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Around the Markets

Bad Education

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Have Investors Been Getting a Bad Education?

As students return to the classroom, either virtual or real, we thought it an opportune time to reflect on the "education" that investors have been given by the financial markets so far in 2020. We find that many lessons being taught by asset prices today differ sharply from time-tested rules that have driven investor behavior in the past. We fully acknowledge that 2020 has been anything but a "usual" environment. However, it's worth examining whether the old rules of the road still apply and current imbalances should revert to more normalized relationships, or if the pandemic-induced market is establishing a new paradigm for investors.

A Global Pandemic Should Reward Defensive Positioning

It seems like a long time ago but it was only this past spring when the S&P 500 Index fell 34% within a six week span – the fastest ever fall from a record level (set on February 19th) into a bear market.[1] During that fall in stock prices, businesses shut down, causing millions to become instantly unemployed, the COVID-19 virus was causing widespread panic buying of essential goods, and hospitals become overwhelmed by the severity of illness spreading across the country. Normal investor reaction would be widespread selling of particularly risky assets and a buildup of cash, gold and the ultimate defensive security – US Treasury Bonds.

To some degree, investors behaved normally. In March and early April there were large inflows to cash funds. And although gold sold off in the March market rout, the last week of that month saw the second largest inflows ever into the metal.[2] But Treasuries were never loved, and in fact, saw large net redemptions in the latter half of March as interest rates collapsed.[3] Even during this tumultuous time, however, investors continued to buy technology stocks, with net inflows to the sector every week during March and April.[4] Later in this report we address the reason that Technology stocks comprise ever larger weightings in portfolios, but for now we address the fact that Technology won the battle for investor dollars early in the pandemic.

Are Technology Stocks Defensive?

The stimulus provided by the Federal Reserve and Congress had a dual effect on investor behavior, in our view. As the Fed purchased Treasury and corporate bonds, it drove yields, particularly on Treasuries, to such low levels that investors deemed them unattractive and sought higher yields elsewhere. Further, the rescue plan gave many investors confidence that Washington would continue to bail out financial markets no matter how bad they sold off resulting, in part, to continued investment in riskier assets.

Some analysts have argued that Technology stocks have become the market's new defensive sector– able to perform relatively well even when the economy languishes and the market outlook is grim. We agree that products and services from selected Tech stalwarts such as Microsoft, Amazon, and Apple were highly sought during the early stages of the stay-at-home phase. As these companies were generally able to deliver under pressure, investor confidence grew stronger. But we are not quite ready to anoint the entire sector as defensive just yet.

It is important to keep in mind that in this pandemic, products and services offered by Technology stocks helped solve the challenges of many who were instantly forced to stay at home. The fact that video conferencing and cloud-based file sharing became

[1] Bloomberg, 9/22/2020
[2] Bank of America, 4/2/2020
[3] Bank of America, 4/2/2020
[4] Bank of America, 4/30/2020

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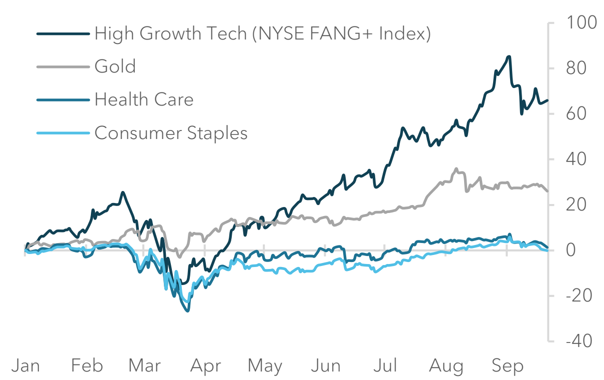
overnight necessities does not imply that the sector is defensive. For one thing, many stocks in the Technology sector are vulnerable to obsolescence and rapidly changing preferences, and many operate in highly competitive, relatively nascent industries. Because of this, technology-related stocks can have a high degree of price volatility. And most Tech stocks do not have attractive dividend yields – a feature that equity investors often value as a cushion to stock prices during market sell offs.

High Growth Tech Stocks vs. Defensive Assets[5]

(%, year-to-date total returns)



Traditional defensive sectors – Consumer Staples and Health Care – wore that label well during the market decline in February and March, with peak-to-trough returns of -24% and -28% respectively vs. the market's -34% return. Utilities, once considered defensive, did not fare as well and were down 36% during the same period.[6] But investors were quick to put their worries behind them. The equity market's rapid recovery, led by Technology stocks, unveiled the dichotomy between a rising stock market and deteriorating economic conditions.

The Market's Tug of War Between Fundamentals and Liquidity

After the bear market bottomed on March 23rd, it took the S&P 500 Index only 103 trading days to set a new high on August 18th – the fastest recovery ever.[7] The most startling part of the rapid upward move in stock prices was that it came in the midst of one of the worst economic declines in US history and the worst-ever drop (-32%) in S&P 500 year-over-year earnings growth.[8] Bank of America writes that from the onset of COVID-19 in mid-February through mid-August, the only thing that mattered to stock prices was flows; liquidity has been five times more correlated with Russell 1000 Index daily performance than have fundamental factors.[9]

This contrasts with what Investors have been taught for years: that fundamentals matter a lot. After all, stock prices should reflect expectations for future earnings, so prices often move in anticipation of earnings yet to come. This, in fact, is the optimists' justification for the market's rise during a severe decline in corporate earnings and record decline in GDP growth. Bullish analysts say that lofty valuations, particularly for Tech stocks, are justified because equities are looking beyond this year to 2021. They believe that by then the virus will be behind us, a vaccine will exist and earnings will stage a powerful comeback. And in the meantime, the Fed will provide ample liquidity in case there are roadblocks on the path to recovery.

Analysts are indeed bullish on 2021 S&P 500 earnings per share. Their aggregate estimates, as compiled by FactSet and as of September 18, are \$165 for year-end 2021 vs. \$131 for 2020 year-end.[10] That is above the \$161 earned by companies in the Index in 2019. It seems reaching to us, and certainly relies on a speedy and smooth re-opening of the economy. After all, earnings only recover to pre-COVID levels if the service economy recovers.

[5] Bloomberg, 9/21/2020
[6] Bloomberg, 9/21/2020
[7] The Wall Street Journal, 9/15/2020
[8] FactSet, 9/21/2020
[9] Bank of America, 8/13/2020
[10] FactSet, 9/21/2020

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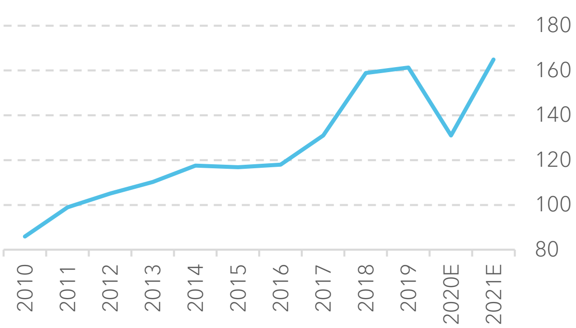
And that means back to business-as-usual for a host of companies that currently remain shuttered.

S&P 500 Calendar Year-End Earnings per Share[11]

($, consensus estimates for 2020 and 2021)



Nonetheless, if investors have confidence that the economy will recover soon, what does this say about the resilience of "stay-at-home" beneficiaries? Will consumers stop buying Peloton bikes and laptop computers once workers return to offices, students return to classrooms and life gets back to normal? Or has the market engineered a "new normal?"

Until recently, the market generally and Technology stocks specifically showed few vulnerabilities, rising to all-time highs in the past few weeks, with only minor pullbacks over the past six months. It seems illogical that bullish investors would be willing to pay for stay-at-home beneficiaries, many with stretched valuations, if they believe that economic recovery is around the corner. Cyclical stocks are generally cheaper, and their performance is more directly correlated with economic activity. Recent chinks in the tech armor may indicate that investors are beginning to focus on other market sectors that are likely to have greater upside as the economy rebounds.

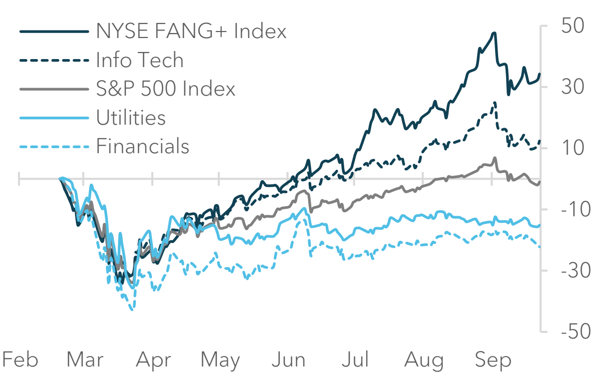
Investor Behavior Holds the Key

It has been dramatically evident how much the dynamics of the US stock market this year have been dominated by the propensity for winning stocks to keep winning and losing stocks to keep losing. Several elements, some of which we mentioned earlier, help explain the stark and growing divergence in performance among US stocks. Businesses in industries such as e-commerce and cloud computing have benefited massively from the stay-at-home pandemic environment. Near-zero interest rates have had an outsized impact on the valuations of high growth stocks. In addition, the uncertainty around the path to recovery has driven investors to "defensive" companies with strong balance sheets and resilient revenues. For five months straight, the pendulum swung one way.

Then September came. Technology stocks, after a relentless rally, suffered brutal losses. The NYSE FANG+ Index declined nearly 8% month-to-date.[12]

Cumulative Returns Since February Market Peak[13]

(%, total returns from February 19th to September 22nd)



Meanwhile, as of September 22nd, US value stocks, which include many cyclical names that sold off heavily in March with only modest retracements

[11] FactSet, 9/22/20
[12] Bloomberg, 9/22/2020

[13] Bloomberg, 9/22/2020

since then, are poised for the best month of relative returns versus growth stocks since September last year.[14] All instances of value/growth rotations in 2020, including this one, have been short-lived. It remains to be seen when we will see a persistent revival of value.

To see forward, we must first understand the past. A lesson that we were taught repeatedly in school is that good behavior is rewarded and bad behavior is punished. Unusually, neither happened in 2020 – we will elaborate more on this later in the report. The concurrence of investor behavior shifts and extreme performance divergence within the US stock market in the past six months seem to be strongly related. To decipher the underlying dynamics, we follow the pendulum.

Market Prices Are Determined by Investor Behavior

Imagine a pendulum. A metal ball suspended from a fixed point by a string. When given a push, the pendulum gains speed and swings away from its equilibrium position. The stronger the push, the further the pendulum travels. Eventually, as momentum is exhausted and tangential gravity force takes over, the pendulum reverses and accelerates in the opposite direction. Back and forth, the pendulum swings, oscillating about its equilibrium position.

Think of the price of a stock as the location of a pendulum that is in motion. The intrinsic value of the stock, naturally, corresponds to the pendulum's equilibrium position. Note that intrinsic value is not observable to us, otherwise a stock would always trade at the same price level.[15] Nonetheless, investors can have an opinion on what they think the intrinsic value of a stock may be. Market prices, therefore, reflect a collection of millions of market participants with diametrically opposing views, each applying their own force on the pendulum, pushing it in the direction where they think future prices will go.

Effectively, prices are driven by investor behavior. Investors, however, are not always rational, let alone correct. A transaction only occurs when the buyer and the seller have opposing views on the value of the stock. Both cannot be correct. In addition, many studies have found that variations in stock prices are too large to be justifiable as reflections of changes in intrinsic values of underlying companies. Behaviorist and Nobel laureate Richard Thaler referenced the Black Monday 1987 stock market crash as an example, "I don't think anyone thinks that the value of the world economy fell 25% that day."[16] Such market dynamics stem from the tendency of investor psychology to fluctuate between euphoria and despair. Consequently, stock prices often swing from extreme highs to extreme lows, deviating significantly from intrinsic values.

It may be tempting to look past fundamentals when the market is moving momentously in one direction. Over time, however, stock prices fluctuate around intrinsic values, just like an oscillating pendulum, so a pendulum at its apex will eventually reverse toward its equilibrium position. This is why although the future price of a stock (where the pendulum will travel) at any given time is unpredictable, prudent investors may use fundamental analysis as well as data such as revenues, earnings, and potential for future growth to develop their estimates of the intrinsic value of the stock, which can act as a signpost for their expectations of future prices, informing the investors on buy and sell decisions. The more rational, scrupulous, and experienced investors there are in a market, the more economically efficient the market is likely to be. The US stock market is not economically efficient, as evidenced by bubbles and crashes, which are the results of

[14] Bloomberg, 9/22/2020
[15] Intrinsic values are not observable with one exception where a company is worthless. In this case, intrinsic value of the stock is known; it is zero.
[16] Chicago Booth Review, 6/30/2016

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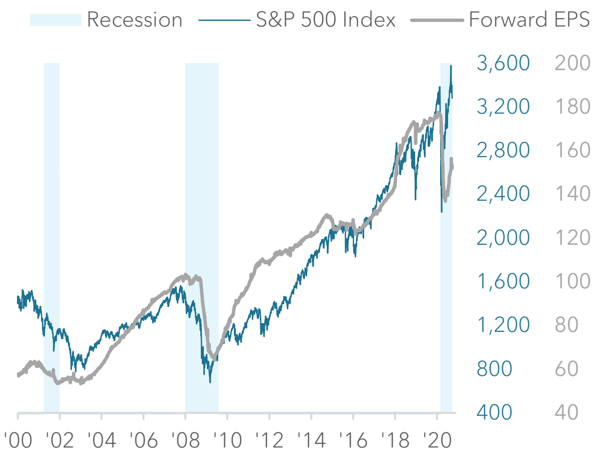
extreme divergence between stock prices and intrinsic values.

The S&P 500 Index vs. NTM Earnings per Share[17]



Lately, we have been hearing the question as to whether we are heading into a second dot-com bubble. Market participants are increasingly wary of the lofty valuations of technology stocks. Because of the unobservable nature of intrinsic values, we cannot state with certainty that the market is heading towards a bubble. Nonetheless, we have an inkling. There are clear signs that market inefficiency has increased in the past few months.

Who Is Pushing the Pendulum?

The Robinhood Movement Has Clout

In just a few months, retail (i.e., individual) day traders have become a force to be reckoned with.

When the S&P 500 Index plunged 34% within a month and a half this spring, many institutional investors rushed to cut equity exposures.[18] Unexpectedly, retail trading soared. At first, many viewed the pickup in retail activity as a curious phenomenon, sparked by the unique combination of mass layoffs, isolation, boredom, government benefit checks, and extreme market moves, and further boosted by the timely structural changes such as zero commission and fractional share trading. Initially, stories about retail investors mainly focused on the speculative- and potentially irrational-aspects of their behavior, e.g., piling into shares of hospitality-related businesses and even bankrupt companies in hopes of jackpot returns. Increasingly, however, it has become clear that the continued popularization of investing during the pandemic has created a new breed of retail traders, much more influential than their predecessors have been.

We believe that investors' past experiences significantly shape their investment beliefs, e.g., future return expectations and risk tolerance. According to Robinhood, more than one-half of its new users are first-time traders. The perceptions of market dynamics by these novice investors are largely derived from what occurred in the past few months, a period during which the US stock market went on an unprecedented winning streak, swiftly reversing one of the sharpest, most catastrophic market crashes in history.[19] This unique market environment in 2020 has given birth to a new breed of market participants, some who carry an untested optimism on prospective equity market returns while others a bold willingness to take on outsized bets.

The effects of crowding have further reinforced the conviction by many novice investors that stock prices only go up, and that a selloff is not to be feared but rather an opportunity to "buy the dip." Retail investors tend to favor single stock trading over index trading. Maybe it is the increased availability of information and opinions shared on social media platforms. We have seen strong evidence of crowding among retail investors, who simultaneously buy into a small group of favorite

[17] Bloomberg & FactSet, 9/22/2020
[18] Bloomberg, 9/22/2020
[19] Bloomberg, 9/22/2020

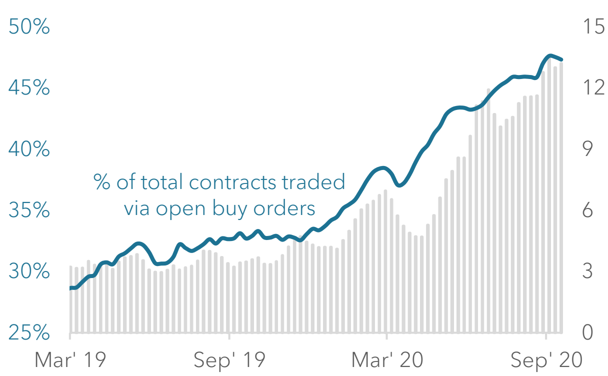
stocks and drive up valuations in a significant way. Videos with #stockmarket have garnered nearly half a billion views on TikTok.[20] Day trading is what the cool kids are doing right now. And their preference for stocks that have performed best in recent months (many are technology stocks) as well as their sustained, elevated levels of enthusiasm have powered big moves in some stocks and had a profound effect on market leadership.

The days of dismissing retail investors as having no clout are over. The rising influence of the Robinhood movement is a result of not just the members' active trading volume and their tendency to act in unison, but also the explosive surge in high-octane option trading among retail day traders. Based on data by the Options Clearing Corporation (OCC), the volume of small buy orders (i.e. fewer than ten contracts) on single stock call options has nearly quadrupled since the beginning of this year. Retail trades now account for nearly 50% (measured by the number of contracts) of buy orders on single stock call options, as shown in the following chart.

Single Stock Call Option Volume via Small Orders[21]

Weekly Contracts via Open Buys (4-week rolling avg, millions)

(Small orders = orders with fewer than ten contracts)



The rapid rise in retail option trading is the result of a combination of increased accessibility via trading platforms such as Robinhood as well as retail investors' willingness and desire to often take on outsized, leveraged, speculative bets to maximize potential upside. As the euphoric, fearless Robinhood movement piled into short-dated, out-of-the money single stock call options that expire within days or weeks, market makers such as Citadel and Susquehanna, who are on the other side of these trades, needed to offset their risk by buying significant amounts of the underlying stocks, lifting market prices, encouraging even more bets, and thus creating a bad self-fulling prophecy.

The Vanishing Short Sellers

The stronger presence of unsophisticated retail investors, in a normal environment, should create profit potential for other market participants, e.g., professional money managers such as hedge funds, who are generally more thoughtful with intrinsic value estimates and can express their views via both long and short positions.

As retail trading activity dramatically increased in the past six months, short interest as a percentage of the total US market, however, declined steadily from 4.2 in March (the same level as in October 2019) to 3.6 in August.[22] While some may attribute this to the general improvement in investor outlook, a collapse in short selling activity has been most notable in the parts of the market where valuations have reached uncomfortably lofty levels. For example, Tesla stock, which has garnered overwhelming enthusiasm from retail investors and seen a surge in call option volume, has appreciated in price by about 500% since mid-March. The magnitude of losses that short sellers of Tesla endured this year is extraordinary. It is no wonder that the aggregate short interest on Tesla as a

[20] www.tiktok.com, 9/22/2020
[21] Options Clearing Corporation (OCC), 9/18/2020
[22] Bloomberg, 9/22/2020

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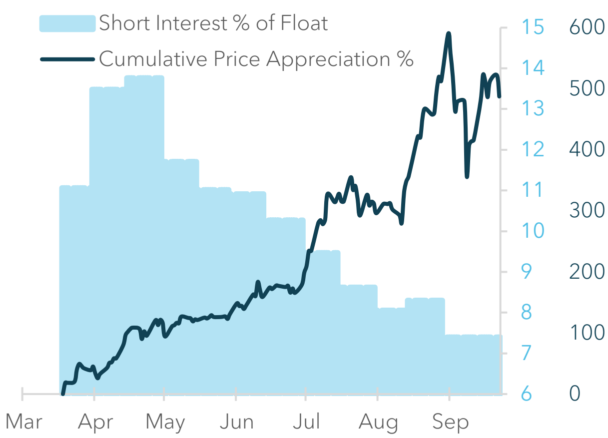
percentage of shares outstanding have nearly halved.

Tesla Stock Price vs. Short Interests[23]

(%, price returns since March 18th)



Intuitively, for short sellers, all else being equal, the more expensive a target stock becomes, the more "mispriced" it appears, thus the more profitable it would be to sell the stock. However, the significant upside skewness of some technology stocks have made it difficult for short sellers to position themselves against names that they believe have risen too much. Many hesitate to stand in the way of a pendulum with so much momentum, prioritizing their own survival over positive expected long-term returns. Many short sellers have shied away. This is significant as short selling, despite often being demonized, is widely acknowledged by academists and practitioners alike as an important element in the financial markets by promoting more efficient price discovery. As short sellers shy away from expressing their views, stocks can become overvalued, reinforcing the self-fulling prophecy that frenzied retail day traders have manufactured. With fewer opposing market participants standing in its way, the pendulum can now swing even further before eventually reversing.

Long-Only Active Investment Managers:

The Market Has Not Rewarded Diversified Portfolios

With the popularization of ETFs and passive mutual funds, it has been a tough decade for long-only active portfolio managers.

Long-only active managers aim to outperform their benchmarks via superior stock selection – overweighting stocks that they believe will outperform the market over the long term and underweighting or simply not owning the other names – a difficult task in markets such as US large cap. Proponents of active management have argued that active managers who allocate more capital to companies that they perceive as underpriced relative to their intrinsic values and less capital to those that appear overpriced play a critical role in keeping markets economically efficient.

The rise of the Robinhood cult, compounded by the exodus of short sellers, has made things even more difficult for US large cap growth managers, whose performance is measured on a relative basis against benchmark market indices. These managers are now trapped a vicious cycle. The top five names in the S&P 500 Growth Index (i.e., Apple, Microsoft, Amazon, Alphabet, and Facebook) now account for over 36% of the index, following strong returns of mega-cap technology stocks relative to others in the index. Their combined weight was 32% at the beginning of 2020.[24]

The more that active managers believe the pendulum has swung too far from the equilibrium position for the mega cap names, the more constrained their ownership becomes. As the prices of the mega cap stocks have risen faster than the

[23] Bloomberg, 9/22/2020

[24] Bloomberg, 9/22/2020

rest in 2020, their market cap weights have increased. It requires a strong conviction and/or a willingness to potentially suffer significant underperformance for active managers who choose to not own stocks such as Apple, knowing that the pendulum can keep swinging the same way, given the remarkable shifts in market participant behavior. What we have seen is that many US large cap growth and core managers have adjusted their behavior, prioritizing short-term performance (i.e., not underperforming the benchmarks) over doing the right thing (i.e., maintaining portfolio balance).

Although behaviors such as looking past fundamentals and chasing past winners are evident with novice day traders on platform such as Robinhood, the growing influence of this group of market participants coupled with the "caving in" by professional investors (e.g., hedge funds, long-only active investment managers) have collectively led to a less efficient stock market, where fewer and fewer players pay attention or act upon the increasing gap between valuations and fundamentals of certain stocks, with the understanding that the winners will keep winning. This is not a sustainable equilibrium. Eventually, the pendulum will swing back.

The Pendulum Swings Back

Investment firm Goldman Sachs' prime brokerage data suggests that the sharp reversal in technology stocks in early to mid-September was triggered by hedge fund repositioning: retreating from the summer's best performers and adding cyclical stocks.[25]

For some of the technology names, it has become increasingly difficult to help justify the continued rise in valuations. As the economic recovery continues, naturally the breadth of the equity market should improve. Cyclical stocks, whose revenues and earnings depend strongly on the strength of the economy, tend to outperform during early market cycles. As tech stocks soared in the past few months, the relative valuations of many neglected cyclical names became more attractive. Although it may seem that the majority of market participants have crowded into technology stocks, the retail day traders may be the only true believers. Most other market participants are only acting along (or not acting against) half-heartedly, waiting for the right moment to strike.

Many institutional investors still perceive the risk and reward of retreating from technology stocks and rotating into cyclical stocks as quite skewed. Not only do these investors need to consider the risk that the economy takes longer than expected to recover but also the additional risk that the prices of technology stocks continue to soar – many investors suffered painful opportunity costs of not owning (or, even worse, betting against) them. Eventually, however, a pendulum cannot keep swinging in one direction. The further it travels away from its equilibrium position, the harder it has to fight against the growing tangential gravitational force. With many market participants ready to switch sides, we believe that the reversal – when it eventually happens – will be powerful.

During the dot-com bubble, retail investors were the last ones to exit. Over the course of the year 2000, as the stock market began its meltdown, individual investors continued to pour into US equity funds. Day trading activity was the most aggressive at the very moment the bubble was at its height and the smart money was out.[26]

This time is not likely to be different.

[25] Bloomberg News, 9/21/2020

[26] TED Talk, 12/4/2018

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