



SIFMA Insights

Market Structure Download

Where We're at with Volumes, Volatility and Key Trends

October 2020

Key Takeaways

- Updates on current market trends – retail investors now 20%-25% of total equity market volumes; retail investing aiding a big year for options trading; and removing friction with technology and product innovations
- September volumes data – options ADV 31.3M contracts, +30% to Jan. but -34% from peak; equity ADV 10.0B shares, +32% to Jan. but -48% from peak; VIX 27.65, +98% to Jan. but -67% from peak
- September market shares – options shows Nasdaq at 34.3% and Cboe at 31.9%; equities shows NYSE at 22.7% and Nasdaq at 20.5%
- We also update exchange landscapes with the launch of three new equity exchanges in September



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Executive Summary

With the close of the third quarter, we wanted to update market metric trends we have followed throughout the year for volatility, equities and options. Inside this note, we analyze:

- **Current Market Trends** – Retail investors now 20%-25% of total equity market volumes, as compared to around 10% in 2019, given \$0 commissions, increased access to markets and COVID-19 lockdowns/stay at home; retail investing also aiding a big year for options trading, fueling the growth in single stock options volumes; removing friction with technology and product innovations (platforms, fractional shares)
- **Volumes & Volatility Update** – Market updates on VIX, equity and options through September 2020
 - Volatility and volumes ticked back up in September, with options marking new average monthly high
 - Options ADV – YTD 28.1M contracts, +48% Y/Y; 3Q20 29.1M contracts, +53% to FY19 & +4.5% Q/Q; Sept. 31.3M contracts, +30% to Jan. but -34% from peak
 - Equity ADV – YTD 11.1B shares, +56% Y/Y; 3Q20 9.9B shares, +41% to FY19 & -19.5% Q/Q; September 10.0B shares, +32% to Jan. but -48% from peak
 - VIX – YTD 30.48, +92% Y/Y; 3Q20 25.81, +68% to FY10 & -25% Q/Q; September 27.65, +98% to Jan. but -67% from peak
- **Exchange and Parent Group Market Share** – Updating market share stats for September 2020
 - Options – Nasdaq 34.3%, Cboe 31.9%, NYSE 17.9%, MIAX 13.1%, BOX 2.7%
 - Equities – NYSE 22.7%, Nasdaq 20.5%, Cboe 15.0%, IEX 1.8%, off exchange 39.9%
- **Exchange Landscapes** – Options no change; Equities now 16 exchanges as MEMX, LTSE and MIAX PEARL went live in September

Current Market Trends

In this section, we provide an overview of current market trends, as discussed with market participants or gathered from various industry conferences, including the SIFMA Equity Market Structure [Conference](#) and Listed Options [Symposium](#).

Boom Year for Retail Investor Participation

Retail investors have moved up to 20%-25% of total equity market volumes, as compared to around 10% in 2019. Market participants note this trend began somewhat with the move to \$0 commissions in 2H19, fueled by high levels of cash sitting on the sidelines since the last recession. Then the COVID-19 related lockdowns and increase in work-from-home arrangements bolstered these trends. With high levels of cash sitting on the sidelines since the last recession, retail investors view the potential for higher returns in markets as a better way to build their retirement (or special project, such as saving to buy a house) funds versus other low (or near zero) interest rate savings tools.

Most market participants see the increase in retail investing as a positive for investors and markets, as long as the industry continues to educate these clients on risks and product complexities (which they have, with one major online broker indicating hits on their educational tools are up three fold this year). The democratization of markets has been increasing over the years, driven by decreasing costs and technological advancements. Markets are dynamic and have changed with the shift in consumer behavior, i.e. performing most tasks online or on an iPhone. This has increased accessibility for investors.

Despite this increase, the number of households owning stocks had come down after the global financial crisis – 53% in 2007 versus 49% in 2013. This number has resumed an upward trend, now back at 53% of U.S. households¹. Both large and smaller brokers continue to increase efforts to serve retail investors, all attempting to expand stock ownership across the 135 million American households. It will be interesting to see where the estimated 25% retail participation figure in equities climbs once 2020 data is accounted for. After all, estimating across the top online brokers, there could be almost 10 million new retail accounts opened this year².

As for market structure, participants indicate retail activity does increase liquidity. This benefits all investor types and acts to maintain the low-cost structure of U.S. markets. Further, market participants note that this retail flow is one-sided to buys, meaning retail participation is more like 12.5% of total volumes (buying one side of each trade). Markets are very deep with multiple types of investors – asset managers, hedge funds, proprietary traders, arbitrageurs, retail, etc. – meaning retail trades are not negatively moving markets as some reports have indicated. ETFs trade one-third of the value of stocks each day, and futures trade at multiples of the value of stocks daily. In other words, there is enough risk transfer to dilute the impact of retail trades on any specific stock or sector.

¹ Federal Reserve, 2019 Survey of Consumer Finances (triennial survey); includes directly & indirectly (mutual funds, retirement accounts) held stocks

² 2020E calculations: SCHW & ETFC financial statement data through Aug, 5-month avg for rest year; Robinhood press report through May, 50% for rest year; SCHW estimate from a conference presenter

Will this trend continue? Perhaps the growth rate could slow as normalization of everyday life resumes with a viable vaccine, in particular when employees return to the office on a more regular basis. However, it could be the start of a structural change. Aside from \$0 commissions and cash on the sidelines, all in all investors have had good experiences with the markets in 2020 in terms of the technologies and ease of access to trading platforms and tools (ex: stock research). All of this could encourage retail investors to remain in the markets moving forward.

Retail Even Driving the Rise in Options Volumes

This has been a big year for options trading. Options markets volumes have hit record highs this year. Historically, options volumes never reached 40 million contracts. This year, volumes have surpassed that level on 8 different days, also passing over 30 million contracts on 59 days. While it is hard to perfectly identify retail orders versus others, there have significant increases in smaller options trades which is a good indicator of retail trades. Trades in less than 10 lots versus greater than 50 are at decade highs. Retail investors tend to buy 1-2 contracts, indicating growth in retail trading.

Volatility has spurred single stock options contracts trading this year. Market participants indicate there is a skew to single stock call and put option buying, another sign of increased retail buying. Retail investors tend to trade ETFs, microcap (and even small cap to some extent) stocks and the very well known large cap stocks (ex: FAANG, or Facebook, Apple, Amazon, Netflix and Google). In equity markets, there has been significant activity in higher priced stocks, such as some of the FAANG names. This flows over to options markets, with retail investors buying options contracts because they cannot afford 100 shares of these higher priced stocks.

This continues to fuel the growth in single stock options volumes.

Growth Trends Helped Along by Innovations

Remove the frictions – that is the goal in markets. And significant technology and product innovations have done just that for broadening investor participation. As discussed above, retail investors are interested in higher priced stocks. Yet not every investor can buy 100 or even 10 shares of Amazon priced at \$3,221.26. Options contracts are one way to access higher priced stocks. Fractional shares is another solution to high priced stocks and are offered by many broker platforms. With fractional shares, an investor buys a partial share of a company's stock rather than a full share. They specify how much money they want to invest in a company rather than how many shares. This is an alternative for retail investors not able to afford a full share or multiple shares to build out their portfolio. Market participants suggest this could also be a solution to fix the odd lot/round lot issue for institutional investors as well.

Once investors are ready to trade, access and ease of participation has never been easier. Most brokers have easily navigable online and mobile phone platforms. Commissions are at \$0 for most equity, ETF and options trades. And exchanges, similar to brokers with fractional shares, are offering product innovations. Retail investors often want to invest in bite size pieces. Exchanges are creating new mini products to accommodate this appetite.

Innovation should help continue the democratization trend.

Volumes & Volatility Update

2020 has been a wild ride for volatility and both equity and options volumes. At their peaks, volatility was up 563% to the start of the year, with equity +150% and options +119. We are past the height of the market turmoil, with September averages way down from the peaks: VIX -67%, equity -47% and options -34%. However, market metrics ticked up again in September: VIX 27.65, +98% to January; equity 10.2 billion shares, +34% to January; and options 31.3 million contracts, +30% to January. For options, this month marked a new average monthly high.

Markets have continued to ebb and flow with economic news or updates on a viable vaccine, whether positive or negative. Now we are heading into the U.S. presidential election season. Typically, volatility can increase heading into elections, as market participants try to anticipate the impact of potential policy changes on the business environment, economy and markets. In this highly charged year, market participants are readying themselves and clients for heightened volatility into election day, as well as for an extended period after should election results take time to finalize.

This, along with other market factors such as Brexit, could lead to further upticks in market metrics.

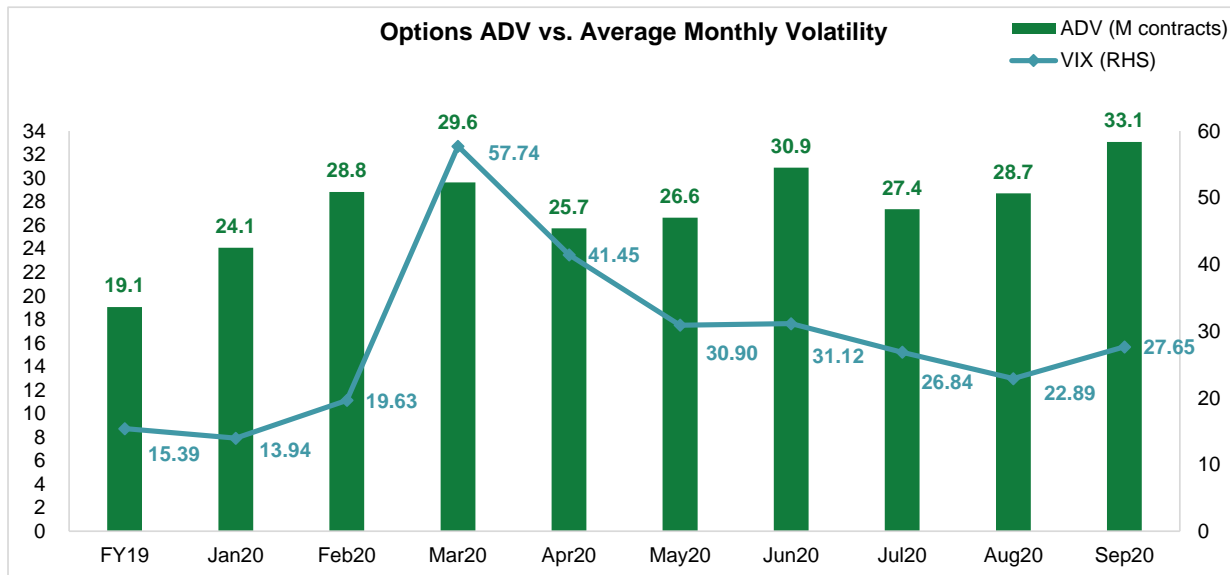
ADVs	VIX	Equity (B shares)	Options (M contracts)	ADVs	VIX	Equity (B shares)	Options (M contracts)
FY19	15.39	7.0	19.1	January	13.94	7.6	24.1
YTD19	15.87	7.1	19.0	February	19.63	9.3	28.8
YTD20	30.48	11.1	28.1	March	57.74	15.6	29.6
Y/Y	92.1%	55.6%	47.9%	April	41.45	12.3	25.7
Peak	82.69	19.4	47.3	May	30.90	11.3	26.6
Peak/Jan 2	563.1%	150.3%	118.9%	June	31.12	13.3	30.9
Peak Date	3/16	2/28	2/28	July	26.84	10.5	27.4
Trough	12.10	6.7	18.7	August	22.89	9.2	28.7
Trough Date	1/17	2/14	1/7	September	27.65	10.2	31.3
Sept/Peak	-66.6%	-47.3%	-33.9%	Feb/Jan	40.8%	21.4%	19.7%
1Q20	31.22	11.0	27.5	Mar/Jan	314.2%	105.3%	23.0%
2Q20	34.49	12.4	27.8	Apr/Jan	197.4%	62.0%	6.8%
3Q20	25.81	10.0	29.1	May/Jan	121.6%	48.4%	10.6%
1Q20/FY19	102.9%	56.1%	44.4%	Jun/Jan	123.2%	74.4%	28.2%
2Q20/FY19	124.2%	75.7%	46.0%	Jul/Jan	92.5%	38.2%	13.6%
3Q20/FY19	67.7%	42.3%	52.6%	Aug/Jan	64.2%	21.0%	19.2%
Q/Q	-25.2%	-19.0%	4.5%	Sep/Jan	98.3%	33.8%	29.8%

Source: CBOE Global Markets, Bloomberg, SIFMA estimates (as of September)

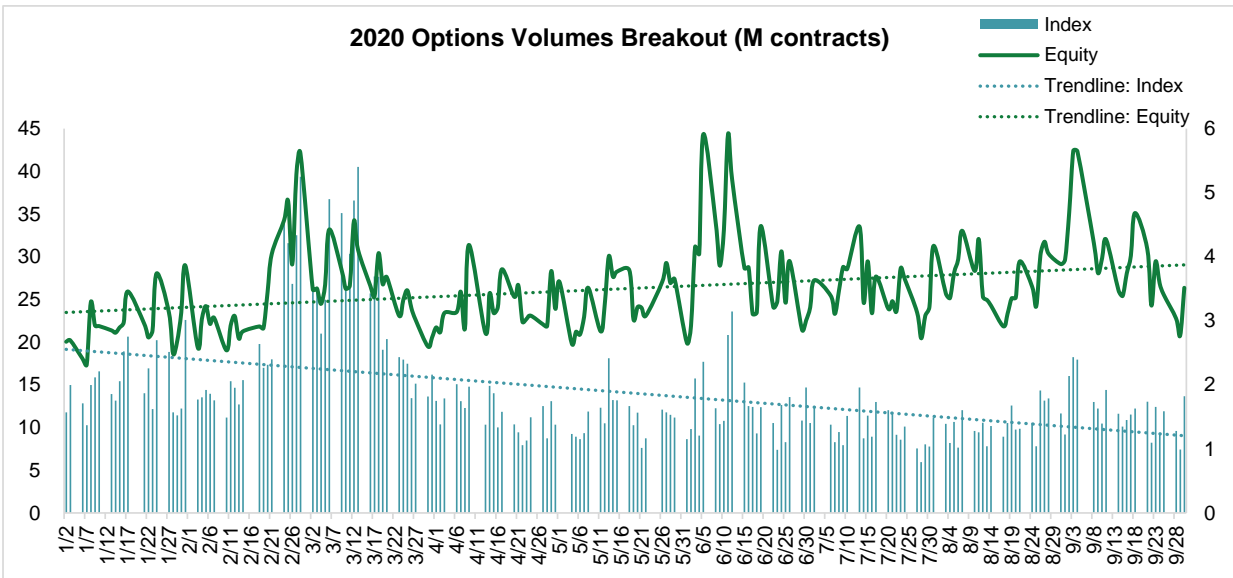
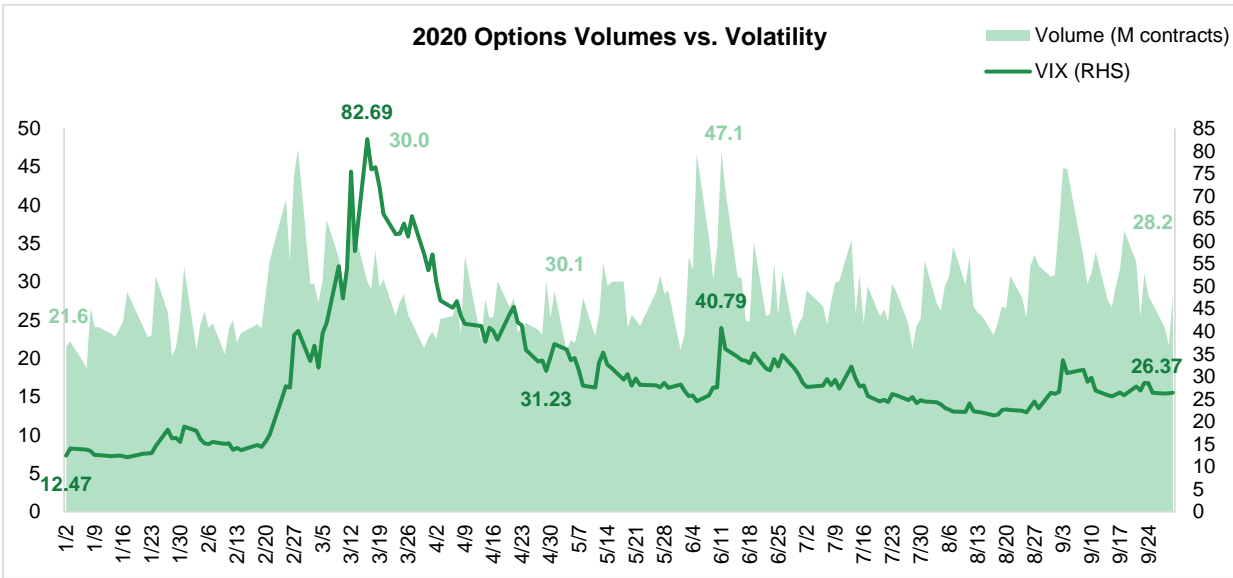
Options

We highlight the following ADV trends in options volumes through the first three quarters of 2020:

- YTD (through September) 28.1 million contracts, +48% Y/Y
- 3Q20 29.1 million contracts, +53% to FY19 average and +4.5% Q/Q
- Peaked on February 28 at 47.3 million contracts, +119% to start of year
- September 31.3 million contracts, +30% to start of year but -34% from the peak
- The disparity in growth trends across equity (single stock) and index options continues – the trendline for equity is upward sloping while index is downward sloping for the year (chart on next page)



Source: Cboe Global Markets, Bloomberg, SIFMA estimates (as of September)

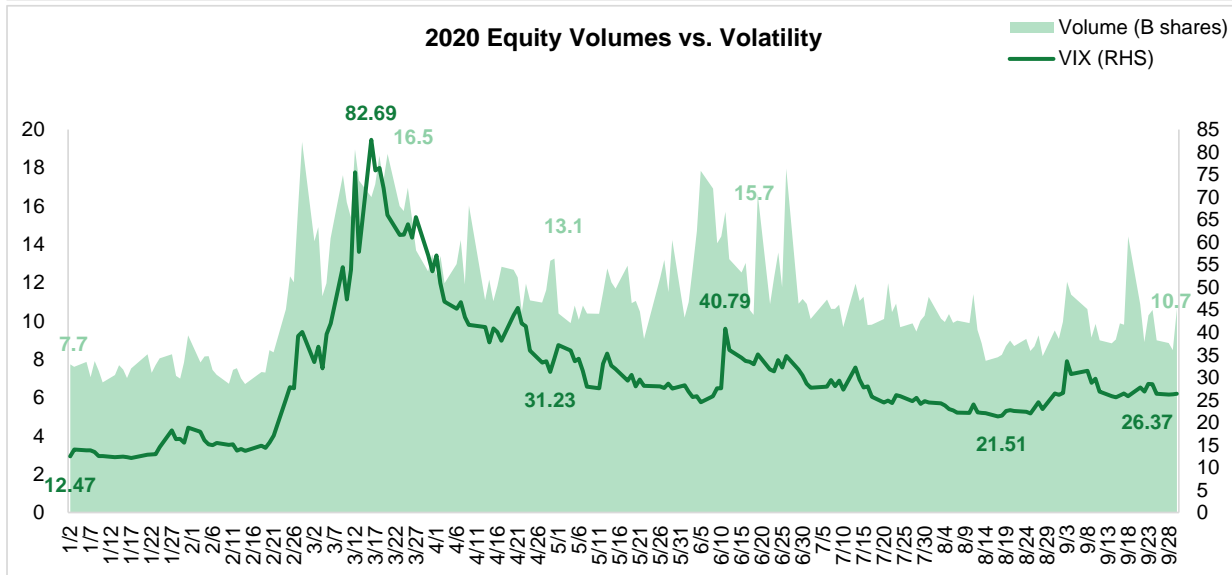
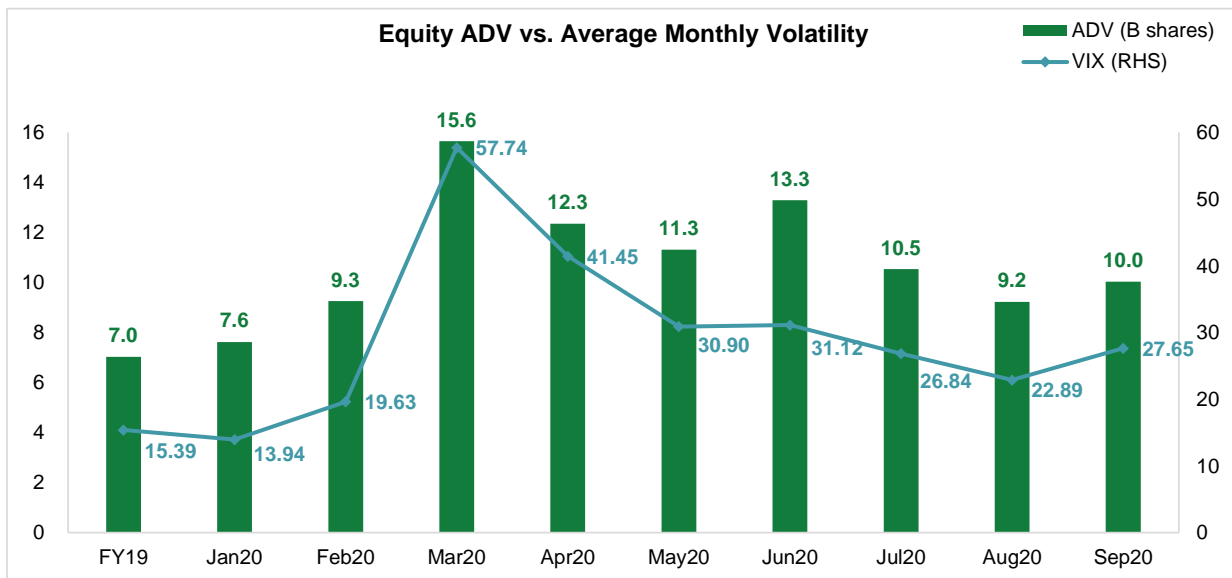


Source: Cboe Global Markets, Bloomberg, SIFMA estimates (as of September)

Equities

We highlight the following ADV trends in equity volumes through the first three quarters of 2020:

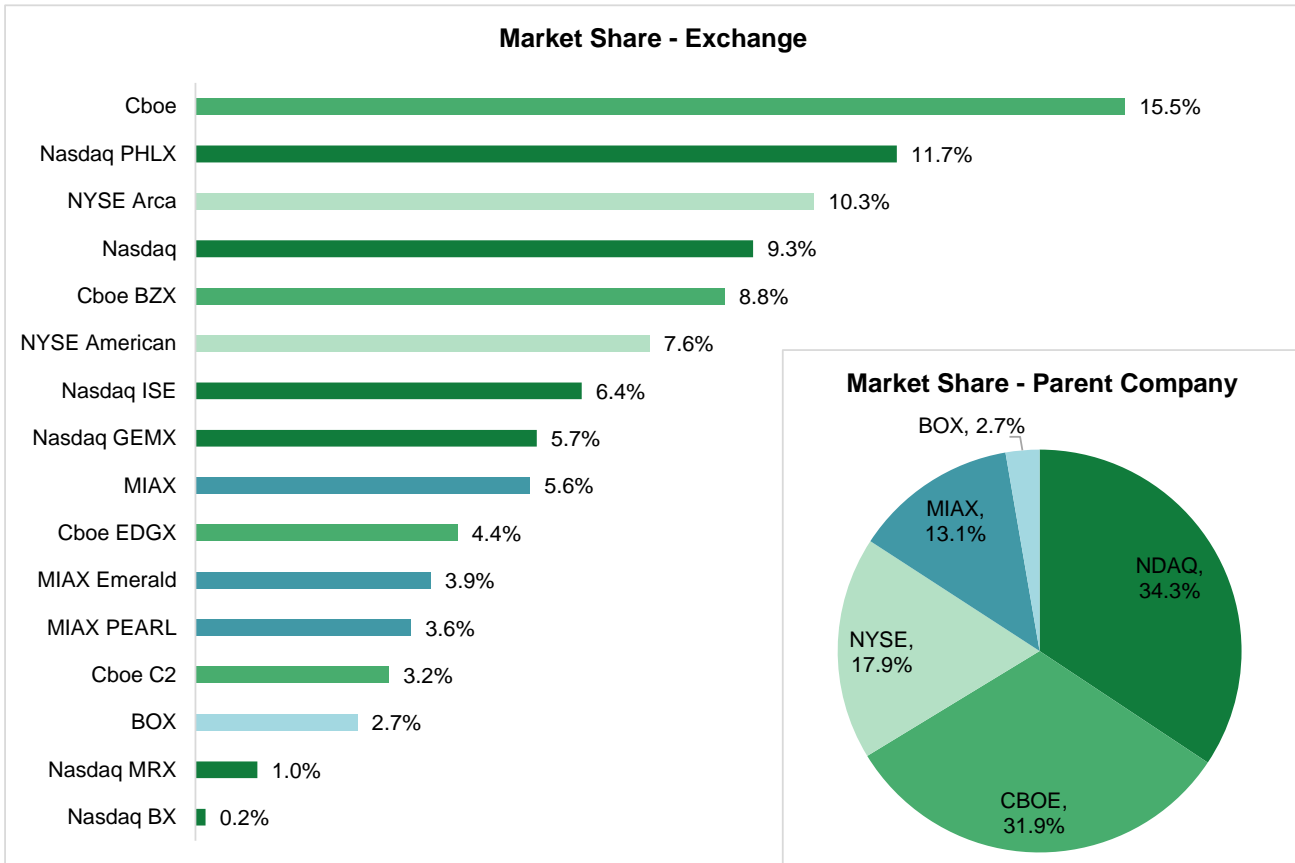
- YTD (through September) 11.1 billion shares, +56% Y/Y
- 3Q20 9.9 billion shares, +41% to FY19 average and -19.5% Q/Q
- Peaked on February 28 at 19.4 billion shares, +150% to start of year
- September 10.0 billion shares, +32% to start of year but -48% from the peak



Source: Cboe Global Markets, Bloomberg, SIFMA estimates (as of September)

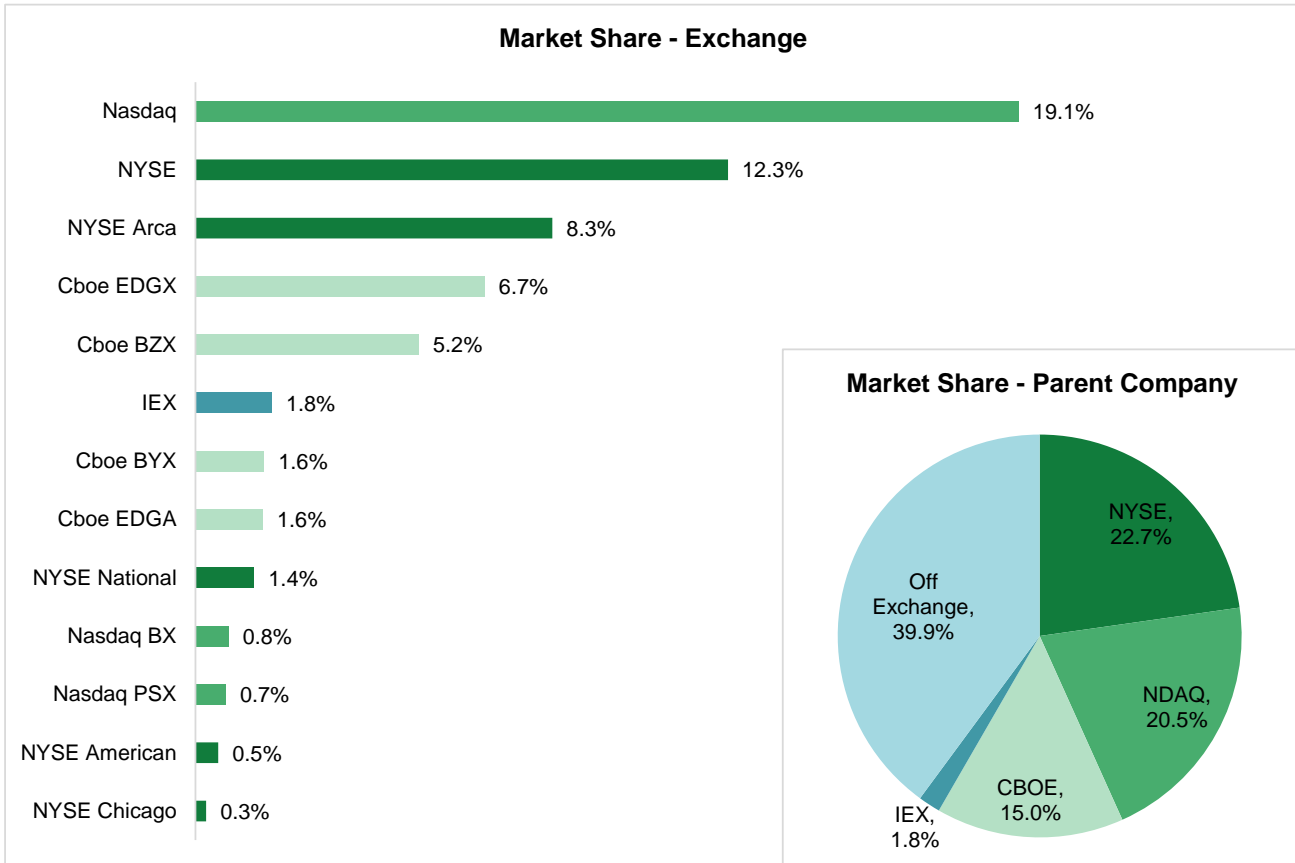
Exchange and Parent Group Market Share

Options



Source: Options Clearing Corporation, SIFMA estimates (as of September)

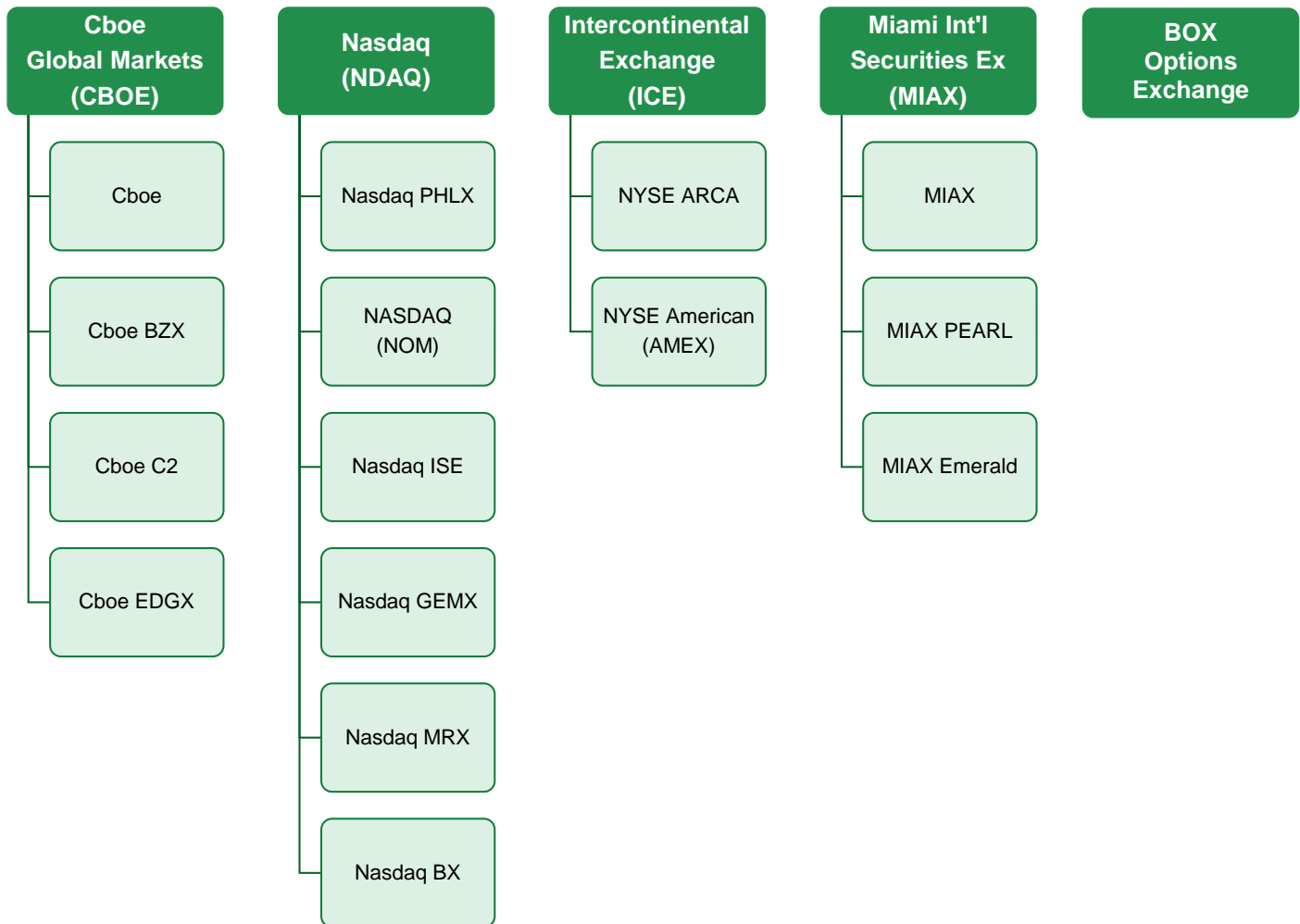
Equities



Source: Cboe Global Markets, SIFMA estimates (as of September)
 Note: LSTE, MEMX negligible shares

Exchange Landscapes

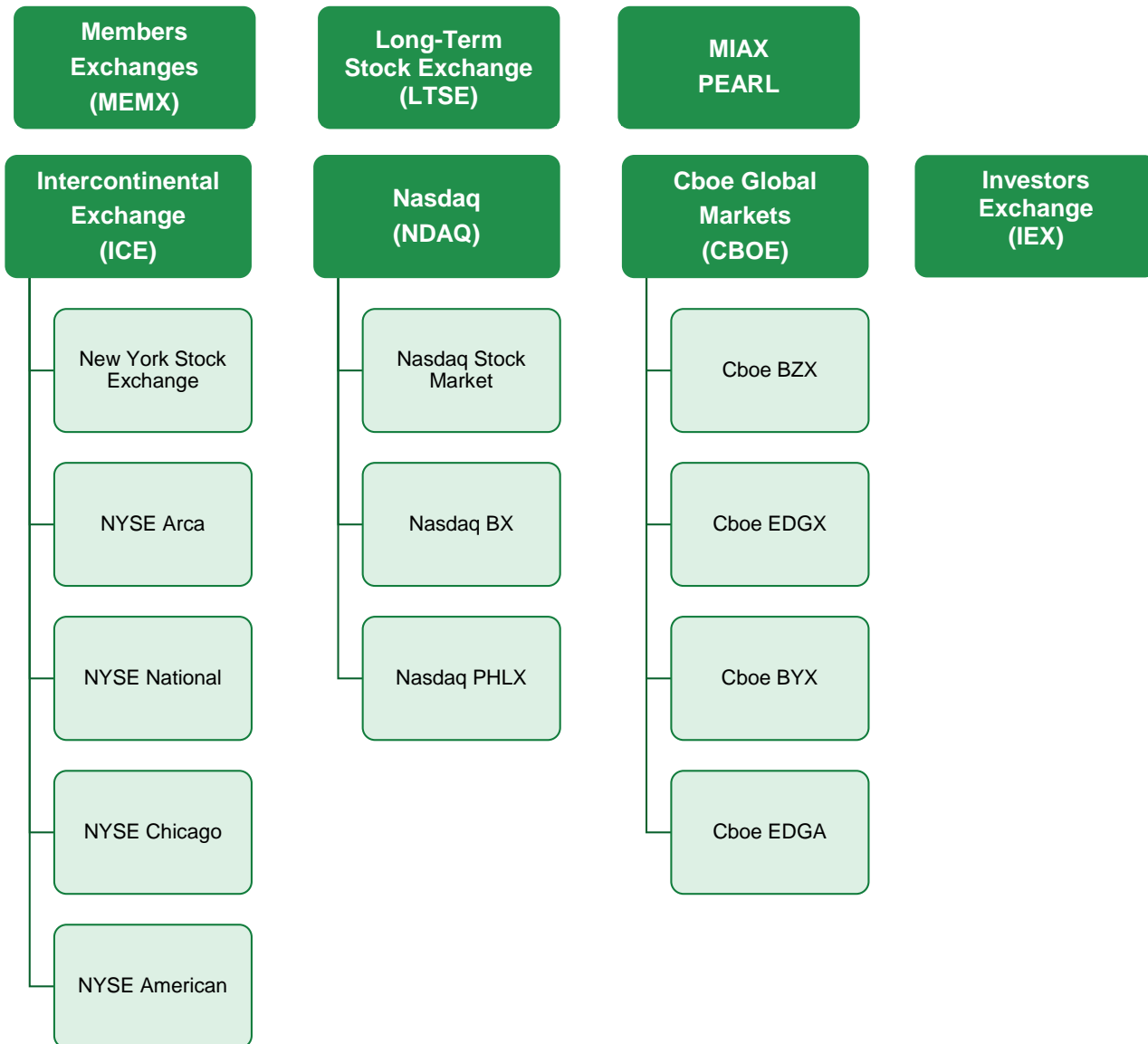
Options Exchanges



Note: BOX also has an open outcry trading floor (opened August 2019)

Equities Exchanges

Perhaps the equities markets were jealous of options, as there are now 16 exchanges in this space (up from 13), just as with options. This month hosted three launches: LTSE Sept. 9; MEMX Sept. 21; and MIAX PEARL Sept. 29.



Appendix: Terms to Know

FINRA	Financial Industry Regulatory Authority
SEC	Securities and Exchange Commission
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
EMS	Equity Market Structure
MM	Market Maker
NMS	National Market System
OPR	Order Protection Rule
OPRA	Options Price Reporting Authority
PFOF	Payment For Order Flow
Reg NMS	Regulation National Market System
SIP	Security Information Processor
SRO	Self Regulatory Organization
Tick Size	Minimum price movement of a security
Bid	An offer made to buy a security
Ask, Offer	The price a seller is willing to accept for a security
Spread	The difference between the bid and ask price prices for a security, an indicator of supply (ask) and demand (bid)
NBBO	National Best Bid and Offer
Locked Market	A market is locked if the bid price equals the ask price
Crossed Market	A bid is entered higher than the offer or an offer is entered lower than the bid
Opening Cross	To determine the opening price of a stock, accumulating all buy and sell interest a few minutes before the market open
Closing Cross	To determine the closing price of a stock, accumulating all buy and sell interest a few minutes before the market close
Order Types	
AON	All or none; an order to buy or sell a stock that must be executed in its entirety, or not executed at all
Block	Trades with at least 10,000 shares in the order
Day	Order is good only for that trading day, else cancelled
FOK	Fill or kill; must be filled immediately and in its entirety or not at all
Limit	An order to buy or sell a security at a specific price or better
Market	An order to buy or sell a security immediately; guarantees execution but not the execution price
Stop	(or stop-loss) An order to buy or sell a stock once the price of the stock reaches the specified price, known as the stop price
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

- A Deeper Look at US Listed Options Volumes
- The Cboe Trading Floor Reopened – Revisiting Volume Data
- NYSE Goes All Electronic – What Does It Mean?
- The NYSE Trading Floor Reopened – Revisiting Market Share Data
- COVID-19 Related Market Turmoil Recap: Part I (Equities, ETFs, Listed Options & Capital Formation)
- 2020, the Year of the SPAC
- The 2020 Market Madness
- The VIX's Wild Ride
- The 10th Anniversary of the Flash Crash
- DTCC's Important Role in US Capital Markets
- Market Structure Week Debrief, 2019
- The Evolution of the Fintech Narrative

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