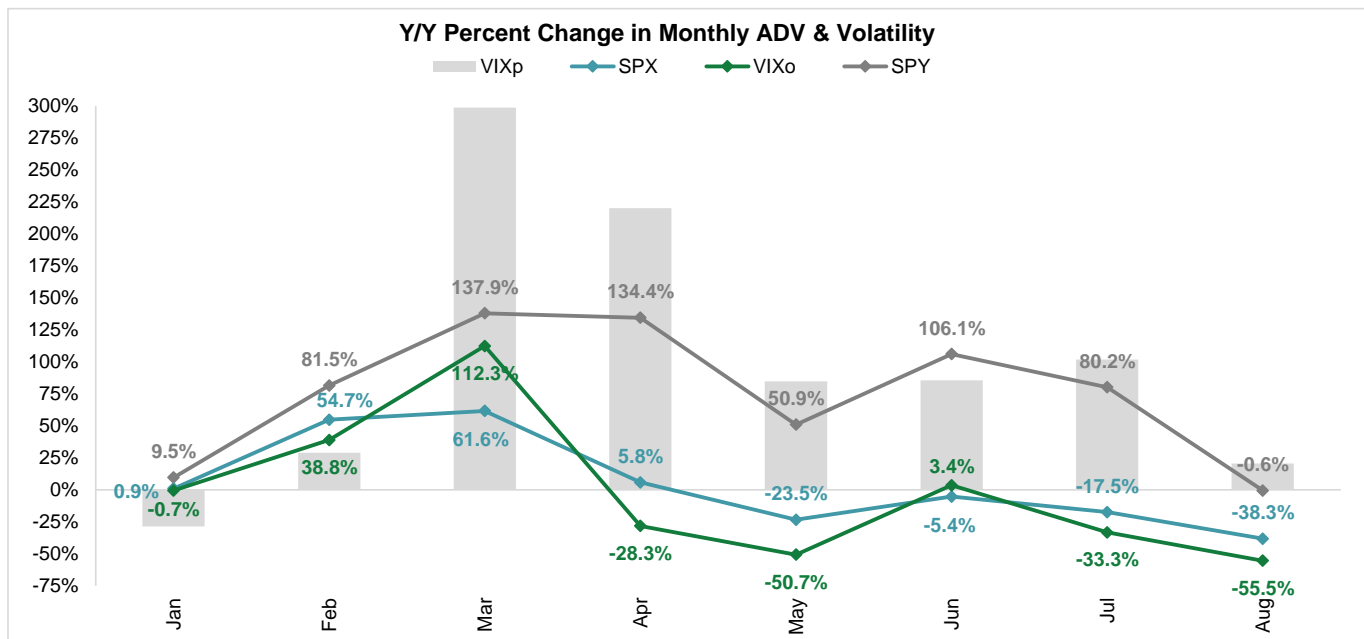
Contract Volumes: SPX & VIX vs. SPY

While ADV for all three options contract suites is up for the full year, for the SPX and VIX, this was driven by strong numbers earlier in the year. All contracts saw spikes in March, along with volatility. June had a pop as well, but to varying degrees across contracts (with declines in the later months). As analyzed in the following sections, the 2020 volume chart trendline is downward sloping for the SPX and VIX, while the SPY slope is essentially flat for the year.

ADV (K)	2020 VIX	2019 VIX	2020 SPX	2020 VIX	2020 SPY	2019 SPX	2019 VIX	2019 SPY	SPX Y/Y	VIX (option) Y/Y	SPY Y/Y	VIX (price) Y/Y
Full Year	31.39	15.39	1,333	525	4,776	1,266	502	2,791	5.3%	4.5%	71.1%	104.0%
January	13.94	19.57	1,383	495	3,263	1,370	499	2,980	0.9%	-0.7%	9.5%	-28.8%
February	19.63	15.23	1,788	675	4,394	1,156	486	2,421	54.7%	38.8%	81.5%	28.8%
March	57.74	14.49	1,974	1,181	6,609	1,222	556	2,778	61.6%	112.3%	137.9%	298.6%
April	41.45	12.95	1,168	334	5,096	1,104	465	2,174	5.8%	-28.3%	134.4%	220.1%
May	30.90	16.72	1,087	352	4,967	1,421	715	3,292	-23.5%	-50.7%	50.9%	84.8%
June	29.39	15.84	1,216	409	5,568	1,285	395	2,702	-5.4%	3.4%	106.1%	85.6%
July	26.84	13.31	940	326	3,985	1,140	488	2,212	-17.5%	-33.3%	80.2%	101.7%
August	22.85	18.98	918	303	3,589	1,488	681	3,612	-38.3%	-55.5%	-0.6%	20.4%
September		15.56				1,346	498	3,011				
October		15.47				1,273	406	3,011				
November		12.52				1,112	390	2,451				
December		13.76				1,244	430	2,743				
Average	32.69	15.37	1,309	509	4,684	1,264	501	2,782	4.8%	-1.8%	75.0%	101.4%
Maximum	57.74	19.57	1,974	1,181	6,609	1,488	715	3,612	61.6%	112.3%	137.9%	298.6%
Minimum	13.94	12.52	918	303	3,263	1,104	390	2,174	-38.3%	-55.5%	-0.6%	-28.8%

Source: Bloomberg, Cboe Global Markets, Options Clearing Corporation, SIFMA estimates

Note: ADV = contracts in thousands; August 2020, Full Year 2020 = as of 8/14

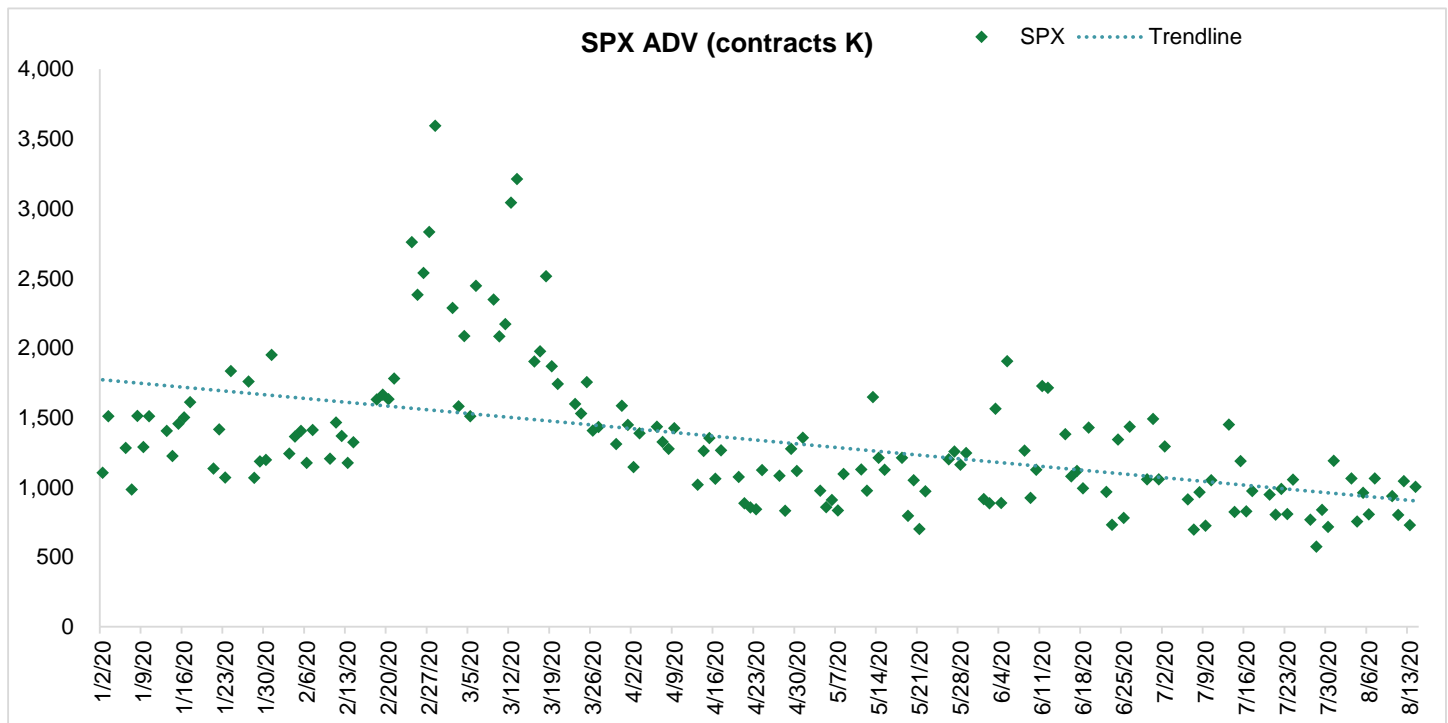


Source: Cboe Global Markets, Options Clearing Corporation, SIFMA estimates

Note: ADV = contracts in thousands; August 2020 = as of 8/14; VIXo = the options contract, VIXp = the price of the volatility index

SPX Volumes

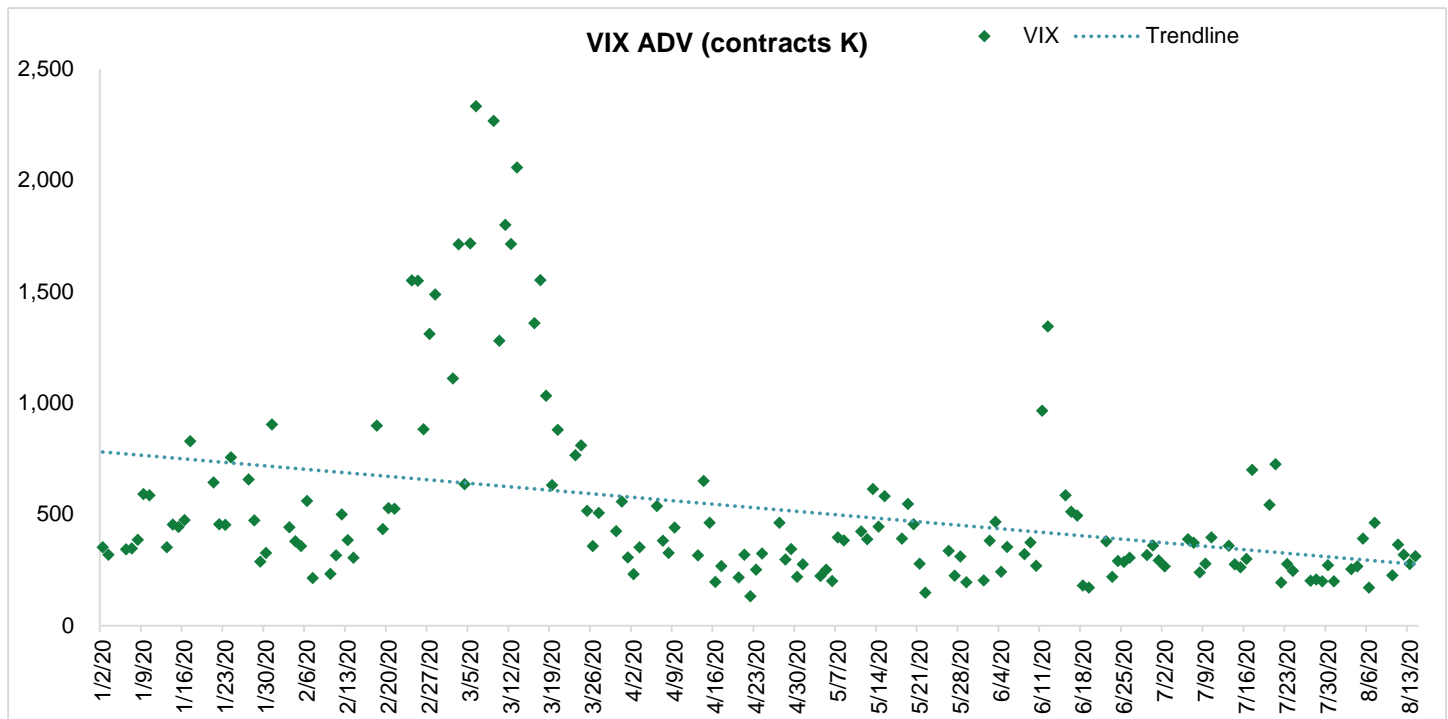
- SPX options actually started the year off well, January ADV +9% to the 2019 average
- Full year ADV is still up 5% Y/Y, despite the decline over the last four months; average monthly increase 5%
- Peaked in March at 1,974 thousand contracts; +43% to January ADV, +56% to 2019 ADV
- Volumes have been on the decline since April; every month from May to August saw a decline Y/Y, with the largest decline seen in the first half of August (-38%)



Source: Cboe Global Markets, SIFMA estimates

VIX Volumes

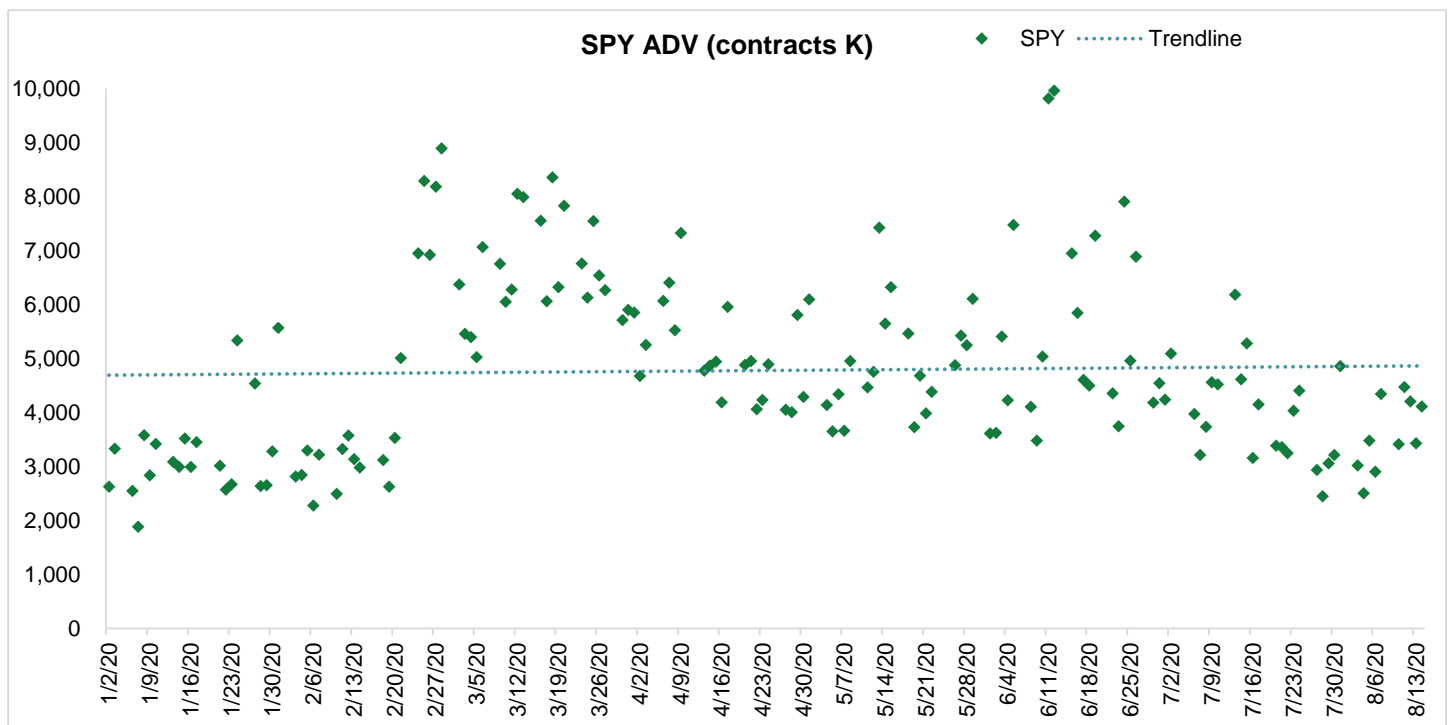
- VIX options started the year off slightly down, January ADV -1% to the 2019 average
- Full year ADV is still up 4.5% Y/Y, despite a decline in four months; average monthly change -2%
- Peaked in March at 1,181 thousand contracts; +138% to January ADV, +135% to 2019 ADV
- Volumes saw Y/Y declines in April, May, July and August, with June positive at +3%; the largest decline was in the first half of August (-56%)



Source: Cboe Global Markets, SIFMA estimates

SPY Volumes

- SPY options started the year off and continue to perform very well, January ADV +17% to the 2019 average
- Full year ADV is up 71% Y/Y; average monthly increase 75%
- Peaked in March at 6,609 thousand contracts; +103% to January ADV, +137% to 2019 ADV
- Volumes have only seen a decline in the first half of August (-1%)



Source: Options Clearing Corporation, SIFMA estimates

Why the Decline?

Revisiting the Great Debate

In our May options report, we pondered if volumes were down because of floor closures, market turmoil or a combination of both? The conclusion was that volumes were down given a combination of both factors, floor closing and heightened volatility. Cboe exchange trades >99% of total index volumes. This exchange closed its physical trading floor on March 16. Therefore, almost all index options volumes have been impacted by floor closings. We learned from market participants that the activity in complex transactions was down significantly, as the functionality to execute these trades electronically was essentially nonexistent.

Yet, the floor opened on June 15, and index options volumes are still down. Why?

A New Factor Enters the Debate

The closing of physical trading floor did impact index volumes. Some orders could not be performed electronically. Once you broke up a large trade to execute, it skewed prices, making it too hard to price and therefore execute the transaction. The floors are now open, albeit not at full staffing levels. One large market maker indicated his firm has around 57% of pre-COVID level staffing on the floor. However, market makers indicate these lower staff levels are not impeding their ability to serve customers. Customers are not feeling the lower staff levels, and it is not shifting a market makers ability to handle trading flow. Moving closer to back to normal is a positive for index volume data.

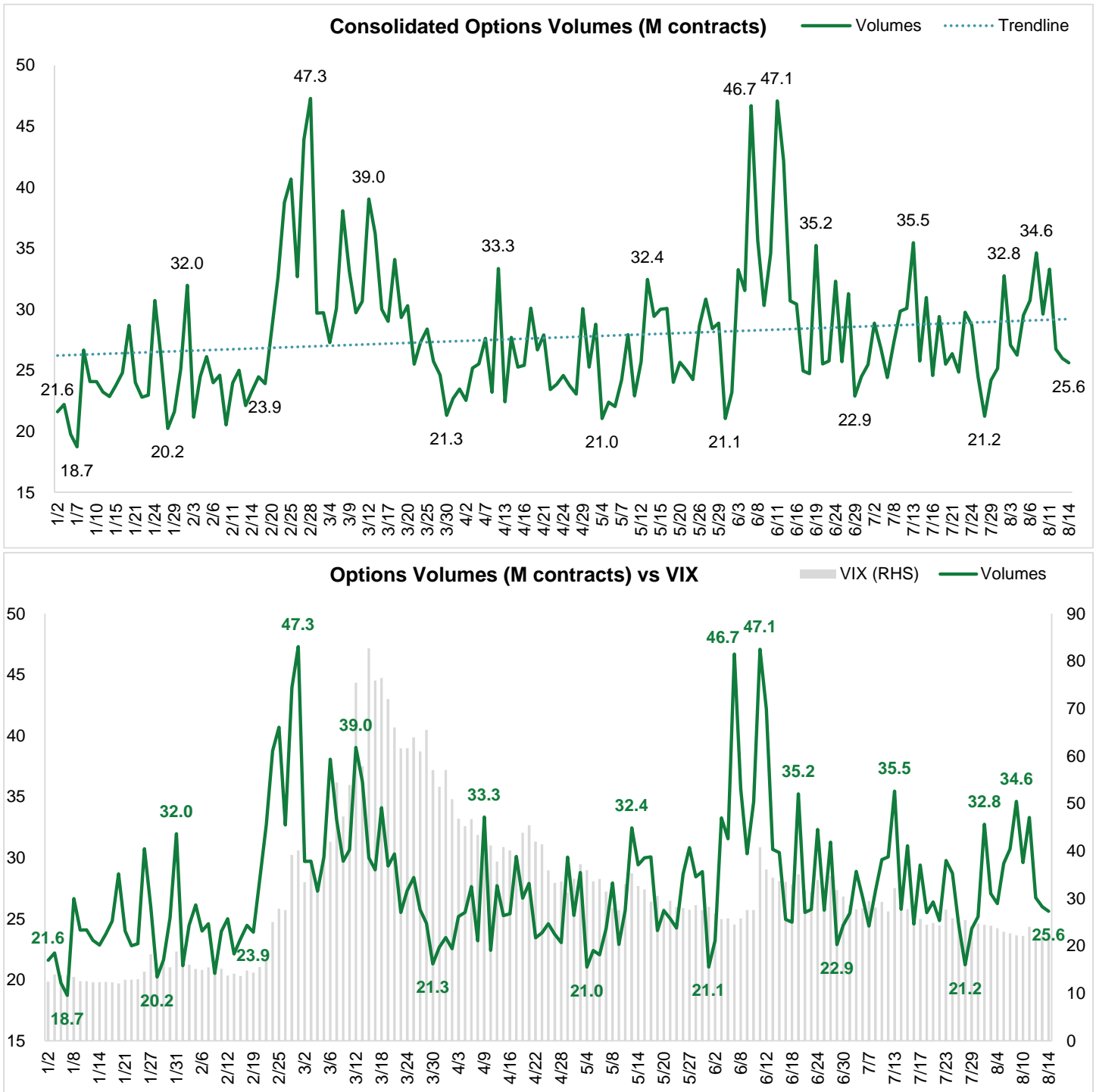
What is interesting is perhaps an indicator of a more structural shift. With the floor closings and the inability to execute complex orders electronically, customers were forced to transact over-the-counter (OTC). Traders received good prices and service from the banks, along with immediate execution. As such, they got used to OTC, and view it as working for now (the jury is still out on how much slippage there would be under periods of very high volatility). Time will tell if this trend remains permanent, which would be a negative for index volume data.

The other interesting and new factor in analyzing volume data is the explosion of retail trading. It is estimated that retail trading in options is up ~50% to last year. In the options market, professional money managers put on their hedges and move on. This institutional activity is less frenetic than retail, which tends to stay active in the market longer. Additionally, retail investors mostly trade SPY. Whereas, institutional investors do not frequently trade SPY, preferring the SPX contract instead. This would be a negative for SPX volume data, yet a positive for SPY and index volume data in general.

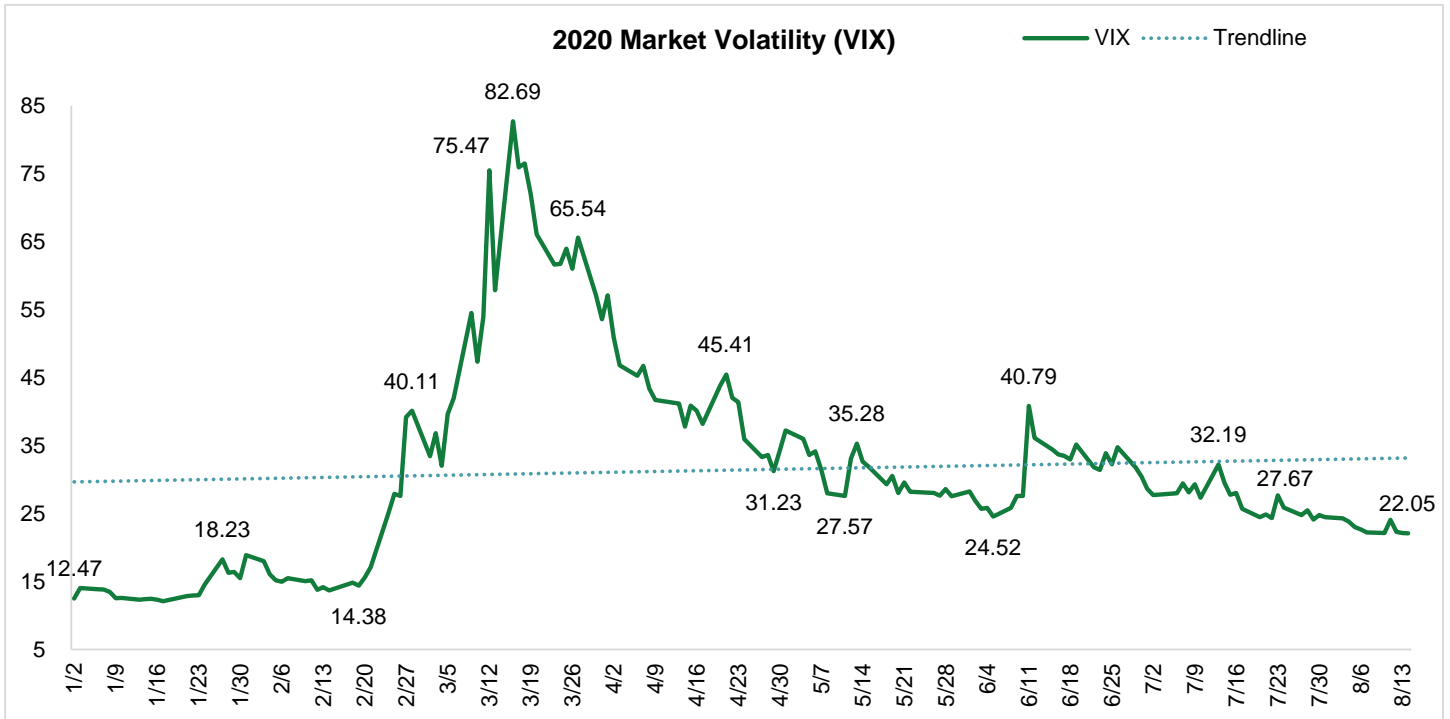
However, this is not the whole story on retail investors. Retail money has been chasing story stocks, such as Tesla (TSLA) and Apple (AAPL). We ran some numbers and found these two contract underliers each represented on average 2%-3% of total equity options volumes this year. If you remove the growth of all the individual story stock contracts, the growth disparity in equity versus index options would come down.

That said, market participants do not expect much change in index volume growth for the rest of this year. As we continue to move toward a new normal, the SPX and VIX contract volumes could begin to inch up. If retail stays hot – and it is not currently showing signs of slowing – SPY and, more prominently, equity option volumes will continue to grow. The equity versus index options volume growth disparity will persist.

Appendix: Market Volumes & Volatility

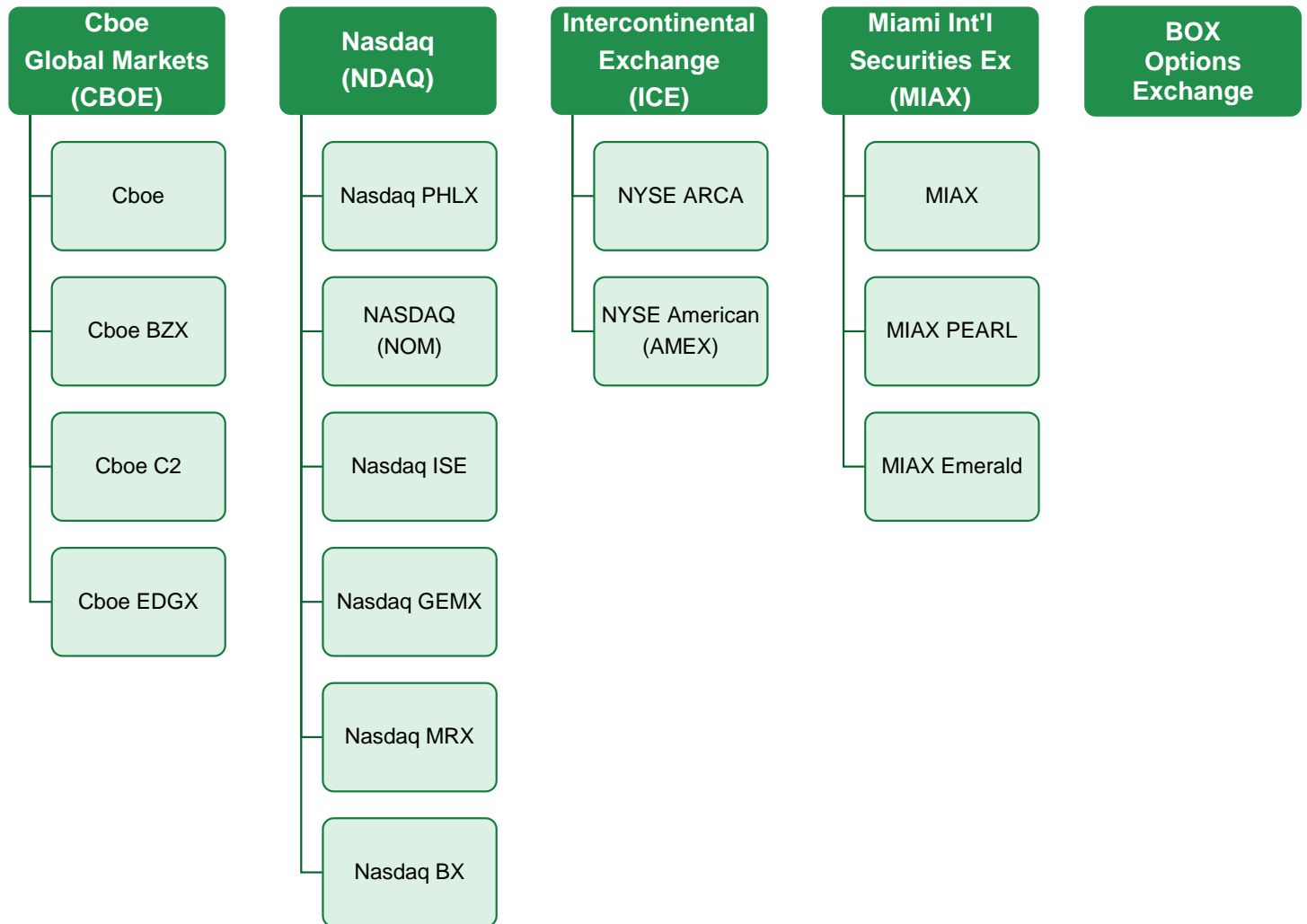


Source: Bloomberg, Cboe Global Markets, SIFMA estimates



Source: Bloomberg, SIFMA estimates

Appendix: Market Landscape



Appendix: Terms to Know

FINRA	Financial Industry Regulatory Authority
SEC	Securities and Exchange Commission
SRO	Self-Regulatory Organization
ADV	Average Daily Trading Volume
ATS	Alternative Trading System
Best Ex	Best Execution
CAT	Consolidated Audit Trail
Dark Pool	Private trading venues, not accessible by the public
ETF	Exchange-Traded Fund
MM	Market Maker
OPRA	Options Price Reporting Authority
Call	The right to buy the underlying security, on or before expiration
Put	The right to sell the underlying security, on or before expiration
Holder	The buyer of the contract
Writer	The seller of the contract
American	Option may be exercised on any trading day on or before expiration
European	Option may only be exercised on expiration
Exercise	To put into effect the right specified in a contract
Underlying	The instrument on which the options contract is based; the asset/security being bought or sold upon exercise notification
Expiration	The set date at which the options contract ends, or ceases to exist, or the last day it can be traded
Stock Price	The price at which the underlying stock is trading, fluctuates continuously
Strike Price	The set price at which the options contract is exercised, or acted upon
Premium	The price the option contract trades at, or the purchase price, which fluctuates constantly
Time Decay	The time value portion of an option's premium decreases as time passes; the longer the option's life, the greater the probability the option will move in the money
Intrinsic Value	The in-the-money portion of an option's premium
Time Value	(Extrinsic value) The option premium (price) of the option minus intrinsic value; assigned by external factors (passage of time, volatility, interest rates, dividends, etc.)
In-the-Money	For a call option, when the stock price is greater than the strike price; reversed for put options
At-the Money	Stock price is identical to the strike price; the option has no intrinsic value
Out-of-the-Money	For a call option, when the stock price is less than the strike price; reversed for put options

Appendix: SIFMA Insights Research Reports

SIFMA Insights Market Structure Primers: www.sifma.org/primers

- Global Capital Markets & Financial Institutions
- Electronic Trading
- US Capital Formation & Listings Exchanges
- US Equity
- US Multi-Listed Options
- US ETF
- US Fixed Income
- SOFR: The Transition from LIBOR

SIFMA Insights: www.sifma.org/insights

- 2020, the Year of the SPAC
- The 2020 Market Madness
- The NYSE Trading Floor Reopened – Revisiting Market Share Data
- COVID-19 Related Market Turmoil Recap: Part I (Equities, ETFs, Listed Options & Capital Formation)
- A Deeper Look at US Multi-Listed Options Volumes
- NYSE Goes All Electronic – What Does It Mean?
- The VIX's Wild Ride
- The 10th Anniversary of the Flash Crash
- The Evolution of the Fintech Narrative
- DTCC's Important Role in US Capital Markets

Author

SIFMA Insights

Katie Kolchin, CFA
Director of Research
kkolchin@sifma.org