TRANSCRIPT

# Understanding the Nasdaq 100 and its volatility index

*Presenters: Andrew Dimarco and Kevin Davitt*

**Andrew DiMarco**: Hello, and welcome to our two-part webinar, Tracking and Trading Tech: The Nasdaq-100 and Volatility. My name is Andrew DiMarco. I am a Regional Brokerage Consultant here at Fidelity Investments.

And what my role compromises is I work with our self-directed clients on everything brokerage-related. There's about 25 of us across the country. We're spread apart different regions. We do make it into the branches and we talk to our self-directed clients about everything brokerage, whether it's equities, options, IPOs, anything like that. So it's something that-- a really great role that I love and get to put on webinars like this.

For Part 1, our Understanding the Nasdaq-100 and its Volatility Index, I'd like to introduce Kevin Davitt, Head of Options Content from the Nasdaq to get us started. A quick aside, while preparing for this presentation Kevin and I discovered that we stood about 10, 20 feet apart back in our CBOE days. So we got our start during some very volatile times, and it was a pleasure getting to talk to Kevin again. So thank you for joining us, Kevin, and the floor is yours.

**Kevin Davitt:** Thank you, Andrew, for that introduction. I appreciate it. And it is always fun to piece those connections together and think about those late '90s and early 2000s.

Thank you to everyone who's joined us this morning or this afternoon or this evening, depending on your time zone. As Andrew mentioned, I'm Kevin Davitt, Head of Index Option Content at Nasdaq. And over the next roughly 40 minutes or so, I want to focus on the Nasdaq-100 Index as well as the kind of quote, unquote, "ecosystem" that's growing around it.

Now in the event that you've ever listened to a past presentation that I've done, you would know that I'm both a fan of history kind of generally and market-specific, and I'm also a fan of words. I enjoy writing. My job allows me that liberty. And I like thinking about words.
And so I was doing that, preparing for this. And in my estimation, ecosystem is one of those words that gets thrown around often, which from my perspective tends to denigrate its meaning. So it's become one of those corporate buzzwords, a catch-all that can mean everything and nothing. And maybe I'm just falling back on some kind of grade school presentation techniques where you focus on definitions, but I don't think so.

So moving forward visually, we're going to talk specifically about what the Nasdaq-100 Index is. At the core of this broader ecosystem is a collection of publicly traded companies.
The constantly evolving byproducts or outgrowth of that ecosystem of the index are products like futures, ETFs, index options, and more recently a forward volatility measure in the form of the VOLQ index. So we'll talk about the VOLQ Index. There are also VOLQ futures and options, and we're going to talk more about that later.

We're going to compare and contrast volatility on indices over unique time frames. And as Andrew mentioned, we're also going to leave time for questions. And I think he pointed it out well, but if you have questions as we move through this material, please ask. In my experience if you have questions, chances are a bunch of other people that are listening have similar questions. And this is about your understanding as opposed to me just getting through some material. And beyond that, your questions can help someone like me know where we can improve and clarify points of interest.

So that said, like all great presentations, they've got to begin with a disclaimer, right? We've got to do the housekeeping. Now people often blow through these to placate compliance, but that's not my style. There is risk inherent in

every market. At all points in time there are unique risks associated with futures and options.

And in my experience-- and undoubtedly Andrew would back me up here-- the people that think first and foremost about the risk inherent in any given idea as opposed to the potential reward tend to be more successful. I think that runs counter to how our brains typically work. We get these fun dopamine blasts when we picture a position working really well and the same doesn't occur when things go pear-shaped, but that can and will happen.

Now I think it's worthwhile to point out that for thousands of years, derivative contracts have been and continue to be used to offset or reduce risk by market participants. Now they can obviously be used to amplify exposure because of their embedded leverage. So my cliff notes here, risk exists all the time. Options, futures, tools like this can be used to help you manage your exposure.

All right. So like I mentioned, let's talk about the Nasdaq-100 Index. From my perspective, I believe that the Nasdaq-100 arguably best exemplifies the US and the global economy in the 21st century.
So what am I inferring there? What am I talking about? We don't talk a whole lot about General Motors these days. We focus on Tesla, for example. And in that same vein, General Electric isn't what it once was. But Apple sure has changed the way we live, the way we work. The same can be said for Microsoft and a ton of other companies. Amazon continues to change the retail experience, and they're moving into other areas of the economy from groceries to medicine.

What's my point here? Well, I would ask you to think about your portfolio construction. And specifically, what companies do you hold, in what size, and why? And that leads me to our next visual. So I got the data represented here from the Fidelity website tools super easily. It's readily available and

accessible. And on the left-hand side, I've highlighted the sector breakdown for the Nasdaq-100 Index in the light blue bars and the S&P 500 sector breakdown in purple.

Now we all typically associate the Nasdaq-100 with technology, and that's an appropriate rule of thumb. The Nasdaq-100 is about 50% exposed to IT, to Information Technology, and that's double the exposure of the S&P 500. So how does that play out?  Well, in the case of the Nasdaq-100, Apple and Microsoft make up about 23.5% of the index. You can kind of see that broken down on the right-hand side. So do Apple and Microsoft make up a quarter of your portfolio? I don't know. I can't answer that. But this is the way I'm-- these are the bigger points I'm driving at.

The Nasdaq-100 is also heavier on consumer discretionary. So what the heck does that mean? Consumer discretionary top holdings include Amazon, Tesla, Starbucks, and booking.com.

Now Amazon and Tesla make up a total of 10.8% of the Nasdaq-100 Index. Again, think about your portfolio. Communication services. You see a fairly distinct disparity with the Nasdaq-100 representing those companies more heavily. What are they? Alphabet, Meta, Comcast, T-Mobile, Netflix, a bunch of others. Collectively, they make up about 15% of the index.

The Nasdaq-100 Index is far less exposed to health care, industrials, and utilities, far less than the S&P 500. So let's say your portfolio has a whole lot of Johnson & Johnson or United Healthcare or Merck. Those are much more heavily represented in the S&P 500.

So that's a quick overview of the sector differences between the two indexes with a little bit more drill down on some specific names. And in the next few slides, we're going to look at returns. We're going to look at volatility and some other data, some other reference points, comparing the Nasdaq-100 to the S&P 500.

Now I'm of the opinion-- and to be very clear, I'm not giving advice. But if you use index options to hedge your overall portfolio exposure, taking a look at your portfolio and knowing whether NDX options or potentially smaller index options that track the Nasdaq-100 may provide a better offset because the construction matches up more closely, I think that's an important question and something for our listeners to consider.

All right. So we move forward visually. And here I'm using the same kind of color schematic with the Nasdaq-100 in the light blue, the S&P 500 in purple. I'm calling attention to annual returns for the Nasdaq-100, light blue, compared to the S&P 500 in purple, going back to 2008.

Now over long time frames there's a high degree of correlation between the S&P 500 and the Nasdaq-100, which you're going to see quantified in our next visual. But there are a couple of years where annual performance diverge significantly. You can see them visually on the left-hand side, most notably in 2009 and 2020. There was huge outperformance on the part of primarily tech companies during those calendar years.

Right-hand side of the visual you can see kind of the cumulative effect of that Nasdaq-100 outperformance since 2008. This goes through the end of August 2021. And I'm going to be fair and show you what's happened since then. Now those same companies, those same tech firms that really kicked butt historically have weighed more heavily on the Nasdaq-100 in 2022. Since September of last year-- so where this visual cuts off-- the S&P 500 declined by about 10% and the Nasdaq-100 is down by about 17%, OK?

In general, the Nasdaq-100 moves more than the S&P 500, which leads me naturally to this next visual, which is busy, but I'm going to explain what I think is important here. Big picture. Andrew introduced the idea, and volatility is a topic that I adore. It's one of those words potentially like ecosystem that can mean everything and nothing.

And in my estimation, volatility is a constant. The rate of change in a security or index will ebb and flow, but big picture, like the forest for the trees perspective, we all invest because volatility exists. Independent of that, there would be no incentive to invest. Now this slide is a little bit busy, so I'm going to break it down. Left-hand side, you have calendar years. Everybody gets that. Then you have the annual performance for the Nasdaq-100 first and the S&P 500 second.

My key takeaway here is that in 12 of the past 15 years the Nasdaq-100 has outperformed relative to the S&P 500. And that aggregates to that long-term outperformance that you saw in the previous slide. In 2020, so the sell-off between February and March of 2020, the Nasdaq-100 actually declined less than the S&P 500. And by the end of the year, the Nasdaq-100 was up almost 49% and the S&P 500 gained a not paltry about 19%. But that's a huge, huge divergence. Unusual, but it matters. Now I focus on index options. And maybe given this backdrop, it's no surprise that we've seen meaningful growth in index options tied to the performance of the Nasdaq-100 over the past handful of years.

Middle of the visual-- I referenced this earlier-- you can see the correlation between the two indices. Now this is on a calendar year basis. And it ranges from 87% to 95% based on that annual view. So what's that mean? The two indices tend to move similarly over long time frames. Not a shocker there.

Differences in performance and correlation are largely explained by your components and their unique realized or historical volatility. So you think about what names like Facebook, Meta have done this year and being more highly weighted in the Nasdaq-100 and the impact that has on the overall ecosystem.

So we showed earlier that there's a lot of overlap from a sector perspective. A lot of individual names are in both indices, but with different weights. Then you have things like financials, real estate, and energy that are represented in the S&P 500, that are not represented in the Nasdaq-100. And that leads to different unique index volatilities.

All right. So just shuffling through these numbers or what jumps out to me, on the low end, calendar year vols were 6.7% and 10.3% for the S&P 500 and Nasdaq-100, respectively. 2017 seems like eons ago. That was a year where markets had a nearly unabated slow grind higher. That environment tends to be really good for investors. Less exciting for traders.

Now on the high end, generally more attractive to traders, less so for investors, 2008 where you had calendar year vols for the S&P 500 around 41% and the Nasdaq-100 around 46%. Again, similar. Nasdaq-100 higher.

I looked at for the whole 15-year period the averages for realized vols for both. 18.2% for the S&P 500. 20.7% for the Nasdaq-100. Now higher risk, higher realized volatility historically in this one index. That difference has yielded very significant outperformance, as you've seen a variety of ways already. And that's narrowed over the course of the past seven months.

But my what I would characterize as a proactive question is kind of twofold. Do you view volatility as a potential positive, or does it have a purely negative connotation? I've done full presentations on just that sort of concept or thought. Beyond that the question is as you look forward, do you believe that the Nasdaq-100 on average will outperform the S&P 500 over the time frames that you care about, whether it's a calendar year or the next week, right? And then, are there index options strategies that allow you to express your view in a way that suits your risk appetite? Whether that's like a simple defined risk spread, something more complex where maybe you're looking at relationships, you're long one index, short another, looking for that gap to

close or expand. Or a structured approach like many of the buffered ETFs that have been created over the past couple of years typically express.

So those alternatives are varied. But from my perspective, proactively considering where you're allocating capital and why tends to be a good idea. All right. We remain on the topic of volatility and we're looking at historical volatility in a slightly different way here. So the gray line that kind of squiggles above that 0% on the x or horizontal axis, that shows that the volatility between the two indexes, the S&P 500 and the Nasdaq-100, are similar.

It's Nasdaq-100 rolling volatility minus S&P 500 rolling volatility. And except for a brief time in early 2009 when broad markets bottomed, Nasdaq-100 vol is consistently higher.
Now its spread vacillates. It was at its widest in late 2018 and early 2021. You can kind of see those further on in the right-hand side. Now at those points, annualized NDX vol was about plus eight or nine vols relative to the S&P 500 annualized vol.

And the blue line that moves back and forth around that x-axis shows periods of NDX outperformance. That's highlighted in green. There are also a few relatively short periods of NDX underperformance where we've highlighted in red, and it would be in red over the past seven months.

Now that massive outperformance in early 2020, you think back to a scenario where the pandemic kind of flipped the script on where and how we worked. Technology firms benefited. And that's mostly been erased and the S&P 500 has caught up in recent months, particularly with the help of that energy exposure. Will that continue? I don't know.

Now my takeaway from this slide is that a willingness to assume slightly greater historical or realized volatility has mostly led to outperformance. Now if you get academic, our capital asset pricing models tells us that when you

assume more risk, you should be rewarded, but that's not always the case. The world doesn't operate according to a model, and there is no perfect model. But conceptually, that's what we generally think.

Why is that? Because the future's always uncertain. And what I do know is that index options can help you manage your exposure or your volatility risk. All right.  Now maybe you're saying to yourself, 2008 or 2020, Kevin, to a certain extent those are ancient history. Who cares about that? What about since things got weird in 2022? Let's take a look here.

Now just to be fair, this visual is from July 20. That was before the last Fed meeting. As of this morning, the Nasdaq-100 is down 20.7% for the year and the S&P 500 has fallen by about 14.2%.

Me and Andrew were talking about pulling up visuals potentially on year-to-date performance for each of them. What I do know is that you can absolutely chart that comparison data using Fidelity's tools. You can ask questions if you need guidance about that toward the end.

Now I highlight on the left-hand side some longer term historical volatility measures. You've got those six-month vols in the NDX around 31%, and six-month SPX volatility is just below 23%. Keep in mind that longer term volatility measures move more slowly than a 10-day vol or a 30-day vol. If there are any questions on concepts that I've introduced thus far, I'd ask that Fidelity pop in, ask them. We'll address them at the end.

So from a narrative perspective, the Nasdaq's underperformance this year can largely be attributed to interest rate uncertainty and higher rates in general. Why is that? Well, the cost of money, the higher cost of money impacts nearly everything. But in capital markets, growth companies have historically been more sensitive to higher rates than what we refer to as value companies. And technology firms almost always fall into that growth bucket.

Value stocks typically have much lower realized and implied volatility levels. They typically pay dividends whereas many growth companies tend to plow capital back into the company for future growth. Often that works. Sometimes it doesn't.

And I don't want to simplify a big, big market move this year. There's never a single thing that explains big, big moves. But understanding and thinking about how rate changes tend to impact different companies, different sectors can be helpful.

Now looking ahead, the question maybe becomes, how much of the tighter monetary policy is already priced in by these moves, right? What's the impact of a fairly shallow recession? Which, depending on your definition, we may already be in. And what would be the impact of a more prolonged recession? I think back to some Andrew and my early days. Are we in the midst of something like the 2002, 2003 scenario where growth consistently underperforms? We're both old enough to remember those markets. It's certainly possible.

Is it likely? That's for you to decide. And then based on that outlook, are there index options strategies that you could use to express that view?
All right. We talked a lot about how the S&P 500 and the Nasdaq-100 are similar and distinct from their sector and constituent makeup, thinking about the weightings to realized or historical volatility. I've described in broad terms the two indexes and their unique volatilities.

I'm an options guy. Andrew is still an options guy in my eyes. And many of you listeners are also option users, I'm assuming. I imagine a variety of have traded index options, either using an ETF product or possibly broad-based index options.

The OptionsPlay crew are going to clarify some of the potential benefits of broad-based options. In their presentation, I'll speak to it at the end of this. But for the rest of my time I'm going to speak about the Nasdaq-100 Index option family and the ecosystem growth that now includes a tradable volatility product.

So before you have a tradable volatility product, you need an index. You need an underlying spot market. The VOLQ Index-- V-O-L-Q-- is a dynamic, 30-day forward volatility based on at-the-money Nasdaq-100 Index options. It's a dynamic, 30-day forward vol estimate based on at-the-money Nasdaq-100 index options. It's expressed as an annualized number.

Now many in the audience I would imagine are familiar with the VIX Index, which is often considered a barometer for future volatility. VOLQ is similar, but also distinct. Now that's in line with pretty much all the previous points I've made about the Nasdaq-100 and S&P 500.

In that vein, VOLQ and the VIX Index are similar, but I want to focus on and explain a couple of the differences. So similar. Both use index options to calculate an estimated future volatility. Both use index options that expire in roughly one calendar month.

The VIX Index is calculated based on a wide strip of S&P 500 index options. So the calculation includes a variety of well out of the money calls and well out of the money puts. Another way to put that is that the index includes the skew dynamic, which is inherent in index options. The VOLQ Index, just to distinguish it, is calculated based on at-the-money Nasdaq-100 Index options. So the two key differences are the index options-- Nasdaq-100, S&P 500-- used as your input, and the fact that VIX includes hundreds of strikes up and down the volatility curve and VOLQ includes at-the-money options. So let me walk through how that plays out in each index with a hopefully simple example. Putting this together July 28.

VOLQ index was 26.4. Nasdaq-100 was 12,700. OK? 26.4, your index. The August 26 expiring options had 29 calendar days until expiration and the at-the-money options had a midpoint implied volatility of 26.5. You see those two, the index and that at-the-money vol for the one-month option is essentially identical, OK?

Now at that same point in time, the VIX Index was measuring 22.6. S&P 500 was just below 4,100. The at-the-money SPX options that expired on that same date, 29 calendar days in the future, had an implied volatility of 19.9%. Index at 22.6%. At-the-money vols below 20%. So the VIX is 2.7 vowels above your one-month, at-the-money SPX implied volatility. In percentage terms, that's a 13.5% premium to the actual at-the-money vols for SPX.

Now the VIX Index will essentially always be above where S&P 500 at-the-money vols are because it includes a wide strip of options like the August 26 expiring 2,500 strike puts that are worth $0.35. They're about 40% out of the money.

Is it possible that the S&P 500 declines that much over the next month? Yes. Is it likely? No. But understanding that that's included in the calculation, that the VIX Index itself represents what's called a variant swap approach to pricing volatility. That's important.
Now from a listener perspective, I doubt that many of you have variant swaps in your portfolio. I also doubt that many listeners trade across the entire vol surface for a given month or across the term structure and need to offset that type of vega risk, but I could be wrong.

In my experience, most option users trade at-the-money or slightly out-of-the-money options. When Andrew and I were on the CBOE floor, somebody comes in to ask where vol in August options are, you would turn around and

tell them where at-the-money options were trading, not what we call the wings, the way out-of-the-money stuff.

Or when you talk to your risk manager, what happened with vol? What happened with the at-the-money? And then everything else sort of falls in line from that. Now I'm not knocking VIX. I worked at CBOE for years. It's a tremendous index, right? It changed the landscape. There's tremendous utility. That goes for both measures. So let's talk about some of those potential uses.

From a purely informational standpoint, a forecast for future volatility is useful. I think about analogies again, and the one that pops to my mind is the app I use on my phone regularly, the weather one. I value a forecast for the potential temperature a week from now or a month from now or five hours from now.

And I know that a forecast can change, that they're imperfect, but they're valuable. The shorter the time frame, the less uncertainty in the weather. But the forecast looking out 30 calendar days could change dramatically if weather fronts change. I'm not a weather guy.

That can and does happen in the markets. You think about February of 2020 when markets were making broad-based highs in mid-February. VOLQ was around 16. That means that those at-the-money options were pricing expectations for 16% annualized vol, looking ahead. And then things changed, right? And the Nasdaq-100 was down 28% a month later and VOLQ moved up to 78. It's a huge move. The forecast changed dramatically.

Now another key attribute for both the VIX index and VOLQ is that they're negatively correlated to the reference asset. And I think Andrew's going to show this visually when I finish up.

In other words, VOLQ tends to move up when the Nasdaq-100 moves down, and vice versa. And you can't trade either the VIX Index or VOLQ itself. But there are futures contracts that can be used to assume directional outlook for forward volatility and there are now option contracts that you can use to express an outlook or to hedge off some potential vega risk, OK?

I could go into the vega elements of the futures contracts. I don't think it's appropriate for this audience. But if there are specific questions on that, bring them up and I'll address it at the end. All right? Now this visual just sort of illustrates the key differences between the VIX and VOLQ in a visual way. On the right side you see the volatility skew for NDX options that expired a month after I took this snip, right? Like, those August 26 series.

Strikes are along that x-axis and implied volatilities run along the y-axis. The high end here is 45 and the low end is 25 for the Nasdaq-100. You see that both-- and then on the left-hand side you see the same sort of visual, same series expiry for the S&P 500.

And I mentioned that your VOLQ index focuses on that at-the-money option where the S&P 500 incorporates a whole bunch of index options. And I'm sort of using those pointers to show what options are included in both index, OK? And when I look at the left-hand side in the S&P 500, my implied vol scale goes above 100 and down to about 20, right? So that's index option skew visually. And understand that the VIX index incorporates a whole lot of that skew. It's a variance swap replicating approach, whereas VOLQ is that at-the-money volatility measure.

OK. So this is another one that Andrew could pull up if he cares to, but I want to look at how the VIX Index and VOLQ behaved in calendar year 2022 so far. Again, this is like a week and a half dated. But VOLQ tends to remain at a premium to VIX despite the VIX including out-of-the-money skewed options.

Why is that? Well, that relates to the higher realized volatility inherent in the Nasdaq-100 historically, relative to the S&P 500, OK? So the options price in potentially higher future volatility based on what's happened in the past because future volatility expectations are in some ways tethered to the recent past, and markets often expect or anticipate that the future, particularly the next month, will in many ways resemble the current environment. In some situations that's correct, and in some situations like February of 2020, the future is very different.

Now both the VIX and VOLQ tend to move in the same direction because the high degree of correlation between the Nasdaq and the S&P 500. They move up when the broad market declines, vice versa. The Nasdaq-100 has fallen by more than the S&P 500 this year, so it's probably not a surprise that as of a week ago, VOLQ was up about 54% relative to December 31. VIX is up 38%. OK. What do these index levels mean? A VOLQ index measuring 27.5% says that at-the-money NDX options with a month until expiration are pricing based on expectations for the Nasdaq-100 to move within a range of plus or minus 27.5% over the next year. It's an annualized expression.

Now it's a one standard deviation expectation, so there's a 68% confidence interval for those statistically inclined. If you have questions on that, let me know. OK. To this point, I've focused on the two indices. Not tradable. I've also spoken about forward volatility futures contracts like VOLQ, which are tradable. Nasdaq recently launched options on VOLQ and they're expanding the term structure there, which is super exciting.

It's a new product, but the screen markets are tight. I have been able to execute a few trades mid-market, which is something I always try to do. Your second and third month VOLQ futures are now available, and those corresponding options will be available very soon. I believe tomorrow, but don't quote me on that.

What's my point here as I move toward my conclusion? Maybe you should include VOLQ on your list of tickers, particularly if VIX is already something you track, and particularly if your portfolio looks like the Nasdaq-100. If you trade options generally, I think it's a valuable indicator. If you trade volatility specifically, it's arguably a must.

In my mind as the product develops, there may be opportunities from a volatility spreading standpoint like, what do I expect at-the-money Nasdaq vol to do relative to the S&P 500? As term structure grows, more expiries afford more opportunities for spreading precise risk management.

And in the few minutes I have left, I want to expound on one key difference or the couple key differences between index options and equity and ETF options. So index options like NDX, XND, NQX all track the Nasdaq-100. They have different notional values. The options on VOLQ as well as VOLQ futures likely receive 1256 status in the eyes of the IRS.

So I'm going to run through these three benefits of broad-based index options, which all of those should be included in when compared to ETF options. Three main things. They are cash settled.

What's that mean? No underlying shares are delivered if at-the-money option-- I'm sorry-- in-the-money options are held through expiration. You don't end up buying or selling an underlying. And there's not that requisite inflow or outflow of capital in your account, OK? Questions, ask them.
They are European-styled, so there's no early exercise or assignment risk. You can, of course, cover a position at any point when the markets are open ahead of expiration.

And then finally, perhaps most importantly, particularly to sophisticated traders are the potential tax benefits. I'm not a tax type. If you want to learn

more about that, read about Dan Rostenkowski. Read up on 1256 tax treatment. It's fascinating and it can be meaningful.

So we've talked about the fact that the Nasdaq-100 is arguably the best reflection of our economy because of its tech focus, thinking about whether your portfolio is more closely correlated to the Nasdaq-100 or the S&P 500. We have index options in a variety of sizes, from what I would deem the Costco size, the NDX, where there's a notional value of 1.3 million.
NQX, which is 1/5 the size of the big, so 250,000. And XND, which is like your 711 size, more approachable. Notional value of about 12,500 per contract, all tracking the Nasdaq-100. You have choices.

You now also have a growing number of choices for volatility trading and exposure. Vol measures are nondirectional. They can help you from a forecasting standpoint, so having these things on your screens can be helpful. That covers everything I hope to. If you want to communicate with our index options team, which I'll get to look at index options-- no space or anything-- @nasdaq.com. There's more information about VOLQ. Just go out there and find it or ask a question here and now in our couple minutes that we have left. Andrew?

**Andrew DiMarco** That was great, Kevin. Thank you so much. I want to do a quick screenshot and show that negative correlation that we have in the VOLQ versus the Nasdaq, what you can see up top. This is on our Active Trader Pro trading platform.
On the top chart you can see the VOLQ. On the bottom chart you can see the NDX. And like Kevin mentioned, the negative correlation. You can see that spike back when COVID hit in the VOLQ back here March, April-ish of 2020. And you can see the spike in the volatility and the drop in the Nasdaq. And again, thank you so much, Kevin, for the presentation.

**Kevin Davitt:** My pleasure. Thank you all.

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