***Special Episode*: The Rise of Retail Investing and Its Impact Across Market Participants**

Jake Siewert: This is Exchanges at Goldman Sachs where we discuss developments currently shaping markets, industries, and the global economy. I'm Jake Siewert, global head of corporate communications here at the firm. The retail investing phenomenon has really taken off and is accelerating. Perhaps that's best illustrated by the fact that 24 billion shares were traded across US exchanges last Wednesday, which broke the prior record set in October of 2008 by nearly 4 billion shares.

Today we have a special episode where we'll dive deep into the rise of retail investing and its profound implications for market participants. We'll hear from four guests across different divisions here at Goldman Sachs -- John Marshall, Head of Derivatives Research for Goldman Sachs Research will kick it off. Then we'll hear from Raj Mahajan, Global Head of Systematic Trading from our Global Markets Division. Greg Tuorto, a Portfolio Manager for Goldman Sachs Asset Management, or GSAM, the fundamental equity team there. And Lizzie Reed of the Equity Capital Markets syndicate desk in the firm's Investment Banking Division.

So we'll start today with John Marshall. As I said, he's Head of Derivatives Research to discuss what's driving the unprecedented surge in retail trading and what the impact has been on market dynamics. John, welcome to the program.

John Marshall: Thank you very much. Thanks for having me, Jake.

Jake Siewert: So there's been, John, a remarkable uptick in retail investing over the past year, particularly in the past few weeks, the start of 2021. And that's captivated the attention of the masses. I mean, it's even made its way to *Saturday Night Live*, so it's mainstream now.

So, just to kick us off, talk a little bit about the backdrop here. Give us a sense of how much of the US equity market is owned by individuals compared to institutions and how that figure has trended over time.

John Marshall: Yes, it's absolutely true that retail investors have become more active over the past year and that activity has broadly picked up over the past month. Households have direct

ownership of about 35% of the equity market. But most of this is long-term holdings that they don't trade actively.

There's limited public data on the precise size of retail investor trading, so that's why it's such a hotly debated topic. And we take a big data approach of analyzing every trade and every stock each day. And this helps us track the trend. What we find is that retail investor ownership through ETFs is growing very steadily, and this is really buy-and-hold activity in diversified vehicles. In single stocks, it's a little bit less clear how long the investors are holding these names.

Jake Siewert: Part of the story is that individuals own more of the stock market now than they have historically, but they're also becoming more active traders. Talk about that dynamic.

John Marshall: Yeah, absolutely. For the largest online brokers, the number of daily trades has tripled since 2019. But this has mainly been driven by a small portion of their customer base. These day traders are less than 10% of their customers, but they represent more than half of their trades. And the vast majority of retail brokerage customers still only trade a few times a year.

Now among these very active traders, most open and close their positions within the same day. So there's limited ongoing risk. On a big positive day, it could be that 52% of trades are buy orders, and 48% of trades are sell orders, which I think is a little bit different than how most people perceive retail flow based on what they've read on the Internet. I believe that they're picturing flow that is far less balanced.

Now, our analysis of small trades suggests that the dollar value of retail trading is up 85% over the past year. Of course, if the number of trades is up 300% and the value of those trades is up 85%, this suggests that the new traders are trading in smaller size than retail traders a couple of years ago.

At the same time, the volume of trading with institutional investors has also gone up. All traders are trading more. And retail investors now account for about 20-25% of the value traded in the market on an average day, up from about 15-20% a year ago. Now, in this broader perspective, we can see that retail investors are participating in this market rally, and that that level of participation is indeed accelerating.

Jake Siewert: So something that's caught the attention of

people is the use of options. Retail traders have been particularly active in the use of stock options on single-name stocks. Explain the impact of the options on current activity and how the use of options has evolved over time.

John Marshall: Yeah. Options have two interesting features that attract investors to them -- leverage and defined payouts. Now, investors in stocks can gain leverage by borrowing money through what's called a margin account. In this, a short-term loan from a broker is extended and the investor pays interest on that loan. Now, buying a call option can also be considered leverage, as the investor gains control of a larger quantity of shares than would otherwise be possible and pays an implicit interest rate and time decay for that option.

Now, the investor that buys the call option can lose their entire premium, but it also has the potential to make multiples of that premium if shares rise substantially. The access to leverage through options can multiply the buying power of any investor and can lead to activity in the shares market that exacerbates both the up and down moves as the market makers hedge the other side of the trade. This leverage combined with the subsequent hedging activity is why investors are particularly focused on options activity in single names.

Jake Siewert: If you really dig down, what do you think is driving the rise in retail investing? There's a lot of speculation and talk about the fact that people have more time on their hands during the pandemic, and they spend more time trading. But beyond that, what are some of the factors at play contributing to the rise and growth of retail investing?

John Marshall: Yeah, it's a great question, and I'm not sure there's a really neat answer to it. But retail investors from our studies, we know that they buy stocks when the stock market attracts their attention and when they have money to invest. Now, over the past year, the equity market has been unusually volatile, and the nature of the pandemic has driven some companies to rapidly expand and others to go bankrupt. The high volatility of the market means that investors that buy and sell at the right time have the potential for unusually large profits and of course unusually large losses.

Now, many investors try to avoid volatility through long-term investing in diversified vehicles like mutual funds and ETFs. But when investors see testimonials of others that have outsized returns, they're attracted to more speculative trading

strategies.

Now, the pandemic has had a diverse impact on individual finances as well. While many people are hurting physically and financially, some are working from home, as you mentioned, and they have more time on their hands. They're getting stimulus checks along with their normal paychecks and looking to make that increased savings productive. Now, they see zero-commission stock and option trades that have made it easier than ever to invest that money. And they look to trade stocks on the stock market.

Now, we think all of these items can play a role in the big increase in retail trading and its incremental increase relative to institutional investor trading.

Jake Siewert: Just in the last couple of weeks there's been an enormous amount of talk about regulation of retail trading apps and platforms. What do you expect to happen there? And what's next more broadly for retail traders in the market?

John Marshall: Yeah, well, I'm not going to comment or recommend any future regulation. I think that it's important to note that trading of stock and options by both individuals and institutions is highly regulated. Clearinghouses help to ensure that brokers and clients have enough collateral to cover their trades in stock and options. This helps to ensure that when a trade is made on an exchange that investors can trust that the shares or options will be delivered.

Now, when stock and options are highly volatile over a short period of time, it's in the interest of all market participants that these regulations are followed. While this can lead to situations where stock and option trading is intentionally slowed down, like trading halts when a stock drops too rapidly, these rules have developed over time to help ensure the markets function correctly even when they function a little slower than people would like.

Now, really the bottom line from our work is that retail investor activity is rising along with institutional investor activity. This activity is very focused in specific names. While most of their names are typically large companies, occasionally for a period of a few days or weeks, smaller names will grab the attention of investors. For the typical long-term fundamental investor in large-cap stocks, we don't see any concerns from the recent trends. But it's something that we're

watching closely and can clearly matter for more short-term oriented clients.

Jake Siewert: Alright, John, something to keep track of. Thanks for joining us today.

John Marshall: Thanks for having me.

Jake Siewert: We will now turn to Raj Mahajan, who works with the hedge fund community in his role as global head of systematic trading here at Goldman Sachs. Raj is going to talk about the knock-on effects that hedge funds are seeing as a result of the retail activity and how he expects market structure may change going forward. Raj, welcome to the program.

Raj Mahajan: Hi, Jake. It's good to be here.

Jake Siewert: So Raj, as I just mentioned, you work with the hedge fund community, which has been a target for some in the retail trading surge here. John mentioned that retail households own about 35% of the equity market. How significant is retail trading compared to hedge funds in the stock market?

Raj Mahajan: Yeah, it's an important distinction. So between ownership versus average daily volume, right now we estimate retail as about 20% of the average daily volume in US equities. And that's up from, Jake, about 10% let's call it a year ago. And so what drove that spike is zero commissions, the "work from home, more time to trade" theory. And so now you've got 20% of the volume is retail, and as we've learned from last week it can be far more coordinated.

Jake Siewert: Alright. So how does the retail investor interact with market makers? And how are those practices different from the way typical institutional investors transact in the market?

Raj Mahajan: They are indeed different. Retail orders are routed to market makers. And then market makers act as either internalizers, meaning that they may get a buy order from a retail institution and then they get a sell order and then match them up. And that's called internalization. Or they may route that order onto the US equity exchanges. And so that's unique, that's different, that's also governed by two other economic properties. One is payment for order flow. You've heard that in the press. Market makers pay retail for those orders, and

they also provide them with what they call price improvement.

Jake Siewert: Okay. So hedge funds that follow sort of long-short fundamental strategies were the ones that were most affected initially by the recent price action volatility and forced to cover some short positions. How does that affect the outlook for hedge funds that follow long-short strategies? And beyond that, are you seeing any impact in the systematic hedge fund community?

Raj Mahajan: The short answer is, yes, there's definitely an impact. And I'd say last week was historic in that the volume of activity that we saw around short covering was significant.

I think the bigger question now relates to the earlier questions about retail. Is if you're a hedge fund and you're engaged in the practice of shorting and that's part of your business model, you're running a long book and a short book and you're relatively balanced, you've had a certain view of how much risk any single-name short position could be. But what we learned last week is that the risk models didn't contemplate a 10x move in the short against you or a 20x move in the short against you. So I think what, for hedge funds, what this is triggering is, you know, how do I have to evolve my risk models to ensure that the shorts that I'm putting on are in fact I have figured out how bad it can run against me?

And that's one of the things that sort of jumps off the page when you start to look at this. And I think those are questions that are being asked in hedge fund circles right now, is how do we evolve the practice of shorting in light of what happened last week? And it's probably too soon to tell exactly how that's going to shake out.

Jake Siewert: All right, Raj. Well, we'll have you back in a few months, and we'll see how the landscape has evolved and what conclusions we can draw from this past month. But thanks for joining us today.

Raj Mahajan: No, it’s awesome. Thanks, Jake.

Jake Siewert: Next up we're going to switch gears to discuss the implications for investors who favor a more long-term approach. To do that I'm joined by Greg Tuorto, a portfolio manager in Goldman Sachs asset management focused on fundamental equity. Greg's going to talk a little bit on his perspective on the impact on the institutional investing community and what

comes next. Greg, welcome to the program.

Greg Tuorto: Thanks, Jake.

Jake Siewert: So in your role as a portfolio manager, you're obviously focused on longer term returns, but you can't help but have seen the impact in the mutual funds that you're managing of the retail boom. Describe the impact that retail trading activities had on funds and ETFs.

Greg Tuorto: Yeah, Jake, it's really interesting. My focus is on smaller cap companies, you know, those under, $15 billion in market value. And it's really unique because that's not usually where you see the interest from people focused in on. It's usually in some of the larger names, you know, some of the larger cap growth names which have been, you know, the stars of the market for the last few years have been where people expected most of the retail interest to be. So, you know, in the impacts that we've seen, it's been pretty interesting. It's, you know, been focused on a lot of the consumer names, especially some of the ones that have been seen as structurally challenged. Some prior to the pandemic and some because of the pandemic had increased structural challenges. And you watched a lot of those dynamics start to change.

And, you know, some companies had seen a bit of a recovery. Others had not. And it seemed to be that's more the ones that the retail dynamic had really been focused on. And for us, it hadn't been a real acute issue for the most part as, you know, we're on the growth side of things. And, you know, a lot of these companies had been really more classified in value, as they say. But it's something you had to pay attention to to make sure because the risks around you had started to rise. And the market is very interconnected, as you know. And you had to make sure that your risk vets that you were taking were ones of conscience, not vets of, you know, kind of just letting things sit out there.

Jake Siewert: So Greg, one thing that's been a little bit unusual about this rally is the speed at which individual investors have driven up the price of some of these stocks that you were talking about and certainly the role that social media has played driving that momentum. Describe for us the difference between that approach and the investment approach that an institutional investor like yourself takes.

Greg Tuorto: Yeah, it's been interesting. The social media

aspect of this reminded me of my, you know, earlier stage of my career in the Yahoo! message boards which people paid a lot of attention to back in the day. And it's been sort of a unique aspect as these people tend to share ideas and share their pitches, you know, which is the exact thing that they get upset, you know, with some of these hedge fund managers when they come on TV and talk about those things. So whichever way you're sitting, you know, the one dog goes this way, the other dog goes that way from a *Goodfellas* line in many of these instances.

And, you know, I think that the market has, especially in some of these smaller names, shown its inefficiency. And I think that that's something that we try to take advantage of in fundamental equities, especially on the small cap side. But I think that for a lot of these retail investors, these smaller investors, I think they're looking at it more along the lines of, you know, kind of a price equivalency, you know, which is a little bit different than what we do.

I think, you know, ours is more focused on kind of the revenue earnings and free cash flow of a company and what we can model out. And I think that, you know, sometimes when we see something that's sort of left for dead, as some of these names have been, you know, we leave it there. We don't pay a lot of attention to it. And I think that for them that was an opportunity. And I think that that opportunity created sort of that heat and noise, the *sturm und drang,* if you will, that really attracted more and more of them.

Jake Siewert: So some of the moves in the prices of individual stocks have been eye popping and somewhat reminiscent of the dot-com boom in the late '90s, 1990s that is. Do you see any similarities or differences between those two periods?

Greg Tuorto: I don't, per se, because I think that they were, you know, in many cases I think a lot of those companies that had those big moves were IPOs. And you had a lot of that dynamic where people really had that, you know, what we call now FOMO, the fear of missing out, was a big driver of those moves. I think today it's been more about the short interest and how short interest was utilized and weaponized by a lot of these retail traders, you know, to make sure that these names had bigger moves. And, you know, I think if you look through some of the different dynamics of some of these different companies that have had those eye-popping moves, you'd see that, you know, the short interest was large and in many cases lazy I think, you know, where people were kind of really grinding these things

into the ground as opposed to kind of saying, "Okay, the play is over; let's move on." And that creates a dynamic where risk starts to come into play if you're a hedge fund risk manager. You kind of let these things sit there, and you're making those bets without a lot of pieces behind it.

And I think that, you know, because of that and because of a relatively calm market kind of coming into earnings we had a period where, you know, the markets are relatively calm. People are waiting for new news. There wasn't a lot going on. You know, these things tend to be sort of the prototypical very dry tinder waiting for a match to ignite them.

Jake Siewert: So Greg, it strikes me that retail participation is obviously a big factor now in certain stocks. Is the extent of retail participation a factor that you look at when you're deciding how to value a particular equity?

Greg Tuorto: I think it's something we're all going to look at a little bit more closely going forward. I think in the past, you know, you had looked at their participation, retail participation at some of the larger companies. But as it was around the smaller companies, you really didn't look for retail participation because the volumes weren't as large. You know, the market caps weren't as large. You didn't really think that that was something you had to pay attention to or worry about.

And I think that as we move forward, it's going to be something that we're all going to be looking for alternative sources of data. You know, multiple sources of truth around this to make sure we understand, you know, what percentage of the flow, what percentage of the ownership, like we'd look for any other company, is in the retail space. Not because it's a longer term or shorter term. Just to be informed and understand, you know, what part of the valuation is actually driven by that dynamic and what it may mean for the different performance characteristics a stock may hold when it reports earnings, when it does a merger, or when it does an equity offering or something like that.

Jake Siewert: Alright. Thank you, Greg, for that explanation and pleasure to have you on the program.

Greg Tuorto: Thank you, Jake. It was fun.

Jake Siewert: Last but certainly not least, we are going to talk to Lizzie Reed, who works in our Equity Capital Markets

syndicate desk in the Investment Banking Division. Lizzie's going to talk a little bit about what the robust retail activity means for corporate clients who are looking to issue shares and how she sees current market dynamics having an impact on issuance this year. Lizzie, welcome back to the program.

Elizabeth Reed: Wonderful. It's great to be back.

Jake Siewert: So Lizzie, given everything that's going on with the markets with regard to retail, what are you saying to corporate clients? What are they asking about right now? And what kinds of questions are CEOs and their boards asking?

Elizabeth Reed: So it's our job to advise companies on capital structure and, importantly, help them achieve their objectives in the scope of the current financing conditions at any point in time. So naturally, given what we're all observing in markets in the past week or so, we've received inbounds from corporates, the sponsor and VC community, as well as institutional investors.

Some of these inbounds are specific to corporates who have been impacted by recent retail trading activity. And we work closely with them across their capital structure and within equities across the full suite of product offerings. While other inbounds are more generic in nature.

A common question we're asked is: How long will this technical last within the markets? And what is the long-term impact? And quite frankly, Jake, there are still a lot of earnings to learn from and the market remains very, very fluid. The one thing we are telling all of our clients is retail flows and retail sentiment is something that we will all have to closely monitor in the coming weeks and months.

Jake Siewert: So obviously we're all seeing a lot of activity in capital markets, but is the retail activity having an impact on the way companies raise money in the equity market? Or is it just a timing issue? Or is there more of a dynamic just for the companies that are already trading?

Elizabeth Reed: So to put some context around that, January of 2021 was the largest January in history for equity-related capital market offerings. January's global volumes were 129 billion. That's up 150% plus year over year. And within Americas, the region printed $63 billion of issuance. So while last week's headlines firmly resulted in increased market

volatility really measured by the VICs, new issue offerings continue to be met with strong investor demand. This is reflected in the absolute volumes issued, pricing dynamics, and the average after-market performance.

The retail investor has been an increasingly important part of the market, specifically in 2020. And we expect them to be very active in 2021. While we remain mindful of the recent trading technicals, we believe the equity markets remain supportive with strong underlying fundamentals. So from our seat, we remain focused on the after-market trading impact of the retail investor, whether that's an existing public company who's looking to raise equity proceeds, a sponsor or a VC who's contemplating monetization strategies, or a private company who is going public.

Jake Siewert: Alright. So so far activity begets more activity. Before we close out, let's look ahead. How do you see the current market dynamics having an impact on issuance windows going forward?

Elizabeth Reed: So all the themes, Jake, that we highlighted in the second half of 2020 continue to ring true. So an accommodative Fed policy, the support of local governments, vaccine optimism, a low interest rate environment, and importantly positive inflows into the equity asset class during the start of a strong earnings season. With all of these combined, we view the window for issuers remains open, and we anticipate activity levels to remain robust throughout the course of the year.

Jake Siewert: Alright, Lizzie. Sounds like you'll have a busy year ahead of you. Thanks for joining us today.

Elizabeth Reed: Thank you very much, Jake. I appreciate it.

Jake Siewert: Alright. And thanks to our guests as well, John, Raj, and Greg. Fascinating discussion. That concludes this episode of Exchanges at Goldman Sachs. Thank you for listening. And if you enjoyed the show, we hope you subscribe on Apple Podcasts and leave a rating or a comment. And please tune in later in the week for our weekly markets update for more on the latest in markets.

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Thanks for listening.

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