



2021 Stock Market Outlook

Introduction

Thank you for purchasing the 2021 Market Outlook.

I hope this 2021 outlook can serve as a resourceful guide all year to target best in class names in these industries when trends are favorable. I do not expect you to blindly follow the ideas presented in this report as every investor has his/her own style of investing, different risk parameters and timeframes, as well as each individual's personal outlooks that may differ with my views. The goal here is to open your eyes to names I favor in 2021 for various reasons, a guide to some key trends and themes in investing, and likely introduce you to some exciting stocks that were not on your watchlist as I have always thrived in discovering under-followed stocks that become superstar performers.

The best piece of simple advice is to buy stocks in quality companies growing both the top and bottom line in attractive industries with positive tailwinds for growth. Quality meaning companies that have consistently exceeded earnings expectations in previous quarters, strong management, positive margins and efficiency ratios (ROE, ROA, ROIC), and healthy balance sheets. Attractive industry meaning an industry showing growth that has meaningful available market remaining, being involved in the secular shifts seen in economies. The 2021 themes section of this report will be helpful for finding those industries. It is important to learn sector specific ratios which I try and present in more detail in the Sector Breakdowns section.

I did a post a few years ago this on the 7 classes of great investments to pay attention to and that includes pure revenue growth stories in growing markets, sustainable MOAT, market share takers and disruptors in large TAMs, product mix shift and margin expansion stories, accelerating growth causing multiple re-ratings, new product and replacement/upgrade cycles, and consolidator stories with synergies and growth.

I do not expect you to enter all of these names on day one of 2021 and sit and wait, instead, be active and strategic in entries/exits whether taking a fundamental or technical approach, or even better, a combination. Paying attention to options flow has single-handedly been the greatest tool allowing me to succeed in markets, and something we provide insight on every day at OptionsHawk. One fairly simple rule I like to use is to avoid longs in names where the 8 week EMA has crossed below the 21 week EMA, and vice versa for shorts, it will keep you on the right side of the trade more often than not. Each name mentioned in this report should also be researched further as these are brief views as I am a firm believer that less is more, and you should be able to lay out an investment thesis concisely, but more in depth due diligence always adds value and confidence to the view.

At OptionsHawk we perform fundamental, technical, ownership trends, and options activity analysis while also discovering the likely catalyst for a move, and when all of these individual analyses give the same signal, it is a worthy trade/investment. If you are interested in receiving daily research and live market coverage from OptionsHawk, please visit the website at OptionsHawk.com. For those interested in having accounts managed I recently started a new venture at Relativity Capital where I will be providing my services for stock selection, portfolio management, and risk management. For further details please visit RelativityCap.com.

Thank you again and I hope you enjoy this year's report, it is the most extensive to date. Best of luck to everyone in 2021!

Table of Contents

- [2021 Investment Themes](#)
- [Q1 2021 SPAC Preview](#)
- [Insider Trading](#)
- [OptionsHawk Notable Insider Database](#)
- [Hedge Fund Activity Review](#)
- [Biotech Preview 2021](#)
- [Seasonality](#)
- [Technical Momentum into 2021](#)
- [Large 2021 Options Open Interest Positions](#)

2021 Investment Themes

*In this section, we'll look at general market themes which will be prevalent in 2021. A lot of the individual names and market opportunities are covered in the sector breakdowns, so this area will focus more on the current status of the underlying theme, potential market size, and drivers going forward. There are obviously many themes that don't get discussed here and we'll tackle many of these throughout the year at OptionsHawk. There are big, broad themes like 5G, AI or IoT that impact a multitude of other themes as well. We could write 20+ themes within tech alone like collaborative work, online education, cloud security, deep learning, and more. **What we tried to do in this section is give a broad look at every sector and some key growth themes within each.***

*I believe that underlying many of the biggest growth stories in the market are four pillar themes: **health and wellness, connectedness, automation, and sustainability**. The COVID-19 pandemic accelerated many of these themes last year and the gaps between forward-thinking, generationally significant themes and those losing favor is greater than ever before. We hope to highlight the many of the ways in which these four themes touch every sector.*

A lot of themes in 2021 will be continuations of those we covered in 2020 but continue to exhibit strong growth.

Table of Contents

AI-Driven Drug Discovery (Top Pick: SDGR)	Additive Manufacturing (Top Pick: SSYS)
Digital Fitness (Top Pick: PTON)	Residential Solar (Top Pick: SPWR)
Data Centers (Top Pick: DLR)	Edge Computing / CDNs (Top Pick: NET)
Precision Agriculture (Top Pick: DE)	ESG (Top Pick: MSCI)
Home-Based Care (Top Pick: AMED)	Telehealth (Top Pick: TDOC)
Online Auto Sales (Top Pick: CVNA)	Aluminum Shortages (Top Pick: CSTM)
Industrial Automation (Top Pick: ZBRA)	Hydrogen / Fuel Cells (Top Pick: BLDP)
Obesity (Top Pick: NVO)	Digital Wallets (Top Pick: SQ)
Next-Gen Gaming (Top Pick: EA)	Wind Energy (Top Pick: TPIC)
Robotics in Surgery (Top Pick: ISRG)	

AI-driven Drug Discovery

Drug discovery using artificial intelligence is a potentially transformative move forward for big pharma that will help cut down costs, improve efficiency of clinical trials, and aid in the development of more promising drug candidates. The quickness with which COVID spread highlighted the need for faster, more efficient clinical trials which can literally mark the difference between life and death for patients.

Drug development is a long process with the average duration from conception and lab-testing to FDA approval between 10 and 15 years. Successful or not, drug development that long is expensive. In 2019, the average cost to pharmaceuticals to develop a single drug was \$2.6B according to Tufts University and the discovery phase is the most costly element with around one-third of all costs overall. Scientific American noted in early 2020 that the top 10 pharmaceutical companies in the world spend roughly \$80B a year on early-stage drug discovery.







Most drug concepts fail, also, with the success rate for the industry around 10%. Concerns over safety and effectiveness in later-stage trials can also reduce that number with an NBC report in 2019 noting less than 1% of experimental drugs make it to market. But, AI-discovery has shown early potential to cut that number significantly. Traditional drug discovery often starts with chemical analyses in test tubes and clinicians running a lengthy series of tests with other drugs to find compound similarities. Early hypotheses are then taken to mice to be tested where about one-third move forward. The rest go back to the start. And, unfortunately, some specific issues like toxicity only show up when you get further along into human trials. These challenges have lengthened the time to market for new drugs as well with Tufts noting that the average is now 12 years.






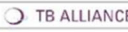
AI-driven drug discovery uses machine learning to process hundreds of millions of data sets using both machine learning and deep learning. The latter can take unlabeled, raw data and generate cell comparisons. For example, a company could be looking for specific patterns that align with a basic protein inhibitor. Using AI they can sort through millions of cells to find just those specifically that correlate with that specific protein inhibitor. Incompatible or toxic compounds are easily eliminated during the process before any lab testing occurs. Bristol Myers reportedly used AI-development in 2018 on a CYP450 inhibition trial that boosted the accuracy of their predictions to 95%.


AI has wider use cases as well in biopharma including designing better biomarkers and repurposing existing drugs or late-stage drugs that have failed in one indication. This makes the global market for AI drug discovery large and expanding. Given the cost savings, Grand View research estimates the market should grow to around \$3.5B by 2027, expanding at a CAGR of 28.8%. Oncology is the largest segment currently in use but infectious diseases are expected to see the largest growth of 31.4% by 2027.

There are a number of companies doing this work including privately held BenevolentAI and Cyclica. Merck and Bayer have partnerships with the latter. AbCellera is targeting an IPO in 2021. Large-cap pharma like Pfizer, Glaxo, and Novartis are all developing programs as well. Glaxo has a partnership with another private firm called Exscientia.

Top Pick: Schrodinger (SDGR) is the best public-facing way to invest in the theme. SDGR has developed a drug-discovery platform that is licensed and utilized by many pharmaceuticals for development. The SDGR platform uses machine learning to accelerate evaluation of chemical matter in silico and suggest further tests for the most promising compounds. They can evaluate molecules in hours rather than weeks and they can do so at scale with over 1B per week under review versus just a few thousand per year. The company signed a multi-year drug discovery deal with BMJ in November. The companies are aiming to advance small molecule therapeutics for targets in oncology, immunology and neurological disorders. SDGR has a number of other programs as well:

Collaborator	Indication	Status
 agios	Oncology	FDA Approved
	Oncology	FDA Approved
 AJAX	Oncology	Discovery
	Oncology	Discovery
 BRIGHT ANGEL THERAPEUTICS	Antifungal	Discovery
 FAXIAN THERAPEUTICS	Undisclosed	Discovery
	Fibrosis	IND Enabling
 MORPHIC THERAPEUTIC	Inflammatory Bowel Diseases	IND Enabling
	Undisclosed no. of add'l programs	–
 NIMBUS THERAPEUTICS	Metabolic Diseases	Phase 2 ⁽³⁾
	Autoimmune Disease	Phase 1
	Immuno-oncology	Discovery
	Oncology	Discovery
	Oncology	Discovery
	Undisclosed no. of add'l programs	–

Collaborator	Indication	Status
 ONO PHARMACEUTICAL	Undisclosed	Discovery
 PETRA PHARMA	Oncology/Metabolic Disease	IND Enabling
	Oncology/Metabolic Disease	Discovery ⁽⁴⁾
 SANOFI	Autoimmune Disease	Phase 1
	Autoimmune Disease	Discovery
 SHOU TI	Oncology	Discovery
	Cardiopulmonary Diseases	IND Enabling
 sparc	Metabolic Diseases	Discovery
	Oncology	Discovery
 TB ALLIANCE	Tuberculosis	Discovery

Programs Progressed by Schrödinger		
 Takeda	Neurodegenerative Disease	Discovery
	Oncology	Discovery

SDGR CEO on partnerships and potential M&A in 2021: “The rapid progress of our internal programs and our requirement to really ramp up our capabilities to be able to run IND-enabling studies and take some of these programs into the clinic is certainly a high priority. And obviously, that's something we're going to focus on. The fact that we have this extraordinary platform that is having this profound impact on drug discovery projects, allowing us to get to development candidates so much more rapidly and, as Karen said, with higher quality molecules and with a much higher success probability, that's obviously an area that we're really focused on. As you can imagine, in a situation like this, it's attracting a lot of attention. And that means it's, of course, going to also inspire people to try and replicate it. And in order to maintain the significant lead that we currently enjoy, that's going to require, really in a very serious way, investing in it, maintaining that lead, and we absolutely intend to do that. And as I've said, that's not only going to be in the underlying science for the life science business, for the drug discovery business, but absolutely in the materials business. With regard to M&A, that's something we're always exploring. As you can imagine, we get a lot of inbound interest to work with us now as the leader in this space and we explore all of those opportunities, and we're open to the possibility of M&A”

Additive Manufacturing

Additive manufacturing is a breakthrough for future industrial production that will revolutionize how parts and systems are developed. AM can create lighter and more customized parts in a much more efficient manner for a variety of systems and is now only possible because of the shift from traditional analog processes to more digital-first systems. AM has the potential to save companies billions of dollars over the next decade and re-shape how industrial companies view manufacturing.

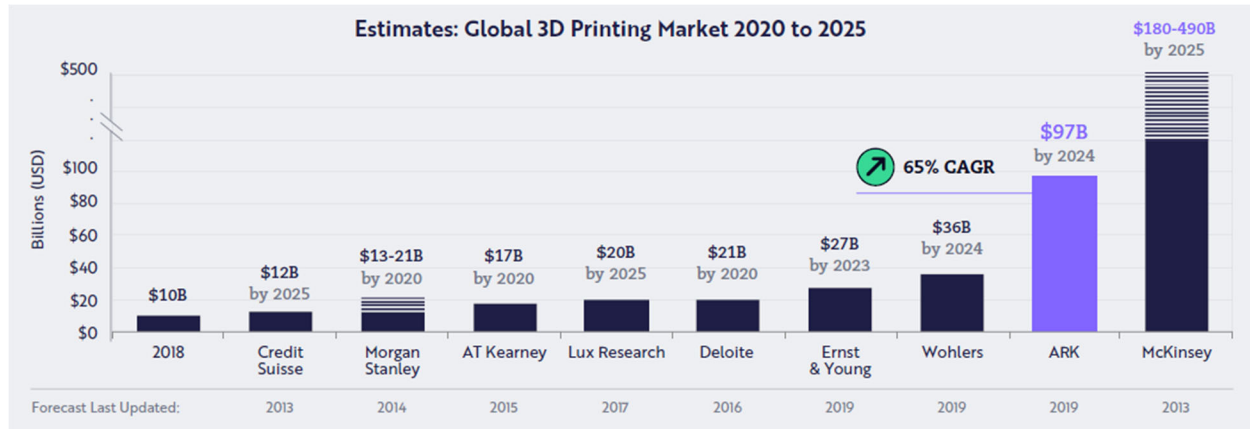
Additive manufacturing builds objects layer-by-layer rather than carving a smaller object out of a large piece of raw material. General Electric uses a form of AM that involves spreading a metal powder in microscopic layers, one by one, and then melts those layers together using lasers or an electron beam. This process is repeated over and over until a part is completed. This is just one form of AM known as Powder Bed Fusion and others include Binder Jetting, Direct Energy Deposition, Material Extrusion, Material Jetting, and Sheet Lamination.

Additive manufacturing is a game-changer for manufacturing which will allow it to make significant leaps forward in the next decade. First, it allows companies to optimize production times and reduce time from project approval to finished product. German electronics company **Phytec** noted in 2019 that using AM to produce environmental sensors for IoT devices cut production time by 97%, saving the company more than 30 days on the project. Second, AM allows for companies to make more specific and higher-quality parts.

General Motors (GM) has been using AM to build custom parts and tools for use within their factories. In partnership with **Autodesk (ADSK)**, they can manufacture tools in-house for less than \$5 that cost them \$3,000 or more from external suppliers. Third, AM lowers costs by lowering build time and simplifying the supply chain. ARK noted in January 2020 that the Terran 1 rocket was developed using 3D printing and AI-

driven controls and went from build to flying within days, not years. The project used less than 1,000 parts and took two months compared to 100,000+ parts and 24 months.

The impact of AM also extends beyond just company savings. A research paper in a 2018 volume of the Journal of Energy Policy noted that additive manufacturing can lead to a 5% to 27% reduction in global energy use by 2050. This comes largely from two areas. First, they see a 5% to 25% rate of energy savings within aerospace lighter parts will reduce drag and fuel inefficiencies. And, secondly, they see a 4% to 21% in construction with the largest effects in the feedstock, transport and use phases.



Additive manufacturing has a wide variety of use-cases and as a result ARK estimates the market will grow from \$10B to nearly \$100B by 2024. ARK estimates the market potential for prototype development is \$12.5B, molds and tools is \$30B, and end-use parts is \$490B. The latter two are less than 10% penetrated as well. Within aerospace it is being used to develop lighter pieces with more complex geometric designs to create perfectly fitting pieces that won't add drag to a planes body. The FAA cleared the first 3-D printed pieces for commercial air in 2015 (a sensor housing component) and in 2017 Boeing showed off a 787 that used parts fabricated from titanium using AM. Within automotive, AM is being used to produce over 50 parts for McLaren's race team while also being used in commercial manufacturing for pieces like exhaust pipes and pump parts. Medical professionals are using AM to explore building customer, on-demand surgical implants for patients. GE Health has noted that they expect healthcare concepts to expand rapidly in the next decade as safety is established. In December 2020, the Army noted that they're all-in on using AM to provision parts and is now working on products in titanium, steel, and aluminum.

There are a number companies involved in the theme including **HP (HPQ)**, **Materialise, (MTLS)**, **General Electric (GE)**, **3D System (DDD)**, **ExOne (XONE)**, and **Nano Dimension (NNDM)**.

Stratasys (SSYS) is my favorite way to play the theme. The \$1B company uses fused deposition modeling to build prototypes, tools, and other manufactured goods from CAD files. They mostly sell the printers themselves – the F900 is now the standard for FDM – but working on a more rounded approach including software, materials sourcing, and a services business too. SSYS has exposure to healthcare, aerospace and other big markets and has a deep IP bench which gives it a technological edge over some peers. In November, Volkswagen announced they would invest in SSYS printers to work on automotive design. The company also recently announced a deal for Origin which expands them into many new opportunities where additive manufacturing has yet to unlock.

The CEO of Origin noted in December: "We're really focused on mass production applications, which for additive manufacturing, we're just in the beginning as an industry. So, we're focused on customers that are printing lots of parts, not just prototypes. And today, there's really one industry that I think everyone would agree upon, that really fits this, and that's dental. And so, that's one of our key segments. But, everyone's been looking for the next production opportunity in polymer additive manufacturing. And this is where I'm excited to say that Origin is heavily differentiated from other companies in the space. So we, just like

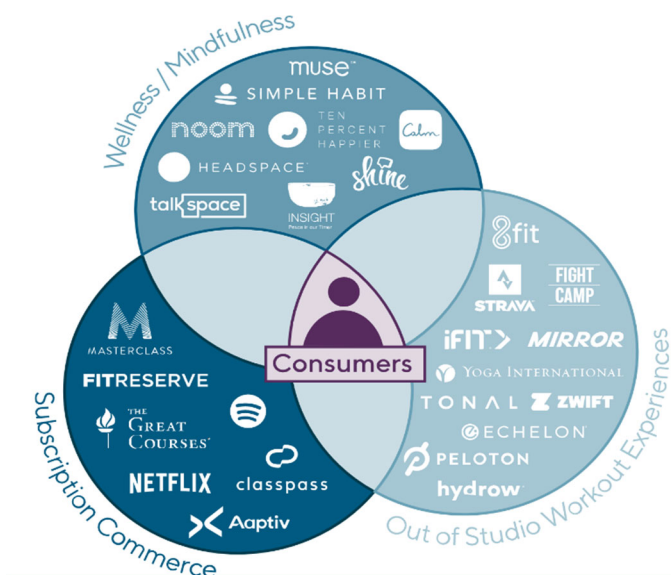
Stratasys, have solutions for government as well as the aerospace market. And we can go beyond that into the broader industrial space, including automotive. We have solutions there. Another one that we're really excited about that we uniquely target is production tooling, molding. Our process has the ability to print completely solid, really large parts. Our competitors typically -- you'll see that they usually demonstrate printing things like lattices and things that look cool, but not very, very large solid parts with print technologies that are more similar to us. All of those markets are \$1 billion-plus opportunities today, and we're uniquely suited for those. But, the material exploration capability of our platform, where we've been working with partners for many years, has been allowing us to discover and unlock new markets that have not been addressed in additive manufacturing."

Proto Labs (PRLB) is another favorite in the space. PRLB is a \$3.92B designer of customer prototypes and on-demand production parts. They specialize in stereolithography, selective laser sintering and direct metal laser sintering. They have been doing industrial-grade printing since 2014 and one of the best plays on helping companies within a variety of sectors move from idea to low-volume production.

Digital Fitness

Digital fitness became a mainstream theme in 2020 as the growing awareness of the importance of health and wellness through exercise and physical activity spurred new participation for a wide group of people. Digital fitness took on many different forms in 2020 through next-generation home equipment, subscription services, and healthcare-focused wearables. And, the ease of use and safety of working out from home has vast potential to permanently disrupt the fitness market.

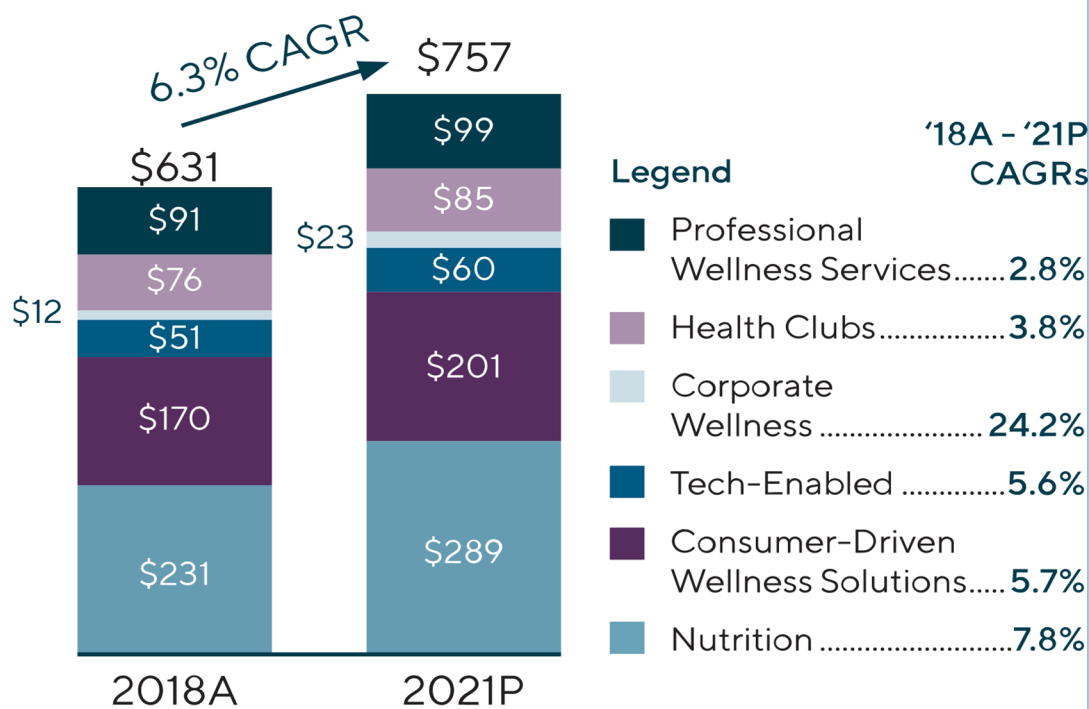
Equipment sales are the most ubiquitous with the popularity of **Peloton (PTON)** becoming the poster for all others in the space. Sales have surged 250%+ Y/Y and reported over 1.33M subs last quarter. Users are also increasing their frequency of working out to 20.7 monthly rides from 11.7 prior. The e-commerce channel has enabled a lot of other competitors to enter the space as well. **Echelon, Nordic Trac, Flywheel Sports**, and many others have developed stationary bikes with connected classes too. And it expands beyond bikes. Echelon has a row machine and treadmills are very popular as well (PTON has one too). **Lululemon (LULU)** bought Mirror in 2020, a \$1,500 interactive workout machine that focuses on streaming classes at home. The Mirror device uses a smaller footprint than other hardware but keeps up the similar aesthetic of bringing group exercises into the home.



Leading players in the market are also leveraging their hardware sales with subscription services. Peloton has expanded their classes into a \$12.99/month membership plan. Apple introduced their Fitness+ service in December for \$10/month that uses the iPhone, iPad or Apple TV to connect users to workouts. There are many privately-held companies launching services as well from everything like yoga and barre to high-interval training and kick-boxing.

Finally, wearable devices continue to make a leap forward. Apple introduced their new Watch in October that expanded wellness features into areas like blood oxygen sensors. Fitbit – soon to be a Google company – launched three new trackers in August with features like electrodermal activity scanning to detect higher stress levels and sleep monitors. They also now feature ECG sensors for heart rate changes. Garmin's Fenix line

includes some of the most advanced fitness tracking of any product with hydration tracking, pulse ox, respiration measurements and more. GRMN expects their fitness segment to grow 20% for the year.



The opportunity in digital fitness is massive. A 2018 report from the Global Wellness Institute estimated that the total spend on health and wellness products was \$4.2T in 2017. The IHRSA also estimated that 62M people in the US had gym memberships with over 183M globally, which puts users of items like treadmills or stationary bikes in the tens of millions. The IHRSA also notes that health club industry revenues have been stable even during periods of economic hardship growing 5.4% annually over the last ten years. Goldman Sachs noted in their initiation of Peloton (PTON) in 2020 that they believe home-equipment (like the PTON bike) goes beyond just gyms and traditional fitness however and reaching a group of people who were not members to begin with. This means the TAM for home equipment could be as large as \$600B. In addition, as more companies boost incentives for health and wellness goals and realize the cost-benefit analysis of investing in preventative care, adoption likely further expands. According to the National Business Group on Health, 86% of employers in the US offer some kind of wellness incentive, up 11% from the prior year, with 67% of employers saying they were planning to expand services in the future.

There are a number of ways to play the theme including **Peloton (PTON)**, **Nautilus (NLS)**, **Apple (AAPL)**, **Garmin (GRMN)**, **Google (GOOGL)**, **Lululemon (LULU)**, and **WW**.

Peloton (PTON) is my favorite way to play the theme in 2021. Despite having a massive year in 2020 and some very tough comps in 2021, PTON remains the leader in the space with the best product and user ecosystem which is driving engagement. The company will continue to face skeptics next year which will create opportunities to get involved with the name but their growth is not matched by anyone else. In Q1 they posted nearly 400% growth in digital subscriptions and 137% growth in new connected fitness subs and with expanded product range with the Bike+ hitting its stride next year, they have the capability to win market share from a much wider base of people. PTON also recently announced a \$420M deal for Precor which expands their production capabilities with more than 625,000 feet of new manufacturing space. This is a significant deal as it will help alleviate delivery time bottlenecks and long wait times which were a headwind for some buyers in 2020. Finally, PTON continues to expand class offerings like their new 'boot camps' and barre classes which will bring more people onto the platform and initial adoption has been strong with over 20.7 workouts per sub in Q1 vs 11.7 the prior year.

PTON CEO John Foley on scaling and expanding their offerings in 2021: "The beautiful thing about our model is the scale where we go from 2,000 people consuming a class to 20,000 people consuming that same class and that same instructor that's kind of the beautiful thing that we see in our model, but to your point we are investing in content. It is something we do plan to innovate on and stay out in front of any would-be competition you said bike boot camp yes it's doing very well. Bar is exceeding our expectations. We have new content coming in the coming months and certainly quarters. One thing I'm excited about is new languages as we're in German and we're in English and as we push to be a global technology platform foreign languages obviously at one place you would expect us to invest and I'm really excited about that."

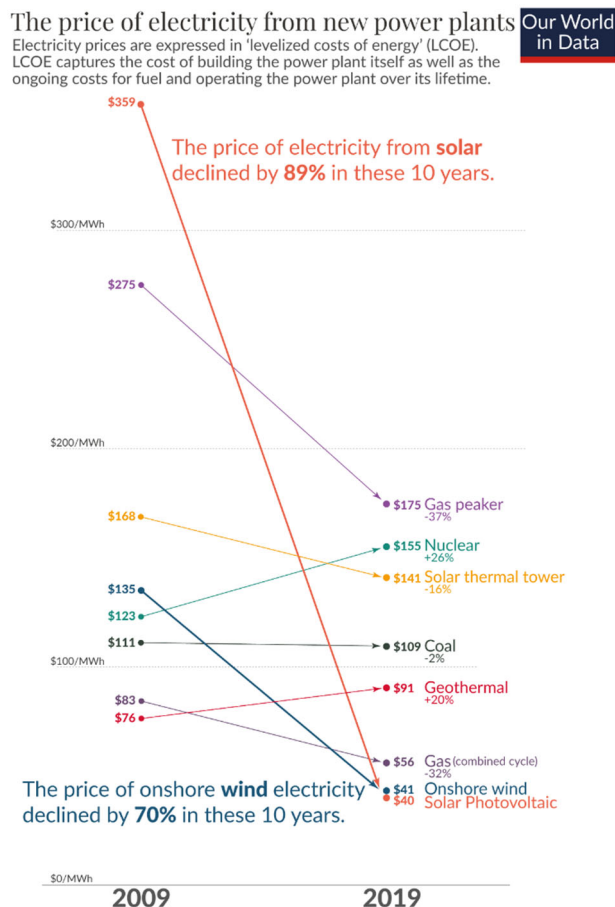
Residential Solar

Renewable energy took a huge leap forward in 2020 as technology became cheaper and ultimately more viable as a long-term alternative to fossil fuels. And, there's significant tailwinds into 2021 as the new Biden administration likely refocuses US energy consumption on next-generation ideas rather than propping up slowly dying methods like fracking and coal. Solar has transformative potential for the next two or three decades for homeowners through both energy cost reductions as well as the growth in onsite storage options which will take strain off our grid. It also becomes a major theme for conservation, clean water, and sustainability as fossil fuels account for the vast majority of CO2 emissions.

The cost of owning, installing, and repairing solar panels was a major impediment to adoption in the early 2000s when companies like Solar City and Sun Run (RUN) initially marketed consumer panels. But, like all major technological advances, solar tech had some steep learning curves at the outset that are starting to flatten out which is leading to a major rush into the theme. Our World in Data noted in a December large investments in solar and other renewable energy products is creating a tailwind effect on scale as installed capacity is driving down prices. They note that the price of electricity from solar was \$359 per MWh in 2009 and fell 89% over the next decade to just \$40 currently. This is the lowest cost across the energy spectrum with only onshore wind (\$41) and gas (\$56) close. They also noted, "the electricity price that you need to charge to break even with the new average coal plant is now much higher than what you can offer your customers when you build a wind or solar plant."

One of the big inflection points for residential solar is the transition away from leasing panels to ownership. Simmons noted earlier this year that while early momentum was in low-upfront leases, the shift now is into more direct ownership with seven out of ten sales are either cash or individual loans. They highlight that SPWR has the most direct sales exposure but RUN and NOVA both utilize a lot of leasing still.

Residential solar also create a virtuous cycle wherein lower prices helps boost real income of individuals and thus can drive economic growth in many parts of the world. This is a huge opportunity as a Yale University study in 2019 showed less than half of current residential builds were in low-income households which is



currently around 50M households in the US or 44% of the total. Expansion into areas like community solar and subscriber pools have been discussed as a gateway for more participation in the theme and could unlock significant growth 5- or 10-years out from the present.

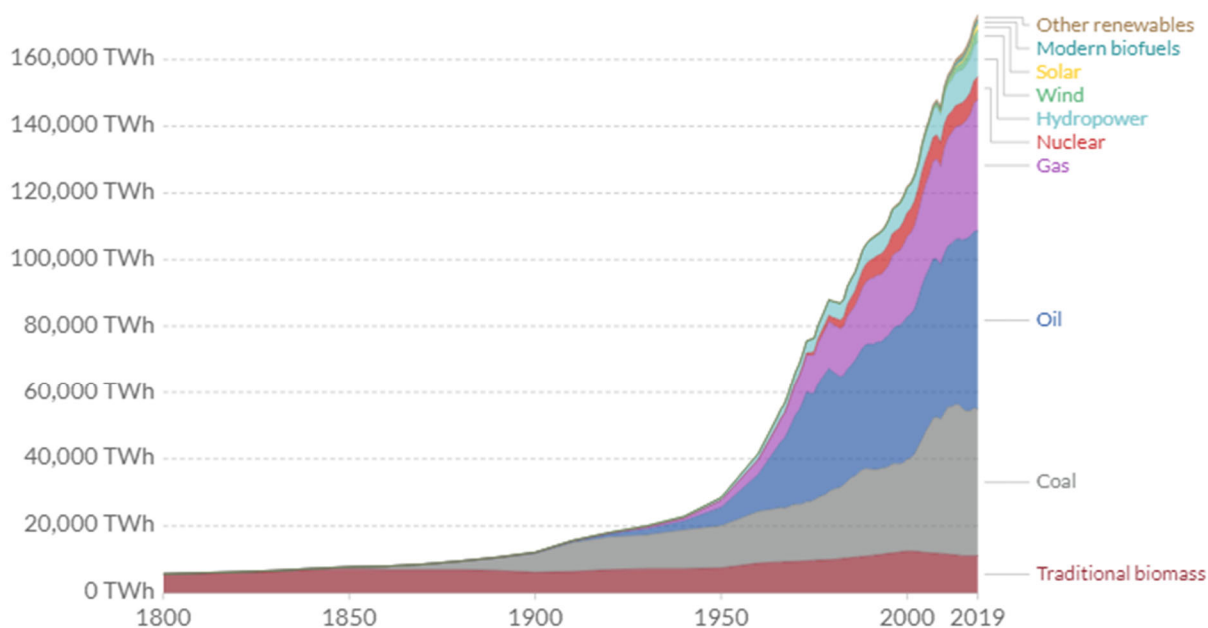
There's significant runway for renewable energy, despite what feels like strong adoption so far. Oil and coal account for 55% of our overall energy consumption and 79% of our global production when you include gas.

Global primary energy consumption by source

Primary energy is calculated based on the 'substitution method' which takes account of the inefficiencies in fossil fuel production by converting non-fossil energy into the energy inputs required if they had the same conversion losses as fossil fuels.

Our World
in Data

□ Relative



Source: Vaclav Smil (2017) & BP Statistical Review of World Energy

CC BY

Piper estimates that solar capacity has grown 57% CAGR since 2010 and residential solar has grown to 15.6 GWs of capacity, or 10% higher Y/Y. In December 2020, the IEA noted that installed capacity was now as high as 88.9 GWs or enough to power 16.4M homes. Residential installations had risen 14% Q/Q with the shelter-in-place rules during the Spring causes a work stoppage. They estimate that the total capacity for the US market will top 107 GWdc in the next five years. And, overall adoption is low. The IEA estimates that just 3-4% of the US market and 2% of the total single-family housing market currently uses solar panels.

There are three main ways to play the theme: **NOVA**, **RUN**, and **SPWR**. We highlighted RUN as a top contrarian play earlier in the outlook and it remains the most intriguing of the three. But, I also like **SunPower (SPWR)** as a name with less leasing risk, a strong new product, and gross margin expansion potential.

SPWR is executing well and setting new records in 2H 2020 for sales, backlog and new appointments. SPWR's new Maxeon solar cells are higher-efficiency than peers and more reliable as well with a better design with built-in microinverters to maximize panel production. Their new products have given them a leg up in expanding in some key geographies. The company has expanded well in some key markets like California with 18 of the 20 top builders in the state using their panels while 85% of their volumes in 2020 were sold online, a big boost their omnichannel approach. Storage has also been strong with more than 275MW contracted in Q3 and an expanded community footprint with more than 13MW secured. The company launched their SunVault product in 2H 2020 and expected to expand into 20+ dealers by early 2021 which will give them availability outside of California.

SPWR CEO on why they built their own storage product: “The economical reason for doing our own storage is simply in many ways to avoid margin stacking, right, instead of us paying margin somebody else than to supply that storage, we see a great economic opportunity to make margin on the hardware we sell. And that's what's important about, it's not just to new customers, which is a big deal, but to over 330,000 existing customers. And so, I think economically long term, we believe that will be meaningful, bottom line impact to the company. I think from a strategic standpoint, what's really important to us is that we control the software that our customers use. And a fully integrated software approach means that the customer has a single tool which monitors their TV, their storage, their complete solution, and that is both important for us as far as getting customers to adopt us, stick with us, to refer us to their neighbors.”

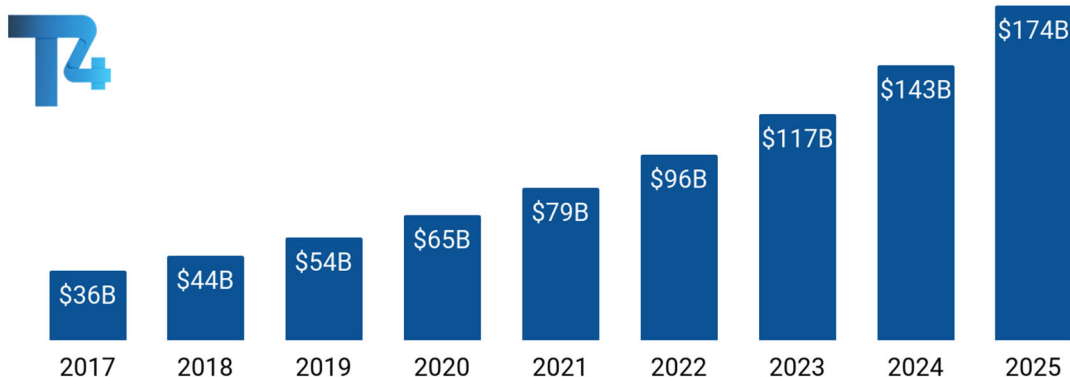
Data Centers

The last decade has seen a massive surge in data usage between smartphones, tablets, and other devices and the ease with which people can now access information. Data centers are the backbone of this universe providing dedicated space hosting critical telecom and storage hardware. The biggest secular themes within tech all rely on data growth including cloud, AI, IoT, and 5G and within each of those many more smaller themes. This makes data center REITs not only a critical part of the long-term tech infrastructure and driver of the new digital transformation but also attractive investments as trends will be favorable in 2021.

Data centers have changed a lot since the early 2000s when the internet was in its infancy. A typical data center has a ton of components including everything from routers, switches, firewalls, and servers to computing resources like memory and storage. Facilities are multi-faceted too with power, ventilation, and backup systems. There are four main types of data centers, each with specific end-market usage. First, enterprise data centers are built by companies for that specific company and their users. These are typically housed on campus. Alternatively, there are managed services data centers which are run by a third-party on behalf of a specific company. They lease equipment and pay a recurring fee. Third, there are colocation data centers. In this situation, a company rents a singular space within a larger warehouse and manages their own components. Finally, there are cloud data centers which are used as an off-premise option for companies. The most ubiquitous of these are popular hosting services like Amazon AWS, Microsoft's Azure, IBM's cloud and many other public cloud providers.

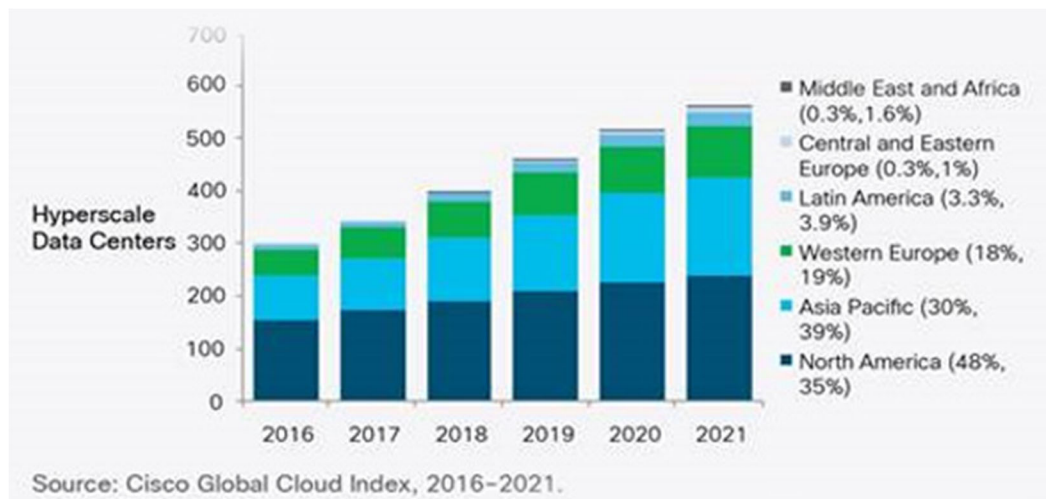
Hybrid Cloud Market, 2017-2025

www.T4.ai



There are two main themes that will cause an inflection in growth for the group. First is the growing usage of colocation. Hybrid cloud adoption has surged in 2020 with 72% of respondents in an Everest Group survey this summer describing their strategy as 'hybrid' or 'private first.' And 56% of respondents said private cloud investments were a top priority. Mordor Intelligence estimates that the hybrid cloud space will be a \$128B market by 2025, an 18.73% CAGR from 2019. By comparison, public cloud is bigger at \$257B but growing

slower at just 6%. The reason for hybrid to grow so fast is enterprises usage of containers which relies on a multi-cloud strategy. Red Hat's report in 2020 noted that 56% of IT professionals surveyed expect to increase their use of these devices in 2021. Colocation is a major guiding factor for a colocation strategy as it allows for a more flexible environment utilizing your own tech and hardware but in a prepared space. This ensures a strong connectivity but also control over services.



The second big driver is global growth. As more companies go global and data growth becomes a worldwide issue, more companies are focusing on expanding their footprint outside the US. Latin America, Europe, and Asia are big areas where data centers are seen growing in the next decade. One big factor at play is global regulations. Within Europe and increasingly elsewhere, individual countries are drawing up rules about how and more importantly where user data is stored. Data sovereignty is forcing companies to adopt a physical presence in new territories in order to not lose customer data and thus data center REITs are advantageously expanding. There's a huge opportunity here as well with Synergy Research estimating that 40% of the world's data centers are in the US and the remaining 60% spread over the next ten largest countries – so highly fragmented and competitive. The global colocation data center market is also estimated to be as big as \$62.5B by 2023, a CAGR of 14.6% since 2017.

In general, the market for data centers is massive. IDC estimates that the digital transformation is expected to result in \$6.5T in total spending over the next three years. Mizuho estimates that data center outsourcing will grow by a 5% CAGR during that span "as companies continue to seek to gain efficiencies of scale, better security, greater reliability, and the ability to scale quickly." This is supported by over 21B IoT devices worldwide, a surge in data stored to 187ZB, and 50% growth in cloud adoption.

There are a number of ways to invest in the theme including **EQIX, DLR, QTS, CONE, and COR.**

My favorite play on the space is Digital Realty (DLR). The \$38.3B company provides data center, colocation, and other services in both the US and overseas which makes it a nice own as more companies look to establish an international footprint. DLR has over 35M square feet of space currently and expanding at about a 12% rate in 2021 with another 2M square feet under development in places like Africa and Asia, two hot growth areas for tech. They recently completed two notable deals for InterXion and TelX which expands their colocation and hybrid solutions and gives them a nice pipeline of future market opportunities. The INXN deal especially gave them a dominant position in Europe with the second-largest colocation offering just ahead of significant data-storage changes within the EU. DLR has a strong balance sheet which gives them flexibility to invest and expand at a time when growth is likely stemming from expansion of square footage.

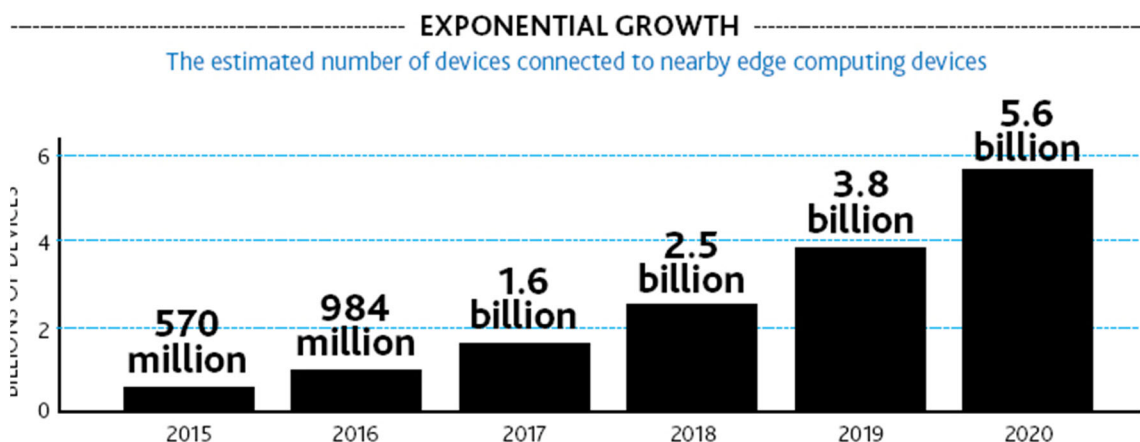
DLR CFO Andy Power at the UBS conference in December on 2021 expansion priorities: "On the international piece, it's building out in markets where we're seeing the highest growth rate. We have the most -- the largest competitive mode, we provide the greatest amount of value to our customers that are on the

ground with local language speaking teams that know the business on these facilities. So more and more of our CapEx as a percentage of business, especially relative to our pie will be going to Europe. We'll be going to South America, and we'll be going to Asia Pacific. That doesn't mean we won't be investing in North America. But the pie is going to continue to be more development CapEx internationally."

Edge Computing and Content Delivery Networks

Edge computing has become one of the most important 'under the hood' trends in tech over the last year as COVID has brought to the forefront the growing need for reliable digital services everywhere, anywhere, and at any time. Whether its streaming conference calls or recreational uses like video games, movies/TV or music (**SPOT**), streaming became an integral part of day-to-day life. This has pushed vendors in both hardware and the cloud to look to edge computing to improve their network speed and reliability. Edge computing will view 2020 as a major inflection point for a decade-long trend that will enable many of the most important trends in tech.

Edge computing is a next-generation content delivery network or CDN. CDNs are a group of servers that work together to deliver information to local devices. They don't host content or websites but they use caching to help reduce bandwidth on networks and reduce strain overall on main pressure points in a system. CDNs are essentially the pipes that help bring the highest-quality video and audio to any device both securely and quickly. The growth in CDNs has been underscored over the last five years as more DTC and OTT video solutions come to market and driven double-digit growth over the last couple years.



The importance of edge computing is about to hit a breaking point as well. Network World estimates that internet traffic is expected to hit 1.5 GB of traffic per day per person. And, growing IoT devices on the market will put further pressure on this figure. This immense volume of data crossing the globe every day requires a more nimble solution because single on-premise locations can't process all of this information alone. CDNs and edge computing allow all of this traffic to be load balanced across many multiple vendors and locations while much of that data can sit on the edge. The edge cloud complements data center, central cloud, and hybrid solutions.

Deloitte predicts that the CDN market will grow to \$14B in 2020, up 25% Y/Y, and more than double into 2025 to \$30B for a CAGR of 16%. Gartner estimates that, by 2022, 75% of enterprise-generated data will be created and processed outside a traditional data center or cloud, at the network edge. **Cisco (CSCO)** estimates that CDNs will carry 72% of internet traffic in 2022, up from 56% in 2017. Video or OTT streaming will be the majority of use for CDNs into the future with Sandvine estimating that 60% of all web traffic will be used for the services. **Netflix (NFLX)** alone is 15% of global downstream internet traffic, according to the firm.



The three biggest plays on this theme are **AKAM**, **NET**, and **FSLY**. There are smaller names as well like **LLNW**, but would prefer to stick to quality which is why I prefer **Cloudflare (NET)**.

The \$25B company has traded well in 2020 and faces tough comps but overall best profile of the three with strong customer growth, product, and increased enterprise penetration. NET uses SSD within their global network which allows for faster processing, lower read-errors, and more flexibility when it comes to expanding capacity and higher traffic volumes. They have global reach with nearly 50% of their revenue from outside the US and plenty of opportunity to win share in the \$47B TAM with tailwinds from 5G, IoT, and remote work. In 2021, the priorities shift into expanding partnerships, new products, and extending their serverless platform strategy into a new class of applications and market opportunities.

NET CEO in November on cross-selling and expanding products: "I think our goal is to continuously be releasing new products so that the take rate on any given customer, even if they had adopted everything that we had yesterday, is we'll have new stuff for them tomorrow. And I think if you're not following our blog already, just the rate of innovation, the rate of the team has been able to continue to adapt and deliver products is really outstanding. And we're seeing that that is one of the many components that is driving our continued ability to grow and scale. It's really different on different customers in terms of what the take rate for the products are. But we do naturally see products that fit together fairly well. So the teams products fit very well with our DDoS and our web application firewall product. We're seeing a lot of interest over the last two quarters in our Magic Transit product, that tends to be a great again, tip of the spear product for us to come in with. But once somebody's entire network is behind us, that then allows us to approach them and talk about teams and some of the other products as well. So the journey into Cloudflare can come in many different directions."

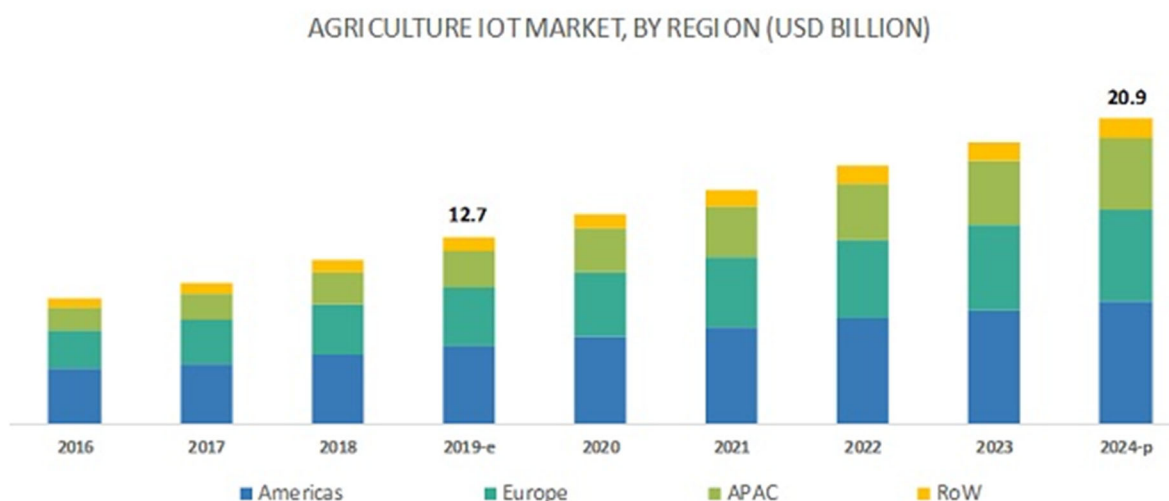
Precision Agriculture

Precision farming is powering the next generation of industrial equipment in fields across the US and worldwide. The growing use of 5G networks and wireless connectivity in rural areas is allowing IoT systems to redefine how farmers plant, monitor, and harvest crops. The result is a more efficient yield and sustainable practice. The use of technology in farming has continued to grow in recent years due to outsized demand for global crops and harsher, uneven weather conditions with which farmers are faced. This makes tech in farming a major issue for the next decade as bigger players expand their offerings. It's a new revolution like the first industrial machines and fertilizers.

Precision agriculture is defined as the combination of advanced technology and farming to make more informed, efficient decisions in the field. It can include everything from measuring soil makeup, topography, nutrient conditions, and other values in an effort to improve crop yields and do more with less. This is

becoming more necessary as populations grow and global agricultural production trails behind. The UN projects nearly 10B people worldwide by 2050 which will require a nearly 70% increase in food output. The only way to do this on the same footprint as we have currently is to use that footprint better.

There are a number of examples of precision agriculture in use today. The most prevalent is GPS guidance. AutoGuidance is used on tractors, combines, and sprayers to achieve accurate and repeatable motions within the field while reducing on skips and overlaps. They allow farmers to save fuel and labor costs by limiting time at work as well as managing their use of seed and fertilizer. Another feature being used more often is agricultural drones. Farms can employ multi-spectral imaging to spot problems with a crop's health. The newest models can survey 500 acres in a single charge and give information on plant counts, water levels, temp, and other detail vegetation indices. Finally, variable rate technology is a commonly used practice within agriculture. VRT allows producers to apply different levels of a material across different locations and within different timespans. This could be fertilizer or chemicals or seeds. Some of the newest models use not only drones and satellites to help with locating problem areas but also AI to better understand the best method for zoning.



The precision agriculture market is expected to grow to \$9.5B by 2023 as adoption grows, according to BAML. The use of unmanned aerial vehicles (UAVs) or drones is also opening up a number of new opportunities within the group that should expand the available market for a while. There are several secular tailwinds that will drive growth and adoption. Higher labor costs will be a key driver for adoption as the substantial cost savings will be an immediate benefit. More farmers are seeing profitability stressed with yields falling and uneven weather making the window for planting success smaller. Second, environmental concerns (and ESG initiatives) will be a big impetus for adoption as farmers can use less fertilizers or chemical sprays than necessary. Third, a pressure on the global food supply will push more farmers to adopt higher-yield practices. The UN estimates that by 2050 we'll need to produce 70% more food than we are doing today to adjust for the population growth.

A lot of agriculture companies are moving into aspects of precision tech including equipment makers and tech developers. **AGCO**, **CNHI**, and **AVAV** are notable names in the theme. **TRMB** is also applying GPS tech to use in farm fields by companies.

Deere (DE) is my favorite play on precision agriculture. The \$84B company has been at the forefront of investing agricultural tech and they have the size and scale to make a significant impact. DE has end-to-end solutions for farmers including both hardware and software for everything from planting, graphical processing and soil testing to monitoring. DE also has opened up their API to developers and now has 185 partners working on individual and unique platform ideas for further engagement and use. DE has been building out their capabilities through M&A over the last decade and recent deals focused on automation, machine learning,

and computer vision and intelligence. DE commented recently their adoption of new precision tech has been strong as more customers see the value proposition. DE plans on expanding their new machine learning products outside of corn and soy as well into other areas.

DE CTO Jahmy Hindman on expanding Precision Ag tech to other areas of DE: "I do think if you look at Precision generally, many of the technologies that we're developing on the Ag side have applicability at the component level within our construction and road building products as well, and the benefits of Precision extend to that business also, this need to be more precise with equipment, reduce the amount of time the equipment spends on a job site to do the job, those sorts of things all factor into our ability to take technology that we're developing within the enterprise and apply it to the construction and road building products as well."

ESG

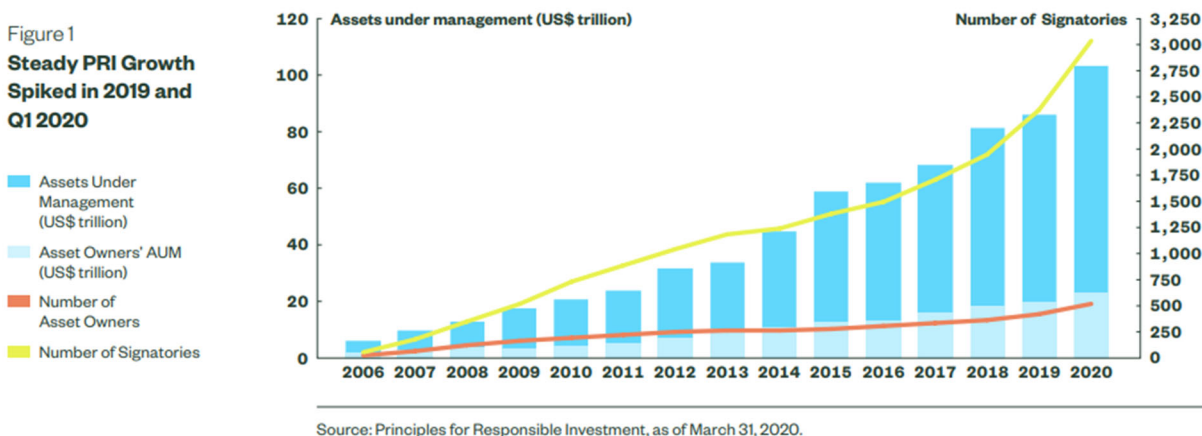
ESG continues to soar in popularity with more fund allocators under pressure to invest in socially-responsible strategies. In turn, this is having a real change in how board rooms look at policy making and their long-term strategies with many adopting sustainable practices. ESG funds have been around for nearly a decade now but they've accelerated in the last two years due to a combination of social pressure and new money coming into the market from millennials and Gen Z who are putting the core principles as a top priority. COVID has been an inflection point for ESG as well as many more investors now are acutely aware of the social and inequities in the US. Protests in June around the death of George Floyd and marches all Summer have made corporate positioning around humanitarian values essential. This is likely a major tipping point for the next decade that will dictate where a massive pool of flows will go.

ESG stands for "Environmental, Social, and Governance" factors and they are basic guidelines for how a company should act responsibly. Some examples of ESG principles include environmental efficiency, actively reducing or off-setting carbon emissions, promoting human rights policies, addressing product-safety problems, implementing diversity policies, board independence, business ethics plans, and shareholders rights. The field is a growing area of non-financial metrics for how to invest in companies but it goes beyond traditional 'Green' thematic investments. ESG is not necessarily about so-called 'sin' stocks like oil, tobacco, alcohol, and others. But rather, it focuses on companies driving forward positive social impacts. For instance, oil and gas companies are often at the fore-front of ESG by driving positive climate-related plans.

There are two major trends that position 2020 as a major inflection point for ESG. First, pandemic and social unrest in June put social, healthcare, and financial well-being at the forefront of people's minds. Income inequality, diversity, and employee welfare all suddenly became things corporate America needed to address. Jamie Dimon said in his annual letter this year that JP Morgan need to lead the way on diversity and inclusion as they reshape office culture of the next generation. They also announced a \$30B commitment to advance racial equity and this follows \$200B in financing for sustainable strategies.

Second, ESG is being propelled forward by millennials and Gen Z. Wealth-X believes that over the next decade, the shift in wealth from Boomers to their children will top \$15.4T (more than half of that from North America alone). Cerulli Associates believes this shift will be even greater in the decade following and thinks over \$48T in assets will transfer by 2045. State Street believes that ESG benefits from this in two ways. One, Boomers likely use their final decades reinvigorated by social causes like climate change and drive investments into those areas. Second, millennials growing up during the current unrest and period of change are more likely to focus on a company's social priorities versus their balance sheet. The firm notes that 87% of high-net-worth millennials look at an ESG track record when investing. A Morgan Stanley report in 2019 noted that 90% of millennials and Gen Z fit their stock buying to their values.

ESG is the fastest growing smart beta strategy according to Bloomberg. The 5-year CAGR for AUM is over 55%. This tops low-vol, momentum, and quality factors in terms of money flowing into the space. State Street said in June that the number of firms committed to integrating ESG issues into their decision-making is now \$104T, up from \$6T in 2006. There are also over 3,000 firms that have signed up to support Principles for Responsible Investment (PRI).



The firm now believes due to this surge in commitments, the total fund flows dedicated to ESG in global ETF assets will rise from \$170B in 2020 to \$1.3T in 2030. There's a long runway however with these funds representing just 2% of the entire investment spectrum. The majority of these funds are going into passive vehicles and fixed-income offerings with notable ETFs like **iShares USA ESG Leaders (SUSL)** and **Xtrackers MSCI ESG Leaders (USSG)** launching in 2019. BAML estimates that the amount of funds invested under an ESG framework could be as much as \$12T over the next thirty years, especially as wealth transfers from Baby Boomers to Millennials.

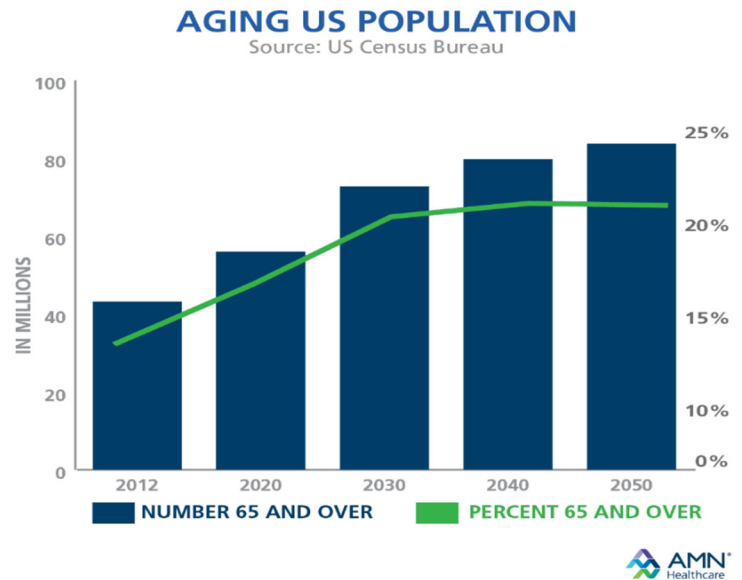
There are a lot of company-specific ways to play ESG. Energy is a big area for ESG initiatives while tech ranks highly as well. The IBD top 15 names ranked by their ESG composite rating include **NVDA, POOL, CRM, WST, VRTX, ADBE, CDNS, IRBT, FIX, LRCX, INTU, BBY, BLK, EXPD, and DECK.**

My favorite way to play the theme is MSCI. The \$35.5B financial data providers is capitalizing on ESG in a number of ways. The company provides analytics and research for funds and large institutions looking to invest in ESG issues and funds. MSCI also has over 200,000 different indices available for clients which get licensed to asset managers who then package them into products for clients. MSCI has more ESG-driven products than any peer and this cycle creates a strong recurring revenue base for them over time. They are seeing increased fund flows into their ESG/climate-driven index products. In 2020, the company noted that MSCI-linked ETFs drove more than 80% of global ESG flows and AUM into those indices doubled Y/Y. In Q3, MSCI noted that AUM in those areas had grown to \$71B, up 186% Y/Y. They made some smart deals in 2018 and 2019 as well which expanded their offerings including Carbon Delta and they're aggressively looking to expand further.

MSCI CEO on how they win in a highly-fragmented ESG data space: "Where you see competition, for us, it's in the provision on the underlying data. And on a lot of our clients are subscribing to various sources of data, for sure. But ultimately, that data needs to be translated into a tool for an investment decision. And therefore, we'll see some competition in providing underlying data it's perfectly fine with us. But we are - where our position is very leading and very prominent is in providing the derive the tools that are derived from that data in order to help people make better investment decision in that space. They're not going to be too many people like us."

Home-Based Care

The pandemic impacted the elderly and nursing homes particularly hard in 2020 which contributed to a decline in capacity that likely runs into 2021 and beyond. Home-based care has been growing in popularity over the last decade but last year will be seen as a major inflection point given the safety and wide range of services offered within a patient's home. It also has significant political-backing now with President-elect Biden supporting a proposal during the campaign to invest \$775B to expand home-based care access, shining a lens on an extremely beneficial and under-utilized part of the healthcare system. Home-based care is an ideal thematic trend to play both the continuing risks of pandemic in 2021 and the impact of our rising aging population.

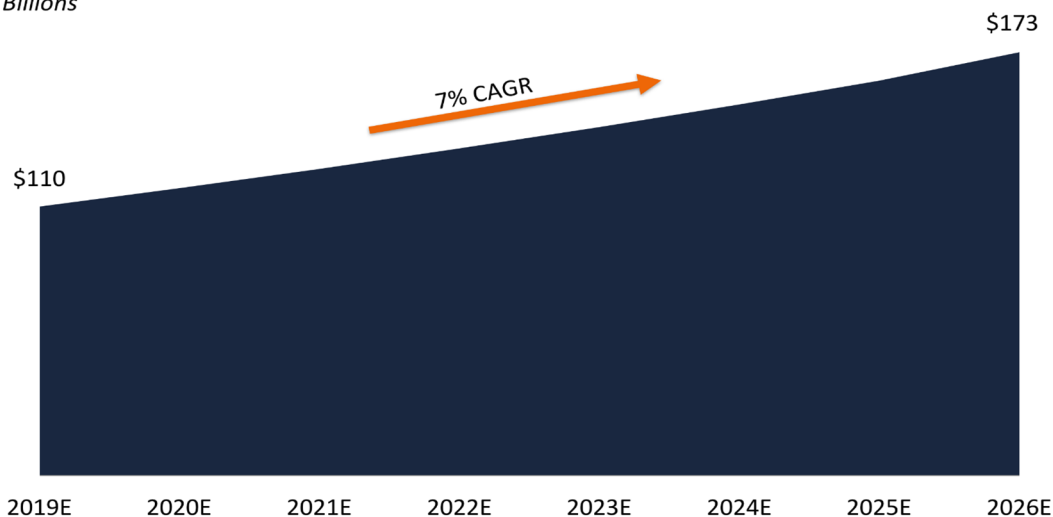


Home healthcare has a huge potential market for Medicare beneficiaries as it addresses a number of needs from the patient population including ease of use, less frequent admission rates to expensive solutions like hospitals and treatment of chronic ailments and not just acute care. Examples of home healthcare include everything from physical therapy to skilled nursing as well as daily tasks like bathing and preparation of meals. Seniors often prefer home health care since it allows them to stay in their primary residence and it has lower costs than a trip to the hospital or urgent care. It's also a significant cost-saving mechanism with the CMS estimating that home health will save Medicare up to \$378M a year due to reduced hospitalizations.

The pandemic shifted attitudes towards home-based care. According to William Blair, 81% of physicians now prefer to refer their patients to a home health agency versus a skilled nursing facility when considering discharging them. This is up from 54% prior to the pandemic. Amedisys (AMED) COO Chris Gerard said in November the company had 1700 unique, new referral sources in Q3 that had never referred patient to them before, a significant uptick.

US Home Healthcare Spending Will Rise Steadily Through 2026

Billions



The home-based care market has been growing well over the last decade and outpacing other healthcare expenditures by almost 5%. According to the Center for Medicare and Medicaid Services (CMS), home health

care is projected to be a \$186.8B market by 2027, up from \$108.8B in 2019. BLS expects home-based care workers to grow more than 50% by 2026. The personal care market remains highly fragmented with over 18,000 licensed home and community service agencies in the US and companies like LHCG and AMED have long said there's significant opportunity in consolidation.

There are a couple home-based care / hospice stocks in the market including **AMED**, **ADUS**, **CHE**, **EHC**, **LHCG**, and **ENSG**.

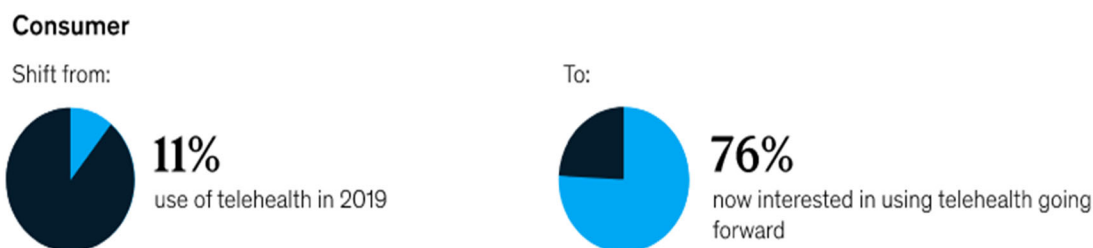
My favorite play in the space is Amedisys (AMED). The \$9.5B company is positioned in attractive markets with growing Medicare exposure, a nice mix of both home health and hospice, and enough firepower to continue consolidating the fragmented space. AMED saw trends rebound in June with 5% growth in SSS and turnover starting to normalize which will give them better visibility into 2021. AMED has expanded capacity and maintains an industry-best RN/LPN ratio for their facilities. From a regulatory standpoint, AMED is a core beneficiary of the 2.4% growth in hospice final rule and also the likely 2.6% home health increase in January. Telehealth flexibilities are also being made permanent from the March emergency declaration which means AMED will be able to expand visits with clients throughout 2021 in a safer and less structurally intense manner. AMED noted in November that 2021 sets up to be the best year for reimbursement from a Medicare standpoint in recent history.

AMED CEO in November on why they see a huge inflection point coming for the company:

"Demographics are in our favor, thanks to the baby boomers, now between 56 and 76, keeping in mind our average patient age is 78 to 80, meaning we will be experiencing a surge of potential patients in the coming years as baby boomers age into the at-home care sweet spot. More people are turning 65 years old and aging into Medicare faster than they have ever before, over 10,000 a day. The burgeoning 75-plus population, coupled with ever-increasing unsustainable healthcare costs, puts us in a very advantageous position, as an aging-in-place company, delivering the highest quality care at the lowest cost to seniors. Also, besides demographics, psychographics are in our favor. nine out of 10 of these baby boomers want to age and die at home."

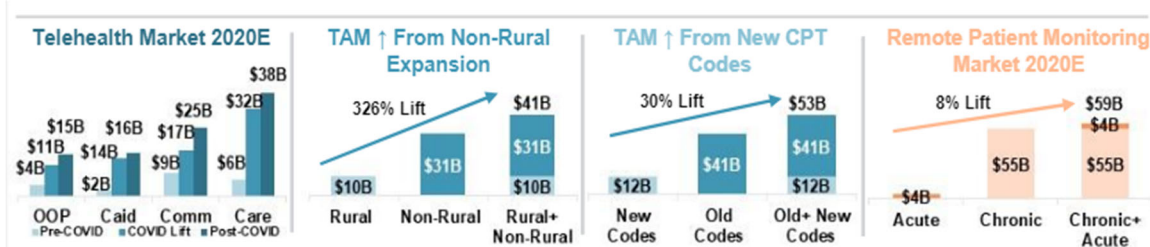
Telehealth

The use of telehealth services took a dramatic shift forward in 2020 due to COVID-19, moving from niche emerging market into a mainstream product. Telehealth became ubiquitous for everything from urgent care to routine check-ups with a primary physician with more consumers choosing to go digital first rather than risk exposure to COVID-19. McKinsey estimates that just 11% of consumers used telehealth services in 2019 but that number jumped over 45% in 2020 and likely continues to climb as 75% are interested in using virtual care going forward. This also accelerates as access to technology gets better and providers scale up coverage and offerings. Telehealth is not just safer for doctors and patients but its more time-efficient for both and greatly reduces strain on our healthcare infrastructure at a time when critical care is in focus. There's also research that shows telehealth leads to better patient outcomes.



Virtual healthcare has an impact on a number of areas. First, primary care is the largest market and most readily-available for the most people. This includes areas like urgent care and office visits with low-acuity

emergencies. McKinsey suggests that after looking at claims over the last two years, 20% of all ER visits could've been done virtually and 24% of office visits could've been done online. Second, telehealth has wide reach into the behavioral market. Piper estimates that this will be one of the smaller markets in time, just \$220M, but one where providers can create a recurring, subscription-style revenue. They note that remote access to telehealth means more people are likely to engage with a behavioral healthcare worker and their use tends to be more consistent. Finally, telehealth will radically change the patient monitoring market. Remote patient monitoring is the biggest opportunity on paper for virtual care with use-cases like physical therapy, speech therapy, nutritional support and more.



McKinsey estimates that up to \$250B in healthcare spending in the US could be virtualized in the next decade. Piper has a more modest estimate and sees the COVID-19 pandemic doubling the size of the TAM to \$150B with expansion in reimbursement helping drive the figures higher.

The most notable names exposed to the theme include **TDOC**, **AMWL**, and **ZM**. Others like **IRTC** and **NUAN** are often lumped in as well given their focus on cloud-based management and remote care.

Teladoc (TDOC) is the best play on telehealth in the space. The \$30.36B company had a transformational year in 2020 after merging with Livongo. The deal made TDOC a virtual-health giant with expanded capabilities into management of chronic conditions like diabetes. The new company is far ahead of peers in areas like virtual care and care management and gives TDOC a lot of opportunities to cross-sell new products to their big 70M base. CSFB out in July seeing revenue grow at 30-40% CAGR over the next three years. The deal ultimately adds to their already industry-best telemedicine platform which has seen higher utilization during the pandemic and gaining greater scale as they expand availability on health platforms and get more provider and employer reimbursement in 2021. TDOC sees 2021 as a big moment to expand into areas like specialty care where demand for dermatology and behavioral services are growing rapidly. Demand for mental health care in particular has grown strong among new clients with the company noting in November 40% of all new care customers wouldn't have sought a doctor interaction without telehealth. Other opportunities in 2021 include International and Medicare growth.

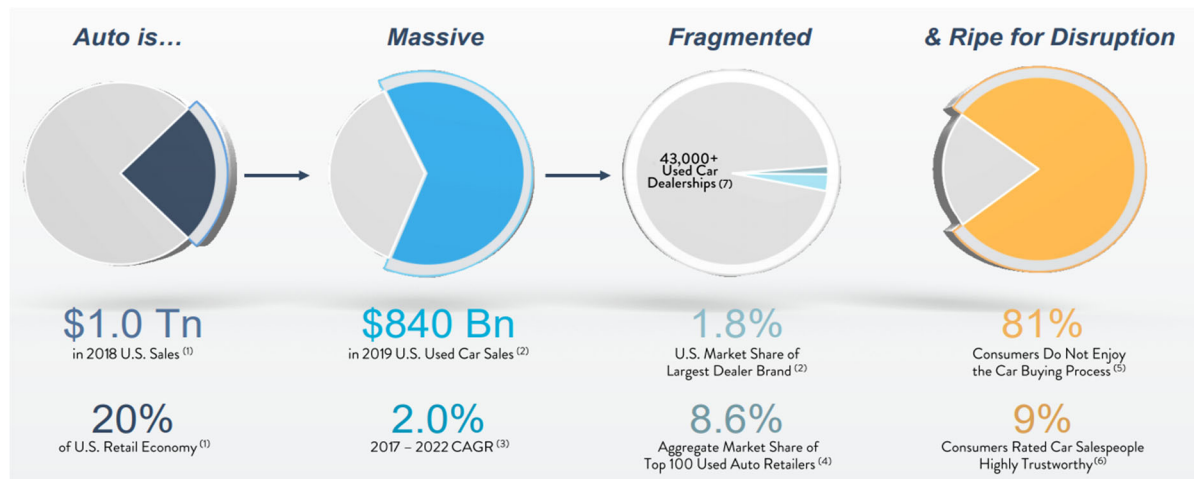
TDOC CEO in November on MA opportunity: "We're seeing quite a bit of interest from all of the government programs at this point, both managed Medicaid as well as Medicare Advantage. We're up over 2.5 million Medicare Advantage members at this point, which is about 1 million more than the - I think the last time we gave you a number. I'm not going to give an outlook for 2021 at this point. I think the adoption continues to be strong. And I think with the Livongo set of capabilities and the prevalence of hypertension, diabetes, pre-diabetes among the MA population, that's going to make our products and services that much more attractive. And we're working on a set of additional capabilities that, I think, will increase the value of our overall portfolio to MA plans. So I feel good about the progress we're making there and I think that, that will continue through '21 and beyond."

Online Auto Sales

The way we buy-and-sell cars is changing with e-commerce broadening and digital adoption driving growth in new channels. The pandemic structurally changed how auto dealerships approached client interaction due to social distancing, concerns of high-trafficked areas, and more. Online dealerships have thrived given their no-

contact approach and significant ease-of-use which has reduced friction between buyers and sellers and improved the process completely. The potential disruption to traditional auto sales could have a massive impact over the next decade given the size of the total TAM and tech trends.

The process of buying and selling a car online has become streamlined in 2020, so it feels not much different than buying anything else. Sites have built out dynamic search and filters to help people find used cars, view them in 360 degree photos, and inspect all features for imperfections. They also have become more vertically integrated with financing options, contract review, and electronic signatures all a buyer needs to move forward. Finally, most sites offer delivery of cars but others also have an option for pick-up. Carvana (CVNA) has developed 'vending machines' for cars in a number of states.



The auto industry is a \$1T market with over \$750B in used car sales. And from a dealer's perspective, its highly fragmented with the largest dealer brand having just 1.8% market share. The digital car buying process was already showing growth before COVID-19 as well. A Capgemini report in 2014 noted that 97% of customer buys included some form of online research while 75% of survey respondents would buy a car online. Dealerships have long resisted online sales but the pandemic is forcing the issue with companies like **GM** and **AutoNation (AN)** both noting a spike in online sales in March and April. **True Car (TRUE)** noted in late May that used car shopping levels were actually higher than pre-COVID levels with some pent up demand hitting the market. The overall advancement is largely due to simplifying the paperwork process, adding virtual tours, the addition of touchless home delivery, and more.

According to KPMG, the trend will continue to grow over the next 5-10 years as most auto executives surveyed believe that half of all car dealerships will disappear in the next decade as online sales pick up. And direct sales will grow too. **Porsche** had said that they expect online sales to be 30% of their mix by 2025 while **Mercedes Benz** expects 25% of total sales. Cox Automotive believes that online sales could be 40% of all vehicle sales by 2025.

There are a number of companies getting involved in the online channel for auto sales. **KMX**, **CVNA**, **AN**, **TRUE**, and **LAD** are all getting involved in some form of omni-channel, if not a pure play.

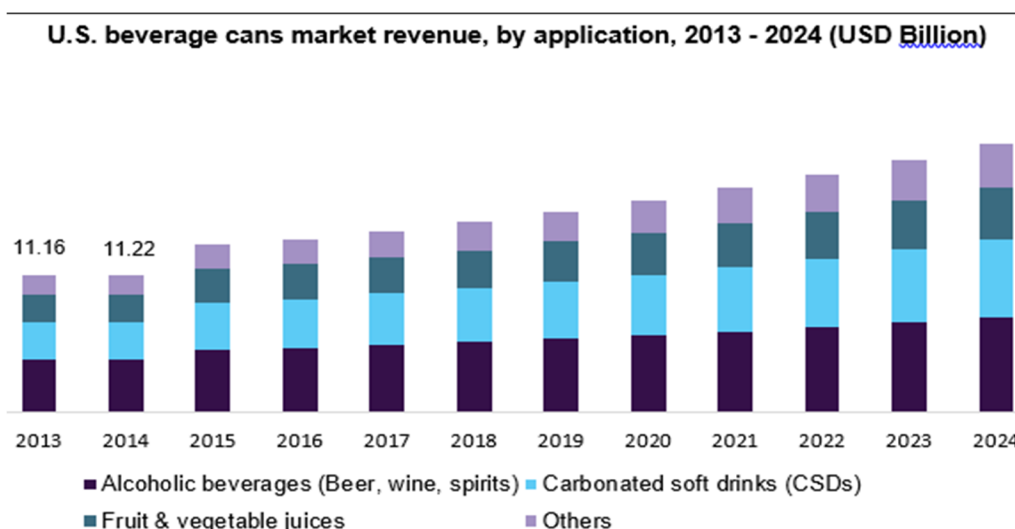
My preferred play is Carvana (CVNA). The \$46.4B company traded higher by 200% in 2020 but feels like it is barely chipping away at the potential for market growth. The company has expanded into 261 markets, up from just 9 in 2015, and units sold have grown exponentially. And they likely see growth continue in 2021 after rapidly expanding their distribution of vending machines up from 1 in 2015 to 25 currently. CVNA has the best user interface, easiest experience with the lowest friction of any peer, and a huge inventory of vehicles which has become important as the used market becomes tighter. In 2021, the company expects tailwinds from an increase in wholesale units sold, lower cost of funds on financing, and new products and services.

They also see better inventories and an expanded logistics network reducing average days to delivery giving them a competitive advantage.

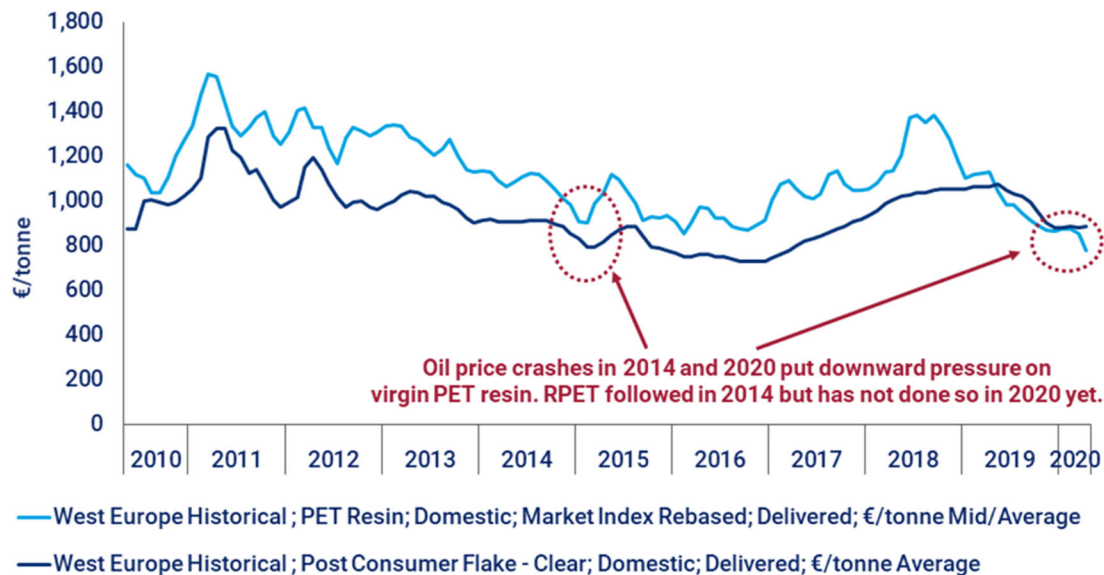
CVNA CEO in November on focusing on inventory in 1H 2021: "I think our inventory as we exited the third quarter in terms of cars that were available for a customer to buy that were kind of ready they could click on and start the purchase process with that was roughly half what it was pre-pandemic. Pre-pandemic we had significantly lower sales volumes than we have today. So our ideal inventory would be higher than we were pre-pandemic. And then we believe we have that inventory our sales would be higher still and so our ideal inventory would probably be higher again. So I think right now the goal is to build inventory as quickly as we can."

Aluminum Squeeze

The growth in aluminum cans was an emerging trend in 2019 that took a big leap forward last year as more Americans shied away from restaurants and bars and stayed at home. This created a major supply chain issue for manufacturers and toward the end of the Summer there were reports of can shortages which drove pricing and demand higher for suppliers. Coupled with a significant push toward sustainability, the secular shift from plastic and glass bottles into aluminum has significant runway ahead of it over the next decade.



The National Beer Wholesalers Association retail sales data showed aluminum cans gained 7% of market share in the market in 2020 due to on-premise shutdowns. The Can Manufacturing Institute (CMI) said in August that aluminum can demand was surging as well due to popularity from high-growth areas in spirits like hard seltzer and sparkling water which has exploded from La Croix into a multiple of competitors. This is disrupting a significant market: plastic. The plastic bottle industry is a \$19B market and globally we use a significant number of items packaged in these containers. According to Reuters, 1.3B bottles are sold globally every day. Polyethylene terephthalate bottles (PET) are used most commonly for soda, tea, or mineral water but also house things like personal care products like shampoo. Credit Suisse estimates that the bottled water market is nearly 1.5X bigger than the entire can sheet market. The US can sheet market is around 1.8M tons and they estimate that both Dasani and Aquafina manufacturing would equate to 22% of that alone.



Source: Wood Mackenzie Chemicals

Aluminum cans are also rising as an alternative to plastic as they are recycled nearly 70% of the time and also contain a higher amount of recycled material. Plastic production has surged in the last half decade with over 8.3B tons produced and only 12%, or ~1B, is collected for recycling. Meanwhile, the value of scrap aluminum is 4X that of plastic or glass. CMI's President Robert Budway said earlier this year that they don't expect market share gains to fall in 2021 either as the environmental aspects and aluminum's role in driving the US recycling market forward are huge. As Constellium (CSTM)'s CEO noted in 2019, "aluminum is infinitely recyclable and retains its properties after recycling... we are optimistic on the trend and believe this represents a meaningful opportunity for can sheet demand over time."

There are a couple of names in the space that are pure-play aluminum companies including **KALU**, **CSTM**, **AA**, and **CENX**.

My preferred play is Constellium (CSTM). The \$1.88B company is positioned well around key end-markets like packaging, aerospace, and automotive while also building out capacity and ready to serve the surging demand in the space. CSTM sees a brighter 2021 given recent preliminary anti-dumping duties in the US while they have slashed costs and continue to improve operational capabilities. CSTM has two major secular themes driving long-term growth estimates. First, within CPG, is a major shift away from plastic bottles towards aluminum cans. The company noted in November that packaging shipments are running 95% of 2019 levels already and consumer preference for cans will continue to press demand and give the company ample pricing power. Second is within automotive and a continuing shift away from steel as regulations over fuel efficiency and reducing emissions cause manufacturers to move to lighter aluminum. CSTM has also noted this year that EV adoption and hybrid vehicles are becoming more aluminum intensive and they expect to win more share within each body.

CSTM CEO in November on high demand in all of their end-markets simultaneously: "This is a good problem to have, and we're very excited at the opportunities. So we have constantly evolving plans to improve the throughput from our mills. And if you think of that 100,000 tons of additional demand every year, we can capture our fair share of it or capture or supply our fair share of it, as long as we've got a little bit of prior notice, and we can decide to allocate capital to develop our field there. The fact that that capacity is competing with auto demand is a good thing for us, obviously, because strategically and tactically, it gives us options. It's a growing market. It's a consumers' preference that goes towards cans. Our can-makers are investing. And we, as an industry, and certainly we as Constellium are ready to meet the challenge as long as this makes sense for us and we get paid for what we supply. It's important whenever we talk about possible capital expenditures towards expansion that we get a fair return on the capital we would be deploying."

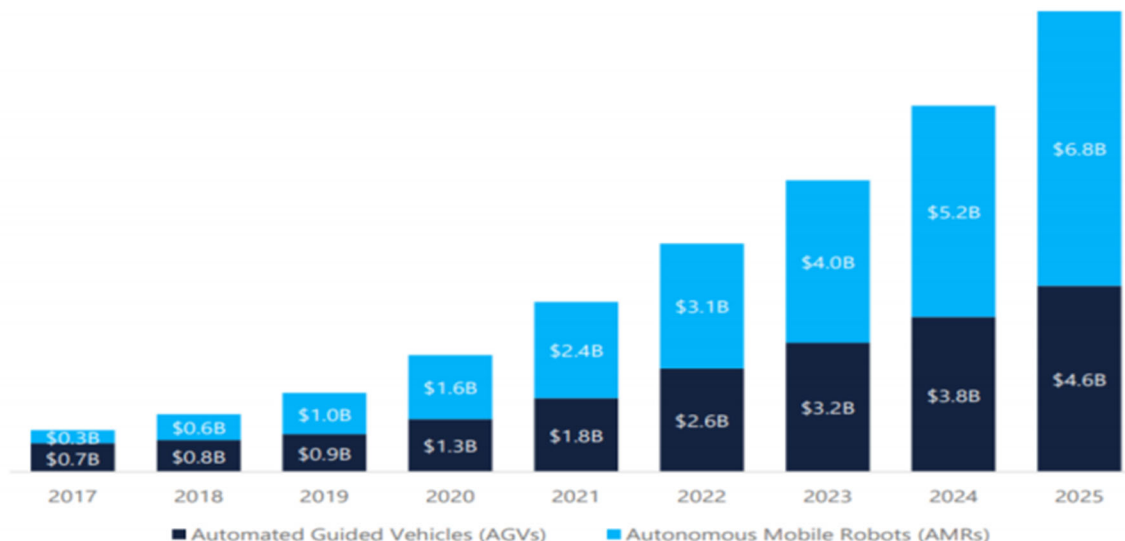
Factory Automation

Robotics within the factory setting has the possibility to kick-start the next great manufacturing revolution and the pandemic accelerated investments into the space. Clearpath Robotics – a company that specializes in expanding robotics capacity for companies – told eMarketer this year that they've seen many customers move 5-year roadmaps for digitization into 6-to-12 month timeframes. The short-term impact clear – companies can safely and efficiently operate under circumstances where distancing or even diminished physical capacity is required. Automating factories is a significant long-term game-changer for companies however as their investments will reduce long-term costs, increase productivity and safety, and improve customer satisfaction.

Industrial automation encompasses a wide swath of new and emerging technologies. There are three types of industrial automation being deployed. The classic form of automation in a factory or warehouse setting has been what's called fixed automation, the least programmable form of robotics that is often used for repetitive tasks. Fixed automation is being utilized in factories as alternatives for production that can enable high-volume output – think: assembly lines. There is also programmable automation which allows a user to reconfigure the skill-set for every batch or change in the manufacturing process and more flexible automation systems that are controllable and often can be altered using a separate control panel or software.

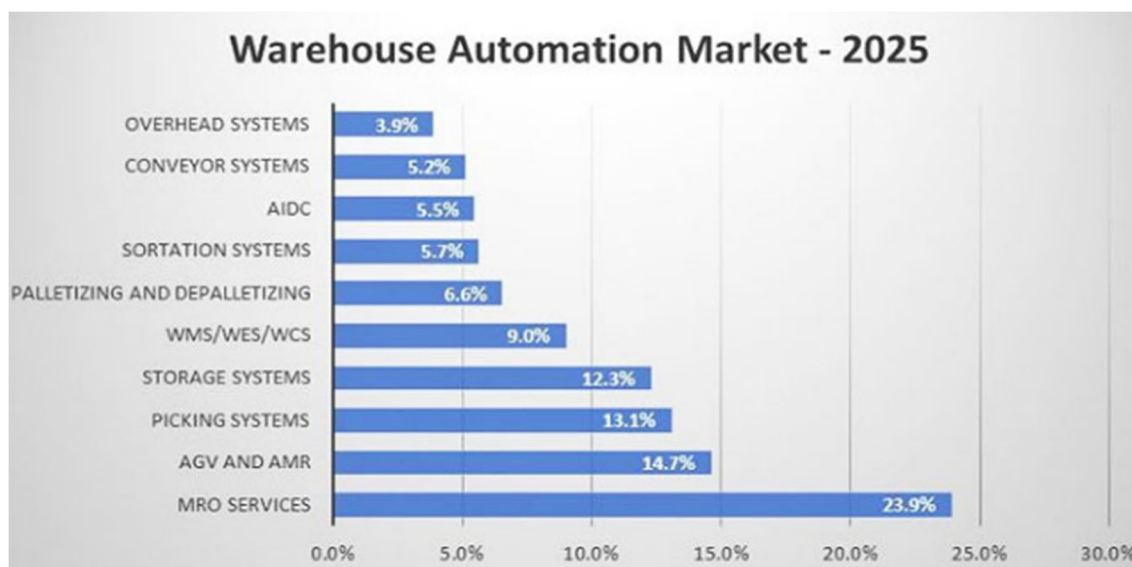
The next-generation of automation is growing fast. Service robots are growing in demand around areas like vacuums, delivery bots, and other assistants while logistics has been the area to see the biggest leap forward. There are four primary types of robots being deployed in logistics settings: automated guided vehicles, autonomous mobile robots, automated storage and retrieval systems and aerial drones. Amazon has gradually increased the number of robots in use at their warehouses over the last five years and delivery robots – including drones – could be the next significant area of growth. This is occurring largely because of a growing challenge to find labor in the logistics industry and many including DHL have said that automation is the best way to address this usage. Growth in e-commerce is putting strain on human systems and automation can help alleviate this bottleneck. Logiwa said in September that order picking – simply retrieving items in a warehouse for shipment – can account for 50% of overall labor time and costs. An automated solution can allow workers to focus on packaging and posting goods and save both time and money.

Automation's next major inflection point is due to growth in neural networks and deep learning which are making processes smarter and more efficient. The use of deep learning or AI-based software allows companies to mark data and behaviors and then the robotics use AI models to instantly adjust and improve their workflows.



Automation is changing the future of work and the market they're disrupting is significant. ARK estimates that automation will add \$800B to US GDP by 2024 and potentially \$12T by 2035. This is happening because of

major changes in cost for developing bots over the next five years. Boston Consulting Group estimates that the cost of industrial robots will fall to \$13,000 by 2024 from as high as \$139,000 in 1996 and \$33,000 in 2014. Sensors used for robot development are also getting cheaper and more advanced with specialized camera and pressure switches making it easier to develop smart systems. Logistics IQ said in September 2019 that growth in the material handling equipment market will push warehouse automation to a \$27B TAM by 2025. And there's significant room for penetration. DHL estimated in 2016 that just 20% of warehouses were manually operated and that number is expected to be more than 75% by 2024.



Industrial automation and digitization is a huge theme, so there are a lot of angles and plays to consider including **ROK, EMR, ETN, HON, and PTC.**

My preferred play in the space is Zebra Tech (ZBRA). The \$20B company focuses on automatic identification and data capture tech for the warehouse and industrial markets. ZBRA has been building out through M&A and has a number of unique solutions now for the modern warehouse powered by computer vision, machine learning, AI and automation. They make everything from barcode labeling, RF ID systems, specialty printers, and more which are being supported by the growing IoT and e-commerce markets. The company sees small-parcel delivery growth, last-mile fulfillment, supply chain optimization, and higher process manufacturing in food and pharma driving both the near- and long-term opportunities.

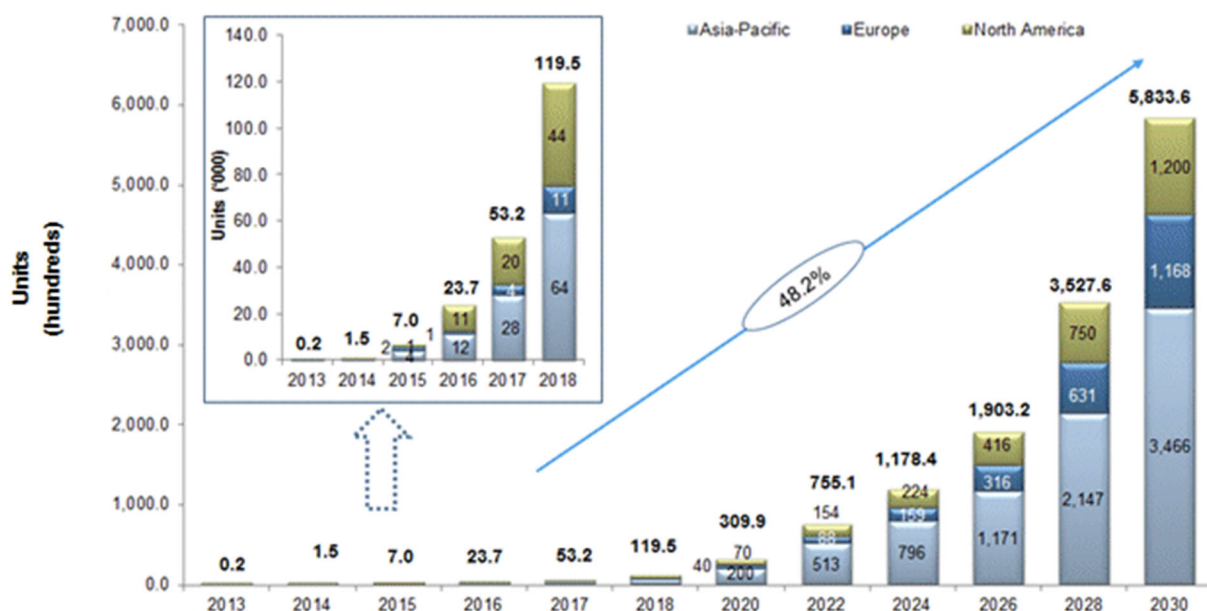
They also noted in November that retailers are starting to position for 2021 which is benefitting their outlook: "Retailers are prioritizing investment in our technology for their complex omni channel fulfillment strategies and related warehouse automation needs. Demand from large retailers is at record levels as e-commerce and buy online initiated transactions have increased dramatically through the pandemic. We have also begun to resume business with many department stores and specialty retailers that have been reopening their doors."

Hydrogen Fuel Cells

The growth in fuel cells has the potential to significantly change how we approach clean energy and further drive a secular shift away from fossil fuels. Fuel cells are simply a cleaner way to produce power and the cost-friendly development of the technology is making it easier for advancements in the space. Hydrogen fuel cells have a wide range of applications from buses, autos, rail, truck, forklifts, UAV, marine and much more and we're at a tipping point within many that could drive a decade of adoption and innovation.

Hydrogen is an alternative fuel to petroleum that has a very concentrated energy content by weight, according to the DOE. It is the most abundant element on earth and can be found naturally in water, hydrocarbons and other organic matter. Fuel cell vehicles (FCEV) are the most consumer-facing use case of fuel cells. They are powered by hydrogen and use a similar internal process as combustion engine vehicles but without harmful emissions. FCEVs store hydrogen in tanks which is converted into electricity through a fuel cell. The most common fuel cell used is called a PEM which requires two primary elements: hydrogen and oxygen. When hydrogen is brought into the cell its broken up into protons and electrons which run through the electrical circuits into a main power control unit in the vehicle that powers basic tasks that allow the car to function. After those elements have run through the circuitry, they go back into the fuel cell and join with the oxygen to form water which is discharged from the vehicle through the tailpipe.

Fuel cells produce environmentally friendly, quiet, efficient vehicles which can re-fuel extremely fast and have a superior driving range to plug-in battery vehicles. Current FCEVs can handle between 300 and 400 miles per fill-up which can take less than five minutes on average. FCEVs can also scale up easily which means the same tech can be used in something as small as a forklift and then easily converted to a city bus by simply adding to the fuel cell stack to increase power. In contrast, a plug-in vehicle needs to develop and work with larger and larger batteries to get to the same point.

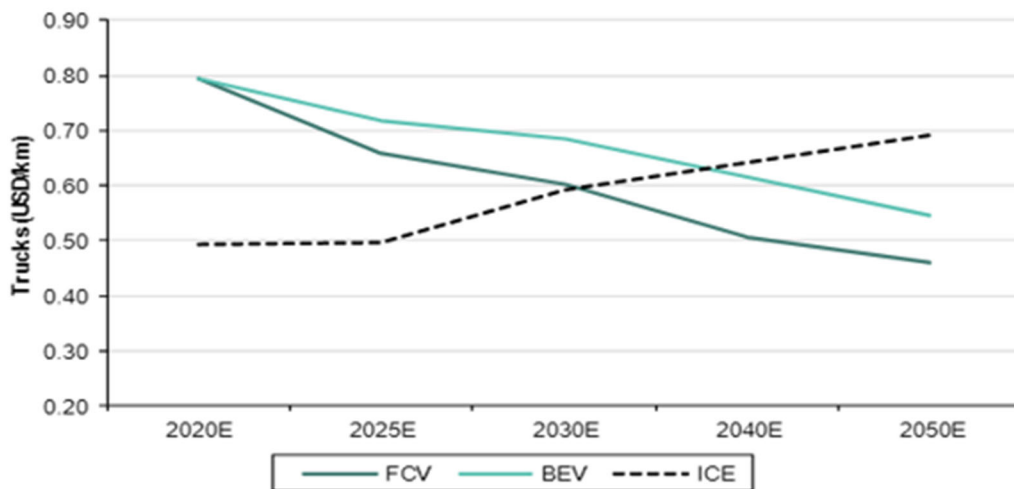


Source: Frost & Sullivan, Base year is 2017

2021 is likely an inflection point for FCEV adoption as government mandates become more supportive. Many states have produced bills for consumer incentives, producer incentives, and infrastructure growth. Hawaii and Massachusetts have tried before and failed to mandate FCEV infrastructure development but will likely try again in 2021. California, Colorado, Texas and Washington are pushing for tax incentives or rebates for consumers. Outside of the US, China, Japan and South Korea are all pushing for growth in refueling stations. China specifically is looking to make FCEV 15% of the countries passenger vehicles and 50% of their commercial vehicles by 2050.

Fuel cell adoption could be the most disruptive force on the commercial vehicle market, Alliance Bernstein estimates. They noted in late 2020 that their base case called for 1% market penetration in 2030 and 23% by 2050, up significantly from 0.02%. And while this is a long-term idea, the way in which heavy-duty truck manufacturers think about next-generation development will drive more spending into the area now.

EXHIBIT 66: FCEV could become more cost competitive with ICE post-2030 for trucking, particularly with HCV



Estimates have the overall market around \$10B in 2019 and expected to grow to over \$40B by 2026. According to the Fuel Cell Industry Review, fuel cell shipments have grown at a 44% CAGR, or compounded annualized growth rate, since 2014 - paralleling the rise of solar and wind energy in earlier decades. The other significant area of growth is in electrolyzers – the technology used to generate 'green' hydrogen from water. Currently, the vast majority of hydrogen is created from fossil fuels but it's a) not renewable as a source and b) produces less concentrated hydrogen which is not the best for fuel cell growth. AB thinks electrolyzers could generate \$70B to \$160B in annual revenue by 2050. This will lead the overall cost of hydrogen to drop sharply to \$2/kg and fuel cell costs to fall 80%.

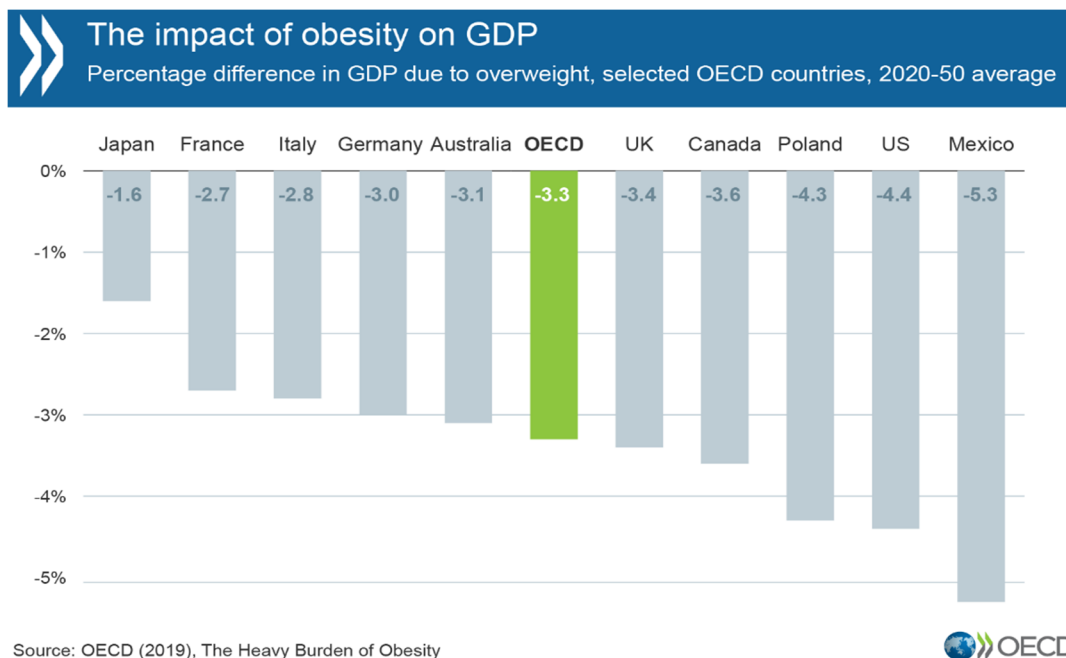
There are a number of plays on the space including **PLUG**, **BE**, and **BLDP**.

My preferred play is Ballard Power (BLDP). The \$6.6B company has the product, scale, and partnerships in key markets to make it a winner longer-term in the speculative space. BLDP is more focused on large-scale vehicles like public transit and trucking which gives them a nice niche to build into as well as immediate demand in countries like China where the regulatory tailwinds are huge. BLDP has a JV with Weichai Power in China and they think the country will be the first major market to build out FCEV infrastructure supported by government incentives towards new energy vehicles. The country expects to have 20% of vehicle sales by 2025 be new energy vehicles and BLDP expects a continuation of the fuel cell subsidy sometime in Q2/Q3 which would be supportive of their growth (Roth thinks this could be improved to support 2,000-3,000 module shipments per year with Weichai). BLDP has struck partnerships with others as well as they look to expand production and commercialize their FCEV systems for heavy-duty vehicles. They announced a deal with Daimler/Volvo this year. They also have deals with Audi, Van Hool, and Solaris.

BLDP CEO on the massive long-term opportunity vs short-term volatility: "Clearly, this is an attractive long-term growth opportunity set that we're developing in different geographies, China, Europe and North America, across different market applications, bus truck, rail and marine, and we think we're very well positioned for those. And we believe there's going to be a very steep curve, particularly 2023 to 2030. In terms of near term, you're right, it has been flattish, and I would suggest this year has been a little flatter than we expected, and it really is not to use it as an excuse. But the reality is we have seen customers end market customers and OEMs defer orders. And so there's been a deferred project. So that's the reality. What we haven't seen, fortunately, is projects dropping out of the sales pipeline. So it's really been more about deferrals."

Obesity

The pandemic brought to light a lot of health-related issues for individuals and obesity re-emerged as a national crisis as COVID-19 disproportionality impacted those with the condition. Science Magazine reported in September that a significant number of early cases in the US were in those that were overweight. Obesity Reviews, a peer-reviewed medical journal, noted that people with obesity were 113% more likely than people of healthy weight to be hospitalized and 74% more likely to land in an ICU. Mortality rates for the obese were also higher with 48% more cases. Obesity is not a new theme by any means but it's a big example of how the pandemic sharpened focus on certain areas. The lasting impact is likely an long-term acceleration of fitness and wellness trends as well as changes in consumer products as tastes change.



Obesity is a serious medical condition that can drive high blood pressure, heart disease, and many other ailments that impact not just the well-being of the individual but decades of costs. The WHO reports that roughly 13% of the world's population is obese and US rates are far higher. In February, the CDC reported 42.4% of the US was obese, up from 30.5% in 2000. Severe obesity has jumped from 4.7% to 9.2% during that same time. Reports and Data said in 2019 that the obesity treatment market was near \$6B and set to grow to \$19.9B by 2026, a CAGR of 16.7%. This will be driven by procedure growth like gastric bypass or bariatric surgery, pharmaceutical options, changes in consumer foods and government regulations.

There are a lot of tangential ways to play the obesity epidemic in the US including food manufacturers, exercise and wellness companies, and drug developers.

My preferred play is large-cap pharma Novo Nordisk (NVO). The \$126.26B company has bet big on obesity and in 2020 their oral drug GLP-1 – aka Rybelsus – was approved by the FDA and became the first alternative to injectable treatments on the market. The drug had some strong data earlier in the year with an average weight loss near 18% for patients in a Phase 3 trial. This was far better than current treatments on the market including Roche's Xenical. NVO is setting up for a big push in to the market in 2021 and beyond with new R&D spending and combo studies that could expand its use-cases. Success in 2021 for Rybelsus could add to their already blockbuster portfolio that includes Saxenda.

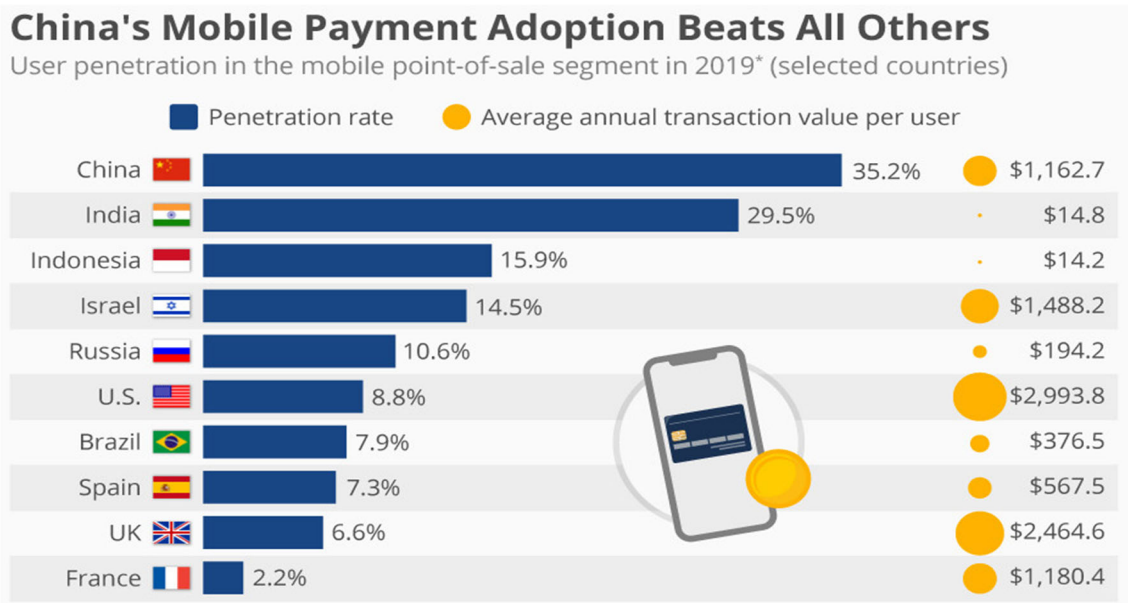
NVO on their strategy in 2021 to expand obesity care: "We're working on four dimensions, so one is about having obesity recognized as a disease and this of course will be extremely important for also reimbursement down the road and we're also working on the number of patients seeking treatments and just before I mentioned that. Right now, only 10% of patients living with obesity seek treatment. But when they

then go to the physician to get treatment actually the big majority of those are sent back without any treatment other than exercise and eating suggestions. So both on these dimensions we can work on with education and with that hopefully also get some more you can persistent prescribers of obesity medication.”

Digital Wallets

Traditional banking has continually shifted online over the last decade and the pandemic has propelled mobile payments and digital wallets into widespread adoption. The explosion of e-commerce and concerns grew over P2P transfers within stores have aided in the expansion of digital banking in 2020. The ease-of-use and frictionless experience in areas like curbside delivery have pulled in a lot of new users and their usage post-pandemic is expected to remain steady as the network effects grow stronger and more retailers and users adopt newer payment methods. And, with significant penetration among the millennials and Gen Z, two groups hitting their peak spending years, digital wallets are on the precipice of a generational shift in perception.

Digital wallets – sometimes referred to as mobile wallets – are consumer-focused apps that allow for payments to businesses. Mobile phones are typically the hardware used but more and more wearables are starting to adopt payment technology as well. A digital wallet app holds a cash balance, can do P2P transfers, use in-store payments, store loyalty cards and coupons, and some even store cryptocurrency. In the past there has been distinctions made between the two as mobile wallets are sometimes seen as only being used to pay for items online but the lines have been blurred now many financial institutions consider any payment through a mobile device, whether in-store or online as utilizing a digital wallet. Popular apps include Apple Pay, Google Pay, Samsung Pay, Walmart Pay, Venmo – a Paypal company – and Cash App – a Square company.

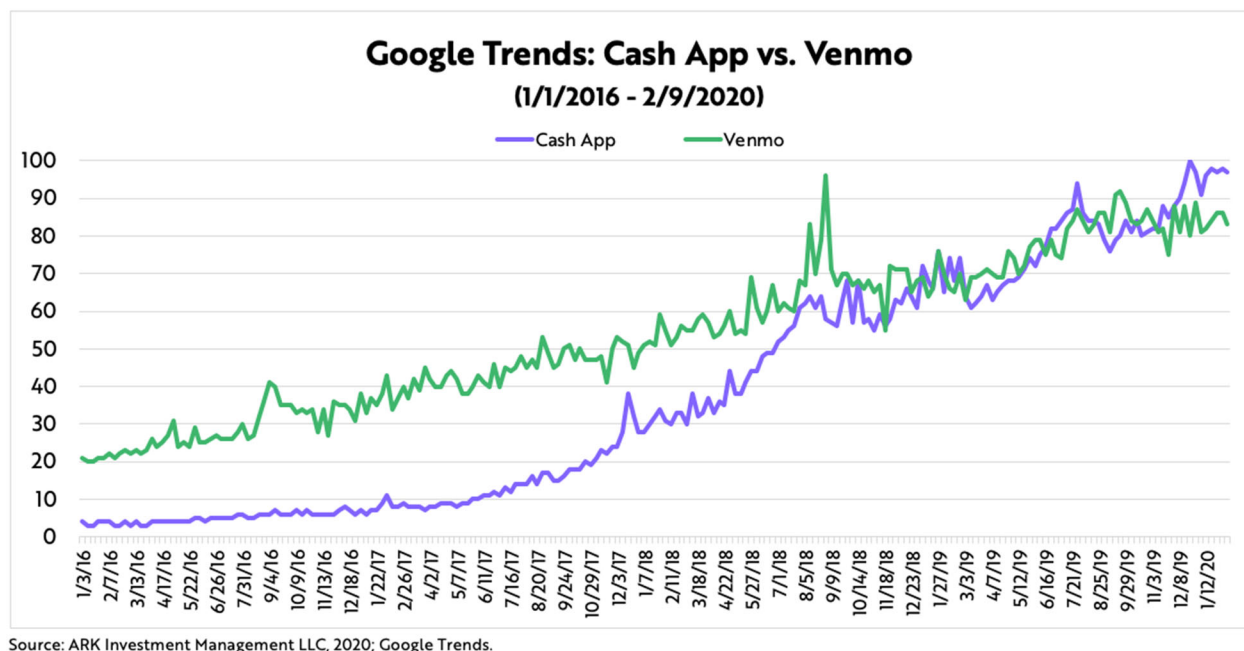


The adoption of digital wallets is likely to accelerate for three reasons. First, more people have access to a mobile phone than a bank account. According to Trepont, a leading digital and mobile marketing firm, there are 5B users of mobile devices globally and many don't have access to regular banking. This is forcing financial institutions who want to grow their base to expand into mobile services. Second, adoption outside the US is surging, especially in Asia. Analysys International noted in 2017 that mobile transactions in China were nearly \$4.5T. ARK notes that mobile payments in China are 2.5X the size of GDP, up from 10% of GDP in 2014. This is representative of the opportunity in other areas like Africa where smartphone adoption is accelerating quickly. Finally, cryptocurrencies are driving adoption of mobile wallets and likely to continue into 2021. Bitcoin

and other altcoins are outside of the traditional banking system and access to them through apps like Cash App are a big driving force for adoption.

Digital wallet usage has surged over the last decade but 2020 was a major shift higher and just beginning to crack the \$5.9T e-commerce market. In 2019, according to Global Trade Magazine, 22% of POS spent globally was done using digital wallets with Asia leading adoption. Worldpay said in November that US adoption of digital wallets is now 24% of e-commerce spend and growing at double-digit rates, set to top credit cards as a preferred method of payment in 2021. FIS thinks 50% of e-commerce transactions will be done with digital wallets by 2024. QR codes are likely the next major driver in the US after seeing strong usage in Asia (QR has been used in restaurants to pay as a contactless option). This is just one example of how the pandemic has reshaped the adoption curve for many. Blackhawk Network said in an October article on PYMNTS.com that they have found mobile wallet adoption in the US to jump from 38% before the pandemic to 55% now. And Worldpay estimates that 1B people will use a digital wallet in 2020. 'Buy Now, Pay Later' is expected to be the biggest growing online payment preference over the next five years, according to FIS. North America is just 1% of the global BNPL market and set to triple in size through 2023.

There are a number of ways to invest in the theme including **PYPL, SQ, V, MA, AAPL**, and **GOOGL**.



My preferred play in the space is Square (SQ), largely due to the growth in Cash App. The P2P payment service has grown sharply since 2016 and came into 2020 surpassing Paypal's Venmo in terms of both interest and downloads according to ARK. The pandemic has accelerated adoption moving from 24M users in 2019 to likely 35M+ at the end of 2020 (they didn't update this number last quarter). Cash App has also become 50% of SQ's overall business, up from 25% in 2019. Gross profit jumped 212% in Q3 and daily volumes hit a new peak in July due to the stimulus checks which should come through again early 2021. It continues to become a highly versatile app with exposure to stocks, bitcoin, and banking – the latter through their charter allows them to build into areas like savings, personal loans, money transfers, paycheck access, and more. SQ is capitalizing on a major trend in making banking access easier for everyone and Cash App is the premier, do-everything digital wallet on the block.

SQ on investing in marketing Cash App and the payback: "It's been about a year now since our first paid ads for Cash App, we launched them for the first time in December of 2019. And with our ARPU and lifetime values up, 3x over the past three years. We are seeing significant room to scale marketing spend still at very strong ROI. We ramped paid marketing for Cash App in the third quarter and into October with low

customer acquisition costs across a variety of new channels. And we are seeing compelling payback so far on that acquisition spend at less than a year. Of course, a key piece of that is related to the ability to drive stronger value into the ecosystem and therefore stronger ARPU and lifetime value of these customers, which becomes a flywheel. It enables us to invest more both into the product and into the go to market.”

Cloud Gaming

There was a huge uptick in gaming popularity in 2020 due to the pandemic which put more people at home and looking for forms of entertainment. NPD alone showed six straight months of sales growth for games in the US, each over 25% Y/Y, as demand for new content sustained throughout even the Summer months. One of the big, emerging areas that has grown within the theme has been cloud gaming even as next-gen consoles set to debut at the end of 2020. The future of gaming is increasingly looking like it will be through the air. Both Sony and Microsoft said in November that their latest iterations could be the last consoles from both before moving into streaming only. And given technological advances which is also helping lower costs considerably, cloud gaming could be positioned for explosive growth over the next decade.

Cloud will impact everything from how games are made, played, and monetized and the “Netflix-ization” of gaming will only accelerate as big tech players like **Microsoft (MSFT)**, **Google (GOOGL)**, and **Apple (AAPL)** all venture into the space. Cloud gaming hits upon a number of emerging themes within \$100B video-game industry. First, developers will be able to offer lower-cost, more immediate gameplay experiences to individuals. The success of Fortnite has changed how games are viewed by developers with a focus on multi-player as well as an ever-changing environment. Developers are able to offer new downloadable content (DLC) and add-ons, and in-game purchases through the cloud. Advertising has also become a bigger element of gaming as it can be updated in real-time. Secondly, consumers will be able to streamline their gaming experience across multiple devices. Cloud gaming will allow an individual to start a game on a television set or computer and seamlessly move to their mobile device and back without disruption. The percentage of games played on mobile devices has grown significantly since 2013 and now the largest medium vs PC, console, and arcade. Finally, console manufacturers will benefit from shifting away from reliance on unit sales and towards recurring revenue or a subscription model. Compatibility issues for games between different platforms will also be eliminated as titles move on a centralized cloud.

The TAM for cloud gaming could be massive. ARK estimates that cloud gaming took in about \$263M in revenue but poised to grow into a \$13.5B market over the next year five years. They see cloud adoption taking significant market share from console- and PC gaming and yet only a small fraction of overall gameplay at 6.3%.

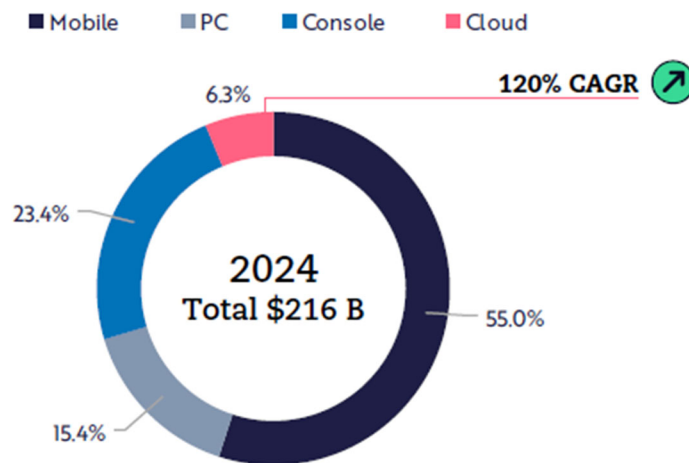
Looking at the broader market for gaming and user growth, there is significant runway beyond this initial uptake as well. Using console sales, NPD suggests that there are 2B global gamers with the vast majority of those mobile. Citi thinks there are about 380M gamers that use PC/consoles but this number is shrinking as sales have contracted since 2012. The major shift during that time from consoles to mobile plus the ability of any mobile phone holder to be a gamer makes overall estimates tough. And even if there is a pullback in hours played in 2021 after a surge this year, the overall baseline is still big. The vast majority of gamers prior to 2020 played less than 4 hours per week with just 15% of gamers playing 12+ hours. The latter make up more than one-quarter of total time played. According to Limelight, about 25% of all total time played is on mobile vs 75% on consoles or PCs. The shift forward from the pandemic has been big for sales too. The World Economic Forum estimates that \$29.4B of video games had been sold through September, up 23% from 2019. Sensor Tower data showed mobile gaming sales on iPhones rose 44% in Japan and 20% in Europe in the month of July alone.

The three main developers **ATVI**, **EA**, and **TTWO** are all beneficiaries of the next big gaming wave. **MSFT**, **AMZN**, and **AAPL** as well. **ZNGA** is also a growing name in the mobile space with a deep library.

My favorite play on the space is Electronic Arts (EA). The \$41B company has been investing in their cloud gaming portfolio including some first-mover advantage with their Project Atlas in 2018 which has been working on cloud-native titles. EA has the best product lineup and IP suited for the online environment including multi-player like Apex Legends as well as their vast sports titles like Madden. The company also sees a lot of opportunity to monetize their mobile platform as it moves more into cloud and digital-first gaming including new services.

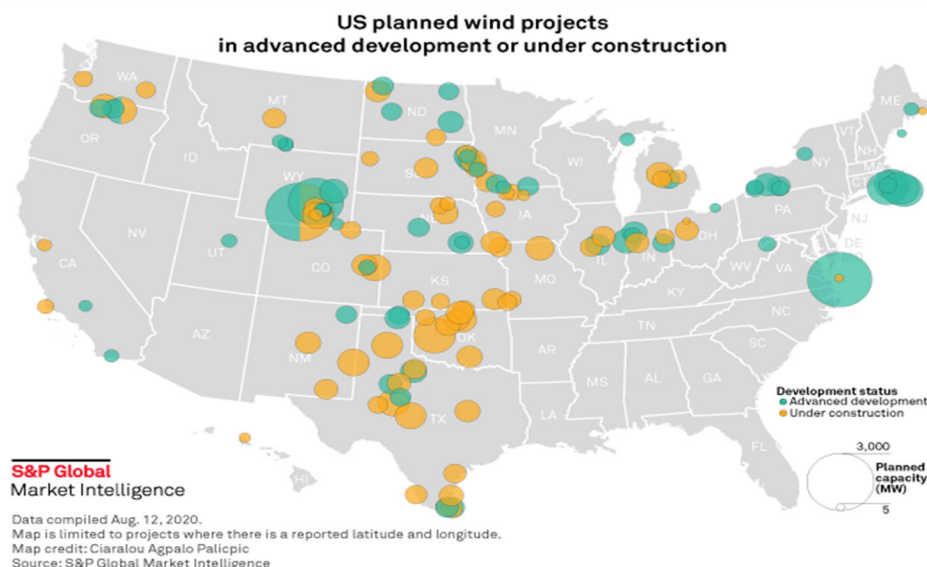
EA CEO in November on cloud gaming driving user engagement: "We'll start to think about how do we use the technology in these new platforms, how do we use them plus the combination of the cloud to bring millions and millions of players together in a social ecosystem around the consumption of their favorite sport. And we're excited by that as much as the base technology quite frankly, because these are becoming social networks for sports fans and COVID has accelerated that for us as the consumption of sport more broadly has moved from lean to interactive and physical interaction has moved -- social interactions move from physical to digital."

2024 Forecast of Global Game Market Share



Wind

One area within alternative energy that isn't discussed as often but has been a steady grower is wind. Clean energy in general stood up very well all year in 2020 despite headwinds to other energy groups from the pandemic and adoption for wind is at a tipping point with capacity set to expand greatly due to the US production tax credit. S&P Global says there are projects online for more than 30,000 MW of capacity and more states are starting to expand out incentives to build including Wyoming and Texas, the US leader in development.



Wind energy is extremely important as a cost-effective, sustainable, land-based utility that can create energy at one of the lowest price points per MWh of any other renewable. The DOE also notes that because wind energy is sold at a fixed price, there's less uncertainty over price volatility than traditional sources of energy. Wind is also likely to be a big driver in political discussions as a nascent market it creates a ton of new jobs and will make the US more competitive globally.

The market for wind energy is expected to grow at a CAGR of 7.9% through 2025. Berenberg says that growth should be steady through 2040 as there's significant runway to adoption and expansion. They note there's potential for the current installed base to grow 10X through 2050 to more than 6,000 GW. Onshore installations are expected to be strong in 2021, up 7%. Offshore is expected to grow at a 10% CAGR through 2025 with Europe advancing their current plans further and the US adopting new standards. Cost efficiency in turbine development are making production easier and lowering costs as well. The DOE estimates new wind projects account for about \$10B in annual investments in the US.

There are not a lot of direct plays in the US on wind power. Internationally, **Siemens** is a strong player in the space while **Vestas** is a leader as well.

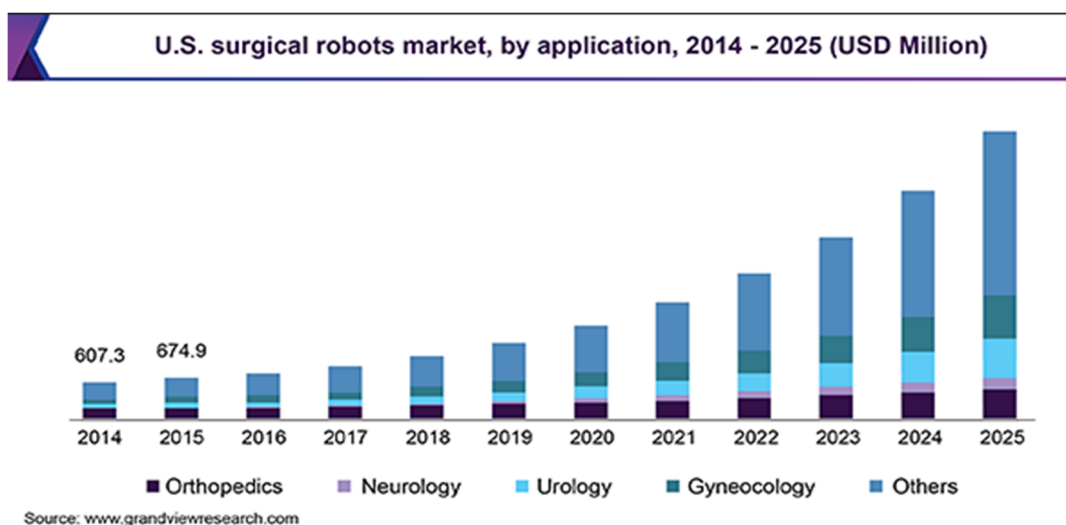
TPI Composites (TPIC) is my preferred play in the US. TPIC is a \$2B manufacturer of wind blades. The company has an 18% market share of the onshore wind blade market with enough capacity and global footprint to expand at a double-digit rate over the next decade. TPIC is a provider for some of the biggest names in the space including Vestas and nearly 99 % of the US market. They see a big opportunity in transitioning from just onshore blades into the next big migration of the wind market into offshore build-outs. TPIC spent much of 2019 and 2020 investing in lowering costs, delivery times, and new products like larger-sized blades. They see 2021 catalysts from higher demand in 2021 after orders were delayed due to COVID last year, expansion of wind as a alternative energy source, and ESG flows.

TPIC in November on the changing environment: "We will continue to optimize our global footprint while using the leverage our global scale provides for operating and supply chain efficiencies to continue to drive down costs, all while maintaining a strong balance sheet. As I mentioned earlier, these goals are based on older and more conservative industry forecasts that do not factor in the acceleration of the energy transition. We will continue to evaluate the global demand and update our long-term targets accordingly to better reflect the opportunity we expect to see in wind long term under this accelerated energy transition movement."

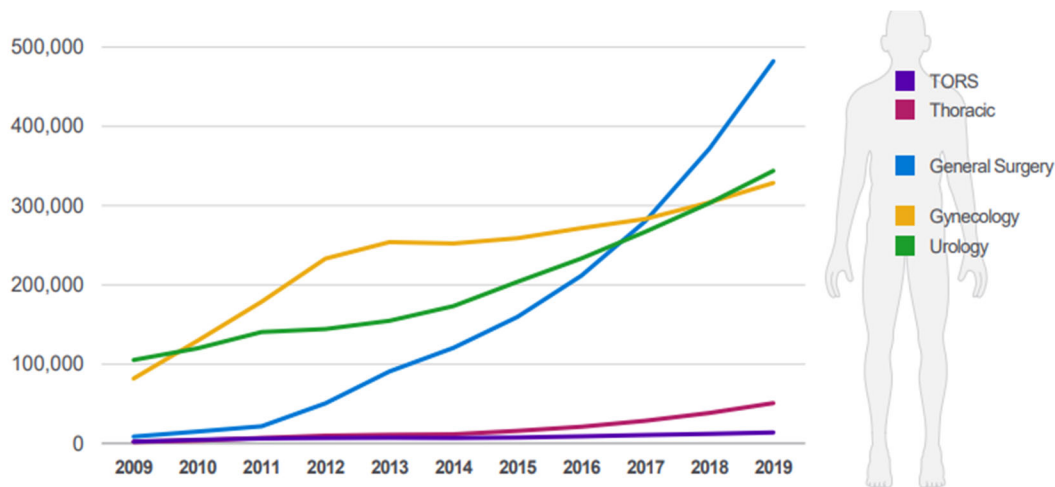
Robotics in Surgery

The growing use of robotics in surgery has been a theme in med-tech for a number of years and the pandemic is likely to accelerate adoption in operating rooms. COVID patients have put a considerable strain on hospitals resources and the combination of shorter recovery times for patients and lower risk of patient-to-doctor contact makes use of minimally invasive robots incredibly attractive in 2021 and beyond. And, after years of false starts and timelines pushed back, the technology is finally at a point where there are multiple entrants in the space making it more competitive than ever.

There are two types of operation which are considered minimally invasive. Robotic surgery uses 3-D imaging to operate with better accuracy. In areas like knee surgery and hip surgery, the use of robotics is key to precision and predictability. In spine, robotics will reduce the use of x-ray exposure. But, not all MIS procedures use robotic assistance. Endoscopic surgery or “keyhole” surgery is being used more frequently across a number of indications. Physicians have expanded use of MIS throughout a number of indications from thoracic, colectomy, heart, kidney, neurosurgery, orthopedic and many other surgeries.



The market for robotics in surgery is big and growing as well as use-cases expand. Citi estimates the total markets available for robotics will grow in the next two years to include orthopedics, neurosurgery, laparoscopic, single port systems, and diagnostics. Spinal surgeries are also expanding now after initial applications of robotics were purely for pedicle screw placement which was just 20% of all procedures. RBC estimates that more than 35% of all surgeries will be performed using robotic assistance by 2025. This is up from around 15% in 2015. The global market for minimally invasive surgical systems is expected to grow to \$40.5B by 2025, a CAGR of 10.9% according to BIS. This is being driven by surgical need and the rising geriatric population. CSFB expects the market for orthopedics to reach \$4B by 2025 which includes both system sales as well as pull-through products.



There are many players in the robotic surgery space: **MDT, BSX, ISRG, SYK, SNN, GMED, and ZBH.**

My favorite play is Intuitive Surgical (ISRG). The \$95.2B company has exposure to the theme through their Da Vinci system which has been a leader in MIS for over 20 years and 5M surgeries. The system is widely used for urology and gynecology procedures, mostly hysterectomies and prostate removals. It has also been used in hernia repair and transoral robotic surgery and sees a lot of opportunity with growth in general surgery. They've expanded into Europe, Asia and elsewhere in the last decade with almost 5,000 units installed worldwide. ISRG is winning share in hospitals that are overall adopting robotic surgery at a quick pace. There's a long-term opportunity for Da Vinci too in Asia and the EU, new indications, and expanded clinical evidence. ISRG also sees their new Ion system becoming a winner in robotic peripheral lunch biopsy and a bevy of other new products in colorectal and other spaces.

They also could look at M&A to expand, their CEO noted in November. "I think we have an interest in and pride in our organic innovation capabilities and I expect that to remain a pillar in part of our DNA. As we have grown and as I think the market has started to really appreciate here, I mean, the medical market, really appreciate what robotic-assisted surgery and computer aided surgery can do. I think that a lot of new avenues open and that provides opportunity for us. We have been -- we are not a not invented here culture. We are open-minded to the very bright people outside. We do a lot of activities and tuck-ins over time. Those may get bigger in time. We may continue to do it. In general, I'd prefer to bring things in earlier rather than later. On the other hand, if something is interesting, we are open-minded to it. The venture fund and our futures initiatives, I think, are really recognizing as an interesting ecosystem out there developing. There's a lot of technology lines that can make a big difference in medicine and we would like to facilitate that growth."

Investment Theme Portfolio of 20 Stocks

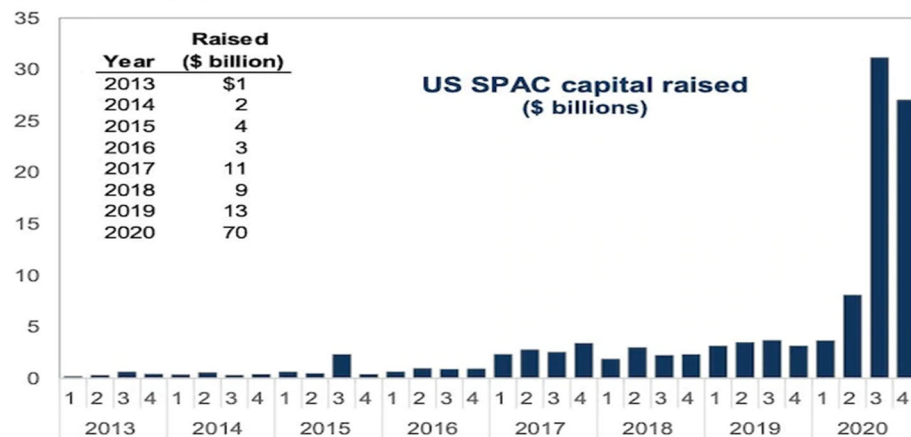
Tickers	Company	Mkt. Cap	EV to EBITDA	EBITDA CAGR	Revenue CAGR	EBITDA Margin	ROCE	FCF Margin	Debt to EBITDA	FCF to EBITDA
AMED	AMEDISYS INC	9,485	39.1x	9%	12%	11.52%	21.34%	9.93%	0.6x	0.86
BLDP	Ballard Power Systems Inc.	6,642	(191.8x)	-1%	10%	(25.76%)	(9.55%)	(26.49%)	(0.5x)	1.03
CSTM	Constellium SE	1,906	7.5x	-22%	-2%	9.51%	7.02%	2.98%	4.0x	0.31
CVNA	Carvana Co	43,003	(163.2x)	40%	59%	(5.83%)	(39.23%)	(25.07%)	(4.6x)	4.30
DE	DEERE & CO	83,401	8.0x	-4%	4%	23.18%	2.72%	15.44%	(1.8x)	0.67
DLR	DIGITAL REALTY TRUST, INC.	38,727	25.3x	22%	12%	58.79%	2.49%	(0.53%)	5.7x	(0.01)
EA	ELECTRONIC ARTS INC.	41,206	18.5x	39%	8%	32.80%	44.35%	29.93%	0.5x	0.91
ISRG	INTUITIVE SURGICAL INC	95,843	53.7x	19%	10%	43.16%	20.87%	26.18%	0.0x	0.61
MSCI	Msci Inc	36,224	38.7x	8%	9%	54.60%	25.60%	42.09%	3.3x	0.77
NET	Cloudflare, Inc.	23,804	(4,363.8x)	20%	43%	(14.58%)	(14.63%)	(33.52%)	(0.3x)	2.30
NVO	Novo Nordisk A/S (ADR)	161,778	16.2x	8%	8%	47.65%	68.33%	29.14%	0.0x	0.61
PTON	Peloton Interactive Inc	45,331	168.1x	-82%	79%	6.45%	(6.09%)	12.04%	0.0x	1.87
PYPL	PayPal Holdings, Inc.	271,225	46.1x	24%	18%	27.19%	16.20%	21.70%	0.7x	0.80
SDGR	Schrodinger Inc	5,687	(104.6x)	40%	38%	(40.99%)	(37.54%)	(32.61%)	0.0x	0.80
SPWR	SUNPOWER CORP	4,405	61.7x	-94%	-6%	5.25%	(0.04%)	(20.49%)	12.6x	(3.91)
SQ	Square Inc	99,675	243.2x	1,154%	95%	15.02%	13.82%	14.53%	2.2x	0.97
SSYS	STRATASYS LTD.	1,126	35.9x	-25%	-6%	13.37%	4.19%	(5.74%)	0.2x	(0.43)
TDOD	Teladoc Health Inc	29,510	319.5x	-103%	67%	5.75%	(4.88%)	3.43%	13.4x	0.60
TPIC	TPI COMPOSITES, INC	1,863	22.8x	16%	20%	5.70%	(8.56%)	(1.21%)	1.7x	(0.21)
ZBRA	ZEBRA TECHNOLOGIES CORP	20,460	25.5x	10%	5%	21.63%	25.75%	13.91%	1.5x	0.64

Q1 2021 SPAC Preview

SPACs became a full-blown frenzy in 2020 driven by speculation, a hunt for yield, retail investors interest in the vehicles and an insatiable appetite for private investors to access the public markets. SPACs are 'special acquisition companies' or so-called 'blank-check' companies that act as publicly traded vehicles to bring privately-held companies public without the traditional IPO process. About \$57B was raised in 2020 through 151 different SPAC deals, more than triple the figures from 2019 according to SPAC Insider. The trend has attracted a motley crew of high-profile individuals as well from Bill Ackman and Chamath Palihapitiya to Shaquille O'Neil, Paul Ryan, and others.

SPACs are becoming big business and Goldman Sachs estimated in a December note that they alone could drive \$300B in M&A over the next two years. They note there are about 200 companies that have raised \$70B in 2020, up five-fold from 2019, and accounted for more than half of all money raised through public offerings this year.

Exhibit 1: SPAC equity IPO issuance
as of December 10, 2020



Source: Dealogic, Goldman Sachs Global Investment Research

SPACs are organized initially by a group of individuals who specialize in a certain area and declare that they would like to find a privately-held target within that area where they excel. For example, Oakland Athletics GM Billy Beane raised \$500M with a former Goldman banker for their SPAC **Redball Acquisition** which is looking for deals that “focus on businesses in the sports, media and data analytics sectors, with a focus on professional sports franchises.”

After the group of investors is formed the SPAC officially IPOs and the offering raises money that they’ll use to go look for targets. The initial offering usually consists of units which can be broken into stock, warrants, and rights. The largest SPAC raise in 2020 was Bill Ackman’s **Pershing Square Tontine Holdings (PSTH)** which raised \$4B. The third step, and arguably longest, is looking for a target. Most SPAC deals set a timeline when they IPO on when they need to find a merger partner or dissolve. The typical timing is 24 months. If a deal isn’t reached in time, they can vote to extend the timeline or wind down. This makes 2021 and 2022 very interesting given more than 200 blank-check companies need to find a date within the next 12 months.

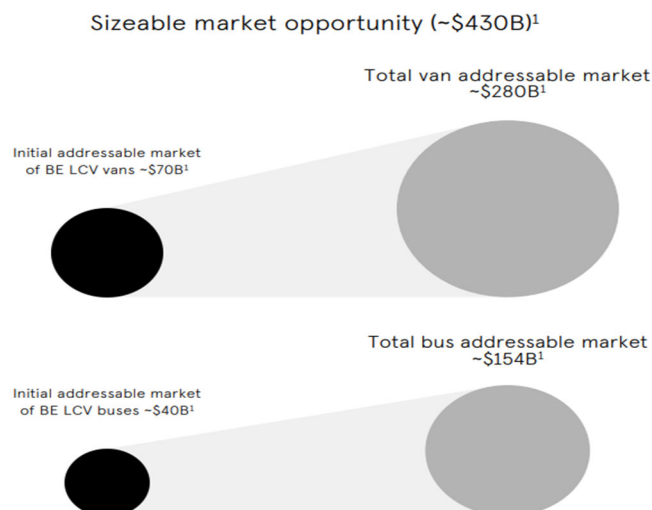
Once a target is found, the two sides enter into a merger agreement and shareholders vote on the deal. If approved, units are converted into shares and a timeline is set for when the two sides will combine and begin trading under the new name.

Let’s look at a few SPACs that have found targets and are on their way to merging/market.

Arrival Group	Romeo
Chargepoint	Skillz
Paysafe	Golden Nugget
AvePoint	Online
Butterfly Network	Canoo
Clover Health	Lion Electric
XL Fleet	Nuvve
OpenDoor	Stem
Cano Health	Metromile
Microvast	Aeva
	Skillsoft

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
CIIG Merger Corp	CIIC	ARVL	Arrival Group	6.45M

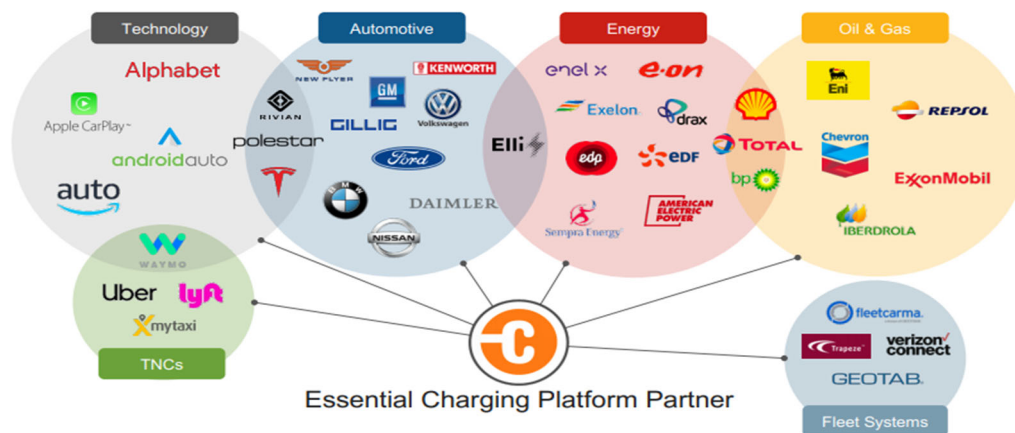
Arrival Group is a English electric vehicle startup which focuses on commercial vehicles, specifically urban and delivery vehicles. The commercial market is attractive with a \$430B TAM (\$280B for vans and \$154B for buses). They have some big stakeholders like Hyundai, Kia, and UPS. They also focus on micro-factories which allow them to be less capital intensive on manufacturing and also allows them to be operational in a shorter timeframe. They expect have four vehicle designs at market by 2023 and production starts in 2021. The company expects to produce nearly 2M vans annually by 2025. They currently have \$1.2B in orders.



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Switchback Energy	SBE	CHPT	ChargePoint	6.31M

Chargepoint is one of the oldest and largest electric-vehicle charging networks. It says it has a 73% market share of North American Level 2 charging networks, which utilize 240-volt power. Its closest competitor has a mere 10% market share. ChargePoint also operates in 16 European markets. It says that charging infrastructure investment in the U.S. and Europe is projected to be about \$60 billion 10 years from now and will triple in the decade after that.

Major Markets Committed to Electrification



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Foley Trasimene II	BFT	PSFE	Paysafe	5.31M

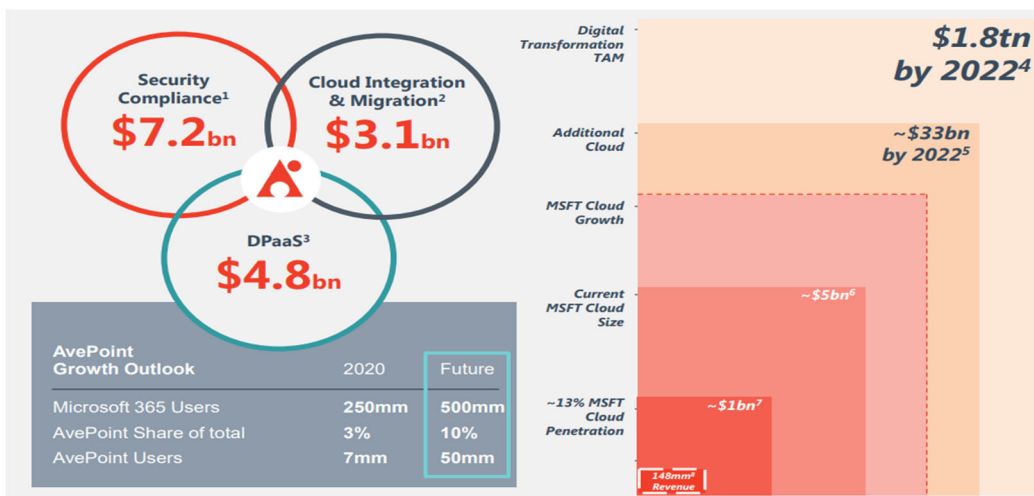
Paysafe is a payment processing company that enables merchants to accept credit, debit, and cash transfers online. They also offer prepaid cards and digital wallets. The company expects to do \$103B in total volumes in 2021 and generate \$1.5B in revenue. Their digital wallets are used across a number of interesting applications including iGaming and customers like Draft Kings, Bet 365, Betfair, Fortnite, and more and potential catalyst form sports betting being legalized in the US. The company expects to use their platform to scale up and become an M&A engine with plenty of opportunity to consolidate platforms and add into attractive growth markets.

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Apex Technology	APXT	AVPT	AvePoint	4.04M

AvePoint is the largest data management solutions provider for the Microsoft cloud. The company allows users who are running Office 365, Sharepoint, and Teams to control these tools from a universal source. The

company originally started doing on-premise installs of Sharepoint but has since shifted into an SaaS model. They see now as the perfect time to go public given tailwinds from COVID-19 which has accelerated enterprise data growth, the digital transformation to the cloud, growth in digital collaboration, and more complex environments.

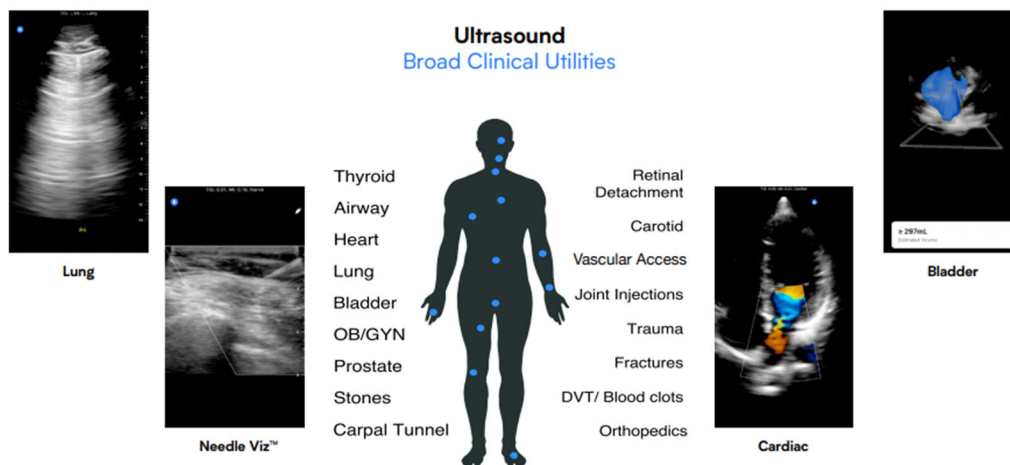
Large and Growing Addressable Market



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Longview Acquisition	LGWV		Butterfly	3.80M

Butterfly Network is a med-tech company that makes high quality, semiconductor-based point-of-care ultrasound devices. The device is massively useful for medical professionals given its mobility, ease of use, and affordability. The opportunity they're going after is huge, too. Nearly two-thirds of the world doesn't have access to medical imaging and a significant number of diagnostic issues can be addressed through imaging. Butterfly says the market they're disrupting is \$8B and growing as they find new use cases for their device and expand geographically. Handheld devices are just 3% of total ultrasound unit sales now, so a lot of runway.

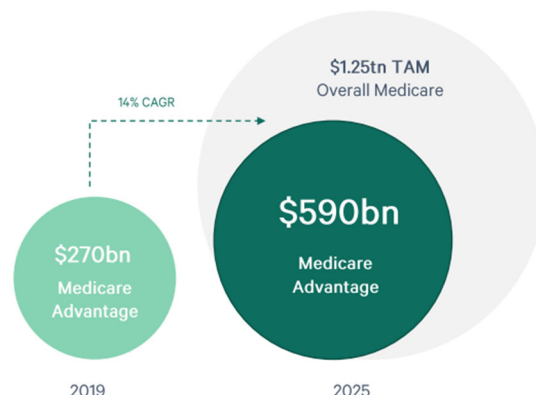
Use-Cases: Ultrasound is Safe with Broad Applications



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Social Capital C	IPOC		Clover Health	3.23M

Largest, Undisrupted Market in Healthcare

Clover Health is a next-generation Medicare advantage insurance company which offers wide access to healthcare and low out-of-pocket expenses. The company primarily targets rural and underserved areas. The Medicare Advantage market is massive at \$270B and expected to grow into \$590B by 2025. Clover also has software for physicians and partners with them to give data-driven, personalized insights at the point of care. Their software can aggregate key points of data about a patient and in turn give better care at a lower cost for the individual.



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Pivotal Investment II	PIC	XL	XL Fleet	3.52M

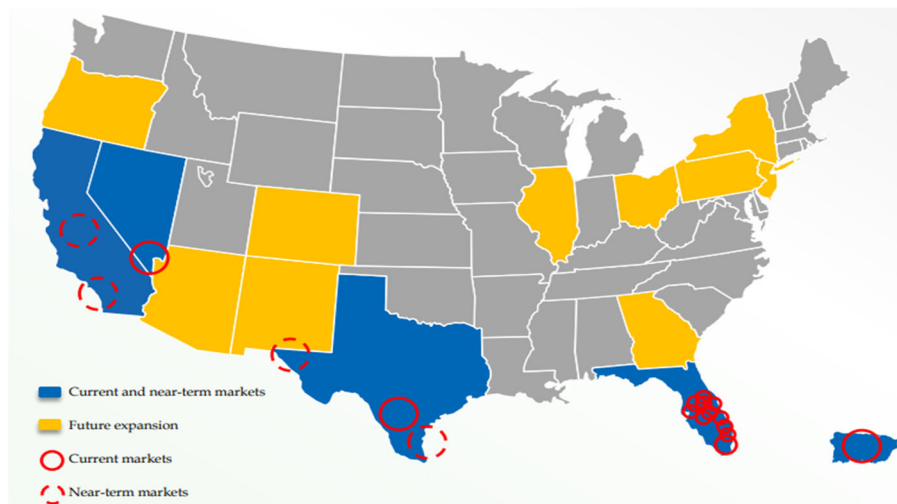
XL Fleet is a provider of fleet electrification solutions for class 2-6 commercial vehicles in the US. XL has both hybrid and plug-in hybrid systems that they deploy and a cloud-based telematics system currently being used across 1,000s of vehicles. XL is targeting a massive market in hopes of broad-based adoption as a cost-effective solution for enterprise customers. They have capacity to scale to over 100,000 units annually. XL sees the global TAM over \$1T with more than 1M commercial vehicles sold every year and significant demand for a sustainable solution. Electrification within the fleet segment has very low penetration rates currently, so plenty of runway for their offerings.

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Social Capital B	IPOB	OPEN	OpenDoor	2.92M

Opendoor is an online marketplace for home sellers, similar to parts of Redfin, Zillow or Realty.com. OPEN has seen sharp growth in 2019 and 2020 with more than \$4.7B in revenue and 18,500+ homes sold. The company differs from other platforms in that they have a large buying program where they give homeowners a competitive offer to sell their home. They also have a trade-in program allowing customers to buy and sell a home in one process. OPEN is debuting at a hot time for home buying with demand at all-time highs and the \$1.6T market ripe for disruption. They use analytics and AI to build quick models of the best value for your home and built into the software operations like inspections, repairs, and more. OPEN has a high conversion rate at 34% and 90% of all sellers use them directly and without an agent. OPEN is backed by Softbank and loses money but the appeal is huge and will be a highly watched name in Q1.

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Jaws Acquisition	JWS		Cano Health	2.9M

Cano Health is a leading value-based care delivery platform for seniors. They have over 100,000 members and a network of 564 primary care physicians and plans to expand beyond their current core 14 state market. Cano focuses on underserved communities, specifically high-touch population like Medicare Advantage. Their platform aims to cut costs for seniors while giving the same high-quality clinical experience. The overall MA market is growing and currently around \$590B, giving Cano a lot of room to grow as they execute on a multi-tiered strategy. They plan to expand through de novo clinics and MSO affiliate practices and was recently chosen as a DCE by the CMS. Humana (HUM) owns a 5% stake in the company and they're partnered with UNH, ANTM, and CVS.



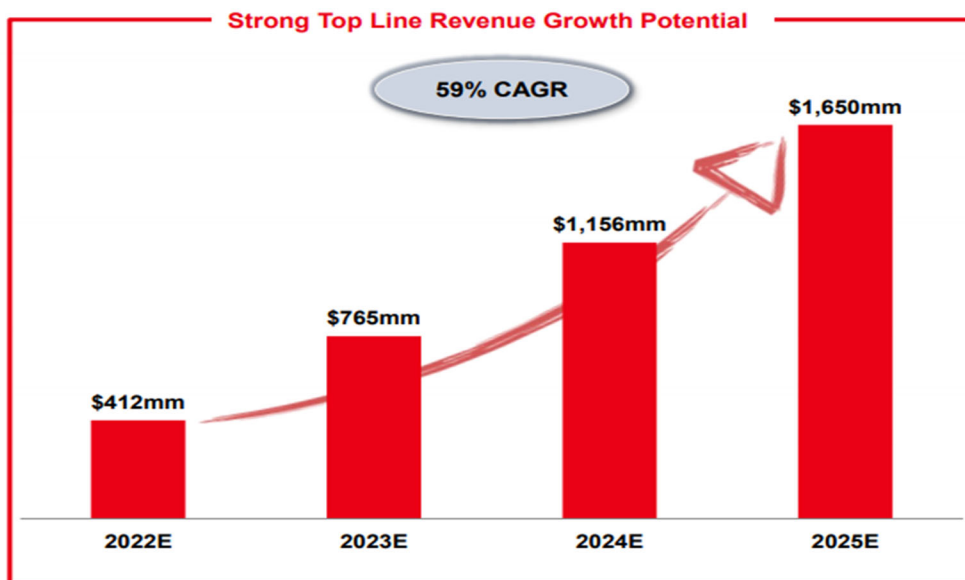
Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Tuscan Holdings	THCB		Microvast	3.57M

Microvast is a provider of battery technologies for commercial and specialty-use electric vehicles. The company focuses mostly on ultra-fast charging batteries and they have been featured in electric buses in Shanghai and South Korea. Buses that ran during the 2018 Olympics used Microvast batteries, so an EV company coming to market with a working product. The company does everything in-house from R&D and material sourcing to system assembly which allows them to provide customized solutions with reduced development time and cost. They won a contract with the US advanced battery consortium earlier this year to develop low-cost, fast charging EV batteries.

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
RMG Acquisition	RMG		Romeo	2.85M

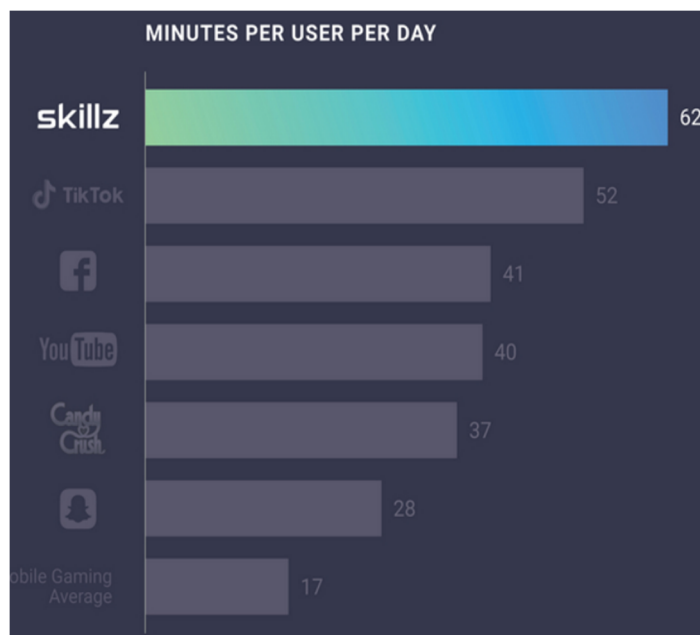
Romeo is a leader in energy storage technology focused on lithium-ion modules for commercial vehicles. BorgWarner (BWA) is an investor in the company and JV partner as they look to develop their battery tech. Their focus has been developing a fast-charging, long-lasting battery for both short- and long-haul trucks.

Much like XL, they see a massive market opportunity as the commercial vehicle sector moves from fossil fuels and into more sustainable forms of energy. Romeo sees a \$665B TAM with over 17M vehicles sold each year. In North America, there's about a \$225B market and Romeo estimates they have 70% of the class 8 market already. The company comes to market with \$544M in contracted revenue and \$2.2B in late-stage talks and expectations for \$1.6B in revenues by 2025. They are expanding capacity and development with a 7 GWh facility on the West Coast set to go.



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Flying Eagle	FEAC	SKLZ	Skillz	2.6M

Skillz is a mobile-gaming platform on both iOS and Android that focuses on multi-player competition games. Players sign up and pay a fee for each tournament entered and the winners get paid out a pre-determined amount based on the sign-up, anywhere between \$1 to thousands of dollars. Skillz take-rate is 14%. There are currently around 550 games on the platform and many more developers signed up, so a wide variety of options for new gamers. Skillz did around 2B tournaments in 2019 and \$1.6B in GMV, massive adoption for the platform, and user minutes per day top popular apps like TikTok, Facebook, and YouTube. They have mass market appeal with fairly evenly distributed among age groups from 26 to 55. Skillz is working on better user engagement and more content which will create a virtuous cycle and extend their growth rate. Gaming is a massive market, over \$149B, and mobile is a growing part of it at \$68B.



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Landcadia II	LCA	GNOG	Golden Nugget Online Gaming	2.55M

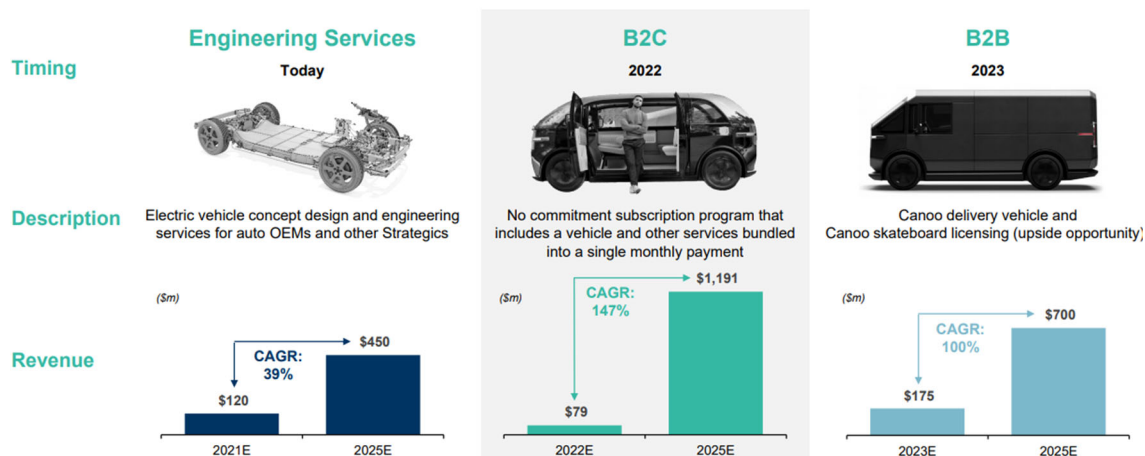
Golden Nugget Online Gaming is an online gambling company with games like Live Dealer, Live Casino Floor Gambling, and slot machines for mobile and tablets. They currently operate in New Jersey, the largest legal online gaming market in the US, and ready to expand with more states legalizing online gaming such as Pennsylvania and Michigan. The company has seen significant adoption during the pandemic as more people shift online for entertainment and believe the overall market opportunity through time is around \$20B and they can capture around 10% of that market. GNOG expects to do around \$122M in revenue in 2021 and trades cheap relative to peers like Draft Kings (DKNG) or GAN. Meanwhile, Golden Nugget has a big footprint in the US which gives them an early foot-hold into states when legalization occurs.

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Hennessey Capital IV	HCAC	GOEV	Canoo	2.55M

Canoo is a maker of electric vehicles with a focus on small cars, minibuses, and commercial vehicles. They target the low- and mid-price market with their 'podlike' microbus. The company launched in 2018 and has developed a working beta in 19 months, one of the fastest developments ever, while remaining far under cost relative to peers. Canoo simplified the structure of their vehicles with a proprietary skateboard-style architecture which is highly modular so they can adapt to many different offerings. They also use things like 'steer-by-wire' platforms and composite leaf suspension, much different than any other manufacturer, with a 200+ mile range. They're partnered with Hyundai to develop future vehicles. Canoo sees a big opportunity in both B2C and B2B sales.

THREE PHASES OF REVENUE STREAMS

Canoo has a multi-phased approach to generate revenue and grow operations

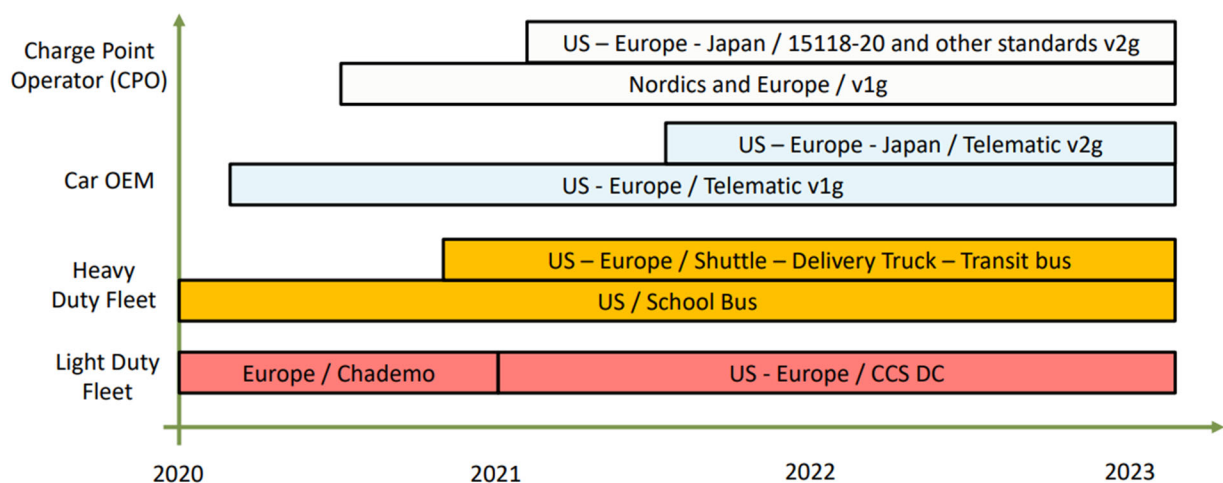


Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Northern Genesis	NGA	LEV	Lion Electric	2.12M

Lion Electric is a manufacturer of all-electric heavy-duty urban vehicles like trucks, shuttle buses and school buses. They're targeting \$3.5B in annual revenue and 20,000 vehicles sold per year by 2024. There's a sizable TAM they estimate at \$110B currently and they're barely penetrated at just 300 vehicles on the road. And adoption will be supported more than other areas, they believe, as 15 states currently have set goals for all heavy-duty vehicles used to be zero-emissions vehicles by 2050. Where Lion falls short of others is in capacity and production. The company expects to use some of the proceeds from the deal to build a high-volume facility in the US with production not starting until 2023.

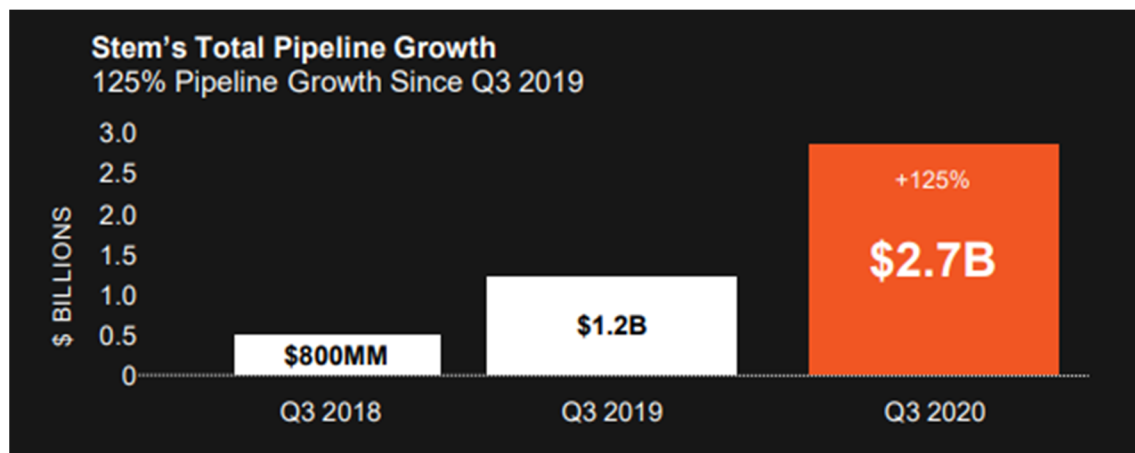
Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Newborn Acquisition	NBAC	NVVE	Nuvve	1.69M

Nuvve is another EV-focused company with a focus on bi-directional charging systems and software, so the process not only charges the car's battery but also stores energy and feeds it back to an electric grid. Their vehicle-to-grid (V2G) tech is the main thing that sets Nuvve off from peers as they can aggregate a number of vehicles on the same charging station to the grid and make a virtual power plant. Nuvve has rivals in Blink (BLNK) and ChargePoint (SBE). The company sees their V2G tech as long-term beneficial to the EV ecosystem as it reduces the overall cost of EV ownership, stabilizes the grid, and likely drives higher adoption of EVs in general. They see a big opportunity with school buses which have large batteries, limited use case, and are expensive. Nuvve is small with just \$3M in revenue and a \$2.45M loss through September. Their rollout schedule:



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Star Peak Energy	STPK		Stem	1.675M

Stem is an energy storage system that allows users to automatically switch between grid and battery, better utilizing renewable energy. Stem uses artificial intelligence to transition between the two states making it the first pure-play 'smart storage' system for energy. Stem is a leader in commissioned energy storage projects since 2014 with 600 MWh vs peers like Tesla, Hyundai, and Fluence Energy. Their pipeline has grown 125% since Q3 2019 and they've got 75% BTM market share in California, the largest storage market in the US currently. Stem is seen as a big beneficiary of ESG fund flows given significant benefits from utilizing their system like reducing stress on our energy grid, lowering consumer cost, and reducing carbon emissions. Stem sees the energy storage market as a \$1.2T opportunity through 2050 in integrated storage as decentralization of the electric grid becomes more prominent. They also note that battery storage capacity is expected to increase by 25X through the next ten years. There's a lot of runway as well with fossil fuels still accounting for around 60% of electricity generation.



Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
INSU Acquisition	INAQ	MLE	MetroMile	1.483M

Metromile is an auto insurance startup that focuses on pay-per-mile plans. The company is looking to disrupt what they call as a massive, inefficient market where 35% of drivers drive more than half the miles on the road each year. They note there's a linear relationship between miles driven and the price every driver pays for insurance and those who put in far fewer than average miles are overpaying for insurance. Metromile uses an app to track miles driven and uses a dynamic rate tracked by sensors to bill customers as they use their cars. The company charges a flat \$29 fee plus 5.4 cents per mile (for example, a driver would save about \$961 per year if they drove 2,500 miles in a year). They have high engagement with their customers, high-margins and low fraud rates while scaling rapidly through proven channels. Metromile sees a lot of runway for growth with the US personal auto insurance market at \$250B and no one carrier with more than 20% market share. They are currently in 8 states and plan to be in 21 in 2021 and 49 in 2022.

Massive fragmented market

\$250B

US personal auto
insurance market

\$700B

global auto
insurance market

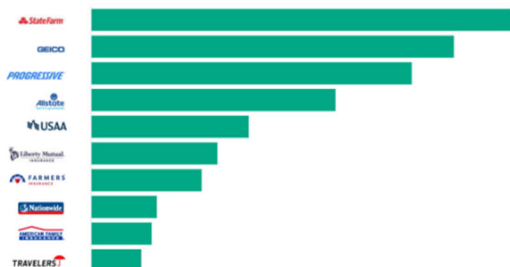
\$363B

US P&C personal
insurance market¹

\$1.7T

global P&C personal
insurance market

US Auto Insurance Market Share¹



No US carrier has more than
20% market share

Over 110 carriers with greater than
\$100M in premium per year

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
InterPrivate	IPV	AEVA	Aeva	1.467M

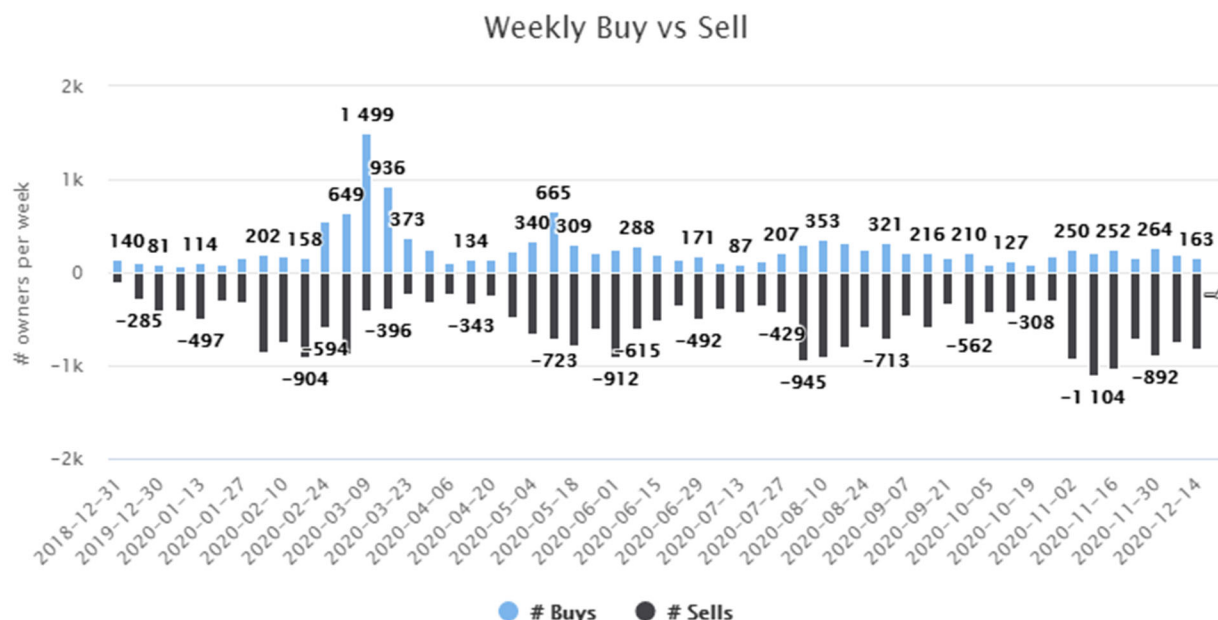
Aeva is a LIDAR-focused startup started by two Apple engineers and supported financially by Volkswagen, LUX, and Porsche. The company has been winning market share from established leader Velodyne with their 4-D LIDAR which measures not only distance but velocity and range with no sunlight degradation. Their chips also use less power so they believe the use-case can be expanded beyond just autonomous vehicles and into more consumer-focused electronics like AR/VR and industrial applications. Aeva ultimately sees a \$160B TAM in automotive between trucking, passenger cars, and mobility. They see consumer as a \$46B market through electronics (phones, glasses, etc.), consumer health wearables, and robotics. They already have agreements with four automotive customers and \$880M in 2025 estimated revenue.

Name	Ticker	NewCo Ticker	Target Co.	Avg Daily Volume
Churchill II	CCX		Skillsoft and Global Knowledge	1.187M

Churchill II is a combination of two companies, **Skillsoft** and **Global Knowledge** that will merge to form a NewCo 'Skillsoft.' The former is a leader of digital corporate learning content and tools. The latter is a leader in IT and business skills training. Now combined, the two will cover everything from business skills to leadership development, safety and compliance, and foundational tech. The NewCo will have industry-best size and scale with \$700M in 2022 revenue, over 180,000 courses and 200 certifications available. Their reach is expansive too with more than 70% of the Fortune 1000 having utilized their services. Skillsoft sees a massive market for corporate learning with the e-learning space expected to grow into \$45B market by 2025. It's highly fragmented too with no other corporate digital learning company commanding more than \$500M in revenue.

Insider Trading

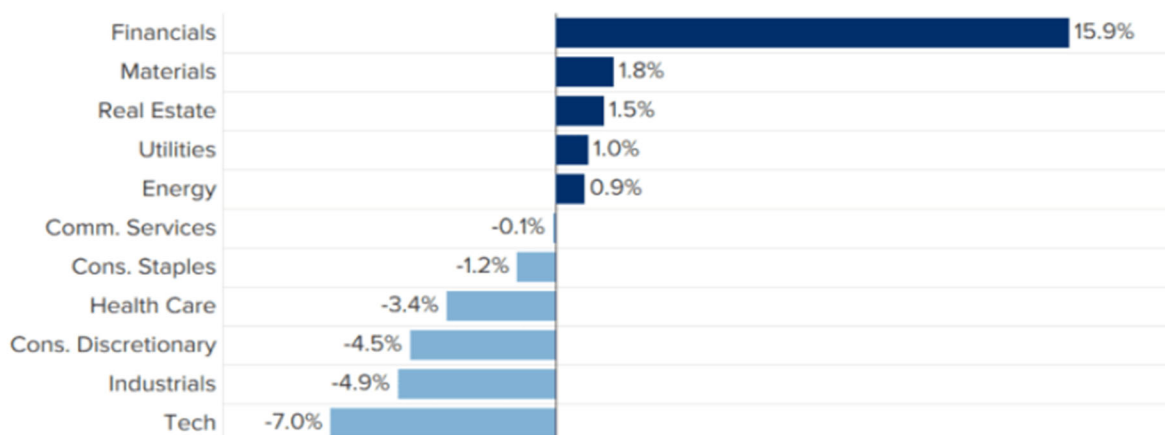
Insider buying can be an incredibly useful tool in the trading playbook whether its identifying inflection points in longer-term turnarounds or simply when a stock gets punished following a seemingly one-time earnings event. Hundreds of Form-4 filings come in every day but looking at very specific subset we can see where smart executives, directors, and others with knowledge of the company are putting their money. Insiders most often have a better understanding of the company's production processes, their underlying markets and trends, and more recent information than any analyst or earnings call can give so when they begin putting up sizable amounts of their own money into a stock, you should take notice.



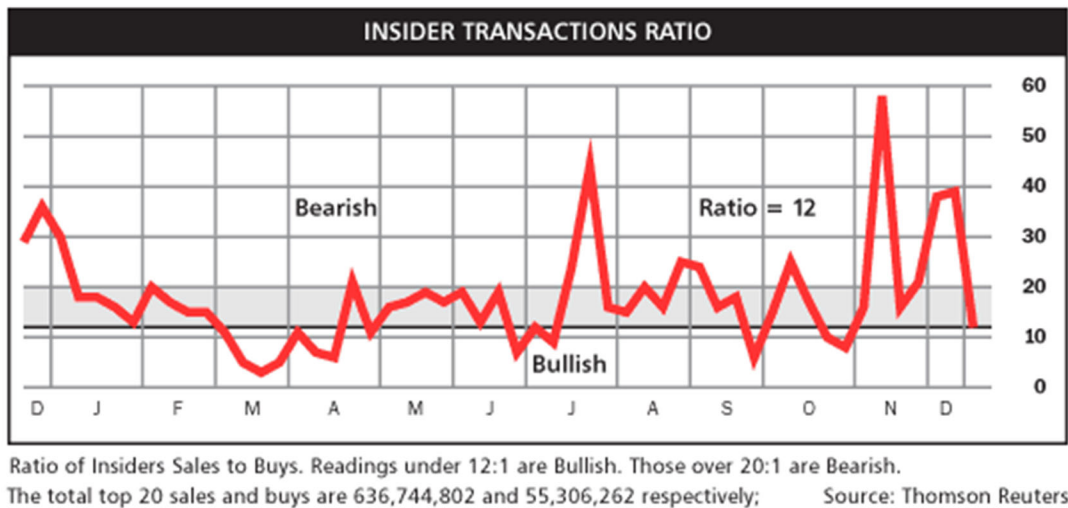
March saw a flurry of insider buying with \$1.285B of inflows according to CNBC. On March 16, there were 465 insider buys to just 71 insider sales, the highest ratio since November 2018. August 2011 was the only other time when we had close to 300 buys per sale. November had the largest selling of the year, although seasonal with two of the last three days above 300/sales per buy happening in the same month. For the year, insiders were active most in financials with 15.9% of all buys in the sector, according to Raymond James. Materials, REITs, and Utilities all followed while technology and industrials saw more selling than buys.

Insiders still buying Financials, according to Raymond James ^(↻)

Percent of insider buys over and under-indexed to Raymond James coverage



Finally, the Eikon/Reuters insider transactions ratio showed a bit of a bullish move later in 2020 with insiders active in December. This also correlates with the extreme selling in November.



OptionsHawk Notable Insider Database

In 2020, we tracked 643 insider buys in the Hawk database, purchases that were culled out of the tens of 1,000s of buys throughout the year. These were the most notable buys (usually > \$150k) and not part of a 10b5-1 plan where the purchase was automated. The buying highlighted here typically was a discretionary buy from the individual who saw value in the stock. Of these 463, the best performers were buys in MRNA, PENN, SFIX, LOB, and KOD. The worst were buys in CLNY, MAC, ET, GEO, and CSPR. Below are a list of important buys that are still within 10% of their purchase price.

Stock	Date Bought	Insider	Title	Price Paid	\$ Value	Current	
ACI	8/14/2020	Sankaran Vivek	Pres, CEO	\$14.74	\$368,575	\$15.94	8.14%
AGO	3/12/2020	Feldstein Andrew T	CIO	\$32.83	\$1,512,412	\$31.74	-3.32%
AMCR	3/16/2020	Delia Ronald Stephen	CEO	\$10.64	\$532,145	\$11.64	9.40%
AMH	3/3/2020	Hughes B Wayne Et Al	Dir	\$28.31	\$30,501,990	\$29.61	4.59%
AMH	3/3/2020	Gustavson Tamara	Dir	\$28.31	\$30,411,396	\$29.61	4.59%
AMH	3/6/2020	Hughes B Wayne Et Al	Dir	\$28.02	\$16,487,133	\$29.61	5.67%
AMZN	10/1/2020	Nooyi Indra K	Dir	\$3,193.32	\$293,785	\$3,297.78	3.27%
AON	5/13/2020	Knight Lester B	Dir	\$195.00	\$13,650,000	\$207.54	6.43%
ASH	2/6/2020	Novo Guillermo	COB, CEO	\$78.35	\$1,010,715	\$79.35	1.28%
BAX	3/30/2020	Martin Sean	SVP, GC	\$82.19	\$803,818	\$79.13	-3.72%
BCO	3/5/2020	Shemanski Raphael J.	SVP	\$79.00	\$395,000	\$71.75	-9.18%
BHC	6/5/2020	Valueact Holdings, L.P.	See remarks	\$19.24	\$18,246,312	\$19.84	3.12%
BHVN	11/23/2020	Childs John W	Dir	\$89.55	\$447,737	\$88.71	-0.94%
BIIB	11/30/2020	Vounatsos Michel	CEO	\$241.31	\$748,047	\$243.82	1.04%
BXP	5/4/2020	Duncan Bruce W	Dir	\$89.14	\$980,587	\$94.84	6.39%
CAR	2/9/2020	Hees Bernardo	Dir	\$34.87	\$14,999,993	\$37.15	6.54%

CATY	8/4/2020	Sun Richard	Dir	\$30.00	\$423,000	\$32.42	8.07%
CBOE	11/3/2020	Tomczyk Fredric J	Dir	\$85.65	\$447,950	\$93.69	9.39%
CCI	10/27/2020	Martin J Landis	Dir	\$161.19	\$1,297,558	\$155.45	-3.56%
CCI	12/9/2020	Martin J Landis	Dir	\$157.28	\$330,283	\$155.45	-1.16%
CI	6/15/2020	Foss Eric J	Dir	\$187.37	\$1,023,018	\$202.69	8.18%
CNNE	12/8/2020	Massey Richard N	CEO	\$42.33	\$634,950	\$44.67	5.53%
CNX	12/1/2020	Lanigan Bernard Jr	Dir	\$9.58	\$599,708	\$10.53	9.92%
COLD	12/9/2020	Heistand James R	Dir	\$33.50	\$335,000	\$36.08	7.70%
CRL	11/2/2020	Wallman Richard F	Dir	\$233.19	\$1,679,006	\$247.68	6.21%
CSV	12/9/2020	Payne Melvin C	CEO	\$30.02	\$870,580	\$31.40	4.60%
CUTR	2/28/2020	Plants J Daniel	Dir	\$24.17	\$1,208,311	\$22.76	-5.83%
CVS	5/11/2020	Lotvin Alan	EVP	\$63.13	\$315,675	\$67.89	7.54%
CVX	2/28/2020	Moorman Charles W	Dir	\$91.43	\$598,983	\$84.81	-7.24%
DEI	3/13/2020	Simon William E Jr	Dir	\$32.02	\$300,972	\$29.50	-7.87%
DHR	11/19/2020	Rales Mitchell P	COB	\$226.14	\$6,056,934	\$222.90	-1.43%
DNB	11/6/2020	Jabbour Anthony M	CEO	\$26.31	\$999,780	\$26.48	0.65%
FNF	3/2/2020	Rood John D	Dir	\$40.71	\$610,698	\$39.16	-3.81%
GD	3/3/2020	Stratton John G	Dir	\$164.81	\$502,340	\$149.23	-9.45%
GDOT	8/7/2020	Date Rajeev V	Dir	\$51.65	\$258,250	\$55.25	6.97%
GOSS	10/14/2020	Hasnain Faheem	Dir	\$10.36	\$999,995	\$10.06	-2.90%
HIG	2/28/2020	Fetter Trevor	Dir	\$49.80	\$498,020	\$48.22	-3.17%
HMHC	12/3/2020	Allen Daniel M.	Dir	\$3.39	\$507,882	\$3.72	9.73%
HRL	12/2/2020	Lykken Steven J	SVP	\$46.97	\$322,815	\$46.94	-0.06%
HXL	3/12/2020	Stanage Nick L	CEO, Pres	\$45.15	\$902,958	\$47.74	5.74%
IBM	11/9/2020	Gorsky Alex	Dir	\$117.86	\$498,762	\$124.80	5.89%
IGMS	12/11/2020	Topsoe Jakob Haldor	Dir, 10%	\$90.00	\$9,999,990	\$90.53	0.59%
IGMS	12/11/2020	Topsoe Christina Teng	Dir, 10%	\$90.00	\$9,999,990	\$90.53	0.59%
IGMS	12/11/2020	Behrens M Kathleen	Dir	\$90.00	\$3,999,960	\$90.53	0.59%
INTC	7/24/2020	Swan Robert Holmes	CEO	\$50.00	\$401,050	\$46.99	-6.02%
INTC	10/28/2020	Swan Robert Holmes	CEO	\$44.96	\$360,624	\$46.99	4.52%
ITCI	9/14/2020	Alafi Christopher D	Dir	\$29.60	\$1,465,200	\$32.03	8.21%
JBGS	3/11/2020	Haldeman Charles E	Dir	\$33.86	\$338,600	\$31.16	-7.97%
JPM	1/15/2020	Hobson Mellody L	Dir	\$136.39	\$1,991,253	\$125.70	-7.84%
K	2/10/2020	Cahillane Steven A	COB, CEO	\$65.33	\$1,098,258	\$62.00	-5.10%
KALV	10/30/2020	Cha Albert	Dir	\$17.24	\$1,994,068	\$16.67	-3.31%
KAR	3/6/2020	Loughmiller Eric M.	EVP, CFO	\$18.34	\$901,411	\$18.43	0.49%

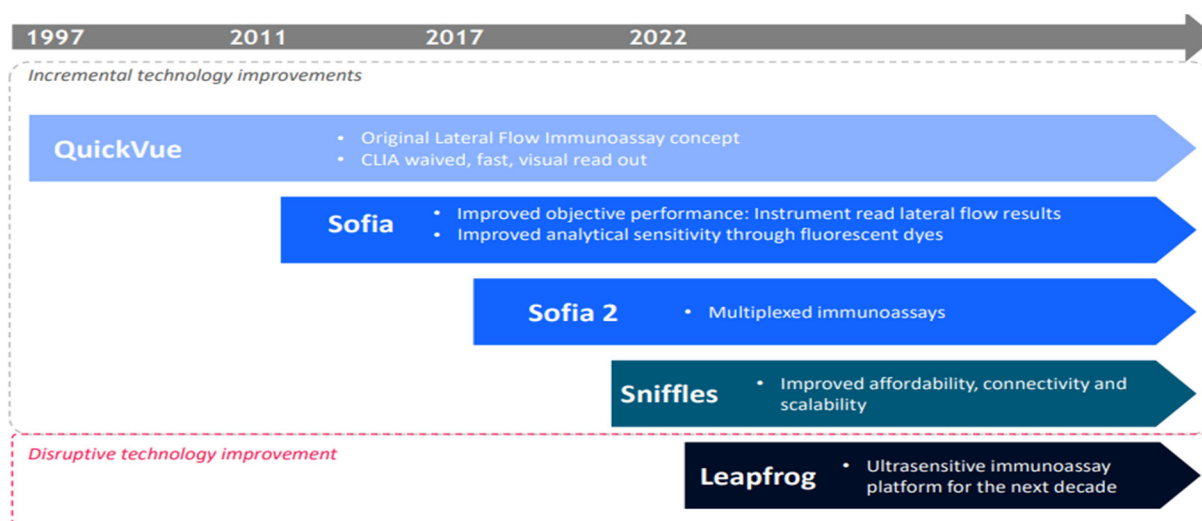
KAR	3/9/2020	Hallett James P	CEO	\$16.88	\$1,000,224	\$18.43	9.18%
KDP	9/8/2020	Goudet Olivier	Dir	\$29.06	\$581,214	\$31.80	9.43%
KHC	12/2/2020	Sceti Elio Leoni	Dir	\$33.22	\$2,989,630	\$35.05	5.51%
KMB	10/29/2020	Decherd Robert W	Dir	\$132.67	\$398,015	\$133.75	0.81%
KMX	9/30/2020	Oneil Mark F	Dir	\$93.40	\$252,180	\$91.21	-2.34%
LYFT	2/20/2020	Roberts Brian Keith	CFO	\$45.25	\$1,018,096	\$49.44	9.26%
MDT	2/20/2020	Ishrak Omar	COB, CEO	\$113.68	\$997,087	\$115.03	1.19%
MDT	10/8/2020	Anderson Richard H	Dir	\$108.52	\$499,952	\$115.03	6.00%
NXST	3/6/2020	Muse John R	Dir	\$100.41	\$451,835	\$108.82	8.38%
PFE	8/6/2020	Blaylock Ronald E	Dir	\$38.55	\$501,085	\$36.74	-4.70%
PFGC	2/7/2020	Flanigan Matthew C	Dir	\$53.19	\$531,918	\$48.27	-9.25%
PSA	9/8/2020	Havner Ronald L Jr	Dir	\$214.85	\$408,215	\$227.81	6.03%
PSN	8/10/2020	Smith Carey A.	Pres, COO	\$35.38	\$265,367	\$35.68	0.85%
PSX	2/27/2020	Lowe John E	Dir	\$75.63	\$378,156	\$69.37	-8.28%
QDEL	8/31/2020	Bryant Douglas C	Pres, CEO	\$174.99	\$874,965	\$186.82	6.76%
REYN	8/11/2020	Mayrhofer Chris	VP	\$32.66	\$293,978	\$30.07	-7.93%
REYN	11/16/2020	Mitchell V Lance	Pres, CEO	\$29.86	\$492,639	\$30.07	0.70%
SIX	2/24/2020	Spanos Mike	Pres, CEO	\$31.27	\$502,638	\$34.07	8.95%
SKYW	3/9/2020	Atkin Jerry C	Dir	\$37.90	\$587,390	\$40.90	7.92%
SRE	8/11/2020	Mears Michael N	Dir	\$131.83	\$263,660	\$126.47	-4.07%
SRE	8/7/2020	Conesa Andres	Dir	\$129.44	\$349,488	\$126.47	-2.29%
SRE	8/25/2020	Walker Cynthia Lynn	Dir	\$125.46	\$250,920	\$126.47	0.81%
STOR	3/6/2020	Rosivach Andrew	CCO	\$32.45	\$324,500	\$33.81	4.19%
STWD	3/13/2020	Dishner Jeffrey G.	Dir	\$18.60	\$465,000	\$19.84	6.67%
T	7/23/2020	Luczo Stephen J	Dir	\$29.69	\$2,969,220	\$28.54	-3.87%
T	4/22/2020	Luczo Stephen J	Dir	\$29.38	\$1,057,579	\$28.54	-2.86%
UHAL	12/14/2020	Shoen Edward J	COB	\$428.55	\$2,142,743	\$452.60	5.61%
VICI	3/2/2020	Payne John W R	Pres, COO	\$25.23	\$449,977	\$25.78	2.18%
VICI	3/2/2020	Pitoniak Edward Baltazar	CEO	\$24.60	\$583,266	\$25.78	4.80%
VRTX	11/10/2020	Sachs Bruce I	Dir	\$217.36	\$3,260,465	\$232.96	7.18%
VST	3/3/2020	Helm Scott B	Dir	\$20.21	\$404,240	\$19.08	-5.59%
VST	3/3/2020	Helm Scott B	Dir	\$20.21	\$404,240	\$19.08	-5.59%
VST	12/16/2020	Burke James A	Pres, CFO	\$18.25	\$310,233	\$19.08	4.55%
VST	9/8/2020	Helm Scott B	Dir	\$18.19	\$363,760	\$19.08	4.89%
VST	9/8/2020	Morgan Curtis A	Pres, CEO	\$18.18	\$748,786	\$19.08	4.95%
VST	3/11/2020	Helm Scott B	Dir	\$17.36	\$347,200	\$19.08	9.91%

WAFD	3/10/2020	Tabbutt Mark	Dir	\$25.72	\$385,800	\$25.93	0.82%
WFC	3/13/2020	Noski Charles H	Dir	\$29.53	\$590,600	\$30.05	1.76%
WFC	3/13/2020	Scharf Charles W	CEO, Pres	\$28.69	\$4,963,370	\$30.05	4.74%
WMB	2/26/2020	Creel Michael A	Dir	\$19.15	\$478,750	\$20.25	5.74%
WSC	11/10/2020	Goble Jeffrey S	Dir	\$21.15	\$253,800	\$22.96	8.56%
XEL	3/6/2020	Prager Frank P	SVP	\$67.99	\$486,129	\$65.12	-4.22%
XOM	3/6/2020	Weldon William C	Dir	\$45.72	\$400,999	\$41.67	-8.86%
ZYME	1/27/2020	Cox Troy	Dir	\$46.50	\$348,750	\$49.73	6.95%

Name in Focus: Quidel (QDEL) has seen insiders active in 2020 multiple times including a more than \$1.17M buy from the CEO in August and a \$1.27M buy from a director in September. QDEL has seen some of the largest open market buying of any name in 2020. The list is below:

Trade Date	Ticker	Insider Name	Insider Title	Trade Type	Price	Qty	Owned	ΔOwn	Value	1
2020-09-02	QDEL	Strobeck Matthew	Dir	P - Purchase	\$166.07	+7,700	62,174	+14%	+\$1,278,765	
2020-08-31	QDEL	Bryant Douglas C	Pres, CEO	P - Purchase	\$174.99	+5,000	455,823	+1%	+\$874,965	
2020-08-11	QDEL	Bryant Douglas C	Pres, CEO	P - Purchase	\$234.12	+5,000	450,823	+1%	+\$1,170,600	
2020-08-03	QDEL	Michael Edward L.	Dir	P - Purchase	\$288.12	+3,500	6,434	+119%	+\$1,008,404	
2020-06-11	QDEL	Bryant Douglas C	Pres, CEO	P - Purchase	\$160.33	+5,000	445,823	+1%	+\$801,670	

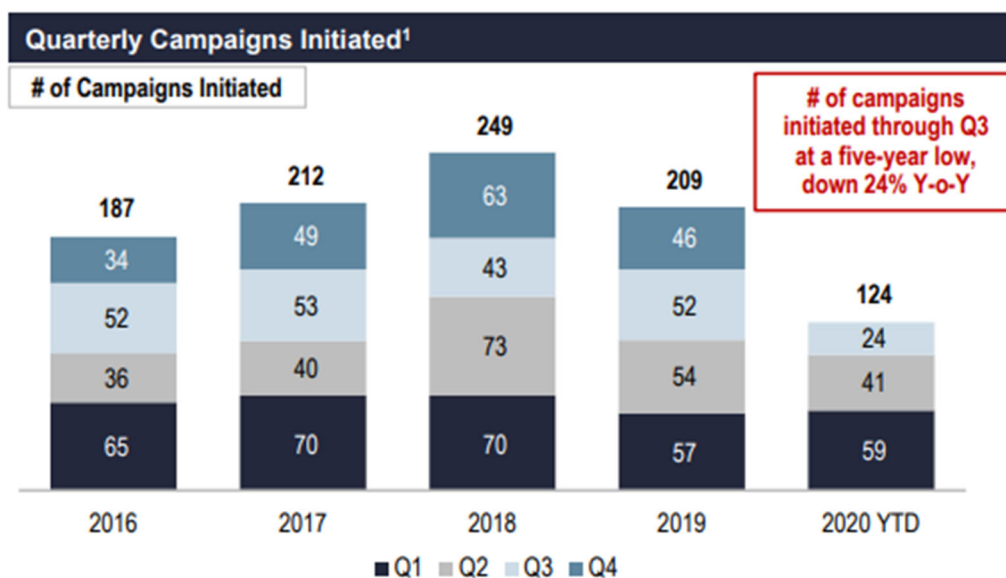
QDEL makes diagnostic testing solutions for a wide variety of conditions including COVID-19. The company's FIA provides automated, objective results in 15 minutes for patients suspected of having COVID and received FDA EUA. They have been active with healthcare workers and others and announced a groundbreaking deal with the PAC-12 conference late last week to provide rapid testing for student athletes. QDEL fell in August with the announcement of Abbott's (ABT) quick test and then again in the Fall with the Pfizer vaccine data but ultimately the TAM is still massive and COVID testing will need to continue on a large-scale for a long time even with a vaccine expected in early 2021, so plenty of opportunity for continued growth and QDEL has a vast array of leading testing solutions. The company sees multiple avenues for COVID to contribute in 2021 and beyond as they launch their small-diagnostic test and expand into more applications like physicians, clinical, travel, entertainment, and occupational health. The company likely sets up well in early 2021 as their flu/COVID assay should see strong demand this Fall/Winter while public awareness of antigen testing has grown. Their longer-term pipeline is also robust with the company laying out plans at their 11/12 Analyst Day for launches of their TriageTrue High Sensitivity Troponin I Test and their Savanna assay. The company likely sees tailwinds in 2021 as well from the Biden administration putting a greater emphasis on testing and expanding capacity as part of their action plan for fighting COVID.



Hedge Fund Activity Review

Shareholder Activism

Shareholder activism was very muted in 2020 with just 124 campaigns launched through Q3, the lowest figure in more than five years and down 24% Y/Y, according to Lazard. They also highlight that Q3 was the lowest level of quarterly activity since 2013 with just 24 campaigns launched, about 55% lower than Q3 2019. Capital deployed was down to a seven-year low at \$4.4B vs \$7B in 2019. This is a big disappointment after two relatively strong years in 2018 and 2019 highlighted by a number of successful campaigns. And, while there was some feeling earlier into the pandemic that it could spark a new run of activism, that failed to materialize in most cases.



The majority of campaigns were successful at adding board members in 2020 with 100 seats added on the year, in line with prior years despite fewer campaigns. Starboard and Elliott Management continue to win share at a faster rate than peers. The former deployed a year-best \$6.2B towards campaigns. Value Act and Third Point both deployed about \$2.5B in capital each. M&A also became a bigger focus for activists in 2020. More than half of campaigns launched in the 2H of the year focused on a deal-making objective. Other popular targets include strategy, governance and management changes. The top activist funds in 2020 were Elliott Management (11 campaigns), Oasis Management (5), ValueAct (4), Bluebell Capital (4), Starboard (3), Land and Buildings (3), Sachem Head (2), ENA Investment (2), and Oaktree (2). First time activists were 33% of all new campaigns in 2020, the highest level in five years.

Activist short campaigns ramped up in number throughout the year. Hindenburg Research was the most active with five including **Nikola (NKLA)**, **Kandi (KNDI)**, **Grow Generation (GRWG)**, **J2 Global (JCOM)**, and more. Breakout Point says there were 91 new short-selling campaigns in the 1H of 2020, up from 84 in 2019, and just eight publishers accounted for more than half of them. J Capital Research was one of the most successful with their short of **Luckin Coffee (LK)**. Others include Muddy Waters, Bucephalus Research, Ontake Research and Quintessential Capital. The latter had a successful campaign in late 2020 on **Penumbra (PEN)** alleging a catheter they sold was deadly.

Sullivan & Cromwell, a well-known law firm advising companies, thinks activism in 2021 will pick up. "As the economy stabilizes and clearer distinctions in performance develop between companies in the same industry, it will be easier for activists to identify and target underperformers. In addition, as M&A continues its second-half recovery in 2020, we expect to see a corresponding increase in M&A-focused activism campaigns." They see software, integrated oil, and pharmaceuticals as areas where activists likely engage again in 2021.

<i>Most Targeted Industries 2014 to 2020 YTD^{*76}</i>	
<i>Industry</i>	<i>Total Campaigns</i>
Investment Trusts/Mutual Funds	124
Real Estate Investment Trusts	100
Packaged Software	89
Integrated Oil	70
Pharmaceuticals: Major	60
Miscellaneous Commercial Services	56
Medical Specialties	54

Top activist campaigns launched in Q3

Invesco (IVZ) and Janus (JHG) targeted by Trian. The fund, run by Nelson Peltz, took massive stakes in both companies in October. Their position in IVZ is around 45.4M shares or \$625M. Their stake in JHG is 17.66M shares or \$383M. IVZ is an investment manager with both retail and institutional clients and a range of fund options from equities, fixed income, commodities, mutual funds, and multi-asset. They also provide wealth management firms with tools to integrate into their own systems. Trian has a mixed history with financials after a successful campaign at Legg Mason and some not-so-successful campaigns at Bank of NY and Franklin Templeton. Trian has had talks with management and wants the company to look at potential mergers as the industry becomes more competitive. They've also had talks with JHG management about deals. The asset management space has been hot with M&A and given some of their competitors are now gone or bulking up, likely that Trian gets the deal they want in 2021.

Comcast (CMCSA) targeted by Trian. Peltz took on yet another mega-cap as an activist in 2020 with his campaign at Comcast, amassing a 15.6M share or \$723M position. This isn't a huge position relative to CMCSA's overall market cap – just 0.4% weight – but Peltz has enough weight as an investor that he can get management and the board's ear. But success here is likely much tougher than at other companies given the board composition. Comcast is family-controlled and CEO Brian Roberts controls 33% of the vote. Trian has had talks with CMCSA but nothing formally introduced. There has been rumors they could push for a spinoff of NBC Universal or other assets.

Evolent Health (EVH) targeted by Engaged Capital. The fund, run by Glenn Welling, is known for making concentrated bets in small and mid-cap stocks with a long window. They took an 8.55M share position in October, a little over \$106M, and the largest holder of record. EVH provides payment solutions for the healthcare industry that allows providers to shift from fee-for-services reimbursement into value-based care. They also have a business called True Health that is a physician-led health plan in New Mexico available for employer-sponsored healthcare. The former is the area of interest, however. Their services business includes a software platform called Identifi which analyzes data and manages care workflows for both patients and physicians. It is around 80% of EVH's total revenue and True Health has struggled. EVH is the largest player in the value-based care industry and they have one wildly good business with a significant opportunity ahead of it that is financing a struggling business, so ripe for Engaged to push for either a separation or full sale which would allow private equity to dismantle and fix the issue. The nomination window at EVH opens on 1/10 and Engaged may press for board seats if something is not done by then.

Crown Castle (CCI) targeted by Elliott. The fund, run by Paul Singer, took a \$1B 'economic interest' in the stock in July and launched an activist campaign – website included – to press for changes. CCI is one of the largest cell tower operators in the US with over 40,000 towers and 80,000 miles of fiber for small cell and fiber

solutions. The company has benefited in recent years from the surge in data and expansion of 5G buildout. Elliott believes CCI's wireless infrastructure is the best value in the market and positioned to continue benefitting from 5G. But, they think their expansion into fiber infrastructure will detract from returns. They think the company's strategy has been ill-timed and underperformed as a result. CCI has defended themselves, however, noting that what Elliott is pushing is the opposite of what they're trying to do: expand into areas like colocation builds and take advantage of small-cell growth. CCI's CFO also noted that they have a long-term horizon and Elliott wants return in a short-time frame.

Notable Activist Fund Buys in Q3

Fund	Managed By	Long Exposure	Adds in Q3
Third Point	Dan Loeb	\$10B	PCG, AVTR, FTV, PINS, PLTR, EXPE, BKI, JD, MSFT, CZR, PLNT, BABA, GDRX, TDG
Icahn Capital	Carl Icahn	\$17.3B	ENZN, XRX
Pershing Square	Bill Ackman	\$8.8B	
Starboard Value	Jeff Smith	\$3.35B	CTVA, BOX
Jana Partners	Barry Rosenstein	\$1.2B	EHC, PRSP, NEWR, BCO
Elliott Management	Paul Singer	\$9.5B	UNIT, NBL, CUB, DELL, CRMD
Engaged Capital	Glenn Welling	\$966M	EVH, NCR, MX, STKL
Sorobon Capital	Eric Mandelblatt	\$9.9B	ATUS, ARMK, ADI, YUM, FISV, RTX, FIS, MSFT, CSX
Triam Fund	Nelson Peltz	\$6B	JHG, IVZ, CMCSA
Sandell Asset Management	Thomas Sandell	\$491M	AXL, MANU, VOD

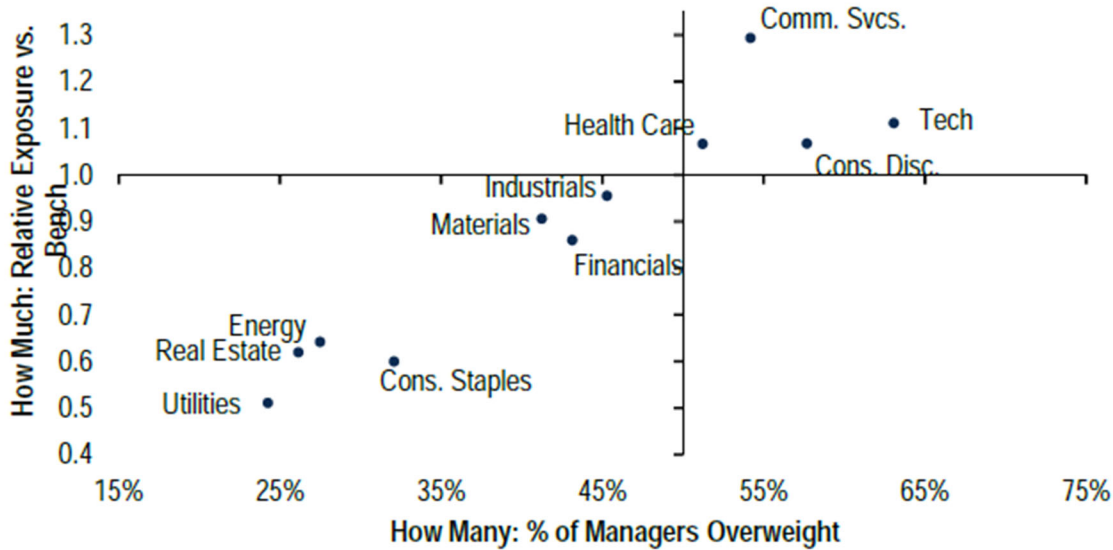
Notable Hedge Funds, Positioning, and Top Holdings

According to Q3 holdings, hedge fund net long exposure rose above 85% to new five year highs while gross exposure remains around 245%. Short-interest has continued to fall and now just 1.6% of market cap, the lowest-level in nearly two decades. Energy is the only sector with above-average short interest. Funds continue to show record net leverage at 56%, rising sharply since March. The Goldman Sachs Hedge Fund VIP list has been strong all year up 32% and only trailing the Nasdaq 100. This is the best return for the group since its inception.

Overall concentration fell to its lowest level in five years, according to Goldman Sachs. The firm noted that the average hedge fund holds 66% of their assets in their top ten holdings, down from over 70% in 2019. This is still very elevated from 2014 levels which were closer to 65% and 2006-levels which were as low as 55%. Crowding among funds with overlapping top positions also fell in Q3 off its peak.

Looking at **specific sectors**, there were rotations into value again in Q3 but growth remains the largest concentration overall. Healthcare has the highest net exposure among funds with 21% and largest overweight by a wide margin. BAML noted in November that record low cyclical positioning started to reverse in the last months of the year. Financials saw positive flows in both Q2 and Q3 and the biggest add among any sector as value saw some rotations from growth. Regional banks drove most of the flows. Tech, consumer discretionary, and industrial are the next highest weight. Active long-only managers exposure was skewed heavily towards tech and consumer discretionary.

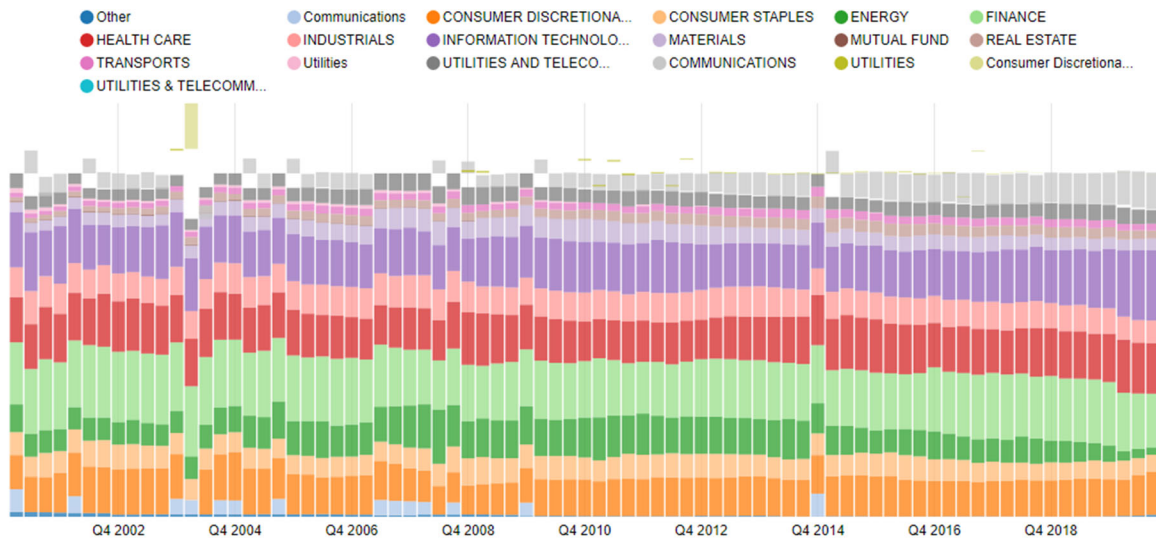
Chart 14: Active (Growth, Value & Core) long-only managers' sector exposure today (as of 10/2020)



Utilities are the most underweight followed by REITs and energy. BAML says consumer staples remain very underweight in long-only funds positioning.

Sector Allocation for Hedge Funds

Sector Allocation Over Time Hedge Funds (longs only)



Communications 10.71%, Utilities and Telecom 3.92%, Transports 1.97%, REITs 2.35%, Materials 3.35%, Tech 20.52%, Industrials 6.61%, Healthcare 14.7%, Finance 15.62%, Energy 2.16%, Staples 4.95%, Consumer Discretionary 12.55%

- Tech exposure is its highest in 20 years at 20.52%. This is up from 16.63% in 2019.
- Consumer Discretionary exposure is the highest since Q3 2005 when it was 13.26%. This is due to weighting towards **AMZN, HD, MCD, NKE, and SBUX**
- Energy is the lowest exposure in 20 years at 2.16%. This is down from 5.02% in 2019.

Stock Positioning

Most Popular Names: AMZN, FB, MSFT, BABA, GOOGL, V, PYPL, AAPL, MA, CHTR, FISV, CRM, TMUS, UBER, FIS, BKNG, SE, BRK.B, IAC, DIS, JD, TIF, CZR, MU, NFLX, PINS, QCOM, TWTR, VAR, CHNG, LBRDK, CHNG, MELI, NVDA, NOW, WFC, C, EXPE, HCA, JPM, PTON, TDG, CVNA, FE, LSXMK, GDDY, ALXN, FDX, GLIBA, GPN

Most Shorted Names (as a % of Market Cap): LGND, BBBY, MAC, IRBT, HUYA, SFIX, M, SRNE, INO, AAL, BGS, CVNA, DISCA, DKS, WDR, MIK, GSX, CAKE, SDC, JWN, FIT, WKHS, CHRS, ARCT, KPTI, W, JMIA, BIG, EDIT, GBT, SPWR, BAND, RKT, AR, IRM, OPK, GRUB, SIG, TWOU, TR, VIAC, HRTX, PLAY, RH, AG, MIDD, BIGC, AEO, SNOW, CAR

Most 'Crowded' Hedge Fund Stocks: LB, EXPE, UAA, TDG, XRX, INCY, TIF, HLT, SEE, LKQ, STX, AAP, DVN, HWM, ETSY, VRSN, ALXN, TPR, RL, MXIM

Least 'Crowded' Hedge Fund Stocks: L, XYL, CAT, DOW, MMC, TFC, DLR, VFC, AAPL, IBM, AMCR, PM, DE, HON, WMT, PLD, ABT, NTRS, CINF, ACN

Surges in Popularity in Q3: VAR, UPS, PINS, MSFT, JBHT, FE, QCOM, AVTR, RMD, HZNP, KDP, SBNY, FSLR, EFX, MNST, FDX, ADT, V, FB, TER

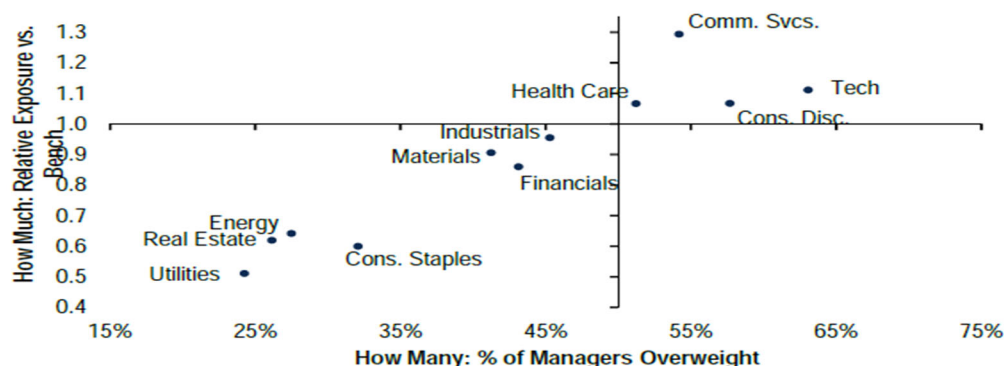
Fading in Popularity in Q3: PCG, PNC, ED, AVY, MSI, NATI, SCHW, MLM, HON, ZBH, ZS, FLIR, FIS, AXS, SAIC, CFG, DDOG, COF, INTC, STE

Does buying 'crowded' names pay off? According to Goldman Sachs, a portfolio of the 20 most concentrated S&P 500 stocks has outperformed the broader index in nearly two-thirds of quarters since 2001. This amounts to a nearly 1.7% outperformance every quarter. Hedge funds tend to be the most positioned in these names, as well, with around 20% of all shares outstanding. In 2020, however, the strategy lagged a bit. Since September, their 'high concentration' basket (GSTHHFHI) has outperformed by 8 bps but faced higher drawdowns in March.

Does it pay to follow where 13Fs are showing new positions? Yes and no. There's long been an adage that following filings is a fool's errand since they are delayed by 45 days and in some cases the positioning is far older. But, according to Goldman Sachs, baskets of new buys have outperformed the Russell 1000 since the day filings came out by as much as 800 bps while those where funds are selling have trailed by 400 bps.

Active or Passive? Passive funds have seen far more flows over the five years with BAML noting that in 2019 there was around \$200B of inflows to passive and around \$350B of outflows from active funds. Passive flows now account for around 46% of all domiciled fund assets as well, up from around 20% in 2009, and these names tend to be where relative exposure flows for each sector.

Chart 14: Active (Growth, Value & Core) long-only managers' sector exposure today (as of 10/2020)



Source: BofA US Equity & Quant Strategy, FactSet Ownership; How many: % of funds that have an overweight position in the sector; How much: Relative weight to the benchmark (1 = Neutral)

Overall, active managers are overweight communications, tech, healthcare, and discretionary stocks with the latter likely due to AMZN. Over the last three months, the biggest changes according to BAML have been in materials, tech, industrial, and utilities.

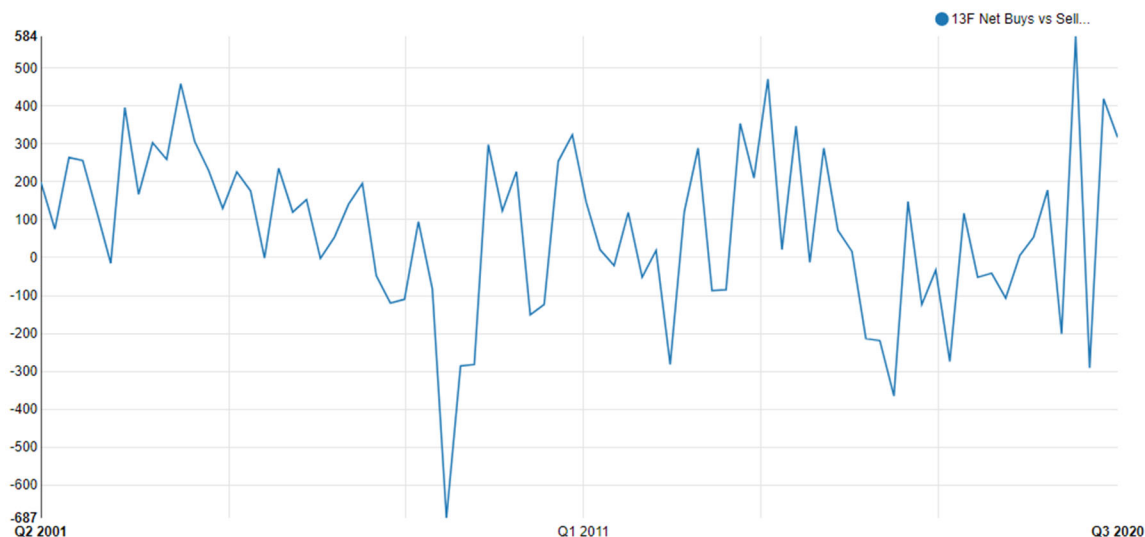
Most Popular Stocks for 'Active' Funds: BKR, NFLX, NTAP, NOC, CMG, VRTX, AVGO, COF, EFX, EOG

Least Popular Stocks for 'Active' Funds: AIV, REG, FRT, TIF, LNT, UDR, WRB, F, CTLT, O

Net Buyers / Sellers Ratio

Net Buyers vs Net Sellers Over Time All Filers (longs only)

The difference each quarter in net buyers vs. net sellers. A net buyer counts as +1 and a net seller counts as -1.



Notable Hedge Funds Top Holdings

'The Big Ones'

Fund	Managed By	Long Exposure	Adds in Q3
BERKSHIRE HATHAWAY	Warren Buffett	\$228B	BAC, BMY, MRK, ABBV, SNOW, GM, PFE, KR, TMUS, LILAK
SORO FUND	George Soros	\$4B	PLTR, DHI, ARMK, AXTA, ETFC, U, GM, SIRI
OMEGA ADVISORS	Lee Cooperman	\$4.4B	GOOGL, COOP, ATH, VRT, MSI
PAULSON & CO	John Paulson	\$10.6B	ENDP, TCO, LEA, GOLD
APPALOOSA	David Tepper	\$5.65B	PCG, MU, MSFT, ET
TUDOR INVESTMENT	Paul Tudor Jones	\$38B	ADT, NOK, KDP, KC
DUQUESNE FO	Stan Druckenmiller	\$3.45B	NUAN, GDX, NEE, MSFT, PENN, TECK, GOLD, SBUX, TMUS, VZ
TIGER MANAGEMENT	Julian Robertson	\$350M	AER, NET, MSFT, BX, EXPE, FB, WDAY
BRIDGEWATER	Ray Dalio	\$235B	KO, WMT, PG, NIO, PEP, MDLZ, JNJ, KHC
OAKTREE CAPITA	Howard Marks	\$99B	UNIT, VALE, AMX, ITUB, IBN, NMIH, XPEV, KC

BAUPOST GROUP	Seth Klarman	\$9.25B	PCG, MU, HWM, SSNC, VSAT, AMAT, VRNT
DE SHAW		\$82B	DIS, AMD
FARALLON CAPITAL	Thomas Steyer	\$32.3B	BSX, PCG, HWM, NYT, HLT, WAB, BX, AUPH
MAVERICK CAPITAL	Lee Ainslie	\$5.38B	GPRO, TGTX, GLW, PRSP, ZNGA, GME, BX
VIKING GLOBAL	Andreas Halvorsen	\$27.6B	MSFT, TSM, TMUS, MELI, AVB
ADAGE CAPITAL	Phil Goss	\$45.4B	AMZN, JNJ, ST, BMY, BRK.B
LONE PINE CAPITAL	Stephen Mandel	\$23.3B	NUAN, STNE, MTCH, SQ, DOCU, TEAM, BILL, COUP, GPN, BEKE
TWO SIGMA	John Overdeck	\$28B	COST, PYPL, MCD, WMT, WFC
AQR CAPITAL	Cliff Asness	\$59B	VALE, F, GE, KR, INFY, SBSW, STAY, LKQ
DISCOVERY CAPITAL	Rob Citrone	\$3.65B	BABA, PLTR, VRT, FISV, COMM
COATUE MGMT	Philippe Lafont	\$25.7B	VSLR, UBER, RUN, NUAN, LB, GPS, SNOW, AEO, NKLA, PLAN
POINT 72	Steve Cohen	\$91B	PLTR, BLU, RGLS, EQNR, SWN, WPX, AGLE, AVTR, DVN, MLCO

Howmet (HWM) a name that showed up on a couple big 13-F filings in Q3 including Seth Klarman's Baupost Group and Thomas Steyer's Farrallon. Overall hedge fund ownership rose 4.5% in Q3 and other buyers included Boston Partners, Holocene, Steadfast Capital, and Balyasny. Elliott remains the top holder since the spinoff with 82M shares. The \$12B company focuses on the aerospace and transportation industries providing jet engine components, fastening systems, and other structural parts. They also make aluminum wheels for light-body autos. HWM thinks the low-point for the pandemic is behind them with 42% sequential growth in Q3 and healthy demand expected in 2021 as Boeing and Airbus return to full production and look to bolster inventories. HWM is a share leader in the airfoil market with 49% in 2019 and now up to around 60% between both hot section foils and cold. They expect their market-leading position to give them nice pricing power into 2022 and 2023 and commented at their Analyst Day earlier this year they capacity to handle higher volumes in each of the next three years without adding costs which will boost cash flows

Hawk's Smart Funds

Fund	Long Exposure	Adds in Q3
AKRE CAPITAL	\$10B	CLNY, GSHD, BAM
ALKEON CAPITAL MGMT.	\$23B	TJX, CG, MRSN, FROG, CRM, AVLK, AMWL, PTC
ALTIMETER CAPITAL	\$3.3B	U, SNOW, CRWD, SHOP, AMZN
ALYESKA INVESTMENT	\$5B	MSFT, AZEK, PAYC, ADI
ANCIENT ART	\$620M	WFC, DESP, UPWK, BNFT, LYFT, UBER, BLDR, BBBY
ARK INVESTMENTS	\$9.3B	PACB, WORK, CERS, HUYA, PD, Z, EVGN
ATLANTA CAPITAL	\$23.7B	LKQ, FHN, CDW, AMG, IAA, AIW, CSL, YETI
BARES CAPITAL	\$2.775B	AYX, FTCH, SFIX, PD, MIME
BAUPOST GROUP	\$6.9B	PCG, PSTH, MU, PEAK, SSNC, AMAT

BRAVE WARRIOR	\$1.73B	AON, SCHW, DLTR, CACC, CDK, AMZN
CADIAN CAPITAL	\$2.1B	ZNGA, ZGNX, ELY, ATUS, BPMC, UBER, PRO, SPOT, NFLX
CONTOUR ASSET MGMT	\$1.5B	ADT, NWSA, ATUS, TRMB, NEWR, Z, SFIX, QCOM, DCT, RNG
DARSANA CAPITAL	\$2.1B	WMG, HLT, RACE, GWRE, BKNG
DUQUESNE FAMILY OFFICE	\$3.3B	NUAN, NEE, PENN, TECK, GOLD, SBUX, TMUS, VZ, EXPE, UBER
DURABLE CAPITAL	\$8B	STNE, DNB, EB, IAC, SNOW, FOUR, JBHT, CIGI, RH, BILL
EDGEPOINT	\$7B	AEGR, BAM, BAC, AMYT, MSI, AON
EDGEWOOD	\$30B	DHR, SNAP, EL, ILMN, MSFT, CME, NFLX, NEE
FINDLAY PARK	\$10.4B	TRU, FISV, PYPL, MMC, KEYS, UNH, ADI, TXN, CHTR, INTU, TRI
FOXHAVEN	\$3B	HLT, TMUS, LMND, MELI, V, VRM, SNOW
FUNDSMITH	\$17.5B	SBUX, SABR, NKE, ADP, WAT, FTNT, QLYS, CL, MAR, VRSN
GENERATION INVESTMENT	\$14B	CSCO, ASAN, SCHW, ADI, NTNX, CBRE, BAX, AMAT, BDX, AYI
HEALTHCOR MGMT.	\$2.35B	ARCT, HZNP, ZBH, THC, RPRX, NBIX, ASMB, MDT, ZYME, VRTX
HITCHWOOD CAPITAL	\$1.2B	NVTA, Z, FSLY, ROKU, NET, ETSY, DOCU, ATVI, FVRR, PTON
HUNT LANE	\$420M	SNAP, SQ, WDAY, RNG
JERICH0	\$2.55B	LI, MRVL, TWTR, VNET, CZR, LYFT, AMD, EXPE, MTCH, XPEV
KENSICO CAPITAL	\$3.65B	DLTR, NUAN, AYX, BC, PSTH, IQV, FB, SRCL
LAKEWOOD CAPITAL	\$2.2B	ABG, UPWK, MIK, CWH, TMUS, SKX, VVW, SAIC
LIGHT STREET	\$1.9B	U, LI, ACEL, NVTA, CZR, CHWY, DOCU, FROG, PTON, TSLA
LINDELL TRAIN	\$6B	CME
LUXOR CAPITAL	\$3.32B	GLNG, IAC, RBA, ATH, LNG
LYRICAL ASSET MGMT.	\$4B	CNC
MATRIX CAPITAL	\$3.9B	BIGC, DIS, DT, GPN, NEWR, SILK, NET, U, JAMF, LRCX
MELVIN CAPITAL	\$12.5B	PINS, TJX, LVS, NUAN, KAR, DDOG, NKE, EXPE, FISV, AMD, EAT
MERITAGE	\$3.7B	MAR, AON, MIME, ZEN, WDAY
POLEN CAPITAL	\$23B	UNH, ISRG, ILMN, AON, BABA, MDT, EL, ICLR, UL, SAP EDU
RGM CAPITAL	\$1.66B	CLDR, BOX, PD, PRO, CSOD, TENB, AVNS, CSII, RP, PFPT, CYBR
RUANE CUNNIFF	\$6.2B	ICE, FIS, UNH
SAMLYN CAPITAL	\$3.95B	IBN, AVTR, RKT, CROX, CPRI, MRK, VOYA, WRB, KO
SCGE MANAGEMENT	\$5.2B	VSTA, U, SNOW, CRWD, RNG, NCNO, DOCU, SUMO, BIGC, RXT
SHAWSRING	\$445M	IAC, MTCH, SE
SOROBAN CAPITAL	\$5.5B	PSTH, ARMK, ADI, YUM, FISV, RTX, FIS, CHTR
STEADFAST CAPITAL	\$6.5B	PCG, SLV, DNB, BFAM, HWM, MTCH, SE, FISV, SYK, PLNT
STOCKBRIDGE PARTNERS	\$2.5B	RP, V, VMC, VRSN
STRATEGY CAPITAL	\$620M	FB, NFLX, AMZN
SUSTAINABLE GROWTH	\$9.25B	ALC, BLL, TMO, XLNX, FLT, UNP, ILMN, TCOM, FMX

SUVRETTA CAPITAL	\$3.7B	TPR, JWS, GFL, FISV, NKLA, PINS, MDT
SYLEBRA CAPITAL	\$3.2B	NOVA, CD, EGHT, AMD, ENPH, VNET, OSPN, LULU, LSCC, FUTU
TREMBLANT	\$1.6B	RKT, KDP, DIS, EAT, UBER, MDLZ, MLCO, FTCH, PFPT, YUMC
TRIPLE FROND	\$1B	MSFT, GWRE
TYBOURNE	\$3.3B	STNE, UPS, DFS, PENN, TWLO, FB, V, SHOP
WHALE ROCK CAPITAL	\$7.3B	PINS, PTON, PENN, BEKE, AMD, TSM, DCT, JD, BABA, BILL

Snowflake (SNOW) showing up on a lot of smart funds filings in Q3 including Altimeter, Foxhaven, Durable Capital, and SCGE Management. Berkshire Hathaway is also a top holder with 6.12M shares while Sands Capital and Tiger Global buyers too. The \$93.89B company has soared since its debut in September and pulled back a bit into year-end, down 30% from its peak. SNOW is a leading cloud-based data-warehousing company and well-established in the space with Gartner estimating a 10% market share, third best in the world behind SAP and Apache Hive. SNOW has set itself apart from peers as their software is platform agnostic and can be run on AWS, Azure, and Google's cloud, giving them a distinct advantage in a market growing rapidly. Gartner estimates that 75% of all databases will be in the cloud by 2022 and hybrid strategies likely more accelerated while IDC sees the revenue opportunity in storage doubling by 2023 to over \$180B.

Small-Cap Biotech Profiles/Catalysts in 2021

In this section, we'll focus on 20+ small-cap biotech stocks with a number of catalysts in 2021. We cover a lot of large-cap names in the report already but these are often under-looked and under-followed names that can produce big moves in the calendar year. They are speculative and most do not trade options, so not names we cover day-in and day-out. They can be more 'boom or bust' than mid- and large-cap peers, but sized properly can be an integral part of growth portfolio. We'll look at the science and that potential market for each name and a snapshot of their pipeline.

[ADC Therapeutics \(ADCT\)](#)

[Allogene \(ALLO\)](#)
[Ardelyx \(ARDX\)](#)
[Emergent Bio \(EBS\)](#)
[Iovance \(IOVA\)](#)
[Kymera \(KYMR\)](#)
[Marinus \(MRNS\)](#)
[Morphic \(MORF\)](#)
[Nkarta \(NKTX\)](#)
[Rhythm Pharma \(RYTM\)](#)

[Trillium Therapeutics \(TRIL\)](#)

[Akouos \(AKUS\)](#)
[Apellis \(APLS\)](#)
[Dicerna \(DRNA\)](#)
[Generation Bio \(GBIO\)](#)
[Krystal Bio \(KRYG\)](#)
[MacroGenics \(MGTX\)](#)
[Mersana \(MRSN\)](#)
[NGM Bio \(NGM\)](#)
[Rocket Pharma \(RKCT\)](#)

ADC Therapeutics (ADCT) is a \$2.37B oncology-focused company that develops novel PBD-based antibody drug conjugates. ADCs were developed as an alternative to chemotherapy and is seen as a safer treatment method as it directly targets cancerous cells and not just the entire body. The compounds used to treat cancer – called cytotoxins – can damage healthy cells which also limits the effectiveness of chemotherapy. ADCs use a delivery mechanism to specifically target malignancies by circulating through the blood until it encounters a bad cell. There have been problems with the development of ADCs including some cancer cells are resistance to the ADC and won't be recognized. ADCT looks to improve on these common missteps by using a highly potent PBD that is better at cross-linking DNA and preventing replication. The company is exploring a number

of novel ADCs in their pipeline across large B-cell lymphoma, non-Hodgkin lymphoma, and various solid tumors. The drug has significant potential with \$1B in US sales and over \$800M in EU sales as both a monotherapy and in combination.

Deep pipeline with worldwide commercial rights



	Preclinical	Phase 1a	Phase 1b	Phase 2	Phase 3 / Confirmatory*	Upcoming Milestones	Rights
Hematology Franchise	Loncastuximab Tesirine (Lonca) Targeting CD19					May 21, 2021 PDUFA	ADC THERAPEUTICS
	Diffuse Large B-Cell Lymphoma					Commence pivotal Phase 2 for FL in H1 2021	
	Diffuse Large B-Cell Lymphoma and Mantle Cell Lymphoma, in combination with ibrutinib						
	Follicular Lymphoma						
Hematology Franchise	Camidanlumab Tesirine (Cami) Targeting CD25					Top-line pivotal Phase 2 HL data in H1 2021	ADC THERAPEUTICS
	Hodgkin Lymphoma						
	ADCT-602 Targeting CD22					Phase 1 data	
Solid Tumor Franchise	Camidanlumab Tesirine (Cami) Targeting CD25					Phase 1 data	ADC THERAPEUTICS
	Various Solid Tumors						
	ADCT-601 Targeting AXL					Phase 1 data	
	Various Solid Tumors						
	ADCT-901 Targeting KAAG1					IND submission	
Solid Tumor Franchise	ADCT-701 Targeting DLK1					Collaboration / IND submission	ADC THERAPEUTICS
	Various Solid Tumors						

Akouos (AKUS) is a \$705M gene therapy company with a focus on hearing disorders. AKUS has a deep library of IP from the laboratory of Harvard Medical School researcher Luk Vandenberghe who was working on highly-specific AAV-based gene therapies. Their lead product is AK-OTOF which is being explored as a treatment for hearing loss due to mutations in the OTOF gene. The company plans to file an IND in 2021 for another trial in pediatric patients with data in 2022. AKUS uses a dual-based approach to deliver a functioning, healthy OTOF gene into the inner ear which will help restore hearing loss without risk of raising pressure on the ear leading to tissue damage. They've generated Proof of Concept data in mice and the early-stage drug has a long runway into other potential inner ear disorders. Hearing loss is a big and underserved market with more than 5% of the global population impacted and 90% of those patients suffering from inner ear issues. They also note that over 1B people between 12- and 35 are at-risk of hearing damage due to noise exposure. The current options of treatment are also lacking. There are no FDA approved therapeutics for treatment and listening aids all have limitations.

Deep Pipeline Highlights Breadth of Platform



Product Candidate or Development Program (Indication)	Estimated Prevalence (US and EU)	Stage of Development				Next Planned Milestone
		Discovery	Preclinical	Phase 1/2	Pivotal	
Hair Cells						
AK-OTOF (OTOF-mediated Hearing Loss)	20,000	<div></div>	<div></div>			<div>IND Submission</div>
AK-CLRN1 (Usher Syndrome Type 3A)	2,000	<div></div>	<div></div>			<div>Pre-IND Meeting</div>
Autosomal Dominant Hearing Disorder	Pending Target Selection	<div></div>				<div>Target Announcement</div>
Supporting Cells						
GJB2 (GJB2-mediated Hearing Loss)	200,000	<div></div>				<div>Candidate Selection</div>
Hair Cell Regeneration	Pending Target Selection	<div></div>				<div>Target Announcement</div>
Secreted Proteins						
AK-antiVEGF (Vestibular Schwannoma)	200,000	<div></div>				<div>IND Submission</div>

Allogene (ALLO) is a \$4.2B immune-oncology company with a focus on genetically engineered allogeneic T cell therapies. T-cell immunotherapy has garnered a lot of attention over the last couple years given the excitement over its use-case in late-stage cancer patients. The treatment uses a patient's own t-cells to fight cancer and was developed at UPenn, Sloan Kettering, and Baylor College. It is sometimes referred to as eACT or engineered Autologous T-Cell Therapy and is currently used by GILD, NVS, BMY, BLUE and others. An autologous treatment simply means that a patients own cells are collected and then modified outside of the body to become a killer for cancer cells. The cells have potential to induce long-term control over the cancer as they get re-infused back into the body. They are seen as advantageous to current standard of care due to faster treatment times, better supply and consistency of cells, more cost-friendly, and more potent. ALLO showed proof of concept in an early trial in acute lymphoblastic leukemia which showed the process was both safe and effective. Their lead program is ALLO-501 which is an anti-CD19 CAR-T used for relapsed/refractory non-Hodgkin lymphoma. The trial showed early positive results at ASCO in 2020 in the small trial with a 63% ORR and CR of 37% on 19 patients. The treatment is being explored in a number of other indications too like multiple myeloma. ALLO is attacking a potentially huge market opportunity but near-term estimates call for \$850M to \$900M in revenue by 2025.







CATEGORY		PROGRAM	PRE-CLINICAL	PHASE 1	PHASE 2/3 ²
Hematological Malignancies	CD19	ALLO-501 (NHL) ¹	<div></div>	<div></div>	
		ALLO-501A (NHL) ¹	<div></div>	<div></div>	
	BCMA	ALLO-715 (MM)	<div></div>	<div></div>	
		ALLO-715 + nirogacestat (MM) ⁴	<div></div>	<div></div>	
		ALLO-605 (TurboCAR™/MM)	<div></div>	<div></div>	
		ALLO-316 (CD70/AML)	<div></div>	<div></div>	
		ALLO-819 (FLT3/AML)	<div></div>	<div></div>	
Solid Tumors		ALLO-316 (CD70/RCC)	<div></div>	<div></div>	
		DLL3 (SCLC)	<div></div>	<div></div>	
		Multiple Undisclosed Targets	<div></div>	<div></div>	
Lymphodepletion Agent		ALLO-647 (Anti-CD52 mAb) ³	<div></div>	<div></div>	

Apellis (APLS) is a \$2.8B company which is developing therapeutics using inhibitors within the complement system. Complement is a series of plasma proteins in the body that react with one another to induce responses to help fight infection from outside pathogens. There are many useful components to complement including immune clearance, destruction of infectious organisms, and opsonization – marking cells for either destruction or recycling. Complement is also critical in generating inflammation that helps fight infections and any disruption can cause significant problems. APLS is primarily targeting a part of the complement system called C3. Their most advanced program is targeting a form of macular degeneration called geographic atrophy or sometimes advanced dry AMD. GA causes a slow, irreversible loss of retinal use which often lead to blindness and impacts around 1M people in the US with no effective treatment currently. The market is estimated to be around \$1B by 2025. APLS has another key program currently in paroxysmal nocturnal hemogloinuria (PNH) which is a hemolytic disease. PNH patients are primarily treated with Soliris and Ultomoris currently from Alexion (ALXN) and APLS's therapy is being evaluated in patients who remain anemic. PNH is a \$400M market opportunity.

Product	Category	Disease	Pre-clinical	Phase 1	Phase 2	Phase 3	Approved
Systemic pegcetacoplan (APL-2)*	Hematology	Paroxysmal nocturnal hemoglobinuria (PNH)					
		Cold agglutinin disease (CAD)					
	Nephrology	Hematopoietic stem cell transplantation thrombotic microangiopathies (HSCT-TMA)					
		Immune complex membranoproliferative glomerulonephritis (IC-MPGN) and C3 glomerulopathy (C3G)					
	Neurology	Amyotrophic lateral sclerosis (ALS)					
Intravitreal pegcetacoplan	Ophthalmology	Geographic atrophy (GA)					
Intravenous APL-9	COVID-19	Acute respiratory distress syndrome (ARDS) & thrombotic microangiopathies (TMA) secondary to COVID-19					
	Gene therapy	Control of host attack on AAVs for gene therapies					

Ardelyx (ARDX) is a \$508M company focusing on the treatment of rare diseases using specialized ion transport mechanisms detected through the gastrointestinal tract and kidney. ARDX develops oral, small molecule, targeted drugs that are limited in scope as to not be absorbed by the entire system, limiting side effects and dangerous drug interactions that are frequent with absorbed medicines. Their main focus is on cardiorenal disorders and lead candidate is in hyperphosphatemia in patients with chronic kidney disease. Hyperphosphatemia is an electrolyte disorder where the levels of phosphate in the blood become elevated. Some people will develop calcium deposits in the soft tissue which can result in muscle spasms, numbness in the joints, and weak bones. It impacts around 550,000 people in the US who are currently on dialysis and carries a major risk factor for death. The current standard of care is phosphate binders but many patients still can't get to proper phosphate levels. ARDX's drug tenapanor blocks the absorption of phosphate in the GI tract rather than binding to it, creating a new treatment methodology and potential best-in-class monotherapy. The treatment has already shown strong results as well as a lower pill regimen than binders, making it both easier to administer and more likely patients will continue through with it. Their PDUFA date is April 29. Peak US sales for the drug are expected to be around \$800M. The drug is also being explored in other indications like irritable bowel-related constipation and hyperkalemia.










Dicerna (DRNA) is a \$1.7B company focused on RNAi-based therapeutics. RNAi stands for "ribonucleic acid interference" and is a biological process by which RNA molecules stop gene expression by destroying targeted mRNA molecules. Simply put, RNAi interference can use a gene's own sequence to turn it off and is sometimes referred to as silencing. Small RNA molecules are used to activate protein processes that literally bind to target areas of the gene and physically prevent the ribosomes from continue to synthesize. These areas are then marked for destruction. RNAi is an important part of battling viruses as it can get to weaker cells before there are used to produce more virus. DRNA has a proprietary platform called GalXC which they see as more selective and better-focused on targeting RNA sequences. They have three programs currently in development focused on liver disorders including Primary Hyperoxaluria, Hep B, and Alpha-1 Anti-Trypsin Deficiency. DRNA is targeting some highly competitive areas but they think their use of a liver-targeting RNAi trigger will make their process more effective than others. Early results have been positive but COVID has delayed a number of dosing and trial advances into 2021. DRNA has partnerships with ALXN, LLY, Roche, ALNY, and Boehringer Ingelheim.

PARTNER	TARGET INDICATION	DISCOVERY/RESEARCH	PRECLINICAL	CLINICAL PROOF-OF-CONCEPT TRIALS	REGISTRATION TRIALS	DICERNA'S PRODUCT RIGHTS
	Primary Hyperoxaluria, Type 1,2,3	Nedosiran				100%
	A1AT Liver Disease	DCR-A1AT / ALN-AAT02				100% (ex-U.S. Alnylam opt-in)
	Undisclosed	DCR-Proprietary				100%
	Chronic HBV	RG6346				U.S. opt-in*
		DCR-RG1				
	Cardiometabolic, Neurodegeneration and Pain	LY3561774				Milestone/Royalty
		LY3819469				
		DCR-CM4				
		DCR-CM5				
		DCR-NEURO1				
		DCR-NEURO2				
		DCR-LLY9				
		DCR-PAIN1				
		DCR-PAIN2				
		DCR-LLY10				
	Complement-Mediated Rare Diseases	DCR-CM3				Milestone/Royalty
		DCR-COMP1				
		DCR-COMP2				
		DCR-COMP3				
	NASH	DCR-COMP4				Milestone/Royalty
		DCR-LIV2				
	Liver-Related Cardiometabolic Diseases	Exploring Multiple Potential Targets				U.S. opt-in – 2 programs

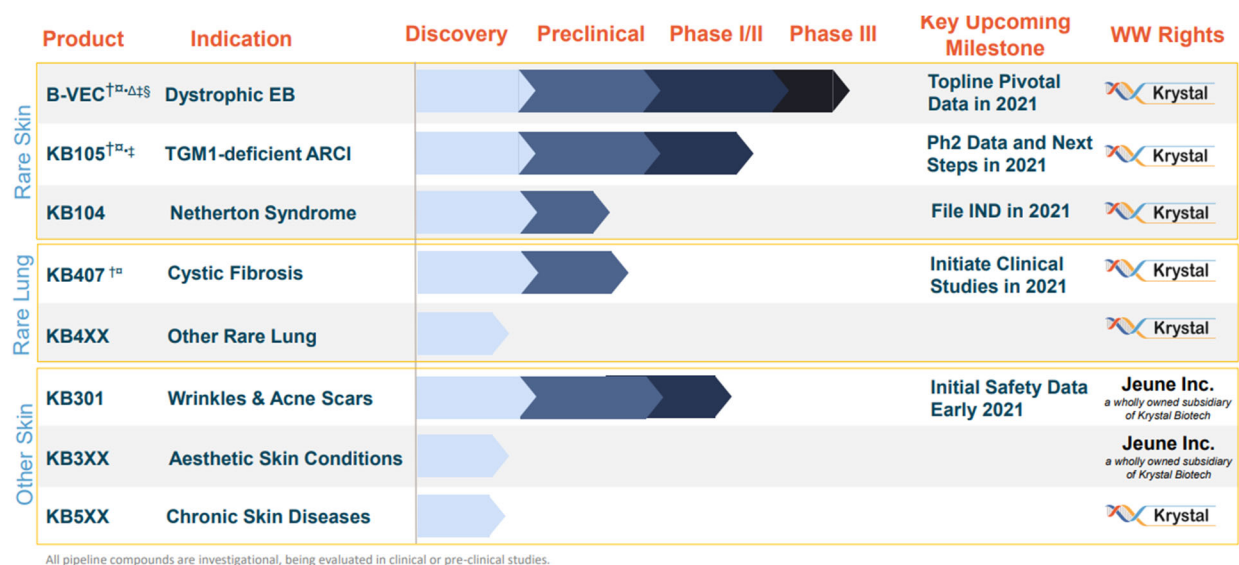
Emergent Bio (EBS) is a \$4B company focused on vaccines and other products that address public health threats like chemical, biological, radiological, and nuclear incidents. They work with both military and non-military populations. Their primary product is called BioThrax, the only FDA-approved anthrax vaccine. The company generates the substantial part of their revenue through a contract with the US Dept. of HHS which buys BioThrax for the national stockpile as part of a CDC directive. The company signed a deal in 2016 for 29.4M doses or ~\$900M and they also won a contract worth around \$1.5B to develop their next-gen anthrax vaccine called AV7909. EBS has expanded capacity in recent years to 20M doses per year but government demand has slowed and they are expanding their product portfolio through deals. In 2012, they were largely a one-product company but they've been active recently. They bought a small pox vaccine in 2017, specialty vaccine-maker PaxVax in 2018, and Adapt Pharma in 2018 which makes NARCAN nasal spray. They currently have Phase 3 programs in cholera and AV7909 is ongoing as well. Other programs include Chikungunya virus, influenza, COVID, Zika, Shigella, Lassa Fever, Marburg virus, diphtheria, a ricin antitoxin, and Ebola. EBS is targeting \$1B in revenue in the near-term.

Generation Bio (GBIO) is a \$1.4B company focused on gene therapies in the liver and retina. GBIO considers themselves a differentiated gene therapy company as they utilize what is known as closed-ended DNA construct which has three times the capacity of typical AAV capsids. This means that GBIO's gene therapy can take more genes to the cell during injection and even multiple genes to a cell, increasing long-term impact and reducing the need for multiple injections. There's also a big advantage for GBIO over peers in that they bypass the capsid manufacturing process which is where many gene therapy companies have been hit by FDA issues. This means that GBIO will likely be able to commercially scale much better than others. GBIO also sees using a closed-end construct as allowing them to pursue a wider range of rare diseases than other platforms. The typical AAV capsid used by other gene therapy companies can hold 5kb worth of genetic material which limits the number of targets and potential treatments. This means that an injection's ratio of on-target vs off-target cell infection needs to be very good to get a favorable response with limited off-target expression and potentially negative immune response. GBIO's delivery system is far more likely to not only be on-target but can be modified patient-by-patient to make sure dosing is unique to each individual, leading to a better response overall. GBIO has a number of projects in pre-clinical and early stage development including PKU, hemophilia A, and Wilson Disease. Their retinal work focuses on LCA10, Stargardt, and Wet AMD. They see opportunity to expand into skeletal muscle, oncology, and CNS.

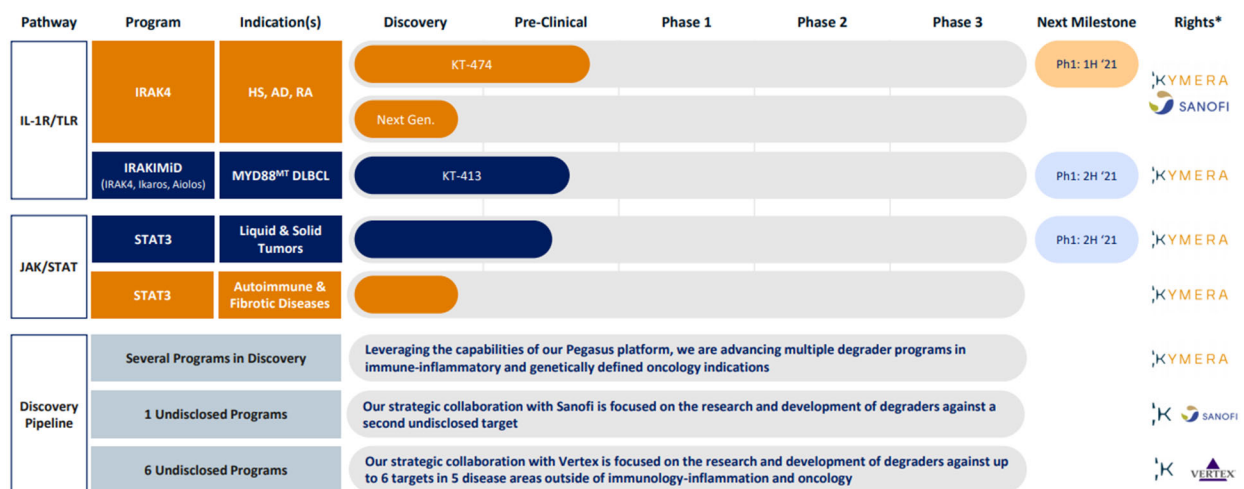
Iovance (IOVA) is a \$4.7B company with a focus on developing adoptive cell therapy using tumor infiltrating lymphocytes (TIL). Their target areas are metastatic melanoma and other solid cancers. Lymphocytes are the cells within the immune system that detect cancer and try to attack tumors early in their development. In order to track and infiltrate the cancer cells, the body relies on TILs to direct the immune response. Their natural effectiveness is limited because cancer cells can quickly recognize and adapt to their presence which then suppresses the body's immune response. IOVA's platform allows for TIL to be taken from the patient and then multiplied by the billions ex vivo, or outside the body, using IL-2. The process starts by excising the tumor and isolating the TIL from the patient. Then it is cultured and expanded before being infused with LN-145 back into the patient. This process eliminates any anti-suppression response from the tumor cell and also creates a more favorable environment for the TIL to replicate and be more aggressive in fighting the cancer. IOVA's process carries a number of benefits including better potency, shorter manufacturing time, and better expression of proteins like PD-1 and CTLA-4 which fight immune suppression. IOVA's process also requires fewer cells. The lead product is LN-144/lifileucel is being developed as a 'ready-to-infuse' injectable for metastatic melanoma. TILs have shown strong response rates so far in metastatic melanoma, especially compared to checkpoint inhibitors. TIL has a wide range of opportunity in other indications.

	Regimen	Trial	Indication	N	Partner	Phase 1	Phase 2	Pivotal
Company sponsored studies	Lifileucel	C-144-01	Melanoma	178	—			
	Lifileucel	C-145-04	Cervical cancer	138	—			
	LN-145/ LN-145-S1	C-145-03	Head & neck cancer	55	—			
	Lifileucel + pembrolizumab LN-145-S1 LN-145 + pembrolizumab LN-145 + pembrolizumab LN-145	IOV-COM-202	Melanoma Melanoma Head & neck Non-small cell lung Non-small cell lung	~75	—			
	LN-145	IOV-LUN-202	Non-small cell lung	95	—			
	IOV-2001	IOV-CLL-01	Chronic lymphocytic leukemia	~70	—			
Select investigator sponsored proof-of-concept studies	MDA TIL	NCT03610490	Ovarian, colorectal, pancreatic	~54	MDAnderson Cancer Network			
	LN-145	NCT03449108	Ovarian, sarcomas	~54	MDAnderson Cancer Network			
	Moffitt TIL + nivolumab	NCT03215810	Non-small cell lung	20	MOFFITT CANCER CENTER			

Krystal Bio (KRY) is a \$830M company focused on developing gene therapies for dermatological diseases. The company has their own proprietary platform called Skin Targeted Delivery or STAR-D which uses their own HSV-1 vector to target genes. HSV vectors as opposed to AAV vectors present a better option for skin conditions as they allow for a higher capacity (30 kb vs 5kb) which works more effectively against non-dividing skin cells. They also have expanded capacity out to 150kb which will make them more effective in the future for combination treatments. KRY's modified HSV can also be better manipulated while showing a limited immunogenicity. AMGN uses a similar HSV for their treatment Imlygic which was approved by the FDA for melanoma. KRY sees their in vivo treatment as safer and more likely to generate better transgene expression in repeat dosing. Their lead product is B-VEC and being evaluated in dystrophic epidermolysis bullosa (DEB) which is a rare genetic tissue disease which makes skin blister or tear from minor contact. Around 125,000 people worldwide are impacted by DEB and no current standard of care. Early trials have shown a strong response in wound healing as well as protein creation and KRY expects Phase 3 trials to yield data in 2021. They have other programs in Netherton syndrome, certain aesthetic skin conditions, and cystic fibrosis.



Kymera (KYMR) is a \$1.4B company that focuses on development of novel protein degrader therapeutics. This approach is unique in that it looks to use the natural degradation process to selectively target disease carrying proteins and remove them from the body. Targeted protein degradation (TPD) is seen as a unique way to target so called 'undruggable' diseases. Proteins are marked within the body for degradation by something called ubiquitin which is attached to the amino group. These ubiquitin's form a long chain around proteins which are then recognized by proteasome complexes and then destroyed. KYMR's small molecule degrader consists of three parts: a binder, a target protein, and a connecting element. Their research has identified more than 600 naturally occurring ligases across different tissues and they have a wide base of IP on specific areas that they can target. KYMR expects to develop highly-specific protein degraders to target diseases where traditional therapies have failed. Their current pipeline includes pre-clinical studies in liquid and solid tumors, autoimmune and fibrotic diseases, diffuse large b-cell lymphoma, atopic dermatitis (AD), Hidradenitis suppurativa (HS), macrophage activation syndrome, general pustular psoriasis, and rheumatoid arthritis (RA).

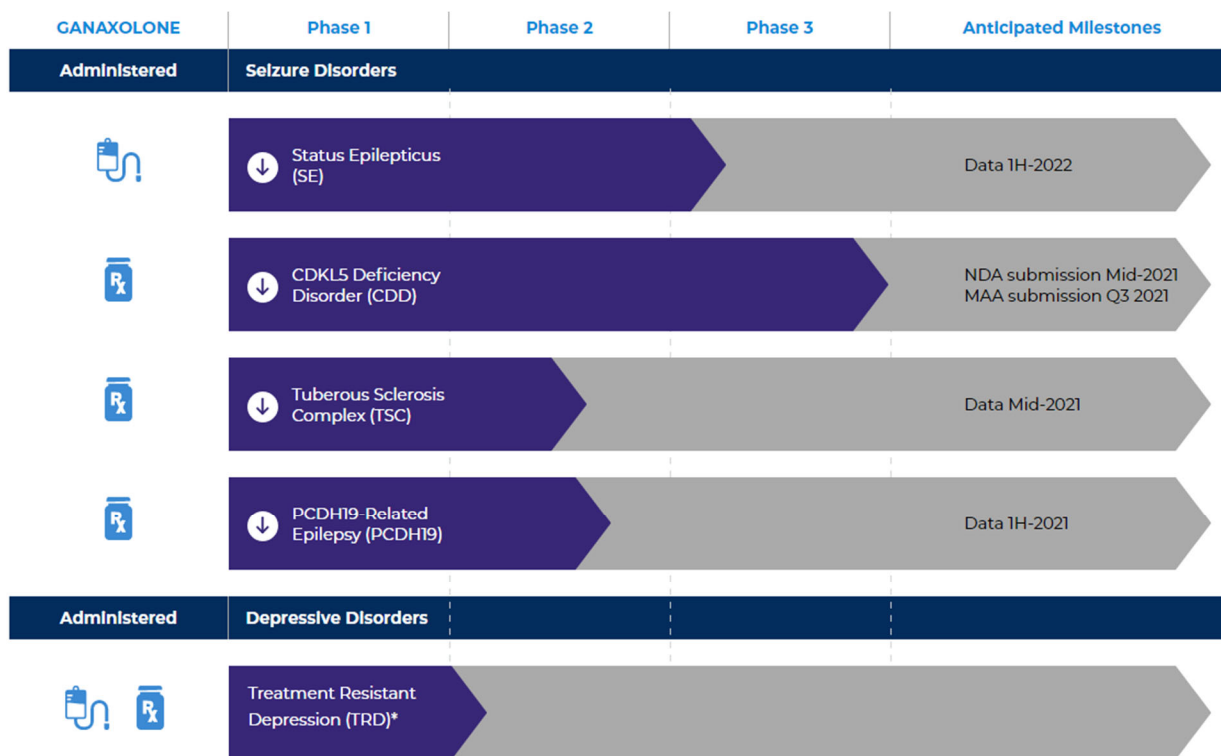


Macrogenics (MGNX) is a \$1.4B company focused on monoclonal antibody-based therapeutics for the treatment of cancer. They use two different platforms, DART and TRIDENT, to develop their treatments. DART is the main focus and it develops medicines use a single molecule that can bind to two or more targets with antibody like specificity using covalent linkages and unique amino acid sequences to pair chains within the



molecule. The molecules are more compact and more structurally sound than competitors which allows for longer half-lives as well as an easier manufacturing process. Current bispecific platforms often face manufacturing and purity issues which DART can seemingly overcome. The DART platform is being used currently to re-direct T-cell activation and kill cancer cells. DART molecules can boost the cancer-fighting properties of immune effector cells, bind to structures on a cancer cell, and trigger t-cell activation and expansion. MGNX has a deep pipeline with late-stage assets in HER2+ breast cancer, refractory AML, and NSCLC as well as early programs in solid tumors and TNBC. They are well capitalized with a number of partnerships and can develop a very prodigious R&D operation.

Program (Target)	Potential Indication(s)	First-in-Human (Phase 1)	Proof-of-Concept (Phase 2)	Pivotal/Regist. Directed	Approved	Major Market Rights
Margetuximab (HER2)	HER2+ Breast HER2+ GC/GEJ (+retifanlimab/tebotelimab)					Greater China MACROGENICS zaiLab.
Flotetuzumab (CD123 x CD3)	Refractory AML					MACROGENICS
Retifanlimab ^(a) (PD-1)	NSCLC, Anal					Greater China Incyte zaiLab.
Enoblituzumab (B7-H3)	SCCHN (+retifanlimab/tebotelimab)		Planned TQ21			Greater China MACROGENICS I-MAB
Tebotelimab (PD-1 x LAG-3)	Solid Tumors & Heme Malignancies					Greater China MACROGENICS zaiLab.
MGD019 (PD-1 x CTLA-4)	Solid Tumors					MACROGENICS
MGC018 (B7-H3)	mCRPC, TNBC, NSCLC					MACROGENICS
IMGC936 (ADAM9)	Solid Tumors					50/50 MACROGENICS immun.gen
MGD = DART	MGA = Antibody	MGC = ADC	The safety and efficacy of investigational agents and/or investigational uses of approved products have not been established.			

Marinus (MRNS) is a \$355M company with a focus on drug-resistant seizure disorders. Their lead candidate is called ganaxolone which is a GABAA receptor modulator being tested as both an IV and orally administered drug which gives is use in both acute care and longer-term outpatient care. Ganaxolone helps regulate brain activity including stopping the abnormal electrical discharges that cause seizures. GABA is a naturally occurring amino acid in the brain that works as a neurotransmitter. GABA can block certain brain signals and modulate activity in your nervous system and when it falls into dysregulation can cause serious neurological issues. They are typically located within the limbic system, an area of the brain. Ganaxolone binds itself to one of the receptor types within GABA and its activation then changes the charges within the cell, analogous to a steroid. It differentiates itself from current seizure medications by targeting specific sites within the brain. Ganaxolone has generated strong results in early Phase 2 trials as an IV formulation with rapid cessation of seizures. And the safety profile has been strong too with no patients needing escalation of treatment within 24 hours. Phase 3 data is due in early 2022. Peak sales estimates are around \$800M In the US by 2030 while the oral usage would expand their reach considerably. MRNS is exploring ganaxolone as a treatment for Tuberous Sclerosis Complex with data in mid-2021 and in epilepsy with proof of concept due mid-year too.













Mersana (MRSN) is a \$1.3B company focused on development of antibody drug conjugate (ADC) therapies for cancer patients. Their platform is considered a step forward from first-generation ADCs while being more effective and tolerable to patients. ADCs are a highly-targeted, potent biological drug that is built by attaching a small, molecular anti-cancer drug onto an antibody via a permanent link. The antibody then targets specific antigens within the body. They are sometimes referred to as empowered antibodies (mAbs). Typical ADCs will be highly selective which means they'll have less impact on healthy cells and they'll also have a potent cytotoxic aspect for destruction of cancer cells. This is a busy space with more than 80 ADCs currently in clinical trials and their use is rapidly accelerating given their superior technology and targeting versus traditional chemotherapy which often harms a lot of healthy cells. MRSN's ADC platform generates high drug-to-antibody ratios with multiple payloads delivered per site, often 15-20. One of the biggest issues for high payload ADCs has been toxicity and MRSN developed a system called DolaLock which slowly converts the toxin over time into a metabolite. They are pursuing strategies in both cytotoxic and immunostimulatory ADCs. Their lead candidate is XMT-1536 which is being explored in ovarian cancer, NSCLC, renal, thyroid, and salivary gland cancer. Safety and efficacy supports approval and they'll likely be able to build out the platform into further indications over time.

ADC Program	Target	Indication	Platform	Discovery	Preclinical	P1 Dose Escalation	P1 Proof of Concept	P2/Pivotal Study
XMT-1536*	NaPi2b	Ovarian Cancer NSCLC Adenocarcinoma	Dolaflexin					
XMT-1592*	NaPi2b	Ovarian Cancer NSCLC Adenocarcinoma	Dolasynthen					
To Be Named	B7-H4	Multiple Solid Tumors	Dolaflexin or Dolasynthen					
To Be Named	Multiple	Multiple Solid Tumors	Immunosynthen					
To Be Named	Multiple	Undisclosed	Dolasynthen					
To Be Named	Multiple	Undisclosed	Dolaflexin					
Multiple 	Multiple	Undisclosed	Dolaflexin					
ASN004 	5T4	Undisclosed	Dolaflexin					

*NaPi2b antibody used in XMT-1536 and XMT-1592 is in-licensed from Recepta Biopharma. Recepta has rights to commercialize XMT-1536 and XMT-1592 in Brazil

Morphic (MORF) is a \$906M company that focuses on integrin therapeutics. The company is developing a number of orally administered drugs targeting the integrin family of proteins with treatments in autoimmune, cardiovascular, and metabolic diseases. They also see potential in fibrosis and cancer. The integrin protein family is a series of transmembrane proteins that are involved with binding other cells and extracellular matrix proteins – basically proteins that act as adhesives between others. They play a central role in cell growth, tissue homeostasis, immune modulation, and other functions at a cellular level like platelet activation. Historically, integrin therapies have been successfully developed but never as an oral treatment where many have run into serious side effects. MORF has a unique platform called MInT which hopes to solve these issues. They focus on three key things: 1) better compound structures, 2) better stabilization and identification of the disease; and 3) better testing. MORF has a deep library of integrin modulators including both activators and inhibitors and has worked with Schrodinger (SDGR) to build out silico modeling and their own library. They hope to use AI and data-mining to find the right balance for an orally administered treatment. Their lead asset is in IBD which had an IND accepted in mid-2020. But, their development of MORF-057 is key as it could be a strong therapy for Ulcerative Colitis and Crohn's Disease which would be a blockbuster.

Proprietary Pipeline		Status		
Target (Program)	Indication	Preclinical	Phase 1	Phase 2
$\alpha_4\beta_7$ (MORF-057)	Ulcerative colitis		Data anticipated 1H21	Planned adaptive trial
	Other indications, including Crohn's disease			
$\alpha_v\beta_1$	Fibrotic diseases			
$\alpha_v\beta_8$	Solid tumors			
Undisclosed targets	Multiple indications			

Partnered Pipeline		Status		
Target (Program)	Indication	Preclinical	Terms	Partner
$\alpha_v\beta_6$ (MORF-720 & MORF-627)	Idiopathic pulmonary fibrosis and fibrotic diseases		AbbVie paid \$100M for exclusive option to multiple targets, \$20M to exercise $\alpha_v\beta_6$ option	
Undisclosed targets	Fibrotic diseases			
Undisclosed targets	Cardio/Renal/Metabolic		Janssen paid \$10M for multiple novel targets	

NGM Bio (NGM) is a \$1.1B company that focuses on precision biology for targeted novel therapeutics. Their key areas of focus are cardio-metabolic, liver, oncologic and ophthalmic diseases. NGM uses in vivo based discovery for their therapies through a rigorous, multi-step process of optimizing and modifying protein engineering techniques. They rely on deep content analyses and genomic research to help develop protein and antibody pathways towards drug development. The completely internal process has an advantage over traditional drug development – which takes place outside the body – by harnessing the complex biological pathways of the body. This allows them to not only create better drugs but also get to proof of concept testing and advancement in humans on a much faster scale. NGM starts their process by identifying genes or pathways of interest and how those areas are impacted by the disease. Then, they can model out expression patterns and other signaling activities within the area to better inform how they should engineer their mechanism of treatment. Finally, they determine whether their approach can be translated into human trials. This hypothesis-generated starting point gives them a lot of leeway with where they can go with reach across a number of areas. Their lead product, aldafermin, is currently in Phase 2 trials for the treatment of NASH and shown strong efficacy and safety.

LIVER & METABOLIC DISEASES				
NASH F2/F3	Aldafermin	FGF19 Analog	PHASE 2B	Topline Data Expected 2Q21
NASH F4	Aldafermin	FGF19 Analog	PHASE 2B	Enrolling
NASH	MK-3655	FGFR1c/KLB Agonistic Antibody	PHASE 1A/1B	Ph2b Initiation Expected 4Q20
RETINAL DISEASES				
Geographic Atrophy	NGM621	Anti-Complement C3 Antibody	PHASE 2	Enrolling
CANCER				
Cancer & CACS	NGM120	GFRAL Antagonistic Antibody	PHASE 1A/1B	Enrolling
Advanced Solid Tumors	NGM707	ILT2/ILT4 Dual Antagonist Antibody	IND-ENABLING STUDIES	Ph1 Initiation Expected Mid-21
Advanced Solid Tumors	NGM438	To be discussed later today	IND-ENABLING STUDIES	Ph1 Initiation Expected 4Q21

Nkarta (NKTX) is a \$995M company that focuses on cell therapy for cancer treatment. Their approach focuses on receptors on the surface of so-called 'natural killer' cells (NK) that enable the cell to recognize specific antigens on tumor cells. NK cells are in the same ballpark as t-cells or b-cells and are a basic type of lymphocyte in the body. NK cells are a major part of the immune system that limits the spread of tumors and other infections. The biggest problem with NK cells is that they have a short lifespan and limited ability to grow. NKTX has developed an effective 'off the shelf' therapy that has allowed it to develop and preserve NK cells from healthy donors. They have also added a more stimulating membrane and better antigen receptor which makes their NK cells more persistent, potent and durable over time. NK cells compete with CAR-T therapies and non-engineered NK therapies but has advantages over both including cost and simplicity. NKTX's approach is also safer than CAR-T. Their lead asset s NKX101 for the treatment of acute myeloid leukemia and high-risk MDS. They are also exploring options in hepatocellular carcinoma and liver-based CRC.

	2021				2022				2023	
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1H	2H
NKX101 (NKG2D)	Ph1 dose finding: Heme						r/r AML expansion		Potential pivotal trials	
							IND Amend.		Ph1 dose finding: Solid tumors	
NKX019 (CD19)	IND	Ph1 dose finding: B cell malignancies				Dose expansion			Potential pivotal trials	
Program 3					IND	Ph1 dose finding				
NK + T									IND	
GMP Facility	Design				Pivotal / Commercial GMP In-House				Qualification	
	Build									

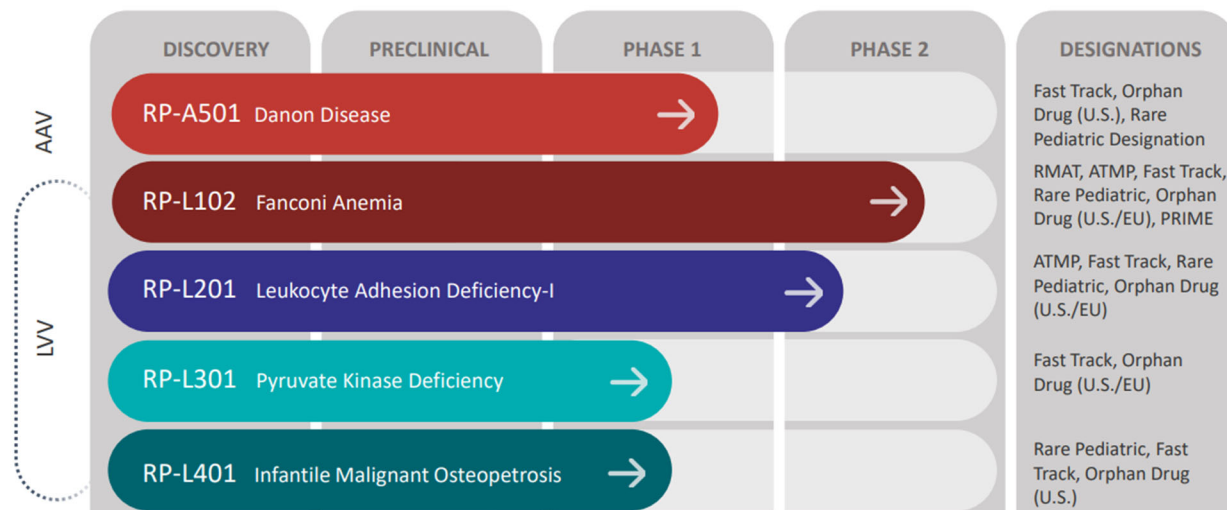
NKX101 heme IND cleared 3Q20; in-house clinical GMP facility completed mid 2020

Rhythm Pharma (RYTM) is a \$985M company that focuses on the development of peptide therapies for rare genetic disorders. Specifically, they focus on life-threatening metabolic disorders with their lead candidate focusing on obesity. The company's primary research looks at melanocortin-4 receptors or MC4R which is

responsible for regulating both weight and hunger in the body. MC4R is a primary driver in disorders like Bardet-Bidel syndrome, Alstrom syndrome, Smith-Magenis, and other forms of obesity. A working MC4R pathway balances both our caloric intake and energy expenditure in way that maintains a normal body weight. The primary way the body regulates food intake is through a combination of the gastrointestinal system and the brain with the hypothalamus as a key gateway for tissues and organs to send back critical information. The hypothalamus also communicates with the pancreas and other parts of the digest system to activate pathways to energy balance. This space between the 'hunger center' and the 'energy center' is known as the MC4R pathway and when it is disrupted it can lead to insatiable appetite. RYTM's lead candidate is setmelanotide which is an MC4R receptor and has shown strong results in early testing including some patients who have lost 40% of their body weight with a normalized diet. The treatment likely has a wide reach and should get significant adoption with around \$1B in peak sales.

Disorder			Early-stage development	Phase 2	Phase 3	Registration
Setmelanotide	Pivotal Studies	POMC deficiency obesity				
		LEPR deficiency obesity				
		Bardet-Biedl syndrome				
		Alström syndrome				
	Basket Study	POMC or LEPR heterozygous deficiency obesity				
		SRC1 deficiency obesity				
		SH2B1 deficiency obesity				
		MC4R deficiency obesity				
		Smith-Magenis syndrome				
		Additional disorders*				
	Weekly Formulation					
	RM-853	GOAT inhibitor				

Rocket Pharma (RCKT) is a \$1.85B company focused on gene therapies for rare hematological, cardiometabolic and bone disorders. RCKT is developing both in-vivo and ex-vivo therapies as well as preclinical CRISPR gene editing work. Their ex-vivo programs focus on what is called lentiviral gene therapy wherein cells are removed from the patient and then infected with a lentivirus encoding the gene of interest. The cells are then reinfused into the patient. RCKT uses hematopoietic stem cells which are a self-renewing form of cell that consistently reproduces within the patients system and thus can provide a permanent, life-long impact from the one-time treatment. This approach is novel and can be applied to a number of different genetic diseases, giving RCKT potentially a huge platform to build off of in the future. RKCT has also found that ex-vivo therapy reduces the number of injections needed and reduces risk of infection or other issues at the surface. Their lead program is in Fanconi Anemia (FA) which is a rare deficiency that leads to anemia and progressive bone marrow failure. FA is a blood disorder but causes complications for the eyes, bonds, kidneys and heart. The current standard of care is a hematopoietic stem cell transplant but that carries a number of difficulties and requires a matched donor. Early data from RCKT shows growth in gene-corrected cells and functional correction overall through time. The company sees FA as a \$500M revenue opportunity but the pipeline is stacked with other opportunities in bigger indications like Danon Disease, leukocyte adhesion deficiency, and malignant osteopetrosis.



Trillium Therapeutics (TRIL) is a \$1.48B company that focuses on immuno-oncology therapies with their lead program for solid tumors. Their two programs target CD47, a 'don't eat me' signal that malignant cancer cells use to evade the immune system. CD47 stops macrophages – specialized cells that look for and kill bacteria and harmful organisms – from destroying tumor cells in the body. TRIL's therapy blocks this signal using two decoy receptors (TTI-621 and TTI-622) which then makes cancer cells more recognizable. TRIL's pipeline has four main studies underway with both receptors evaluated in heme malignancies and solid tumors. Early results have shown potential for both assets to be 'best-in-class' monotherapies and they're escalating dosages and re-evaluating for safety and efficacy.

Target CD47 – INNATE IMMUNE CHECKPOINT					
Candidate TTI-622	Indication Heme malignancies	DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2 PIVOTAL
Candidate TTI-622	Indication Solid Tumors	DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2 PIVOTAL
Candidate TTI-621	Indication Heme malignancies	DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2 PIVOTAL
Candidate TTI-621	Indication Solid Tumors	DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2 PIVOTAL

Seasonality

The overall indices, as well as individual stocks, have long had seasonal cycles throughout the year where certain groups outperform and others lag. They do not work every year as macro events can cause volatility but longer-term certain themes have emerged and some of the more commonly held effects like "Sell in May and Go Away" and the "Santa Claus Rally" have legs. In 2021, we'll also deal with the seasonal effects of the Presidential Cycle as we enter year one of the Biden administration. This section will give you an outline of where historically indices and sectors have been strongest.

The S&P 500

In 2020, the **SPX** was all over the map due to the pandemic but stuck to the script in the Fall. April remained a top month while November also outperforming. The weakest months were February and March. The average monthly return during the 'Summer months' from May through September is thought to lag behind the Winter months but in 2020, it was a very strong stretch from April to August.

If we look at **monthly returns** going back to January 1993, we see the average monthly return is 0.86%, the max gain is 12.68%, and the minimum is -16.51%. We've had 29 months with a loss of 5% or more including two in 2020. Five of those months have been in August, five in September, and three in June. We've had 46 months with a 5% gain or more in that period including four in 2019. Six of those were in October, six of those were in November, and four of those were in March, December, July and April.

And here's a 20-year mosaic of monthly returns for the S&P since 2000:

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2000	-4.98	-1.53	9.69	-3.51	-1.57	1.97	-1.58	6.54	-5.48	-0.47	-7.46	-0.51
2001	4.44	-9.54	-5.6	8.55	-0.56	- 2.38	-1.01	- 5.94	-8.16	1.31	7.8	0.56
2002	-0.98	-1.79	3.32	-5.82	-0.59	- 7.38	-7.88	0.68	- 10.48	8.23	6.17	-5.66
2003	-2.46	-1.35	0.21	8.46	5.49	1.07	1.8	2.06	-1.1	5.35	1.09	5.03
2004	1.98	1.36	-1.32	-1.89	1.71	1.85	-3.23	0.24	1	1.28	4.45	3.01
2005	-2.25	2.09	-1.82	-1.87	3.22	0.15	3.83	- 0.94	0.8	-2.37	4.4	-0.19
2006	2.4	0.57	1.65	1.26	-3.01	0.26	0.44	2.18	2.7	3.15	1.99	1.34
2007	1.51	-1.96	1.16	4.43	3.39	- 1.46	-3.13	1.28	3.87	1.36	-3.87	-1.13
2008	-6.05	-2.58	-0.91	4.76	1.51	- 8.35	-0.9	1.55	-9.44	- 16.51	-6.96	0.98
2009	-8.22	- 10.75	8.35	9.94	5.84	- 0.07	7.46	3.69	3.55	-1.92	6.16	1.91
2010	-3.64	3.12	6.09	1.54	-7.94	- 5.18	6.83	-4.5	8.95	3.82	0	6.68
2011	2.33	3.47	0.01	2.9	-1.13	- 1.69	-2	-5.5	-6.95	10.92	-0.4	1.04
2012	4.63	4.34	3.22	-0.67	-6.01	4.05	1.18	2.5	2.54	-1.82	0.57	0.9
2013	5.12	1.28	3.8	1.92	2.36	- 1.34	5.17	-3	3.17	4.63	2.96	2.59
2014	-3.53	4.55	0.83	0.7	2.32	2.07	-1.35	3.94	-1.38	2.36	2.75	-0.26
2015	-2.97	5.62	-1.57	0.98	1.29	- 2.03	2.26	-6.1	-2.54	8.51	0.37	-1.72
2016	-4.98	-0.08	6.73	0.39	1.7	0.35	3.65	0.12	0.01	-1.73	3.69	2.03
2017	1.79	3.93	0.13	0.99	1.41	0.64	2.06	0.29	2.01	2.35	3.06	1.21
2018	5.64	-3.64	-2.74	0.52	2.43	0.57	3.71	3.19	0.6	-6.91	1.85	-9.2
2019	7.9	3.0	1.8	3.9	-6.6	6.9	1.3	-1.8	1.7	2.0	3.4	2.9

2020	-0.16	-8.41	12.51	12.68	4.53	1.84	5.51	7.01	-3.92	-2.77	10.75	
Average	0.67	-0.04	0.99	2.29	0.80	0.24	1.04	-0.08	-0.11	1.45	2.16	0.99
Max	7.90	6.93	9.69	12.68	6.31	6.90	7.93	7.01	8.95	10.92	10.75	6.68
Minimum	-8.22	-10.75	-12.51	-5.82	-7.94	-8.35	-7.88	-	-10.48	-16.51	-7.46	-9.20
Median	1.65	0.77	1.41	1.27	1.65	0.47	1.24	0.56	0.70	1.99	2.86	1.21
1 Std. Dev	4.12	4.39	4.55	4.13	3.62	3.46	3.82	4.50	4.84	5.36	4.21	3.35

Nasdaq

The **Nasdaq (QQQ)** and **Dow Jones (DIA)** follow a similar seasonal pattern as the S&P. On a month-to-month basis, the best performing times of year are April, May, July, and November. The worst months are June and September. Over the last 20 years, the Nasdaq has averaged 0.85% return per month. The Dow averages 0.77% per month.

The **QQQ** tends to have bigger extremes than either the S&P or the Dow. In 2020, the index had six months with a 4% absolute move. The best month for the Nasdaq over the last 20-years was a 23.5% return in December 1999. The worst month was February 2001 when the group fell 26.2%. The average max gain is 14.4% while the average max loss is a 15.5% decline.

	Jan	Feb	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
2000	-1.9	19	2.6	-13.5	-12.3	12.4	-4.3	13.6	-12.7	-7.9	-22.9	-7.3
2001	10.2	-26.2	-17.5	17.9	-3.1	2.2	-8.6	-12.3	-20.9	17	17	-1.9
2002	-1	-12.3	6.8	-12	-5.3	-13.1	-8.6	-1.5	-11.8	18.5	12.9	-12.1
2003	0.3	3	0.4	8.7	8.5	0.5	6.2	5	-2.9	8.5	0.6	3.1
2004	1.7	-1.4	-2	-3	5.1	3.3	-7.6	-2.5	3.3	5	6	3
2005	-6.3	-0.5	-1.8	-4.4	8.9	-3.3	7.6	-1.5	1.2	-1.5	6.1	-1.8
2006	3.9	-2.1	2.1	-0.2	-7.2	-0.1	-4.3	4.8	4.6	4.8	3.4	-1.9
2007	2.1	-1.7	0.5	5.6	3.2	0.5	-0.2	2.8	5.3	7	-6.8	-0.1
2008	-11.9	-4.8	1.9	8	5.9	-9.6	0.6	1.5	-15.6	-15.5	-11.5	2.3
2009	-2.3	-5.3	10.3	13.1	3.2	3	8.4	1.5	5.7	-3.1	6.4	5.2
2010	-6.5	4.6	7.7	2.2	-7.4	-6	7.3	-5.1	13.2	6.3	-0.2	4.8
2011	2.8	3.2	-0.5	2.9	-1.2	-2	1.7	-5.1	-4.5	10.4	-2.7	-0.6
2012	8.4	6.4	5.1	-1.2	-7	3.6	1	5.2	0.9	-5.3	1.3	-0.5
2013	2.7	0.3	3	2.5	3.6	-2.4	6.3	-0.4	4.8	5	3.6	2.9
2014	-1.9	5.2	-2.7	-0.3	4.5	3.1	1.2	5	-0.8	2.6	4.6	-2.2
2015	-2.1	7.2	-2.4	1.9	2.3	-2.5	4.6	-6.8	-2.2	11.4	0.6	-1.6
2016	-6.9	-1.6	6.9	-3.2	4.4	-2.3	7.2	1.1	2.2	-1.5	0.4	1.1
2017	5.1	4.4	2	2.7	3.9	-2.3	4.1	2.1	-0.3	4.6	2	0.6
2018	8.8	-1.3	-4.1	0.5	5.7	1.2	2.8	5.8	-0.3	-8.6	-0.3	-8.7

2019	9	3	3.9	5.5	-8.2	7.6	2.3	-1.9	0.9	4.4	4.1	3.9
2020	3	-6.1	-7.3	15	6.6	6.3	7.4	10.9	-5.8	-3	11.2	
Average	0.82	-0.33	0.71	2.32	0.67	0.00	1.67	1.06	-1.70	2.81	1.70	-0.59
Max	10.20	19.00	10.30	17.90	8.90	12.40	8.40	13.60	13.20	18.50	17.00	5.20
Minimum	-11.90	-26.20	-17.50	-13.50	-12.30	-13.10	-8.60	-12.30	-20.90	-15.50	-22.90	-12.10
Median	1.70	-0.50	1.90	2.20	3.20	0.50	2.30	1.50	-0.30	4.60	2.00	-0.30
1 Std. Dev	5.83	8.62	5.98	7.75	6.27	5.65	5.51	5.90	8.02	8.40	8.41	4.51

Dow Jones

The **DIA** is less volatile with the best month since 1994 returning 10.34% while the worst month was a 15.23% decline. In 2020, there were two different months with 7%+ gains and two (January and June) were the best years for that month in twenty-five years. The best average max gain was 7.55% while the average max loss was an 8.62% decline.

Small-Caps

The Russell 2000 is somewhere in between the S&P and Nasdaq in terms of volatility with the best months averaging around 10% to 12% and its best month ever since 2000 returning 18.2% in November 2020. The worst month was a 21.5% decline in March 2020. In 2020, there were no months for the IWM that closed between -2% and 2%, everything was either above or below that range.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2001	5.4	-6.7	-4.6	8.3	2.2	3.1	-5.6	-2.4	-14.6	6.5	7.6	5.5
2002	-0.2	-3.1	7.5	1.2	-4.7	-5.8	-13.4	-0.6	-8	4.1	8.5	-5.7
2003	-2.1	-3	0.2	10.3	10.9	1.2	6.5	4.8	-2	8.7	3.7	1.8
2004	4.3	1	1	-5.5	2.2	4.2	-6.8	-1.5	5.3	2.1	9.2	2.4
2005	-4.1	1.6	-2.8	-5.7	6.5	4.1	6.6	-2	0.1	-3.9	5.8	-0.7
2006	8.4	0.3	4.9	0.3	-5.7	0	-2.9	3	0.6	5.9	2.4	0.4
2007	1.7	-0.7	1	1.6	4.4	-1.4	-7	2.1	1.9	2.9	-6.9	-0.6
2008	-6.5	-2.9	-0.7	4.6	4.6	-7.5	3.7	3.6	-7.8	-21	-11.9	4.8
2009	-9.7	-12	7.8	15.4	3.4	1.8	9.2	2.9	5.6	-6.5	3.1	7.9
2010	-3.7	4.5	8.2	5.7	-7.5	-7.7	6.7	-7.4	12.5	4.2	3.5	8
2011	-0.4	5.5	2.5	2.6	-1.8	-2.4	-3.4	-8.9	-11.2	15.1	-0.4	0.5
2012	7.2	2.6	2.5	-1.6	-6.6	5.1	-1.5	3.5	3.3	-2.2	0.6	3.6
2013	6.2	1	4.7	-0.4	3.9	-0.8	7.3	-3.2	6.5	2.4	4	2
2014	-2.8	4.8	-0.8	-3.8	0.8	5.3	-6.1	4.8	-5.9	6.6	0.1	2.9
2015	-3.3	6	1.8	-2.6	2.2	0.8	-1.1	-6.3	-4.9	5.6	3.3	-5
2016	-8.6	-0.2	8	1.7	2.2	0	5.9	1.8	1.1	-4.6	11.1	2.9
2017	0.3	1.9	0	1.2	-2	3.4	0.9	-1.3	6.3	0.7	2.9	-0.4
2018	2.6	-3.8	1.2	1	6.2	0.6	1.7	4.3	-2.3	-11	1.7	-12
2019	11.3	5.2	-2.1	3.4	-7.9	7	0.7	-4.9	2	2.7	4.1	2.8

2020	-3.1	-8.9	-21.5	13.9	6.6	3.4	2.9	5.5	-3.3	2.2	18.2	
Average	0.15	-0.35	0.94	2.58	1.00	0.72	0.22	-0.11	-0.74	1.03	3.53	1.11
Max	11.30	6.00	8.20	15.40	10.90	7.00	9.20	5.50	12.50	15.10	18.20	8.00
Minimum	-9.70	-12.00	-21.50	-5.70	-7.90	-7.70	-13.40	-8.90	-14.60	-21.00	-11.90	-12.00
Median	-0.30	0.65	1.10	1.40	2.20	1.00	0.80	0.60	0.35	2.55	3.40	2.00
1 Std. Dev	5.71	4.92	6.46	5.81	5.30	4.12	6.05	4.39	6.69	7.77	6.24	4.77

Crude Oil

Crude oil is impacted by seasonality due to the Summer driving season in the US and rise in gasoline demand. This tends to occur in the Spring from April through June and can often start as early as March. Over the past five years, crude has peaked in Q2 and faded throughout the Summer and early Fall. The worst performing months are November and January while the best performing month is June.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2007	-6.5	6.1	4.2	-4	-4.5	8.3	10.4	-4.7	12.1	17.1	-4.6	8.4
2008	-4.5	11.2	1.2	13.7	11.4	10.3	-12	-7.1	-11.7	-32.2	-24.3	-21.4
2009	-11.7	-7.4	7.4	-1.5	27.1	4.2	-3	-2.1	0.4	8.7	-0.4	0.3
2010	-9.3	8.9	3.8	2.6	-17.6	-0.2	4.1	-9.7	9.2	1	2.5	8.2
2011	-1	1.5	8.7	6	-10.3	-8.1	0.5	-7.8	-11.7	17.2	8.5	-1.7
2012	-0.8	8.2	-4.1	1.2	-17.8	-2.4	2.7	9.8	-4.9	-6.9	2.5	2.5
2013	5.7	-6.3	5.1	-4.6	-1.7	4.8	9.3	3	-4.2	-5.9	-3.6	5.6
2014	-1.5	5.6	-0.4	-0.7	3.7	3.2	-6.6	-1.5	-3.8	-11	-16.5	-20.4
2015	-12.5	1.6	-7	21.8	-1	-2.1	-21.6	1.9	-7.6	0.9	-12.7	-14.9
2016	-12.3	-6.7	7.8	16.5	5	-2.5	-15.6	6.2	5.5	-3.7	3.8	7.2
2017	-3.4	1.2	-7.1	-3.8	-2.7	-4.6	8.2	-6.3	8.3	4.8	4.9	4.7
2018	8.1	-4.7	5.8	5.4	-1.8	11.1	-5.2	3	5.5	-11.2	-22.2	-10
2019	17.5	5.3	4.6	6.3	-16.5	8.5	0	-4.8	-1.1	-0.4	2.8	10.2
2020	-15.4	-12.8	-55.5	-43.2	35.4	8.4	3.6	5.2	-7.5	-10.8	22.7	
Average	-3.40	0.84	-1.82	1.12	0.62	2.78	-1.80	-1.06	-0.82	-2.31	-2.61	-1.64
Max	17.50	11.20	8.70	21.80	35.40	11.10	10.40	9.80	12.10	17.20	22.70	10.20
Minimum	-15.40	-12.80	-55.50	-43.20	-17.80	-8.10	-21.60	-9.70	-11.70	-32.20	-24.30	-21.40
Median	-3.95	1.55	4.00	1.90	-1.75	3.70	0.25	-1.80	-2.45	-2.05	1.05	2.50
1 Std. Dev	9.15	7.29	16.30	15.07	15.67	6.12	9.56	5.97	7.83	12.74	12.72	11.25

Gold

Gold is also seasonal, although 2020 was supportive of some key trends given such strength throughout the Summer. The best months historically have been January and August, the former seeing strong inflows each

of the last seven years. The worst months have been November and September. The average monthly return is 0.41% and both have closed lower in five of the last six years.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2000	-2.4	3.7	-5.8	-0.6	-1	5.8	-4	0.1	-1.2	-3.3	1.7	2
2001	-3.6	0.8	-3.4	2.1	1.7	1.2	-1.7	2.7	7.4	-4.9	-1.2	0.4
2002	2.1	5.2	1.5	2.3	6	-2.5	-4.4	2.7	3.5	-2.1	0.7	8.8
2003	5.9	-5.5	-3.6	0.6	7.3	-4.3	2.5	5.9	3.3	-0.5	3.1	4.5
2004	-4	-1	7	-8.3	1.2	0.7	-1.1	4.1	2.1	2.4	6.5	-3.9
2005	-3.6	3.1	-1.6	1.2	-3.9	4.3	-1.4	1.4	7.6	-0.6	5.8	5.1
2006	9.9	-1.1	3.6	12	-1.3	-4.7	3.2	-1.4	-4.5	1.3	6.9	-1.8
2007	2.6	2.6	-1.1	2.1	-2.3	-1.9	2.4	1.1	10.5	7	-1.7	6.7
2008	10.8	5.2	-6	-4.2	0.9	4.5	-1.4	-9.3	4.1	-16.1	12.6	7.7
2009	5.5	1.5	-2.5	-3.3	10.2	-5.2	2.4	0.1	5.8	3.7	12.8	-7.2
2010	-1.3	3.3	-0.4	5.9	3.1	2.4	-5.1	5.7	4.8	3.7	2.1	2.4
2011	-6.4	6	1.6	8.9	-1.8	-2.4	8.4	12.3	-11.1	5.9	1.7	-10.7
2012	11.4	-3	-1.3	-0.2	-6.3	2.4	0.8	4.9	4.7	-2.9	-0.5	-2.4
2013	-0.5	-5.1	1	-7.6	-6.2	-11.1	7.4	5.2	-4.8	-0.3	-5.5	-3.8
2014	3.4	6.3	-3.1	0.5	-3.1	6.3	-3.6	0.4	-6.2	-3.1	-0.5	1.3
2015	8.7	-5.9	-2.2	-0.2	0.6	-1.5	-6.6	3.7	-1.8	2.3	-6.8	-0.5
2016	5.4	10.9	-0.8	5.1	-6.1	9	2	-3.3	0.7	-2.9	-8.4	-1.9
2017	5.4	3.2	-0.4	1.7	-0.1	-2.2	2.3	4.2	-3.4	-0.8	0.4	2.1
2018	3.2	-2.1	0.6	-1	-1.2	-3.6	-2.2	-2.1	-0.7	2.1	0.3	4.9
2019	2.9	-0.6	-1.6	-0.7	1.8	8	0	7.9	-3.4	2.6	-3.2	3.7
2020	4.5	-0.6	-0.2	7.3	2.6	2.7	10.8	-0.3	-4.2	-0.5	-5.4	
Average	2.85	1.28	-0.89	1.12	0.10	0.38	0.51	2.19	0.63	-0.33	1.02	0.87
Max	11.40	10.90	7.00	12.00	10.20	9.00	10.80	12.30	10.50	7.00	12.80	8.80
Minimum	-6.40	-5.90	-6.00	-8.30	-6.30	-11.10	-6.60	-9.30	-11.10	-16.10	-8.40	-10.70
Median	3.20	1.50	-1.10	0.60	-0.10	0.70	0.00	2.70	0.70	-0.50	0.40	1.65
1 Std. Dev	5.12	4.33	2.96	4.93	4.31	5.01	4.50	4.48	5.43	4.79	5.64	5.00

Silver

Silver follow some similar seasonal patterns as gold with strength in January and February and weakness in March. It's lows are a little less deep while some of its biggest months have been much larger than gold. Since 2007, gold's best month was +12.8% while during that same time period silver has had 21 months at or greater than 12.8%. The worst months have been March and September. The average monthly return is 0.75%.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
--	------------	------------	--------------	--------------	------------	-------------	-------------	------------	--------------	-------------	-------------	-------------

2007	5.1	4.5	-5.5	-0.1	0.4	-7.7	3.7	-6.3	13.8	5.2	-3.2	5.7
2008	14.4	17	-13.4	-1.9	-0.3	3.5	1.6	-23.7	-11.4	-19.2	6.8	9.5
2009	11.8	2.9	-0.7	-4.5	26.7	-13.5	2.4	6.7	12	-1.9	12.9	-8.9
2010	-3.9	1.1	6.7	6.5	-1.3	1	-3.5	7.7	12.6	13.4	13.5	10
2011	-9.2	20.9	11.1	27.5	-19.8	-10	14.8	4.1	-28.5	15.7	-4.3	-15.8
2012	19.8	3.9	-6.5	-4.1	-10.5	-1.2	1.8	13.5	8.7	-6.6	3.5	-9.2
2013	3.6	-9.5	-0.4	-14.4	-8.6	-11.5	0.9	18.1	-7.5	1	-8.8	-2.8
2014	-1.4	10.3	-6.4	-3.1	-2.1	12	-3.3	-4.4	-12.6	-5.2	-4.3	1.6
2015	9.8	-4.1	0.4	-3.1	3.6	-6	-6.3	-0.6	-0.9	6.7	-9.2	-1.9
2016	3	4.5	3.4	15.7	-10.5	17.6	8.3	-8.4	2.7	-6.8	-7.7	-3.5
2017	10.1	4.5	-0.7	-5.5	0.6	-4.2	1.2	4.7	-5.5	0.3	-1.8	3.1
2018	2.3	-5.4	-0.3	-0.2	0.5	-2	-3.6	-6.6	0.6	-2.3	-0.7	9
2019	3.7	-2.8	-3.1	-1.1	-2.6	5	6.1	12.8	-7.2	6.3	-5.9	4.8
2020	0.8	-7.7	-16	7.1	19.2	2.1	33.2	15.8	-17.5	1.6	-4.3	
Average	4.99	2.86	-2.24	1.34	-0.34	-1.06	4.09	2.39	-2.91	0.59	-0.96	0.12
Max	19.80	20.90	11.10	27.50	26.70	17.60	33.20	18.10	13.80	15.70	13.50	10.00
Minimum	-9.20	-9.50	-16.00	-14.40	-19.80	-13.50	-6.30	-23.70	-28.50	-19.20	-9.20	-15.80
Median	3.65	3.40	-0.70	-1.50	-0.80	-1.60	1.70	4.40	-3.20	0.65	-3.75	1.60
1 Std. Dev	7.63	8.80	7.18	10.26	11.74	8.83	9.99	11.51	12.42	8.91	7.44	8.04

Bonds

Bonds show strong seasonal trends as well with the Summer months best performing. Over the last five years, bonds have climbed steadily from early May before peaking in August. The Fall has tracked lower every year since 2009. The best months are January, August, and May. The worst month is October, lower each of the last five year.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2000	1.3	3	3.1	-0.7	-0.5	2.3	1.5	2.1	-0.9	1.6	3	2.5
2001	0.3	1.8	-0.6	-2.6	0.2	0.8	3.6	2	0.9	5.1	-5.1	-1.8
2002	1.2	1.2	-3.9	3.7	0.4	1.8	2.9	4.3	4	-2.8	-1	4.1
2003	-0.6	3.1	-1.4	1.1	6.3	-1.8	-10	1.3	5.9	-3	0.3	1.4
2004	1.9	2.3	1.4	-6.2	-0.3	1.1	1.5	4.2	1	1.8	-2.4	2.7
2005	3.6	-1.5	-0.5	3.9	3.1	2.2	-3.4	3.5	-3.6	-2.2	0.7	3
2006	-1.3	1.1	-4.6	-2.8	-0.2	1.2	2.2	3.1	1.9	0.9	2.3	-2.7
2007	-1	3.4	-1.7	0.9	-2.3	-1	3.3	1.8	0.2	1.8	5.4	-0.6
2008	2.1	-0.5	2.1	-2.5	-2.7	2.7	-0.4	2.7	1.5	-1.9	14.3	13.6
2009	-13.1	-1.5	4	-7	-3.7	0.8	0.6	2.2	2.5	-2.6	1.2	-6.3
2010	2.7	-0.3	-2.1	3.3	5.1	5.8	-1	8.4	-2.5	-4.5	-1.7	-3.7

2011	-3.1	1.7	0	2.3	3.4	-2.3	4.4	9.7	13.2	-3.8	2	3.4
2012	-0.3	-2.6	-4.2	4.8	9	-1.7	3.8	-1.3	-2.5	-0.5	1.4	-2.5
2013	-3.2	1.2	-0.4	4.7	-6.8	-3.3	-2.3	-1.3	0.7	1.4	-2.7	-1.9
2014	6.3	0.5	0.7	2.1	3	-0.3	0.7	4.7	-2.1	2.8	3	3.3
2015	9.8	-6.1	1.1	-3.4	-2.4	-4.1	4.6	-0.7	2	-0.4	-0.9	-0.3
2016	5.6	3.1	-0.1	-0.7	0.8	6.9	2.1	-1	-1.5	-4.4	-8.2	-0.5
2017	0.8	1.6	-0.7	1.6	1.9	0.8	-0.7	3.4	-2.3	0	0.7	1.8
2018	-3.3	-3	2.9	-2.1	2	0.7	-1.4	1.3	-2.9	-2.9	1.8	5.9
2019	0.4	-1.4	5.6	-2	6.8	1	0.3	11	-2.7	-1.1	-0.4	-3.2
2020	7.7	6.6	6.4	1.2	-1.8	0.3	4.4	-5.1	0.8	-3.4	1.7	
Average	0.85	0.65	0.34	-0.02	1.01	0.66	0.80	2.68	0.65	-0.86	0.73	0.91
Max	9.80	6.60	6.40	4.80	9.00	6.90	4.60	11.00	13.20	5.10	14.30	13.60
Minimum	-13.10	-6.10	-4.60	-7.00	-6.80	-4.10	-10.00	-5.10	-3.60	-4.50	-8.20	-6.30
Median	0.80	1.20	-0.10	0.90	0.40	0.80	1.50	2.20	0.70	-1.10	0.70	0.55
1 Std. Dev	4.74	2.76	2.97	3.39	3.82	2.64	3.38	3.77	3.80	2.62	4.31	4.32

Sector Analysis

Let's look at some individual sectors now and how they've fared against the S&P, so we can build a portfolio that makes optimal use of seasonally strong periods.

Consumer Discretionary (XLY) – In 2020, the best month for XLY was April. Historically, the strongest months for the XLY are March and April with January through April the strongest grouping. The weakest months are August and December.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2000	-12.4	-5.6	14.2	-2.1	-5.4	-5.4	1.6	-4.2	0.1	-1.3	-2.5	7.1
2001	11.6	-7.1	-1.5	4.6	2.4	-0.8	4.5	-8.8	-12.6	5.3	13.3	4.5
2002	3.3	0.5	1.3	-2.8	-0.5	-5.3	-11.9	3	-8.9	6.8	4.6	-8.5
2003	-3.3	-0.5	2.4	11.7	5.3	1.5	1.9	5.1	-4.8	9.1	0.9	4
2004	-0.6	2.2	-0.6	-1.1	0.6	0.3	-3.8	-0.2	2.9	4	4.2	4.7
2005	-4.3	-0.5	-1.2	-6.4	6.2	-0.4	5.7	-3.3	-2.8	-2	4	-0.9
2006	1.8	0.7	0.6	1.3	-1.7	-0.2	-3.3	2	6.4	6.5	1.3	2.2
2007	2.9	-3	-0.5	2.4	3	-1.8	-5.9	0.6	-0.9	-0.5	-5.5	-5
2008	-0.4	-3.9	-1.8	2.4	2.7	-11.5	0.2	6.9	-8.2	-17.6	-10.8	6.1
2009	-10.6	-9.1	12.7	18.5	-0.7	0.3	9.5	3.5	5.4	-2.4	6.7	4.6
2010	-2.9	5.6	7.8	6	-7	-9.7	7.9	-4	11	5.5	2.5	4.1
2011	-0.6	6	-0.6	3.8	-0.3	-0.2	-1.4	-5.3	-6.9	11.9	-0.7	1.3

2012	5.9	4.5	4.7	1.2	-5.5	1.9	-0.6	4.6	3.1	-1.5	3.2	0.5
2013	5.7	1.6	4.4	3	2.8	0.8	5.3	-2.9	5.4	4.6	3.5	2.3
2014	-6	6.4	-2.9	-1.4	2.9	1.9	-1.3	4.5	-2.8	2.1	5.5	0.9
2015	-3	8.5	-0.5	-0.1	1.3	0.6	4.9	-6.5	-0.6	9	-0.2	-2.8
2016	-5.2	0.5	6.7	0.1	0.1	-1.1	4.6	-1.3	-0.3	-2.4	4.8	0
2017	4.2	1.8	2.1	2.4	1.1	-1.3	1.9	-1.9	0.8	2.1	5.1	2.5
2018	9.2	-3.5	-2.4	2.4	2	3.6	1.8	5.1	0.5	-10.1	2.5	-8
2019	9.9	1.3	3.7	5.5	-7.6	7.8	1.3	-0.9	1.3	0.1	1.3	2.8
2020	-0.1	-7.6	-14.9	18.9	6.5	3.1	7.3	9.6	-1.9	-2.7	10	
Average	1.84	1.13	-0.48	3.85	1.14	1.93	3.23	0.71	0.30	0.34	4.06	-0.33
Max	9.90	8.50	6.70	18.90	6.50	7.80	7.30	9.60	5.40	9.00	10.00	2.80
Minimum	-6.00	-7.60	-14.90	-1.40	-7.60	-1.30	-1.30	-6.50	-2.80	-10.10	-0.20	-8.00
Median	2.05	1.45	0.80	2.40	1.65	1.35	3.25	-1.10	0.10	1.10	4.15	0.90
1 Std. Dev	6.30	5.08	6.73	6.45	4.01	2.96	2.77	5.23	2.48	5.67	3.11	3.90

Over the last five years, the XLY has outperformed the SPX most often in February, March, July, and November. This is the XLY vs SPY.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLY	0.01	0.22	2.5	2.43	0.23	-1.02	0.7	-0.33	-0.66	2.38	2.07	2.01
Diff	-0.42	0.05	1.02	0.6	-0.71	-0.94	-0.16	-0.04	-0.63	0.5	0.29	0.69

Staples (XLP) – In 2020, the best month for XLP was November, although underperforming the S&P. The strongest months for the XLP are October, November, and March. The weakest month is June.

	Jan	Feb	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
2000	0.9	-11.7	3.8	5.3	7.1	5.7	-3.7	-1.2	4.4	6.9	3.5	3.6
2001	-7.3	0.6	-6.9	1.9	1.5	-4.6	3	0.5	-0.1	-0.6	4.4	-2
2002	-0.7	2.1	1.6	-3.7	-1.1	-10.2	-4.3	0.8	-7.2	3.9	-2.8	0.3
2003	-3.4	-3.1	0	3	4.9	1	-0.2	1.7	-0.4	4.5	1.2	1.8
2004	0	5.7	-0.3	1.3	-0.6	0.6	-4.9	1.8	-2.6	0.7	2.5	3.7
2005	1.2	-0.1	-0.9	-1	2.3	-1.9	3.2	-1.8	1.4	-0.5	0.9	0.1
2006	0.2	0.9	0.8	1	0.2	1.8	1.6	3.9	-0.1	1.8	-0.9	2.5
2007	2	-1.5	2.1	2.8	1.4	-2	-2.9	2.4	4.6	1.5	2.8	-0.8
2008	-5.6	-0.3	3.2	-0.8	3	-5.7	2.4	2.7	-1.3	-12.6	-0.2	0
2009	-7.2	-8.1	4.3	4.3	5.1	0.2	6.7	1.2	3.3	1.5	3.7	-0.2
2010	-1	3.2	3.8	-1.1	-4.6	-2.5	5.8	-1.9	6	3.2	-1.6	4.4

2011	-1.5	2.9	1.2	5.4	2.5	-2.7	-1.3	0.2	-3.3	4.7	2.8	2.8
2012	-1.4	3.8	3.1	0.3	-1.2	3.6	2.5	-0.5	1.8	-1.2	1.8	-2.1
2013	5.6	3.3	4.9	2.9	-2.2	-0.3	4.3	-4.5	1.4	6.4	1.6	0.7
2014	-5.2	3.9	2.2	2.7	1.8	-0.3	-3.3	4.6	0.6	3.6	5.5	-0.9
2015	-1	4.1	-2	-0.8	0.9	-1.8	5.7	-6	0.4	5.7	-0.9	2.9
2016	0.5	0.3	4.7	-1.4	0.7	5.4	-0.8	-0.6	-1.5	-0.8	-4.2	3
2017	1.7	4.8	-0.4	1.1	2.7	-2.3	0.7	-1.1	-0.7	-1.7	5.6	2.2
2018	1.6	-7.6	-0.9	-4.1	-1.6	4.6	4	0.4	1	2	2.3	-8.9
2019	5.1	1.8	3.8	2.9	-3.6	5.2	2.3	2.2	1.8	-0.4	1.4	2.4
2020	0.3	-8.2	-5.5	7	1.7	-0.2	6.9	4.6	-1.7	-2.9	7.5	
Average	1.08	0.30	0.85	1.29	0.05	1.29	2.48	-0.05	0.16	1.49	2.35	0.20
Max	5.60	4.80	4.90	7.00	2.70	5.40	6.90	4.60	1.80	6.40	7.50	3.00
Minimum	-5.20	-8.20	-5.50	-4.10	-3.60	-2.30	-3.30	-6.00	-1.70	-2.90	-4.20	-8.90
Median	1.05	2.55	0.90	1.90	0.80	-0.25	3.15	-0.10	0.50	0.80	1.95	2.20
1 Std. Dev	3.42	5.26	3.68	3.39	2.24	3.23	3.44	3.88	1.32	3.48	3.82	4.25

Over the last five years, the XLP has outperformed the SPX most often in August and May although a very mixed bag with no single month beating the S&P in more than 3 of the last 5 years. This is the XLP vs the SPY.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLP	-1.1	0.12	1.2	0.78	1.09	-0.49	0.75	0.21	-0.11	1.82	1.35	1
Diff	-1.53	-0.05	-0.28	-1.05	0.15	-0.41	-0.11	0.5	-0.08	-0.06	-0.43	-0.32

Energy (XLE) – In 2020, the best month for XLE was April and November, both up 28%+ while the worst month was March down 34%. The strongest months for the XLE are March and April with Spring the strongest three-month grouping and aligning with crude's seasonality. The weakest months are January and July.

	Jan	Feb	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
2000	0.8	-4.2	12.5	-1.5	11.7	-5.5	-3.8	10.9	1.6	-2.7	-5.3	10.2
2001	-3.2	-1.2	-3	10.3	-0.9	-9.1	-1.2	-4.2	-9.6	4	-5.6	5.7
2002	-3.6	3.4	8.9	-3.6	-1.8	-3.7	-13.9	1.5	-7.1	1.8	4.1	0
2003	-2.5	2.9	0.1	-0.9	10.6	-1.3	-3.5	6.4	-2.1	1	0.8	13.1
2004	2.3	5.3	-0.6	1.7	-0.3	6.2	3.1	-1.5	9.8	0.6	6.7	-2.8
2005	3.4	16.8	-1.9	-5.4	2.8	7	7.1	6.4	6.3	-9	1.5	1.8
2006	14.6	-9.2	4.3	5	-2.8	2.5	3.4	-5.1	-3.7	4.3	8.6	-2.8
2007	-0.9	-2.1	6.3	5.1	7.8	1.3	0	1.2	7.4	2.5	-4.2	8.3

2008	-12.3	9.3	-2.3	10.4	5.2	3.2	-15.9	0.3	-15	-18.8	-2.2	-4.5
2009	-1.8	-12.3	3.8	7.8	12.9	-6.5	5.4	1.1	5.8	2.5	2.8	0.9
2010	-4.4	3	2.8	4.2	-11.5	-5.9	8.4	-4.9	10	5.7	5.9	9.3
2011	7.2	7.4	1.9	0.9	-4.2	-1.9	1.5	-10.2	-14.4	19.1	1.7	-2.1
2012	2.3	5.9	-3.8	-0.7	-10.7	4.8	4.9	2.7	3.1	-2	-1.2	1
2013	8.3	0.4	2.5	-1.3	2.9	-2.3	5.3	-1	2.1	4.2	0.1	2.9
2014	-5.8	5.1	2.1	5.3	1.7	5.5	-3.5	2.2	-7.8	-3.5	-8.7	-0.2
2015	-4.6	4.6	-1.2	6.6	-5.2	-3.5	-7.7	-4.3	-7.2	11.2	0	-10.5
2016	-3.5	-2.8	10.2	9.1	-0.9	2.7	-1.3	1.7	3.7	-2.8	8.5	1.7
2017	-3.2	-2.1	-1.5	-3	-3.5	-0.1	2.6	-5.5	10.2	-0.8	1.8	5.3
2018	3.6	-10.8	1.7	9.5	3	0.6	1.6	-3.5	2.4	-11.3	-1.6	-12.4
2019	11.2	2.3	2.1	0	-11.1	9.4	-1.6	-8.3	3.9	-2.1	1.6	6
2020	-11	-15.3	-34.3	30.8	2	-1.1	-4.8	-1.1	-14.6	-4.1	28	
Average	-0.63	-2.33	-2.30	7.13	-1.39	1.40	-1.18	-2.48	-0.91	-1.15	3.71	-1.03
Max	11.20	5.10	10.20	30.80	3.00	9.40	5.30	2.20	10.20	11.20	28.00	6.00
Minimum	-11.00	-15.30	-34.30	-3.00	-11.10	-3.50	-7.70	-8.30	-14.60	-11.30	-8.70	-12.40
Median	-3.35	-0.85	1.90	5.95	0.40	0.25	-1.45	-2.30	2.25	-2.45	0.85	1.70
1 Std. Dev	7.58	7.29	13.42	10.68	4.96	4.30	4.23	3.60	8.13	6.57	10.89	7.44

Over the last five years, the XLE has outperformed the SPX most often in March and April.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLE	-0.49	0.93	2.84	3.72	0.73	-0.2	-0.29	-0.25	-0.46	0.81	0.8	1.91
Diff	-0.92	0.76	1.36	1.89	-0.21	-0.12	-1.15	0.04	-0.43	-1.07	-0.98	0.59

Healthcare (XLV) – In 2020, the XLV underperformed the SPX with weakness for much of the year due to concerns over the election. The best months were April and November. The strongest months for the XLV are March and April. The weakest month is September.

	Jan	Feb	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
2000	-2.5	-6.5	9	-1.2	-2.7	0.2	-1.5	3.5	-3.6	1.5	-9.1	1.7
2001	7.2	-1.9	-6.4	7.4	3.8	-1.1	-2	-5.1	-14.5	0.5	11.6	2.4
2002	-0.7	4.6	5.8	-0.6	1.4	-7.2	-2.9	1	-6.2	5.8	3.1	-3.8
2003	-0.3	-2.2	3.6	3.3	2.1	4.4	-1.5	-3.7	0.3	0.7	2.1	5.8
2004	2.8	1.1	-4.2	3.1	-0.3	-0.4	-5.4	1.6	-1.8	-2.2	2	5.5
2005	-3.1	3	-0.6	3.5	1.3	-0.5	2.3	-0.4	-0.6	-3.1	1.2	3.5
2006	1.3	1.2	-1.3	-3.1	-2.1	0	5.5	2.9	1.5	0.3	-0.1	1

2007	3.1	-2.3	0.2	7.3	1.7	-3.4	-4.8	2.3	3.1	1.9	1.3	-2.8
2008	-4.6	-2.7	-4.5	1	1.9	-4.2	4.5	2.1	-7.4	-11.5	-6.3	7.2
2009	-1.2	-12.4	6	-0.1	6.8	2.4	5.9	2.7	0.6	-2.1	9.3	1.8
2010	0.7	0.4	2.7	-3.9	-6.5	-1.8	1.3	-1.7	9.1	2.2	-2.9	4.6
2011	0.6	3.1	1.8	6.4	2.5	-1.1	-4	-2.1	-4.5	5.8	1	3
2012	3.2	1.1	4.5	-0.3	-3.6	5.7	1	1.2	3.8	-0.2	0.5	-0.4
2013	7.6	1.3	6.2	3	1.7	-0.6	7.2	-3.5	3.2	4.3	4.7	0.7
2014	0.9	6.2	-1.3	-0.6	2.9	2.1	0.1	4.8	0.4	5.3	3.5	-1.4
2015	1.3	4.3	0.6	-1.1	4.5	-0.4	3	-8	-5.7	7.7	-0.3	1.7
2016	-7.7	-0.4	2.7	3	2.2	0.9	4.9	-3.2	-0.5	-6.6	2.1	0.7
2017	2.3	6.3	-0.5	1.5	0.8	4.6	0.8	1.8	0.9	-0.8	2.9	-0.6
2018	6.6	-4.5	-2.9	1.1	0.2	1.7	6.6	4.3	3	-6.8	8.1	-9.4
2019	4.8	1.1	0.5	-2.7	-2.2	6.6	-1.6	-0.6	-0.1	5.1	5	3.5
2020	-2.7	-6.6	-3.9	12.6	3.3	-2.4	5.5	2.6	-2.2	-3.6	8	
Average	1.64	0.96	0.18	2.10	1.68	1.56	3.31	-0.23	-0.13	0.58	4.25	-0.69
Max	7.60	6.30	6.20	12.60	4.50	6.60	7.20	4.80	3.20	7.70	8.10	3.50
Minimum	-7.70	-6.60	-3.90	-2.70	-2.20	-2.40	-1.60	-8.00	-5.70	-6.80	-0.30	-9.40
Median	1.80	1.20	0.00	1.30	1.95	1.30	3.95	0.60	0.15	1.75	4.10	0.70
1 Std. Dev	5.03	4.72	3.20	4.69	2.08	2.92	3.25	4.44	2.87	5.76	2.86	4.15

Over the last five years, the XLV has outperformed the SPX most often in December, January, and June. It was weakest in September and October.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLE	1.1	-0.02	1.21	1.65	0.77	0.28	0.9	-0.19	-0.98	0.82	1.35	2.21
Diff	0.67	-0.19	-0.27	-0.18	-0.17	0.36	0.04	0.1	-0.95	-1.06	-0.43	0.89

Materials (XLB) – In 2020, the best months for XLB were April and November, the former up 15.2%. The worst month was March. The strongest months for the XLB are April and November with April through July the strongest multi-month grouping. The weakest months are December and January.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2000	-12.2	-10.1	10.1	-3.3	-3.2	-8.6	0.9	2.3	-9.8	8.8	-2.5	14.1
2001	-2.7	1.3	-5	10.7	3.9	-3.5	-0.3	-0.4	-11.8	2.7	12.7	-3
2002	2.3	5.3	3.1	-4.7	5	-1.7	-11.3	-0.5	-13	5.7	12	-4.6
2003	-5	-2.7	0.6	9	3.1	0.9	7.9	2.8	-4.5	9.5	2.3	9.8

2004	-4.4	5.2	-2.3	-4.6	2.8	5	-2.3	1.7	4	-0.9	8.1	1.3
2005	-3.1	7.9	-2.7	-7.1	-0.6	-2	5.5	-4.2	0.8	0.2	7.7	2.9
2006	4.8	-2.1	4.7	3.6	-4	0.5	-3.7	3	0	6	4.4	0.6
2007	4.1	2.7	2.4	1.5	5.9	-0.5	-2.7	-0.7	8.1	4.2	-5	1.1
2008	-4.2	2.3	-1.4	5.3	5.2	-5.8	-3.2	-1.6	-15.5	-22.4	-10.7	-0.6
2009	-7.4	-8	15.4	15.6	5.8	-4.5	12.9	2.4	4.2	-5.2	10.8	2.1
2010	-8.6	4.5	7.9	0.2	-9.5	-7.3	12.8	-3	7.8	6.2	1.1	10
2011	0.1	2.7	1.8	2.1	-2.7	-0.4	-3.5	-7	-16.5	17.3	0.2	-2.3
2012	11	-0.6	0.4	-0.8	-7.8	4.9	-1.3	2.3	3.8	-2.1	1.9	3.2
2013	3.9	-1.4	2.2	0.9	1.9	-4.1	5.6	-0.1	4.4	4.2	1.3	4.9
2014	-4.7	6.9	0.8	0.8	3	1.6	-2	3.9	-1.4	-2.4	1.6	-0.6
2015	-1.8	8	-4.9	3.4	0.4	-4	-5	-5.6	-7.4	13.4	1	-4.3
2016	-10.7	7.8	7.6	5.1	-0.3	-0.8	5.1	-0.3	-1.2	-2.1	6.8	0.2
2017	4.6	0.6	0.6	1.3	0	1.9	1.5	0.8	3.7	3.9	1	2.1
2018	4	-5.3	-4.2	0.1	2.1	0.3	2.9	-0.8	-1.8	-9.2	3.8	-6.9
2019	5.6	3.2	1.3	3.5	-8.2	11.6	-0.3	-2.8	3.2	0	3.2	2.9
2020	-6.2	-8.5	-14	15.2	6.9	2.2	7.1	4.4	1.5	-0.7	12.4	
Average	-0.66	1.41	-1.33	3.79	0.73	1.09	1.86	-0.06	0.13	0.89	3.89	-0.24
Max	5.60	8.00	7.60	15.20	6.90	11.60	7.10	4.40	4.40	13.40	12.40	4.90
Minimum	-10.70	-8.50	-14.00	0.10	-8.20	-4.10	-5.00	-5.60	-7.40	-9.20	1.00	-6.90
Median	1.05	1.90	0.70	2.35	1.15	0.95	2.20	-0.20	0.15	-0.35	2.40	0.20
1 Std. Dev	6.08	6.20	6.42	4.92	4.27	4.92	4.14	3.28	3.91	6.56	3.96	4.14

Over the last five years, the XLB has outperformed the SPX most often in April and December.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLB	-1.69	1.36	1.86	3.19	0.08	-1.16	0.93	-0.5	-2.53	2.54	2.79	2.63
Diff	-2.12	1.19	0.38	1.36	-0.86	-1.08	0.07	-0.21	-2.5	0.66	1.01	1.31

Industrials (XLI) – In 2020, the best months for XLI were April, August, and November. The weakest month was March which underperformed the S&P by 1%. Typically, the strongest months for the XLI are November and April with October through December the strongest multi-month grouping. The weakest months are June and January.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2000	-8.2	-5.5	13.9	1.4	-0.4	-3.9	1.6	9.9	-2.9	2.3	-3.4	4

2001	0.4	-6	-9.6	11.4	4.2	-6.2	-0.2	-3.4	-14.7	1.8	10	4.9
2002	-6.3	2.5	2.7	-6.9	0.4	-6.1	-5.7	-1.6	-11.5	4.9	5.2	-3.9
2003	-5.4	-1.5	1.1	10.8	2.7	2.1	3.3	3.9	-2.7	6.2	2	6.6
2004	1	-0.7	-1.2	0	2.5	6.2	-2.8	0.1	2.2	1	6.3	2.5
2005	-2.8	1.2	0	-3.7	3.2	-2.6	3.8	-2.4	1.7	-1.4	5.8	0.5
2006	0.3	3.1	4.4	2.2	-1.7	-0.1	-5.7	1.1	3.8	2.8	2.5	0.5
2007	2.1	-1.1	0.8	4.6	5.2	0	1	0	4.7	-1.3	-2.8	-0.1
2008	-5.5	-2	3.6	2.9	0.9	-12	0.8	2.7	-12.1	-18.3	-8.2	2.3
2009	-12	-17	8.9	18.1	3.4	-1.7	8.7	4.8	5.8	-4	8.8	1.7
2010	-1.5	5.3	8.7	4.3	-9.1	-6.9	10.4	-6.9	11.5	2.9	1.3	7.5
2011	3.9	2.1	2.2	2.7	-2.8	-0.6	-6.9	-6.6	-9.3	14.4	1.4	0.3
2012	7.3	2.8	1	-1.1	-6.3	3.4	0.4	1.5	1.1	-0.1	1.8	2.8
2013	5.8	2.2	2.4	-0.7	5	-1.5	5.9	-2.5	5.9	4.8	3.7	4.2
2014	-4.3	4.1	1	1.3	1.9	0.5	-4.1	4.2	-1.2	3.9	3.1	0
2015	-3.6	5.4	-2.6	-0.3	0.3	-2.7	0.3	-5.4	-2.2	8.8	0.9	-2.6
2016	-5.7	4.3	7	1.2	-0.4	0.7	3.6	1	0.2	-2	9.1	0.3
2017	1.9	3.9	-0.8	2	1.8	1.4	0.3	0.2	4.2	0.8	4.2	2.1
2018	5.4	-3.9	-2.7	-2.8	3.1	-3.4	7.4	0.2	2.2	-10.9	3.8	-10.7
2019	11.4	6.4	-1.2	4	-7.6	7.9	0.5	-2.7	3	1.1	4.5	-0.2
2020	-0.4	-9.9	-18.6	8.8	5.4	2	4.4	8.5	-0.7	-1.4	16	
Average	1.31	1.56	-1.94	1.69	1.19	0.61	2.29	0.44	1.43	0.64	5.66	-0.99
Max	11.40	6.40	7.00	8.80	5.40	7.90	7.40	8.50	5.90	8.80	16.00	4.20
Minimum	-5.70	-9.90	-18.60	-2.80	-7.60	-3.40	-4.10	-5.40	-2.20	-10.90	0.90	-10.70
Median	0.75	4.00	-1.00	1.25	1.85	0.60	2.05	0.20	1.20	0.95	4.00	0.00
1 Std. Dev	5.94	5.60	7.44	3.51	4.09	3.53	3.73	4.34	2.85	5.84	4.76	4.77

Over the last five years, the XLI has outperformed the SPX most often in April and December.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLI	-1.41	0.01	2.13	3.13	0.59	-1.39	0.92	0.09	-0.74	1.35	2.59	2.37
Diff	-1.84	-0.16	0.65	1.3	-0.35	-1.31	0.06	0.38	-0.71	-0.53	0.81	1.05

Financials (XLF) – In 2020, the best months for the XLF were November and April. The strongest months for the XLF are March, April, and October with the Spring period the strongest three-month grouping. The weakest months are January, February, and August.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
--	------------	------------	--------------	--------------	------------	-------------	-------------	------------	--------------	-------------	-------------	-------------

2000	-3	-10.7	18.3	1	2.2	-4.8	8.8	10.2	2.2	-0.9	-5.1	8.5
2001	-0.2	-6.7	-3	3.6	4.4	-0.7	-1	-6.6	-5.6	-1.4	6.5	2
2002	-1.1	-1.7	6.6	-2.5	-0.3	-4.3	-8.3	1.9	-11.5	9.1	3.7	-5.4
2003	-1.3	-3.1	-1	12.6	5.1	0.4	4.4	-1.2	0.9	6.9	-0.4	4.5
2004	3.3	2.9	-1.2	-4.4	1.7	0.4	-2.1	3.3	-0.9	0.5	3.1	4.1
2005	-2.2	-0.7	-3.8	0.2	3	1.2	1.6	-1.6	0.9	3.1	4.8	0
2006	0.9	2.1	0.3	4.3	-3.8	-0.5	2.3	1.2	4	2.3	0.7	3.8
2007	0.9	-3.1	-0.5	3.9	2.4	-4	-9.1	2.6	2.4	-1.7	-8.1	-5.8
2008	0.7	-11.4	-3	7	-7	-17.4	6.8	-1	-6.4	-21.9	-18.5	0.4
2009	-26.2	-17.8	17.2	21.8	14	-1.8	8.9	13	2	-6	4.3	-1.4
2010	-1.5	3.5	8.9	1.3	-9.2	-5.7	6.5	-7.8	6.1	1.5	-0.7	10.7
2011	2.8	2.7	-2.5	-0.1	-3.3	-2.8	-3.6	-9.6	-11.4	14.3	-5.1	2.1
2012	8.2	5	7.4	-2.3	-9.2	5	0.1	3.4	3.3	2	-0.9	4.7
2013	6	1.2	3.9	2.7	6.1	-1.6	5.4	-5.1	2.8	3.3	4.4	2.2
2014	-3.7	3	3.3	-1.7	1.5	2.4	-1.5	4.2	-0.4	2.9	2.4	1.9
2015	-7	5.8	-0.6	0.1	2	-0.5	3.4	-7.1	-2.8	6.3	2	-2.4
2016	-8.9	-2.9	7.2	3.6	1.9	-3.2	3.5	3.9	-2.8	2.3	14	3.8
2017	0.3	5.3	-3	-0.8	-1.2	6.5	1.7	-1.6	5.1	2.9	3.5	1.9
2018	6.6	-2.9	-4.2	-0.4	-1	-1.8	5.1	1.4	-2.2	-4.7	2.6	-11.1
2019	8.9	2.2	-2.6	9	-7.2	6.7	2.4	-4.7	4.6	2.5	5.1	2.6
2020	-2.7	-11.3	-21	9.5	2.7	-0.5	3.9	4.3	-3.4	-0.9	16.9	
Average	-0.06	0.05	-2.13	2.75	0.60	1.00	2.99	-0.59	0.11	1.83	6.36	-0.16
Max	8.90	5.80	7.20	9.50	6.10	6.70	5.40	4.30	5.10	6.30	16.90	3.80
Minimum	-8.90	-11.30	-21.00	-1.70	-7.20	-3.20	-1.50	-7.10	-3.40	-4.70	2.00	-11.10
Median	-1.20	1.70	-1.60	1.40	1.70	-0.50	3.45	-0.10	-1.30	2.70	3.95	1.90
1 Std. Dev	6.63	5.63	8.59	4.39	3.89	3.81	2.19	4.65	3.53	3.28	5.76	5.20

Over the last five years, the XLF has outperformed the SPX most often in March and April. The XLF tends to be the one group which goes on multi-month runs beating the S&P. Since 2013, it has had three different three-month stretches, one four month stretch, and two different five month stretches.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLF	-1.19	-1.39	2.67	2.83	0.17	-1.44	1.34	-0.08	-0.99	2.08	0.35	1.62
Diff	-1.62	-1.56	1.19	1	-0.77	-1.36	0.48	0.21	-0.96	0.2	-1.43	0.3

Utilities (XLU) – In 2020, XLU was strongest in July and January. The strongest months for the XLU are April, December, and October. The worst month was November. The group performs best from March through May. The worst month for shares is February. The worst stretch is early in the year in January and February.

	<u>Jan</u>	<u>Feb</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
2000	-1.8	-12.2	10.9	6.6	-0.2	-3.4	1.6	3.9	13.2	5.8	-0.1	-1.4
2001	-5.6	2.1	-1.4	4.8	0.7	-5	-0.9	-3.6	-0.9	-5.3	-1.3	3.2
2002	-3.6	-0.2	5.3	-6.1	-0.8	-6.7	-14.7	4	-12.1	-2.3	2.9	3.2
2003	-2.4	-5.4	5.1	8.6	10.1	1.4	-6.7	2	5	0.7	0.2	6.6
2004	2.1	1.9	1.1	-4.3	1.2	1.7	1.5	4.1	0.6	4.9	4.5	2.5
2005	2.1	2.1	1.1	3.1	-0.1	5.9	2.3	0.7	4.2	-6.4	-0.2	0.9
2006	2.4	1.3	-4.6	1.6	1.6	2.3	4.8	2.8	-1.5	5.3	2.7	0.9
2007	-0.4	5.3	3.6	4.9	0.5	-4.8	-4	1.6	3.8	6.7	0.7	-0.2
2008	-7.4	-4.1	1.6	5.1	3.6	-0.7	-6.4	-1.1	-11	-13	4.2	-2.4
2009	-0.2	-12.5	1.9	1.2	3.6	5.4	3.8	1	1.4	-3.2	4.8	5.5
2010	-4.8	-1.3	2.7	2.6	-5.5	-0.7	7.5	1.5	2.9	1.1	-3	3.1
2011	1.2	1.2	0.2	4.1	2.1	-0.2	-0.9	2.2	0.2	3.7	1	3.3
2012	-3.6	0.6	1.4	1.8	0.6	4.1	2.5	-4.1	1.2	1.4	-4.3	0
2013	4.8	2.3	5.4	6	-9.1	0.9	4.3	-5	1.2	3.8	-1.9	0.9
2014	3	3.5	3.3	4.2	-1.1	4.5	-6.8	4.9	-1.9	8	1.2	3.6
2015	2.3	-6.4	-1	-0.5	0.6	-6	6.1	-3.5	2.9	1.1	-2.1	2.1
2016	4.9	1.9	8	-2.4	1.5	7.6	-0.7	-5.5	0.4	0.9	-5.4	4.9
2017	1.3	5.3	-0.1	0.8	4.1	-2.7	2.4	3.3	-2.8	3.9	2.7	-6.1
2018	-3.1	-3.9	3.8	2	-1.1	2.8	1.6	1.3	-0.7	2	3.5	-4
2019	3.5	4.1	2.8	0.9	-0.8	3.2	-0.1	5.1	4.3	-0.8	-1.9	3.3
2020	6.8	-9.9	-10	3.3	4.2	-4.7	7.8	-2.6	1.1	5.1	0.7	
Average	2.94	-0.39	1.53	1.79	-0.21	0.70	1.83	-0.25	0.56	3.00	-0.40	0.67
Max	6.80	5.30	8.00	6.00	4.20	7.60	7.80	5.10	4.30	8.00	3.50	4.90
Minimum	-3.10	-9.90	-10.00	-2.40	-9.10	-6.00	-6.80	-5.50	-2.80	-0.80	-5.40	-6.10
Median	3.25	2.10	3.05	1.45	-0.10	1.85	2.00	-0.65	0.75	2.90	-0.60	2.10
1 Std. Dev	2.98	5.59	5.46	2.68	4.18	4.76	4.55	4.41	2.36	2.79	2.95	4.15

The best performance against the SPX is April, March, and August. The worst month is November.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S&P	0.43	0.17	1.48	1.83	0.94	-0.08	0.86	-0.29	-0.03	1.88	1.78	1.32
XLU	-0.56	-1.06	2.1	2.68	0.68	0.53	-0.12	0.28	0.31	0.93	0.11	1.41
Diff	-0.99	-1.23	0.62	0.85	-0.26	0.61	-0.98	0.57	0.34	-0.95	-1.67	0.09

Technical Momentum into 2021 with Consolidation Patterns Near Breakouts or Freshly Breaking Out

Apple (AAPL) recently broke out above the \$125 level after basing a few weeks and has a measured move and Fibonacci extension target up around \$150.



Adobe (ADBE) is breaking out of a multi-week bull consolidation triangle with a measured move the next few months to \$600.



Amazon (AMZN) consolidated during Q4 and is starting to work out of a long 21-week MA base and trigger a TTM Squeeze targeting a move towards \$4000.



Chegg (CHGG) broke out of a large weekly ascending triangle in December and came back to retest the breakout already and should target a \$115 measured move.



Chipotle (CMG) broke out in mid-December and consolidated the last two weeks with moving averages catching up to the move, and an upside move to \$1600 remains in play.



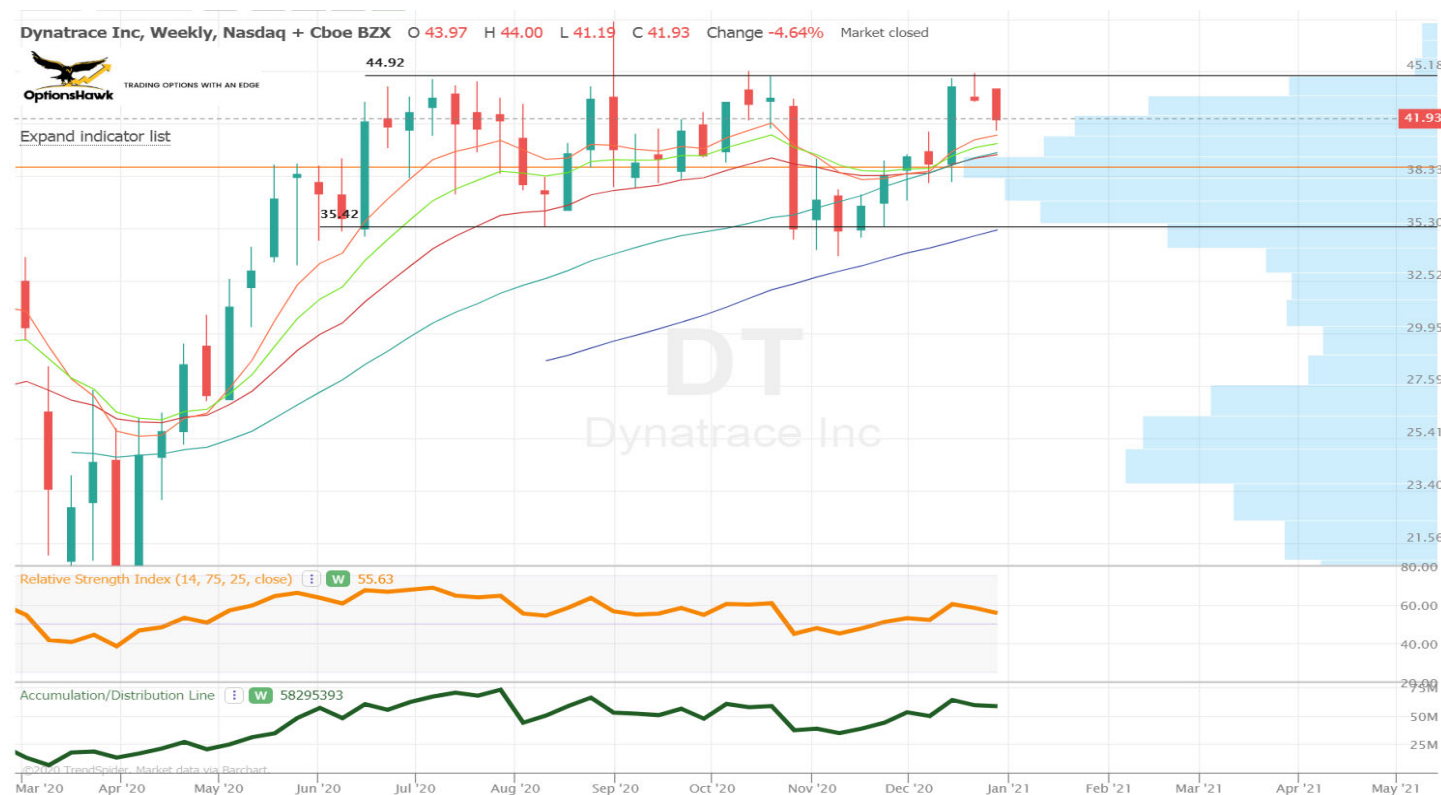
Costco (COST) pulled back in December and tested the rising 21-week MA and a top fundamental name in a healthy rising wedge on the weekly with room to run to \$420 in Q1.



Coupa (COUP) broke out of a large ascending triangle on the weekly and the last two weeks pulled back to retest and touch the 8-week MA, still a healthy trend set to play out to its \$430 target.



Dynatrace (DT) setting up for a long weekly range breakout and has seen size February call buyers position for the upside move.



EPAM Systems (EPAM) shares with a long weekly consolidation above its 21-week MA and a top fundamental name looking to start a new leg higher.



Edwards Lifesciences (EW) working out above monthly closing resistance in a large channel up pattern with room to run to at least \$100 near-term.



Intuitive Surgical (ISRG) broke out of a large range to close the year, a top med-tech play on robotic surgery, and looks headed to \$1000.



J&J (JNJ) had a key monthly breakout earlier in 2020 that stalled but now setting right back up under a new resistance high with breakout potential, measuring a move to \$175-\$180.



Lumentum (LITE) a favored name with momentum into 2021 and saw a lot of call buying in late December positioning for further upside, the recent range break targets \$120.



MasterCard (MA) with a weekly triangle setting up and a name yet to move much past early 2020 highs, sets up for an extension target move to \$400.



Microsoft (MSFT) with a similar set-up to other large cap Tech names, a long multi-week consolidation and ready for a leg higher.



Netflix (NFLX) with a weekly triangle and although violated the 21-week MA briefly it formed a nice base and broke out in December, now looking to clear trend resistance and some ugly red candles.



Service-Now (NOW) shares retesting a recent breakout level and its 8-week MA, healthy pullback, and looking to continue this move to new highs.



Netease (NTES) forming a weekly bull wedge and looking to work out of a multi-week range and start a trend-move to new highs.



Insulet (PODD) has been consolidating for a few weeks with the rising 21-week MA acting as support on dips, a top fundamental name and a lot of white space overhead in the longer-term rising channel pattern.



ResMed (RMD) another favorite med-tech name resting above its 8-week MA after a strong base breakout move, and looks set to resume higher after retesting the Summer 2020 retest dip.



Shopify (SHOP) was a top set-up into December and ran hard with the mid-December breakout before pulling back with growth names the last week, but the trend remains favorable for a move towards \$1500.



Skyworks (SWKS) shares in a multi-week consolidation but remain in a strong trend with room to run above \$155 and some bullish positioning in February open interest.



Twilio (TWLO) recently broke out above highs and now pulled back with growth names to retest near that level, room for continuation higher up towards \$420 by late January.



Workday (WDAY) with a long weekly range breakout and made new highs before pulling back with the rotation away from growth, but remains healthy for a push higher to \$275-\$300.



Large 2021 Options Open Interest Positions of Note (February 2021-Dec. 2021 Expirations)

With out new OptionsHawk Database features that has live open interest and pricing, this year I am filtering for positions where open interest remains and the price change from the original trade is -40% to +55% to focus on trades that are still opportunities to follow. We will be launching a new user interface with so many new features for the Database in 2021

February 2021 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
12/16/2020	AAPL 100 19 FEB 21 145 CALL	\$3.80	121999	26.67%	\$46,359,620.00
11/18/2020	ABBV 100 19 FEB 21 110 CALL	\$1.50	4452	-8.54%	\$667,800.00
8/21/2020	ABT 100 19 FEB 21 100 CALL	\$9.70	1930	16.87%	\$1,872,100.00
12/14/2020	AMD 100 19 FEB 21 100 CALL	\$4.47	27782	-36.95%	\$12,418,554.00
11/6/2020	AMD 100 19 FEB 21 87.5 CALL	\$9.50	6113	11.90%	\$5,807,350.00
12/23/2020	AMRS 100 19 FEB 21 6 CALL	\$1.15	9707	-11.54%	\$1,116,305.00
12/8/2020	AMZN 100 19 FEB 21 3600 CALL	\$55.30	5033	-10.11%	\$27,832,490.00
6/24/2020	AMZN 100 19 FEB 21 4000 CALL	\$18.95	3525	-33.51%	\$6,679,875.00
12/16/2020	ATVI 100 19 FEB 21 75 CALL	\$16.50	2004	15.38%	\$3,306,600.00
9/15/2020	ATVI 100 19 FEB 21 85 CALL	\$8.25	2108	21.32%	\$1,739,100.00
11/17/2020	BA 100 19 FEB 21 210 CALL	\$18.67	2144	-17.75%	\$4,002,848.00
11/16/2020	BA 100 19 FEB 21 225 CALL	\$13.10	2576	0.00%	\$3,374,560.00
10/5/2020	BA 100 19 FEB 21 230 CALL	\$11.30	2487	31.40%	\$2,810,310.00
9/17/2020	BA 100 19 FEB 21 240 CALL	\$8.16	9492	16.57%	\$7,745,472.00
12/3/2020	BP 100 19 FEB 21 20 CALL	\$1.94	16491	-25.38%	\$3,199,254.00
12/3/2020	BSX 100 19 FEB 21 36 CALL	\$1.14	5030	-6.56%	\$573,420.00
12/22/2020	CALX 100 19 FEB 21 32 CALL	\$4.20	5077	-10.64%	\$2,132,340.00
8/6/2020	CHRW 100 19 FEB 21 80 CALL	\$12.67	2551	-24.94%	\$3,232,117.00
8/11/2020	CHRW 100 19 FEB 21 85 CALL	\$10.08	1239	-29.26%	\$1,248,912.00
12/1/2020	CL 100 19 FEB 21 85 CALL	\$2.45	5827	-35.36%	\$1,427,615.00
12/8/2020	CLF 100 19 FEB 21 14 CALL	\$1.50	14241	30.43%	\$2,136,150.00
12/23/2020	CMCSA 100 19 FEB 21 50 CALL	\$2.24	11304	4.67%	\$2,532,096.00
12/3/2020	CPRI 100 19 FEB 21 45 CALL	\$3.21	21857	21.13%	\$7,016,097.00
8/10/2020	CRM 100 19 FEB 21 200 CALL	\$31.51	12797	45.88%	\$40,323,347.00
12/2/2020	CRM 100 19 FEB 21 210 CALL	\$21.65	3908	4.79%	\$8,460,820.00
11/18/2020	CSOD 100 19 FEB 21 40 CALL	\$6.40	1539	42.22%	\$984,960.00
8/5/2020	CVS 100 19 FEB 21 55 CALL	\$13.35	403	23.96%	\$538,005.00
11/17/2020	CVS 100 19 FEB 21 70 CALL	\$2.05	8266	-19.29%	\$1,694,530.00
12/18/2020	DD 100 19 FEB 21 75 CALL	\$1.51	4676	-20.94%	\$706,076.00
12/22/2020	DG 100 19 FEB 21 210 CALL	\$8.00	2845	-6.43%	\$2,276,000.00
8/11/2020	DHI 100 19 FEB 21 70 CALL	\$5.57	3423	-34.85%	\$1,906,611.00
12/17/2020	DHI 100 19 FEB 21 75 CALL	\$3.22	2286	-30.75%	\$736,092.00
12/11/2020	DIS 100 19 FEB 21 175 CALL	\$8.45	6063	-23.87%	\$5,123,235.00
12/16/2020	DT 100 19 FEB 21 41 CALL	\$5.10	5752	13.33%	\$2,933,520.00
11/12/2020	EBAY 100 19 FEB 21 50 CALL	\$3.04	6644	38.18%	\$2,019,776.00
12/11/2020	EBAY 100 19 FEB 21 55 CALL	\$1.34	15740	3.08%	\$2,109,160.00

	Date	Description	Current Price	Current OI	Price Change	Current Value
	10/16/2020	ELY 100 19 FEB 21 21 CALL	\$4.10	3182	48.55%	\$1,304,620.00
	10/27/2020	ELY 100 19 FEB 21 22 CALL	\$3.33	8119	33.20%	\$2,703,627.00
	10/27/2020	ELY 100 19 FEB 21 23 CALL	\$2.80	15748	29.63%	\$4,409,440.00
	12/4/2020	EW 100 19 FEB 21 90 CALL	\$3.92	4006	14.29%	\$1,570,352.00
	11/18/2020	F 100 19 FEB 21 10 CALL	\$0.21	79205	-38.24%	\$1,663,305.00
	11/19/2020	F 100 19 FEB 21 9 CALL	\$0.53	13982	-20.90%	\$741,046.00
	10/30/2020	FB 100 19 FEB 21 250 CALL	\$25.86	5137	-21.40%	\$13,284,282.00
	11/2/2020	FB 100 19 FEB 21 260 CALL	\$20.30	1442	-21.62%	\$2,927,260.00
	8/18/2020	FB 100 19 FEB 21 265 CALL	\$17.59	22491	-36.48%	\$39,561,669.00
	12/22/2020	FB 100 19 FEB 21 270 CALL	\$15.30	8907	-0.33%	\$13,627,710.00
	11/23/2020	FB 100 19 FEB 21 280 CALL	\$11.20	17613	-20.85%	\$19,726,560.00
	11/24/2020	FCX 100 19 FEB 21 23 CALL	\$2.97	13415	45.59%	\$3,984,255.00
	12/17/2020	FCX 100 19 FEB 21 26 CALL	\$1.47	22960	-10.37%	\$3,375,120.00
	12/23/2020	FCX 100 19 FEB 21 27 CALL	\$1.13	12115	-10.32%	\$1,368,995.00
	12/23/2020	FISV 100 19 FEB 21 120 CALL	\$2.30	2672	11.65%	\$614,560.00
	12/11/2020	FOLD 100 19 FEB 21 25 CALL	\$2.85	2451	42.50%	\$698,535.00
	12/22/2020	GILD 100 19 FEB 21 57.5 CALL	\$2.56	2335	-7.91%	\$597,760.00
	12/18/2020	GILD 100 19 FEB 21 62.5 CALL	\$0.99	8699	-34.87%	\$861,201.00
	12/18/2020	GM 100 19 FEB 21 40 PUT	\$2.02	2834	-7.76%	\$572,468.00
	12/3/2020	GOGO 100 19 FEB 21 11 CALL	\$0.96	11346	-12.73%	\$1,089,216.00
	12/8/2020	GOGO 100 19 FEB 21 12 CALL	\$0.70	15009	-30.00%	\$1,050,630.00
	10/30/2020	GOOGL 100 19 FEB 21 1500 CALL	\$252.10	3823	18.41%	\$96,377,830.00
	11/3/2020	GOOGL 100 19 FEB 21 1800 CALL	\$53.50	2670	-21.90%	\$14,284,500.00
	12/4/2020	GPN 100 19 FEB 21 200 CALL	\$13.73	2391	13.47%	\$3,282,843.00
	12/14/2020	GPN 100 19 FEB 21 210 CALL	\$7.70	3375	54.00%	\$2,598,750.00
	12/8/2020	HAL 100 19 FEB 21 20 CALL	\$1.38	5217	-21.59%	\$719,946.00
	12/7/2020	HD 100 19 FEB 21 270 CALL	\$10.80	1389	30.91%	\$1,500,120.00
	12/2/2020	HUM 100 19 FEB 21 420 CALL	\$11.41	1586	-32.88%	\$1,809,626.00
	11/25/2020	HZNP 100 19 FEB 21 75 CALL	\$4.40	4841	-26.67%	\$2,130,040.00
	12/22/2020	IAC 100 19 FEB 21 175 CALL	\$16.12	507	-9.44%	\$817,284.00
	12/22/2020	IAC 100 19 FEB 21 180 CALL	\$12.30	1010	-13.38%	\$1,242,300.00
	11/12/2020	IFF 100 19 FEB 21 115 CALL	\$4.45	3585	3.97%	\$1,595,325.00
	8/4/2020	INTC 100 19 FEB 21 42.5 CALL	\$5.21	2147	-37.60%	\$1,118,587.00
	12/1/2020	INTC 100 19 FEB 21 45 CALL	\$3.70	3489	-36.21%	\$1,290,930.00
	11/20/2020	INTC 100 19 FEB 21 47.5 CALL	\$2.39	15399	26.46%	\$3,680,361.00
	12/23/2020	INTC 100 19 FEB 21 55 CALL	\$0.56	33202	3.70%	\$1,859,312.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/4/2020	JD 100 19 FEB 21 80 CALL	\$8.46	6455	-10.67%	\$5,460,930.00
11/25/2020	JD 100 19 FEB 21 82.5 CALL	\$6.75	1846	-32.16%	\$1,246,050.00
11/30/2020	JD 100 19 FEB 21 85 CALL	\$5.70	18428	-23.80%	\$10,503,960.00
12/4/2020	JD 100 19 FEB 21 87.5 CALL	\$4.60	2335	-19.30%	\$1,074,100.00
12/14/2020	JNJ 100 19 FEB 21 155 CALL	\$5.00	4329	5.26%	\$2,164,500.00
12/21/2020	JPM 100 19 FEB 21 125 CALL	\$5.35	1740	-1.65%	\$930,900.00
11/16/2020	KNX 100 19 FEB 21 40 CALL	\$3.66	2015	-8.50%	\$737,490.00
11/11/2020	KO 100 19 FEB 21 55 CALL	\$1.21	22961	-36.65%	\$2,778,281.00
12/18/2020	LEN 100 19 FEB 21 85 CALL	\$2.93	1962	-16.29%	\$574,866.00
11/3/2020	LHX 100 19 FEB 21 190 CALL	\$7.30	1471	-8.75%	\$1,073,830.00
12/23/2020	LI 100 19 FEB 21 31 CALL	\$3.40	2427	-18.07%	\$825,180.00
12/22/2020	LITE 100 19 FEB 21 100 CALL	\$6.80	1608	1.49%	\$1,093,440.00
12/18/2020	LYFT 100 19 FEB 21 50 CALL	\$4.07	4888	-11.52%	\$1,989,416.00
6/30/2020	MAG 100 19 FEB 21 10 CALL	\$7.90	1394	51.92%	\$1,101,260.00
12/4/2020	MDT 100 19 FEB 21 115 PUT	\$4.75	2297	-22.76%	\$1,091,075.00
8/19/2020	MDT 100 19 FEB 21 120 CALL	\$1.93	3952	47.33%	\$762,736.00
11/25/2020	MDT 100 19 FEB 21 125 CALL	\$0.79	9923	-38.76%	\$783,917.00
9/17/2020	MLHR 100 19 FEB 21 30 CALL	\$4.90	2910	-15.52%	\$1,425,900.00
11/6/2020	MRVL 100 19 FEB 21 45 CALL	\$4.12	15068	-7.83%	\$6,208,016.00
12/15/2020	MSFT 100 19 FEB 21 215 CALL	\$14.71	25244	40.77%	\$37,133,924.00
9/22/2020	MSFT 100 19 FEB 21 230 CALL	\$7.06	7472	-28.90%	\$5,275,232.00
12/17/2020	MSFT 100 19 FEB 21 235 CALL	\$4.89	9168	-5.96%	\$4,483,152.00
12/16/2020	MSFT 100 19 FEB 21 240 CALL	\$3.96	54610	4.49%	\$21,625,560.00
12/23/2020	MU 100 19 FEB 21 70 CALL	\$5.25	3402	2.94%	\$1,786,050.00
12/14/2020	NET 100 19 FEB 21 95 CALL	\$5.80	2994	-8.23%	\$1,736,520.00
10/21/2020	NFLX 100 19 FEB 21 550 CALL	\$20.18	3464	-36.94%	\$6,990,352.00
12/15/2020	NVDA 100 19 FEB 21 550 CALL	\$19.79	1350	-34.03%	\$2,671,650.00
9/10/2020	OMER 100 19 FEB 21 15 CALL	\$2.10	10726	-22.79%	\$2,252,460.00
11/24/2020	OXY 100 19 FEB 21 17 CALL	\$2.36	3586	2.16%	\$846,296.00
12/8/2020	PG 100 19 FEB 21 135 CALL	\$5.62	1582	-15.11%	\$889,084.00
10/30/2020	PINS 100 19 FEB 21 65 CALL	\$11.50	14841	47.44%	\$17,067,150.00
12/18/2020	PINS 100 19 FEB 21 75 CALL	\$7.20	6921	-1.50%	\$4,983,120.00
11/13/2020	PLNT 100 19 FEB 21 75 CALL	\$7.50	5250	50.00%	\$3,937,500.00
12/14/2020	QCOM 100 19 FEB 21 150 CALL	\$8.32	4785	0.12%	\$3,981,120.00
12/18/2020	QRVO 100 19 FEB 21 160 CALL	\$15.50	1021	16.89%	\$1,582,550.00
8/11/2020	REAL 100 19 FEB 21 15 CALL	\$5.80	4378	20.83%	\$2,539,240.00
12/7/2020	ROST 100 19 FEB 21 115 CALL	\$7.90	2385	20.61%	\$1,884,150.00

Date	Description	Current Price	Current OI	Price Change	Current Value
8/19/2020	RTX 100 19 FEB 21 65 CALL	\$6.80	8000	33.33%	\$5,440,000.00
12/16/2020	RUN 100 19 FEB 21 60 CALL	\$12.50	1806	45.35%	\$2,257,500.00
11/23/2020	RUN 100 19 FEB 21 65 CALL	\$9.72	3570	23.04%	\$3,470,040.00
12/24/2020	RUN 100 19 FEB 21 75 CALL	\$5.60	1453	7.69%	\$813,680.00
12/21/2020	RXT 100 19 FEB 21 22.5 CALL	\$1.45	7509	-14.71%	\$1,088,805.00
11/20/2020	SBUX 100 19 FEB 21 110 CALL	\$1.40	6953	25.00%	\$973,420.00
12/7/2020	SCPL 100 19 FEB 21 12.5 CALL	\$2.45	2360	-20.97%	\$578,200.00
12/18/2020	SE 100 19 FEB 21 200 CALL	\$13.01	2737	-27.32%	\$3,560,837.00
12/17/2020	SNAP 100 19 FEB 21 60 CALL	\$2.30	11115	-37.84%	\$2,556,450.00
12/22/2020	SPCE 100 19 FEB 21 26 CALL	\$3.80	3187	-5.00%	\$1,211,060.00
12/22/2020	SPCE 100 19 FEB 21 27 CALL	\$3.45	1710	-6.76%	\$589,950.00
12/22/2020	SPCE 100 19 FEB 21 28 CALL	\$3.15	4307	-8.70%	\$1,356,705.00
12/22/2020	SPOT 100 19 FEB 21 180 CALL	\$145.92	600	0.00%	\$8,755,200.00
12/23/2020	SPOT 100 19 FEB 21 390 CALL	\$9.50	1821	-12.04%	\$1,729,950.00
11/18/2020	SUM 100 19 FEB 21 20 CALL	\$1.60	12448	-3.03%	\$1,991,680.00
12/4/2020	SWKS 100 19 FEB 21 150 CALL	\$9.70	4297	-16.38%	\$4,168,090.00
12/15/2020	TECK 100 19 FEB 21 19 CALL	\$0.89	18929	-27.64%	\$1,684,681.00
12/18/2020	TGT 100 19 FEB 21 175 CALL	\$7.33	6351	35.74%	\$4,655,283.00
11/23/2020	TMUS 100 19 FEB 21 135 CALL	\$5.20	2569	26.83%	\$1,335,880.00
12/7/2020	TSLA 100 19 FEB 21 620 CALL	\$90.95	3953	-9.82%	\$35,952,535.00
12/2/2020	TSLA 100 19 FEB 21 650 CALL	\$75.52	7495	51.86%	\$56,602,240.00
12/4/2020	TSLA 100 19 FEB 21 740 CALL	\$40.80	1722	-1.14%	\$7,025,760.00
12/11/2020	TSLA 100 19 FEB 21 760 CALL	\$35.15	1594	-20.44%	\$5,602,910.00
12/11/2020	TSLA 100 19 FEB 21 780 CALL	\$30.10	9061	-25.35%	\$27,273,610.00
11/16/2020	TSM 100 19 FEB 21 100 CALL	\$9.45	7581	8.62%	\$7,164,045.00
12/1/2020	TSM 100 19 FEB 21 115 CALL	\$2.85	3534	-1.72%	\$1,007,190.00
12/23/2020	UBER 100 19 FEB 21 60 CALL	\$2.03	4847	-15.42%	\$983,941.00
12/16/2020	UNFI 100 19 FEB 21 17.5 CALL	\$1.18	12873	-19.18%	\$1,519,014.00
9/22/2020	UNP 100 19 FEB 21 200 CALL	\$11.15	1415	-19.49%	\$1,577,725.00
12/4/2020	UNP 100 19 FEB 21 210 CALL	\$6.15	2458	-29.47%	\$1,511,670.00
12/11/2020	VIPS 100 19 FEB 21 27 CALL	\$2.05	8019	24.24%	\$1,643,895.00
12/21/2020	VLDR 100 19 FEB 21 22.5 CALL	\$5.30	1784	43.24%	\$945,520.00
11/30/2020	WFC 100 19 FEB 21 25 CALL	\$5.25	5323	41.89%	\$2,794,575.00
11/24/2020	WFC 100 19 FEB 21 27.5 CALL	\$3.25	4891	21.72%	\$1,589,575.00
12/3/2020	WFC 100 19 FEB 21 32.5 CALL	\$0.88	66884	-14.56%	\$5,885,792.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
11/27/2020	AAL 100 19 FEB 21 15 PUT	\$1.44	32053	-29.06%	\$4,615,632.00
12/4/2020	AAL 100 19 FEB 21 17 PUT	\$2.61	20849	-9.38%	\$5,441,589.00
12/4/2020	ADT 100 19 FEB 21 10 PUT	\$2.12	30101	6.00%	\$6,381,412.00
12/21/2020	AER 100 19 FEB 21 35 PUT	\$1.21	5066	-30.86%	\$612,986.00
12/3/2020	AMD 100 19 FEB 21 82.5 PUT	\$3.25	3999	-29.04%	\$1,299,675.00
12/15/2020	APTV 100 19 FEB 21 115 PUT	\$3.50	4972	-39.66%	\$1,740,200.00
12/9/2020	ARGX 100 19 FEB 21 250 PUT	\$9.80	778	-24.62%	\$762,440.00
12/15/2020	ARGX 100 19 FEB 21 280 PUT	\$13.70	999	0.00%	\$1,368,630.00
10/6/2020	AXDX 100 19 FEB 21 22.5 PUT	\$14.46	456	18.43%	\$659,376.00
12/18/2020	BCLI 100 19 FEB 21 10 PUT	\$4.80	1132	-4.38%	\$543,360.00
12/2/2020	BHVN 100 19 FEB 21 65 PUT	\$3.43	2970	-31.40%	\$1,018,710.00
12/3/2020	BSX 100 19 FEB 21 34 PUT	\$1.52	5626	-31.53%	\$855,152.00
12/3/2020	BSX 100 19 FEB 21 36 PUT	\$2.56	5125	-22.42%	\$1,312,000.00
12/23/2020	CCL 100 19 FEB 21 15 PUT	\$0.49	11540	-7.55%	\$565,460.00
12/14/2020	CVNA 100 19 FEB 21 290 PUT	\$36.45	209	-31.29%	\$761,805.00
12/14/2020	CVNA 100 19 FEB 21 310 PUT	\$50.05	148	-27.04%	\$740,740.00
12/18/2020	DASH 100 19 FEB 21 160 PUT	\$23.95	1080	-3.43%	\$2,586,600.00
12/22/2020	DDOG 100 19 FEB 21 105 PUT	\$9.40	1451	4.44%	\$1,363,940.00
12/18/2020	DDOG 100 19 FEB 21 110 PUT	\$12.20	444	4.27%	\$541,680.00
7/21/2020	DGX 100 19 FEB 21 145 PUT	\$20.20	736	-12.93%	\$1,486,720.00
12/14/2020	EDIT 100 19 FEB 21 65 PUT	\$11.20	5851	-6.67%	\$6,553,120.00
12/21/2020	F 100 19 FEB 21 8 PUT	\$0.26	22547	0.00%	\$586,222.00
12/7/2020	FB 100 19 FEB 21 260 PUT	\$12.80	5118	37.63%	\$6,551,040.00
12/1/2020	FCX 100 19 FEB 21 24 PUT	\$1.63	3716	-30.04%	\$605,708.00
12/17/2020	FSLY 100 19 FEB 21 100 PUT	\$14.00	1183	2.94%	\$1,656,200.00
10/13/2020	GSK 100 19 FEB 21 37 PUT	\$2.10	4623	-14.29%	\$970,830.00
12/18/2020	GSX 100 19 FEB 21 60 PUT	\$13.90	816	31.13%	\$1,134,240.00
12/3/2020	GSX 100 19 FEB 21 95 PUT	\$36.10	1560	0.28%	\$5,631,600.00
12/2/2020	JD 100 19 FEB 21 85 PUT	\$5.95	1493	-21.19%	\$888,335.00
12/22/2020	JMIA 100 19 FEB 21 40 PUT	\$6.00	2552	16.05%	\$1,531,200.00
12/21/2020	LMT 100 19 FEB 21 350 PUT	\$12.93	546	-15.27%	\$705,978.00
12/21/2020	MDB 100 19 FEB 21 360 PUT	\$24.28	516	-5.16%	\$1,252,848.00
12/21/2020	MELI 100 19 FEB 21 1600 PUT	\$85.80	324	-9.22%	\$2,779,920.00
12/18/2020	NOC 100 19 FEB 21 280 PUT	\$6.00	886	-7.41%	\$531,600.00
11/23/2020	NVDA 100 19 FEB 21 500 PUT	\$22.79	3048	-24.51%	\$6,946,392.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/7/2020	OXY 100 19 FEB 21 21 PUT	\$4.20	1485	0.72%	\$623,700.00
12/7/2020	OXY 100 19 FEB 21 22 PUT	\$4.85	1248	-1.42%	\$605,280.00
12/22/2020	PFE 100 19 FEB 21 37 PUT	\$1.93	5817	-16.09%	\$1,122,681.00
12/21/2020	QCOM 100 19 FEB 21 130 PUT	\$2.69	2826	-28.27%	\$760,194.00
12/23/2020	QDEL 100 19 FEB 21 190 PUT	\$18.50	300	-5.80%	\$555,000.00
12/17/2020	RDFN 100 19 FEB 21 100 PUT	\$24.15	799	-7.12%	\$1,929,585.00
11/2/2020	REGN 100 19 FEB 21 500 PUT	\$32.78	1511	28.60%	\$4,953,058.00
8/19/2020	SAGE 100 19 FEB 21 45 PUT	\$7.82	751	6.54%	\$587,282.00
12/17/2020	SFIX 100 19 FEB 21 70 PUT	\$7.28	2258	-3.58%	\$1,643,824.00
7/14/2020	SPLK 100 19 FEB 21 190 PUT	\$16.98	428	-34.44%	\$726,744.00
12/22/2020	SQ 100 19 FEB 21 230 PUT	\$19.60	1526	39.40%	\$2,990,960.00
7/29/2020	SRPT 100 19 FEB 21 110 PUT	\$8.97	2467	-11.97%	\$2,212,899.00
7/1/2020	SRPT 100 19 FEB 21 120 PUT	\$12.20	5889	19.61%	\$7,184,580.00
7/28/2020	SRPT 100 19 FEB 21 125 PUT	\$12.74	1145	-12.14%	\$1,458,730.00
12/9/2020	STT 100 19 FEB 21 85 PUT	\$11.10	780	0.00%	\$865,800.00
11/30/2020	T 100 19 FEB 21 27 PUT	\$0.69	17862	-5.48%	\$1,232,478.00
12/22/2020	TDOC 100 19 FEB 21 195 PUT	\$11.70	2609	-5.65%	\$3,052,530.00
12/14/2020	TNDM 100 19 FEB 21 110 PUT	\$26.00	249	35.84%	\$647,400.00
12/21/2020	TTD 100 19 FEB 21 930 PUT	\$79.40	306	-1.24%	\$2,429,640.00
12/15/2020	TWTR 100 19 FEB 21 50 PUT	\$2.99	2233	-23.33%	\$667,667.00
12/8/2020	U 100 19 FEB 21 165 PUT	\$20.10	1656	-37.58%	\$3,328,560.00
12/10/2020	UNP 100 19 FEB 21 190 PUT	\$4.50	2432	-9.09%	\$1,094,400.00
12/15/2020	VALE 100 19 FEB 21 17 PUT	\$1.34	6958	-11.26%	\$932,372.00
12/17/2020	WMT 100 19 FEB 21 135 PUT	\$2.16	9493	-2.26%	\$2,050,488.00
10/9/2020	XLRN 100 19 FEB 21 110 PUT	\$9.00	1006	-8.44%	\$905,400.00
11/25/2020	XOM 100 19 FEB 21 42.5 PUT	\$3.36	8286	-21.50%	\$2,784,096.00
12/18/2020	YNDX 100 19 FEB 21 70 PUT	\$5.94	1101	26.38%	\$653,994.00
10/1/2020	ZM 100 19 FEB 21 430 PUT	\$70.19	537	16.98%	\$3,769,203.00

March 2021 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
10/1/2020	AAPL 100 19 MAR 21 117.5 CALL	\$18.35	8780	34.43%	\$16,111,300.00
9/24/2020	AAPL 100 19 MAR 21 200 CALL	\$0.65	18151	-21.69%	\$1,179,815.00
10/9/2020	AAPL 100 19 MAR 21 90 CALL	\$42.40	2852	42.43%	\$12,092,480.00
11/16/2020	ACAD 100 19 MAR 21 65 CALL	\$3.30	3258	-10.81%	\$1,075,140.00
12/10/2020	ACM 100 19 MAR 21 50 CALL	\$2.96	5233	-15.43%	\$1,548,968.00
8/4/2020	ADBE 100 19 MAR 21 420 CALL	\$92.49	5228	44.38%	\$48,353,772.00
9/14/2020	AMD 100 19 MAR 21 110 CALL	\$3.60	6481	-21.74%	\$2,333,160.00
12/21/2020	AMD 100 19 MAR 21 120 CALL	\$2.22	9028	-20.14%	\$2,004,216.00
9/15/2020	AMD 100 19 MAR 21 77.5 CALL	\$17.70	2760	26.43%	\$4,885,200.00
8/7/2020	AMD 100 19 MAR 21 85 CALL	\$12.75	5113	-16.72%	\$6,519,075.00
9/17/2020	ATVI 100 19 MAR 21 90 CALL	\$6.15	1976	44.71%	\$1,215,240.00
12/9/2020	BBY 100 19 MAR 21 110 CALL	\$4.77	4442	-21.80%	\$2,118,834.00
12/3/2020	BHVN 100 19 MAR 21 125 CALL	\$9.00	1252	21.62%	\$1,126,800.00
12/23/2020	BIDU 100 19 MAR 21 220 CALL	\$9.72	4042	-10.41%	\$3,928,824.00
11/12/2020	BIIB 100 19 MAR 21 290 CALL	\$17.70	2478	3.81%	\$4,386,060.00
11/9/2020	BIIB 100 19 MAR 21 300 CALL	\$15.70	3529	24.70%	\$5,540,530.00
12/10/2020	BRK/B 100 19 MAR 21 210 CALL	\$20.60	6646	-5.94%	\$13,690,760.00
9/21/2020	BRK/B 100 19 MAR 21 230 CALL	\$7.80	5264	41.82%	\$4,105,920.00
12/9/2020	BX 100 19 MAR 21 62.5 CALL	\$4.55	11727	30.00%	\$5,335,785.00
11/12/2020	CARR 100 19 MAR 21 40 CALL	\$2.30	12600	-25.81%	\$2,898,000.00
9/4/2020	CARS 100 19 MAR 21 10 CALL	\$2.25	10361	40.63%	\$2,331,225.00
12/7/2020	CCJ 100 19 MAR 21 15 CALL	\$1.00	12256	47.06%	\$1,225,600.00
12/7/2020	CCJ 100 19 MAR 21 20 CALL	\$0.27	22729	0.00%	\$613,683.00
9/30/2020	CCS 100 19 MAR 21 40 CALL	\$9.78	2526	15.33%	\$2,470,428.00
12/15/2020	CHL 100 19 MAR 21 25 CALL	\$3.91	4864	-7.57%	\$1,901,824.00
12/17/2020	CHL 100 19 MAR 21 30 CALL	\$1.25	7890	4.17%	\$986,250.00
8/27/2020	CHTR 100 19 MAR 21 680 CALL	\$21.00	1038	-14.98%	\$2,179,800.00
12/14/2020	CLR 100 19 MAR 21 20 CALL	\$1.24	6274	-29.14%	\$777,976.00
9/23/2020	CMCSA 100 19 MAR 21 42.5 CALL	\$8.05	2109	44.52%	\$1,697,745.00
9/23/2020	CMCSA 100 19 MAR 21 52.5 CALL	\$1.64	8011	33.33%	\$1,313,804.00
8/11/2020	CNK 100 19 MAR 21 12.5 CALL	\$5.00	2007	29.20%	\$1,003,500.00
11/13/2020	CNK 100 19 MAR 21 15 CALL	\$3.51	13465	46.25%	\$4,726,215.00
12/4/2020	CNK 100 19 MAR 21 20 CALL	\$1.60	4294	1.27%	\$687,040.00
10/7/2020	CNR 100 19 MAR 21 10 CALL	\$1.25	5829	-10.71%	\$728,625.00
12/9/2020	CR 100 19 MAR 21 70 CALL	\$9.37	1036	13.44%	\$970,732.00
12/15/2020	CRIS 100 19 MAR 21 7.5 CALL	\$2.40	4666	-7.69%	\$1,119,840.00

Da	Description	Current Price	Current OI	Price Change	Current Value
8/11/2020	CS 100 19 MAR 21 12 CALL	\$0.92	21957	-12.38%	\$2,020,044.00
11/19/2020	CS 100 19 MAR 21 13 CALL	\$0.79	11071	31.67%	\$874,609.00
9/1/2020	CSCO 100 19 MAR 21 43 CALL	\$2.90	7742	1.40%	\$2,245,180.00
9/1/2020	CSCO 100 19 MAR 21 45 CALL	\$1.96	6634	-7.55%	\$1,300,264.00
11/11/2020	CVX 100 19 MAR 21 82.5 CALL	\$7.95	3281	29.48%	\$2,608,395.00
12/2/2020	CX 100 19 MAR 21 5.5 CALL	\$0.40	17130	-28.57%	\$685,200.00
11/24/2020	CZR 100 19 MAR 21 60 CALL	\$20.39	7191	23.58%	\$14,662,449.00
6/22/2020	DAL 100 19 MAR 21 35 CALL	\$6.60	3503	40.43%	\$2,311,980.00
8/24/2020	DAL 100 19 MAR 21 40 CALL	\$3.79	18987	51.60%	\$7,196,073.00
7/27/2020	DDOG 100 19 MAR 21 110 CALL	\$10.60	1317	8.16%	\$1,396,020.00
8/25/2020	DDOG 100 19 MAR 21 120 CALL	\$7.20	1080	53.19%	\$777,600.00
11/30/2020	DHR 100 19 MAR 21 230 CALL	\$8.60	1579	-30.65%	\$1,357,940.00
12/21/2020	DISH 100 19 MAR 21 30 CALL	\$3.89	21989	8.06%	\$8,553,721.00
11/13/2020	DISH 100 19 MAR 21 35 CALL	\$1.89	29637	-40.00%	\$5,601,393.00
10/12/2020	DISH 100 19 MAR 21 40 CALL	\$0.97	30270	-28.68%	\$2,936,190.00
9/3/2020	DOCU 100 19 MAR 21 200 CALL	\$52.35	1656	-28.87%	\$8,669,160.00
10/2/2020	DOCU 100 19 MAR 21 220 CALL	\$38.50	1988	6.65%	\$7,653,800.00
8/10/2020	DOCU 100 19 MAR 21 260 CALL	\$19.35	1301	38.21%	\$2,517,435.00
12/8/2020	DOCU 100 19 MAR 21 310 CALL	\$7.20	1922	13.39%	\$1,383,840.00
12/23/2020	EBAY 100 19 MAR 21 50 CALL	\$3.52	11525	-17.18%	\$4,056,800.00
11/24/2020	EVH 100 19 MAR 21 15 CALL	\$3.20	3881	48.84%	\$1,241,920.00
12/16/2020	EXPE 100 19 MAR 21 125 CALL	\$12.50	1632	4.17%	\$2,040,000.00
11/23/2020	FANG 100 19 MAR 21 50 CALL	\$5.70	7653	46.15%	\$4,362,210.00
7/30/2020	FB 100 19 MAR 21 200 CALL	\$69.80	2046	45.57%	\$14,281,080.00
10/7/2020	FB 100 19 MAR 21 255 CALL	\$25.98	1585	-20.18%	\$4,117,830.00
8/14/2020	FB 100 19 MAR 21 265 CALL	\$20.68	15382	-29.90%	\$31,809,976.00
12/11/2020	FB 100 19 MAR 21 280 CALL	\$14.10	9531	-25.98%	\$13,438,710.00
12/21/2020	FBHS 100 19 MAR 21 90 CALL	\$5.00	1250	-18.03%	\$625,000.00
12/18/2020	FCX 100 19 MAR 21 28 CALL	\$1.31	5665	-1.50%	\$742,115.00
12/21/2020	FEYE 100 19 MAR 21 20 CALL	\$4.25	2189	52.33%	\$930,325.00
8/10/2020	FISV 100 19 MAR 21 100 CALL	\$14.80	13616	18.40%	\$20,151,680.00
8/7/2020	FISV 100 19 MAR 21 105 CALL	\$10.29	5806	1.98%	\$5,974,374.00
10/1/2020	FISV 100 19 MAR 21 120 CALL	\$3.40	2909	-22.73%	\$989,060.00
10/1/2020	FSLY 100 19 MAR 21 100 CALL	\$14.50	2998	-35.27%	\$4,347,100.00
12/10/2020	FSLY 100 19 MAR 21 115 CALL	\$9.30	1754	-23.14%	\$1,631,220.00
8/10/2020	FSLY 100 19 MAR 21 90 CALL	\$18.75	2128	-1.73%	\$3,990,000.00
10/9/2020	FUTU 100 19 MAR 21 30 CALL	\$10.60	1052	26.19%	\$1,115,120.00

Da	Description	Current Price	Current OI	Price Chang	Current Value
7/27/2020	GDS 100 19 MAR 21 55 CALL	\$31.70	1131	13.46%	\$3,585,270.00
12/22/2020	GHIV 100 19 MAR 21 15 CALL	\$2.35	7804	38.24%	\$1,833,940.00
11/27/2020	GLUU 100 19 MAR 21 10 CALL	\$1.16	12951	-20.00%	\$1,502,316.00
11/10/2020	GM 100 19 MAR 21 55 CALL	\$0.57	35863	5.56%	\$2,044,191.00
8/17/2020	GOOG 100 19 MAR 21 1580 CALL	\$185.49	2515	52.18%	\$46,650,735.00
12/14/2020	GPS 100 19 MAR 21 21 CALL	\$2.09	6306	-4.13%	\$1,317,954.00
11/30/2020	GPS 100 19 MAR 21 22 CALL	\$1.66	12285	-32.24%	\$2,039,310.00
12/10/2020	HD 100 19 MAR 21 270 CALL	\$12.75	1636	4.94%	\$2,085,900.00
9/23/2020	IBM 100 19 MAR 21 125 CALL	\$5.60	2093	-17.65%	\$1,172,080.00
10/30/2020	INTC 100 19 MAR 21 35 CALL	\$11.70	1222	23.16%	\$1,429,740.00
12/15/2020	INTC 100 19 MAR 21 42.5 CALL	\$5.70	2532	-34.10%	\$1,443,240.00
12/16/2020	IQ 100 19 MAR 21 25 CALL	\$0.65	21131	-23.53%	\$1,373,515.00
12/18/2020	ITW 100 19 MAR 21 210 CALL	\$5.80	1868	-9.38%	\$1,083,440.00
12/16/2020	JNJ 100 19 MAR 21 145 CALL	\$11.20	3381	6.57%	\$3,786,720.00
8/4/2020	JNJ 100 19 MAR 21 150 CALL	\$8.60	6101	10.26%	\$5,246,860.00
8/18/2020	JNJ 100 19 MAR 21 155 CALL	\$5.71	2467	-10.92%	\$1,408,657.00
7/9/2020	LBTYK 100 19 MAR 21 20 CALL	\$5.00	8090	16.28%	\$4,045,000.00
12/4/2020	LOGI 100 19 MAR 21 90 CALL	\$8.40	3040	35.48%	\$2,553,600.00
11/10/2020	LOW 100 19 MAR 21 160 CALL	\$10.68	2514	2.20%	\$2,684,952.00
11/25/2020	LOW 100 19 MAR 21 170 CALL	\$6.10	6805	30.90%	\$4,151,050.00
12/17/2020	LUV 100 19 MAR 21 47.5 CALL	\$3.40	4067	-8.11%	\$1,382,780.00
10/22/2020	LVS 100 19 MAR 21 52.5 CALL	\$7.17	5046	34.02%	\$3,617,982.00
11/25/2020	LVS 100 19 MAR 21 57.5 CALL	\$4.45	1506	-25.83%	\$670,170.00
12/15/2020	LVS 100 19 MAR 21 60 CALL	\$3.50	9813	-17.65%	\$3,434,550.00
11/16/2020	MAC 100 19 MAR 21 9 CALL	\$2.35	2989	51.61%	\$702,415.00
12/23/2020	MGA 100 19 MAR 21 80 CALL	\$3.00	1918	-22.68%	\$575,400.00
11/25/2020	MGM 100 19 MAR 21 31 CALL	\$3.05	2817	25.00%	\$859,185.00
9/23/2020	MOS 100 19 MAR 21 20 CALL	\$3.45	12002	40.82%	\$4,140,690.00
8/14/2020	MSFT 100 19 MAR 21 210 CALL	\$20.00	14941	-8.05%	\$29,882,000.00
8/21/2020	MSFT 100 19 MAR 21 215 CALL	\$16.78	5628	-22.21%	\$9,443,784.00
8/10/2020	MSFT 100 19 MAR 21 225 CALL	\$11.52	12219	-27.09%	\$14,076,288.00
11/9/2020	NCLH 100 19 MAR 21 27.5 CALL	\$2.66	5280	22.58%	\$1,404,480.00
12/9/2020	NEE 100 19 MAR 21 75 CALL	\$3.50	5365	-4.63%	\$1,877,750.00
7/30/2020	NEWRR 100 19 MAR 21 65 CALL	\$9.10	2535	-33.09%	\$2,306,850.00
8/20/2020	NFLX 100 19 MAR 21 520 CALL	\$37.50	1059	-29.30%	\$3,971,250.00
12/10/2020	NKE 100 19 MAR 21 135 CALL	\$11.20	1890	9.27%	\$2,116,800.00
12/15/2020	NKE 100 19 MAR 21 140 CALL	\$8.36	2670	-4.78%	\$2,232,120.00

Da	Description	Current Price	Current OI	Price Chang	Current Value
12/16/2020	NSTG 100 19 MAR 21 70 CALL	\$10.44	1001	21.96%	\$1,045,044.00
11/19/2020	NWL 100 19 MAR 21 17 CALL	\$4.40	1371	22.22%	\$603,240.00
12/11/2020	OCUL 100 19 MAR 21 21 CALL	\$5.90	1052	0.00%	\$620,680.00
12/8/2020	ON 100 19 MAR 21 34 CALL	\$1.86	2753	-7.00%	\$512,058.00
8/27/2020	ORCL 100 19 MAR 21 70 CALL	\$1.35	5483	10.66%	\$740,205.00
11/24/2020	OUT 100 19 MAR 21 20 CALL	\$1.50	8122	-26.83%	\$1,218,300.00
10/8/2020	PETS 100 19 MAR 21 35 CALL	\$2.80	2111	-28.21%	\$591,080.00
11/30/2020	PFE 100 19 MAR 21 38 CALL	\$1.90	11561	-32.38%	\$2,196,590.00
10/14/2020	PFE 100 19 MAR 21 41 CALL	\$1.03	30763	-5.50%	\$3,168,589.00
12/14/2020	PLAN 100 19 MAR 21 70 CALL	\$8.95	1507	11.32%	\$1,348,765.00
10/7/2020	PM 100 19 MAR 21 82.5 CALL	\$4.04	1917	-8.18%	\$774,468.00
9/9/2020	PRTK 100 19 MAR 21 5 CALL	\$2.40	2399	26.32%	\$575,760.00
12/3/2020	PVH 100 19 MAR 21 95 CALL	\$9.80	1129	22.65%	\$1,106,420.00
10/13/2020	PYPL 100 19 MAR 21 200 CALL	\$44.40	5659	52.84%	\$25,125,960.00
12/17/2020	PYPL 100 19 MAR 21 240 CALL	\$18.40	7070	6.36%	\$13,008,800.00
12/22/2020	PYPL 100 19 MAR 21 290 CALL	\$4.75	2462	-15.18%	\$1,169,450.00
11/5/2020	QCOM 100 19 MAR 21 165 CALL	\$4.68	1516	-26.30%	\$709,488.00
8/18/2020	RBA 100 19 MAR 21 65 CALL	\$6.00	4888	3.45%	\$2,932,800.00
8/17/2020	RBA 100 19 MAR 21 70 CALL	\$5.21	7113	30.25%	\$3,705,873.00
12/2/2020	RUN 100 19 MAR 21 50 CALL	\$20.45	1054	29.76%	\$2,155,430.00
10/13/2020	RUN 100 19 MAR 21 70 CALL	\$9.60	2916	-26.27%	\$2,799,360.00
12/16/2020	SCCO 100 19 MAR 21 60 CALL	\$6.97	1036	24.69%	\$722,092.00
11/24/2020	SCHW 100 19 MAR 21 45 CALL	\$8.42	8944	38.26%	\$7,530,848.00
11/27/2020	SCHW 100 19 MAR 21 55 CALL	\$2.05	14946	13.89%	\$3,063,930.00
12/22/2020	SDGR 100 19 MAR 21 85 CALL	\$11.20	1071	-4.27%	\$1,199,520.00
12/22/2020	SDGR 100 19 MAR 21 90 CALL	\$9.40	1314	0.00%	\$1,235,160.00
10/20/2020	SEDG 100 19 MAR 21 370 CALL	\$24.50	1081	-38.01%	\$2,648,450.00
12/22/2020	SHAK 100 19 MAR 21 110 CALL	\$2.66	3291	-14.19%	\$875,406.00
12/14/2020	SIX 100 19 MAR 21 35 CALL	\$3.50	3665	41.13%	\$1,282,750.00
12/17/2020	SLB 100 19 MAR 21 25 CALL	\$0.96	13411	-37.66%	\$1,287,456.00
12/11/2020	SLM 100 19 MAR 21 12 CALL	\$1.10	28407	-8.33%	\$3,124,770.00
12/11/2020	SPG 100 19 MAR 21 90 CALL	\$5.93	7754	-29.40%	\$4,598,122.00
9/16/2020	SPG 100 19 MAR 21 95 CALL	\$4.40	1921	-14.56%	\$845,240.00
10/15/2020	SRNE 100 19 MAR 21 4 CALL	\$4.20	4739	-37.31%	\$1,990,380.00
12/10/2020	SYF 100 19 MAR 21 33 CALL	\$3.22	2798	29.84%	\$900,956.00
10/30/2020	T 100 19 MAR 21 26 CALL	\$2.82	2335	39.60%	\$658,470.00
10/23/2020	T 100 19 MAR 21 29 CALL	\$1.03	41364	7.29%	\$4,260,492.00

Da	Description	Current Price	Current OI	Price Chang	Current Value
11/3/2020	TEVA 100 19 MAR 21 10 CALL	\$0.88	26961	7.32%	\$2,372,568.00
12/8/2020	TEVA 100 19 MAR 21 8 CALL	\$2.15	7062	-29.28%	\$1,518,330.00
11/17/2020	TGT 100 19 MAR 21 170 CALL	\$12.80	2105	44.63%	\$2,694,400.00
12/21/2020	TGT 100 19 MAR 21 200 CALL	\$2.65	2309	9.05%	\$611,885.00
12/14/2020	TMO 100 19 MAR 21 470 CALL	\$20.20	4599	-27.68%	\$9,289,980.00
9/1/2020	TOL 100 19 MAR 21 45 CALL	\$4.35	8041	-25.26%	\$3,497,835.00
8/31/2020	TSLA 100 19 MAR 21 500 CALL	\$180.87	11027	50.73%	\$199,445,349.00
12/16/2020	TSLA 100 19 MAR 21 600 CALL	\$115.60	19576	7.58%	\$226,298,560.00
12/2/2020	TSLA 100 19 MAR 21 650 CALL	\$89.72	12369	54.69%	\$110,974,668.00
12/2/2020	TSLA 100 19 MAR 21 740 CALL	\$54.71	2426	23.11%	\$13,272,646.00
10/29/2020	TWTR 100 19 MAR 21 60 CALL	\$3.60	5305	-37.39%	\$1,909,800.00
10/27/2020	TWTR 100 19 MAR 21 65 CALL	\$2.42	11710	-24.38%	\$2,833,820.00
11/23/2020	TXN 100 19 MAR 21 165 CALL	\$6.62	2354	-1.19%	\$1,558,348.00
12/3/2020	UBER 100 19 MAR 21 36 CALL	\$17.35	2362	0.29%	\$4,098,070.00
11/10/2020	UBER 100 19 MAR 21 55 CALL	\$4.50	26784	44.69%	\$12,052,800.00
12/2/2020	UBER 100 19 MAR 21 60 CALL	\$2.81	13020	-12.19%	\$3,658,620.00
12/22/2020	UBER 100 19 MAR 21 65 CALL	\$1.77	5362	-17.67%	\$949,074.00
11/30/2020	USB 100 19 MAR 21 42.5 CALL	\$4.85	4898	38.57%	\$2,375,530.00
5/28/2020	V 100 19 MAR 21 210 CALL	\$10.00	12,237	-39.21%	\$12,237,000.00
12/4/2020	V 100 19 MAR 21 215 CALL	\$7.65	1780	-30.77%	\$1,361,700.00
5/14/2020	V 100 19 MAR 21 225 CALL	\$4.40	2,543	-22.26%	\$1,118,920.00
12/3/2020	VALE 100 19 MAR 21 17 CALL	\$1.38	9489	50.00%	\$1,309,482.00
12/10/2020	VALE 100 19 MAR 21 19 CALL	\$0.71	44464	-6.58%	\$3,156,944.00
12/18/2020	VALE 100 19 MAR 21 21 CALL	\$0.38	87231	-26.92%	\$3,314,778.00
9/17/2020	VEEV 100 19 MAR 21 270 CALL	\$31.76	1205	15.07%	\$3,827,080.00
11/17/2020	VIAC 100 19 MAR 21 35 CALL	\$3.51	4524	53.95%	\$1,587,924.00
11/24/2020	VIAC 100 19 MAR 21 40 CALL	\$1.50	4734	7.14%	\$710,100.00
12/7/2020	WBT 100 19 MAR 21 12.5 CALL	\$1.75	5251	52.17%	\$918,925.00
12/22/2020	WDAY 100 19 MAR 21 260 CALL	\$14.30	4455	-15.08%	\$6,370,650.00
12/8/2020	WMT 100 19 MAR 21 145 CALL	\$6.20	7967	-27.65%	\$4,939,540.00
11/19/2020	WPM 100 19 MAR 21 42 CALL	\$3.70	2558	13.50%	\$946,460.00
11/24/2020	WYNN 100 19 MAR 21 120 CALL	\$9.52	1878	51.59%	\$1,787,856.00
8/31/2020	ZM 100 19 MAR 21 380 CALL	\$45.40	1229	22.37%	\$5,579,660.00
10/14/2020	ZNGA 100 19 MAR 21 10 CALL	\$0.84	23925	3.70%	\$2,009,700.00
12/24/2020	ZUO 100 19 MAR 21 15 CALL	\$1.50	6826	0.00%	\$1,023,900.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
12/11/2020	AMAT 100 19 MAR 21 72.5 PUT	\$2.12	2842	8.72%	\$602,504.00
12/8/2020	AMC 100 19 MAR 21 5.5 PUT	\$3.36	2014	21.30%	\$676,704.00
12/8/2020	AMC 100 19 MAR 21 9 PUT	\$6.67	1109	15.80%	\$739,703.00
12/7/2020	AMCX 100 19 MAR 21 30 PUT	\$3.30	6131	13.79%	\$2,023,230.00
12/1/2020	AMCX 100 19 MAR 21 35 PUT	\$5.60	3520	9.16%	\$1,971,200.00
11/27/2020	AMCX 100 19 MAR 21 40 PUT	\$8.10	6000	5.19%	\$4,860,000.00
9/28/2020	AMZN 100 19 MAR 21 3500 PUT	\$420.00	2078	-28.21%	\$87,276,000.00
11/9/2020	AXP 100 19 MAR 21 105 PUT	\$3.20	2756	-24.71%	\$881,920.00
12/7/2020	AXP 100 19 MAR 21 130 PUT	\$16.75	1459	29.04%	\$2,443,825.00
12/21/2020	BA 100 19 MAR 21 205 PUT	\$14.51	1011	-4.85%	\$1,466,961.00
8/24/2020	BABA 100 19 MAR 21 190 PUT	\$7.23	1343	40.39%	\$970,989.00
9/17/2020	BIIB 100 19 MAR 21 270 PUT	\$41.21	1526	7.04%	\$6,288,646.00
11/4/2020	BMJ 100 19 MAR 21 62.5 PUT	\$3.75	2810	28.42%	\$1,053,750.00
11/24/2020	BNTX 100 19 MAR 21 70 PUT	\$5.70	2111	-25.00%	\$1,203,270.00
11/17/2020	BYND 100 19 MAR 21 125 PUT	\$11.55	4433	-31.66%	\$5,120,115.00
11/24/2020	C 100 19 MAR 21 62.5 PUT	\$6.00	2223	-29.41%	\$1,333,800.00
11/19/2020	CS 100 19 MAR 21 12 PUT	\$0.65	8627	-31.58%	\$560,755.00
12/3/2020	CXW 100 19 MAR 21 7 PUT	\$1.06	8598	41.33%	\$911,388.00
9/1/2020	CYRX 100 19 MAR 21 40 PUT	\$3.90	2334	-6.70%	\$910,260.00
11/6/2020	CYRX 100 19 MAR 21 60 PUT	\$12.85	4004	-33.76%	\$5,145,140.00
12/14/2020	DIS 100 19 MAR 21 165 PUT	\$6.85	1481	-19.88%	\$1,014,485.00
12/23/2020	DISCA 100 19 MAR 21 27.5 PUT	\$1.90	6011	0.00%	\$1,142,090.00
11/17/2020	EPD 100 19 MAR 21 20 PUT	\$1.55	31290	-29.55%	\$4,849,950.00
11/30/2020	F 100 19 MAR 21 10 PUT	\$1.50	3735	7.14%	\$560,250.00
12/21/2020	F 100 19 MAR 21 8 PUT	\$0.40	124208	0.00%	\$4,968,320.00
12/3/2020	F 100 19 MAR 21 9 PUT	\$0.81	13347	15.71%	\$1,081,107.00
10/12/2020	FB 100 19 MAR 21 275 PUT	\$21.30	3582	-34.70%	\$7,629,660.00
9/17/2020	GEO 100 19 MAR 21 8 PUT	\$0.80	11119	45.45%	\$889,520.00
12/15/2020	GEO 100 19 MAR 21 9 PUT	\$1.37	7718	24.55%	\$1,057,366.00
11/25/2020	GM 100 19 MAR 21 37 PUT	\$1.55	6265	17.42%	\$971,075.00
11/9/2020	GOLD 100 19 MAR 21 27 PUT	\$4.20	13960	50.54%	\$5,863,200.00
12/18/2020	GSX 100 19 MAR 21 30 PUT	\$5.40	2188	45.95%	\$1,181,520.00
12/11/2020	GSX 100 19 MAR 21 40 PUT	\$7.70	3856	32.76%	\$2,969,120.00
12/17/2020	GSX 100 19 MAR 21 60 PUT	\$16.28	3056	17.97%	\$4,975,168.00
9/10/2020	INTC 100 19 MAR 21 42.5 PUT	\$1.44	37766	-39.75%	\$5,438,304.00
12/10/2020	ITUB 100 19 MAR 21 7 PUT	\$1.20	33375	15.38%	\$4,005,000.00
12/2/2020	JD 100 19 MAR 21 85 PUT	\$7.60	1671	-15.56%	\$1,269,960.00

Date	Description	Current Price	Current OI	Price Change	Current Value
10/20/2020	JKS 100 19 MAR 21 50 PUT	\$3.70	2787	-28.85%	\$1,031,190.00
10/20/2020	JKS 100 19 MAR 21 80 PUT	\$17.80	1253	-3.73%	\$2,230,340.00
12/1/2020	JNJ 100 19 MAR 21 155 PUT	\$9.05	2156	-21.51%	\$1,951,180.00
12/17/2020	JWN 100 19 MAR 21 30 PUT	\$4.05	2167	-2.41%	\$877,635.00
12/9/2020	LOW 100 19 MAR 21 165 PUT	\$10.95	1181	-20.94%	\$1,293,195.00
11/20/2020	MAC 100 19 MAR 21 10 PUT	\$1.55	9406	-35.42%	\$1,457,930.00
11/23/2020	MAC 100 19 MAR 21 11 PUT	\$2.15	24916	-24.56%	\$5,356,940.00
11/23/2020	MAC 100 19 MAR 21 12 PUT	\$2.95	15990	-12.20%	\$4,717,050.00
11/24/2020	MAC 100 19 MAR 21 13 PUT	\$4.00	25026	-4.76%	\$10,010,400.00
12/3/2020	MAC 100 19 MAR 21 14 PUT	\$4.80	25040	-0.21%	\$12,019,200.00
10/7/2020	NFE 100 19 MAR 21 50 PUT	\$6.90	1110	-24.18%	\$765,900.00
10/23/2020	NVTA 100 19 MAR 21 40 PUT	\$4.00	1569	-31.03%	\$627,600.00
12/9/2020	PFE 100 19 MAR 21 41 PUT	\$5.00	1884	40.85%	\$942,000.00
11/17/2020	SKT 100 19 MAR 21 10 PUT	\$1.34	18082	-21.64%	\$2,422,988.00
12/11/2020	SKT 100 19 MAR 21 11 PUT	\$1.94	7873	-5.37%	\$1,527,362.00
12/3/2020	SKT 100 19 MAR 21 12 PUT	\$2.58	39006	-13.13%	\$10,063,548.00
12/4/2020	SKT 100 19 MAR 21 13 PUT	\$3.10	5000	-15.99%	\$1,550,000.00
11/30/2020	SNCR 100 19 MAR 21 7.5 PUT	\$2.90	7479	-34.98%	\$2,168,910.00
11/24/2020	SPG 100 19 MAR 21 100 PUT	\$18.62	12545	2.31%	\$23,358,790.00
10/23/2020	SRNE 100 19 MAR 21 7 PUT	\$1.62	3814	-38.40%	\$617,868.00
11/24/2020	TFC 100 19 MAR 21 47.5 PUT	\$4.20	1291	10.53%	\$542,220.00
12/14/2020	TLRY 100 19 MAR 21 11 PUT	\$3.55	4978	-25.58%	\$1,767,190.00
11/23/2020	TXN 100 19 MAR 21 155 PUT	\$6.70	26382	-33.00%	\$17,675,940.00
12/16/2020	VIAC 100 19 MAR 21 36 PUT	\$3.20	25155	-3.03%	\$8,049,600.00
11/24/2020	VIAC 100 19 MAR 21 37 PUT	\$3.80	10031	-29.63%	\$3,811,780.00
10/22/2020	VXX 100 19 MAR 21 14 PUT	\$1.33	14590	49.44%	\$1,940,470.00
12/14/2020	ZM 100 19 MAR 21 380 PUT	\$49.10	2592	-9.91%	\$12,726,720.00

April 2021 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
12/1/2020	AA 100 16 APR 21 21 CALL	\$3.86	3344	0.26%	\$1,290,784.00
9/28/2020	AAPL 100 16 APR 21 127.5 CALL	\$13.45	5775	53.54%	\$7,767,375.00
12/15/2020	AAPL 100 16 APR 21 133.75 CALL	\$10.55	1423	37.91%	\$1,501,265.00
12/23/2020	AAPL 100 16 APR 21 138.75 CALL	\$8.45	4438	3.68%	\$3,750,110.00
10/21/2020	AAPL 100 16 APR 21 140 CALL	\$7.99	11903	45.27%	\$9,510,497.00
9/1/2020	AAPL 100 16 APR 21 80 CALL	\$52.50	5829	-6.22%	\$30,602,250.00
10/9/2020	ACI 100 16 APR 21 15 CALL	\$1.68	4648	12.00%	\$780,864.00
12/18/2020	AG 100 16 APR 21 15 CALL	\$1.09	22064	-9.17%	\$2,404,976.00
12/16/2020	AG 100 16 APR 21 8 CALL	\$4.91	1937	12.87%	\$951,067.00
12/18/2020	AMD 100 16 APR 21 100 CALL	\$7.30	5571	-31.52%	\$4,066,830.00
10/7/2020	AMD 100 16 APR 21 110 CALL	\$4.75	3578	-37.50%	\$1,699,550.00
10/23/2020	AMD 100 16 APR 21 92.5 CALL	\$10.22	2196	23.28%	\$2,244,312.00
12/11/2020	AON 100 16 APR 21 220 CALL	\$7.50	1564	11.94%	\$1,173,000.00
12/22/2020	ATVI 100 16 APR 21 100 CALL	\$3.20	1875	11.50%	\$600,000.00
12/8/2020	AU 100 16 APR 21 22 CALL	\$3.00	3787	3.45%	\$1,136,100.00
9/29/2020	AUPH 100 16 APR 21 20 CALL	\$2.20	3327	-23.34%	\$731,940.00
10/8/2020	BHC 100 16 APR 21 16 CALL	\$4.85	2654	27.63%	\$1,287,190.00
12/23/2020	BHC 100 16 APR 21 18 CALL	\$3.50	1761	1.45%	\$616,350.00
10/20/2020	BHVN 100 16 APR 21 90 CALL	\$18.87	5146	47.42%	\$9,710,502.00
11/10/2020	BIGC 100 16 APR 21 80 CALL	\$12.14	2013	-24.36%	\$2,443,782.00
12/11/2020	BILI 100 16 APR 21 90 CALL	\$8.90	2898	39.06%	\$2,579,220.00
12/14/2020	BILI 100 16 APR 21 95 CALL	\$7.00	2164	3.70%	\$1,514,800.00
10/12/2020	BLMN 100 16 APR 21 15 CALL	\$4.50	10010	2.27%	\$4,504,500.00
9/18/2020	BMRN 100 16 APR 21 100 CALL	\$6.36	2585	32.50%	\$1,644,060.00
12/16/2020	BMRN 100 16 APR 21 95 CALL	\$7.50	2091	-12.79%	\$1,568,250.00
11/23/2020	BWA 100 16 APR 21 37.5 CALL	\$4.46	5155	6.19%	\$2,299,130.00
12/14/2020	CCI 100 16 APR 21 165 CALL	\$4.49	2358	-15.28%	\$1,058,742.00
9/15/2020	CCL 100 16 APR 21 17.5 CALL	\$5.30	12209	37.66%	\$6,470,770.00
9/11/2020	CCL 100 16 APR 21 22.5 CALL	\$3.00	12239	-1.64%	\$3,671,700.00
12/16/2020	CELH 100 16 APR 21 40 CALL	\$10.20	1089	38.59%	\$1,110,780.00
10/16/2020	CNDT 100 16 APR 21 5 CALL	\$1.09	7907	28.24%	\$861,863.00
11/30/2020	CX 100 16 APR 21 5.5 CALL	\$0.45	39768	36.36%	\$1,789,560.00
12/14/2020	DBX 100 16 APR 21 25 CALL	\$2.72	4201	25.35%	\$1,142,672.00
12/21/2020	DBX 100 16 APR 21 28 CALL	\$1.72	4926	35.43%	\$847,272.00
11/17/2020	DD 100 16 APR 21 52.5 CALL	\$17.47	1182	48.05%	\$2,064,954.00
11/24/2020	DELL 100 16 APR 21 70 CALL	\$7.60	1031	12.59%	\$783,560.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/23/2020	DIS 100 16 APR 21 200 CALL	\$4.45	4322	-6.12%	\$1,923,290.00
12/21/2020	DMYT 100 16 APR 21 25 CALL	\$4.60	1544	17.95%	\$710,240.00
9/17/2020	DUK 100 16 APR 21 90 CALL	\$3.98	1661	34.92%	\$661,078.00
8/25/2020	EFC 100 16 APR 21 15 CALL	\$0.88	5973	31.34%	\$525,624.00
11/10/2020	EPR 100 16 APR 21 40 CALL	\$2.40	6308	-2.04%	\$1,513,920.00
10/22/2020	ETN 100 16 APR 21 115 CALL	\$8.32	1415	24.18%	\$1,177,280.00
10/16/2020	EXC 100 16 APR 21 37 CALL	\$5.10	2120	-17.07%	\$1,081,200.00
11/23/2020	EXPE 100 16 APR 21 125 CALL	\$14.18	1026	5.04%	\$1,454,868.00
11/13/2020	EXPE 100 16 APR 21 150 CALL	\$5.80	1313	-10.77%	\$761,540.00
9/15/2020	FDX 100 16 APR 21 300 CALL	\$11.30	3968	-7.83%	\$4,483,840.00
11/9/2020	FIS 100 16 APR 21 145 CALL	\$6.96	1366	-30.40%	\$950,736.00
12/11/2020	FORM 100 16 APR 21 40 CALL	\$5.30	1449	-7.02%	\$767,970.00
12/9/2020	FTCH 100 16 APR 21 75 CALL	\$6.20	1322	21.57%	\$819,640.00
12/4/2020	GMS 100 16 APR 21 35 CALL	\$2.40	2176	-0.83%	\$522,240.00
11/10/2020	GMS 100 16 APR 21 40 CALL	\$1.38	5839	-8.00%	\$805,782.00
12/11/2020	GPRO 100 16 APR 21 9 CALL	\$1.32	4455	-19.02%	\$588,060.00
12/16/2020	GRWG 100 16 APR 21 50 CALL	\$5.40	1986	18.42%	\$1,072,440.00
12/16/2020	GTHX 100 16 APR 21 17.5 CALL	\$6.00	1139	-12.66%	\$683,400.00
11/13/2020	HA 100 16 APR 21 20 CALL	\$1.97	5168	-32.99%	\$1,018,096.00
12/15/2020	HAS 100 16 APR 21 92.5 CALL	\$7.20	1931	9.92%	\$1,390,320.00
12/9/2020	HAS 100 16 APR 21 95 CALL	\$5.86	1578	23.37%	\$924,708.00
11/18/2020	HLT 100 16 APR 21 65 CALL	\$42.90	9398	5.93%	\$40,317,420.00
10/22/2020	HLT 100 16 APR 21 80 CALL	\$28.60	25044	52.94%	\$71,625,840.00
12/15/2020	IIVI 100 16 APR 21 75 CALL	\$10.00	1762	40.85%	\$1,762,000.00
12/14/2020	INFN 100 16 APR 21 10 CALL	\$2.30	2396	49.35%	\$551,080.00
12/15/2020	INTC 100 16 APR 21 42.5 CALL	\$6.00	1688	-32.96%	\$1,012,800.00
12/16/2020	INTC 100 16 APR 21 45 CALL	\$4.50	3583	-40.32%	\$1,612,350.00
12/22/2020	INTU 100 16 APR 21 390 CALL	\$22.50	1731	1.35%	\$3,894,750.00
9/14/2020	IONS 100 16 APR 21 45 CALL	\$16.00	1729	28.21%	\$2,766,400.00
11/23/2020	KHC 100 16 APR 21 30 CALL	\$5.40	5286	52.11%	\$2,854,440.00
12/14/2020	KHC 100 16 APR 21 37.5 CALL	\$1.12	9160	2.75%	\$1,025,920.00
11/4/2020	LOW 100 16 APR 21 150 CALL	\$18.45	1327	-31.08%	\$2,448,315.00
12/1/2020	LW 100 16 APR 21 80 CALL	\$5.30	2990	49.30%	\$1,584,700.00
12/11/2020	LYFT 100 16 APR 21 50 CALL	\$5.90	3499	11.32%	\$2,064,410.00
12/14/2020	LZB 100 16 APR 21 40 CALL	\$4.50	1182	21.62%	\$531,900.00
12/1/2020	MCRB 100 16 APR 21 30 CALL	\$4.50	2009	-29.69%	\$904,050.00
11/17/2020	MMM 100 16 APR 21 175 CALL	\$9.25	1339	12.12%	\$1,238,575.00

Date	Description	Current Price	Current OI	Price Change	Current Value
11/10/2020	MPC 100 16 APR 21 42.5 CALL	\$3.65	36863	55.32%	\$13,454,995.00
11/16/2020	MPC 100 16 APR 21 45 CALL	\$2.84	26261	-0.35%	\$7,458,124.00
11/16/2020	MPC 100 16 APR 21 47.5 CALL	\$2.09	9597	2.96%	\$2,005,773.00
12/11/2020	MRK 100 16 APR 21 77.5 CALL	\$5.40	1680	-26.03%	\$907,200.00
12/23/2020	MRNA 100 16 APR 21 125 CALL	\$24.25	2420	-12.14%	\$5,868,500.00
11/27/2020	MRNA 100 16 APR 21 140 CALL	\$18.31	1566	-6.82%	\$2,867,346.00
12/15/2020	MT 100 16 APR 21 30 CALL	\$0.85	14029	0.00%	\$1,192,465.00
12/2/2020	MU 100 16 APR 21 75 CALL	\$5.40	5071	-0.92%	\$2,738,340.00
12/4/2020	MU 100 16 APR 21 77.5 CALL	\$4.65	15309	-31.42%	\$7,118,685.00
11/17/2020	NIO 100 16 APR 21 60 CALL	\$6.35	3861	-36.18%	\$2,451,735.00
9/28/2020	NOK 100 16 APR 21 4 CALL	\$0.34	20613	-30.61%	\$700,842.00
12/16/2020	NOVA 100 16 APR 21 60 CALL	\$3.50	1791	27.27%	\$626,850.00
11/20/2020	NUAN 100 16 APR 21 41 CALL	\$5.69	1150	39.80%	\$654,350.00
12/8/2020	ON 100 16 APR 21 27 CALL	\$6.02	1558	-1.31%	\$937,916.00
9/23/2020	PAAS 100 16 APR 21 35 CALL	\$3.25	4001	-18.75%	\$1,300,325.00
11/17/2020	PDD 100 16 APR 21 165 CALL	\$17.07	1944	13.80%	\$3,318,408.00
12/8/2020	PDD 100 16 APR 21 190 CALL	\$10.48	5253	-31.05%	\$5,505,144.00
12/10/2020	PERI 100 16 APR 21 17.5 CALL	\$2.30	3682	-8.00%	\$846,860.00
8/21/2020	PG 100 16 APR 21 135 CALL	\$7.50	2576	-18.21%	\$1,932,000.00
10/22/2020	PHM 100 16 APR 21 45 CALL	\$4.36	3368	5.57%	\$1,468,448.00
12/4/2020	PRPL 100 16 APR 21 30 CALL	\$8.00	5718	45.45%	\$4,574,400.00
12/22/2020	PRTS 100 16 APR 21 12.5 CALL	\$3.30	4121	11.86%	\$1,359,930.00
11/13/2020	PRTS 100 16 APR 21 17.5 CALL	\$1.17	4290	-17.02%	\$501,930.00
11/12/2020	PS 100 16 APR 21 20 CALL	\$1.15	4954	-14.18%	\$569,710.00
10/19/2020	PTON 100 16 APR 21 110 CALL	\$59.50	1419	51.98%	\$8,443,050.00
12/22/2020	PTON 100 16 APR 21 185 CALL	\$18.30	2389	1.95%	\$4,371,870.00
10/13/2020	PYPL 100 16 APR 21 200 CALL	\$46.12	5143	50.72%	\$23,719,516.00
12/3/2020	QCOM 100 16 APR 21 180 CALL	\$2.99	1732	-29.65%	\$517,868.00
12/8/2020	RAD 100 16 APR 21 20 CALL	\$2.50	4969	-11.66%	\$1,242,250.00
12/1/2020	RRR 100 16 APR 21 22.5 CALL	\$4.30	2421	40.07%	\$1,041,030.00
10/21/2020	SBSW 100 16 APR 21 15 CALL	\$2.41	3857	37.71%	\$929,537.00
9/25/2020	SDC 100 16 APR 21 10 CALL	\$4.33	3168	33.23%	\$1,371,744.00
11/30/2020	SHOP 100 16 APR 21 900 CALL	\$357.60	2281	46.56%	\$81,568,560.00
12/3/2020	SNAP 100 16 APR 21 60 CALL	\$3.80	24405	4.11%	\$9,273,900.00
12/18/2020	SNDX 100 16 APR 21 35 CALL	\$5.20	1504	-5.45%	\$782,080.00
11/12/2020	SPCE 100 16 APR 21 21 CALL	\$7.50	2663	34.41%	\$1,997,250.00
10/9/2020	SPCE 100 16 APR 21 30 CALL	\$4.46	7413	18.62%	\$3,306,198.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/3/2020	STAY 100 16 APR 21 14 CALL	\$1.30	26370	-21.21%	\$3,428,100.00
10/22/2020	STM 100 16 APR 21 35 CALL	\$4.70	3329	20.51%	\$1,564,630.00
12/15/2020	STM 100 16 APR 21 40 CALL	\$2.67	7314	0.75%	\$1,952,838.00
12/1/2020	STM 100 16 APR 21 45 CALL	\$1.50	3907	-42.31%	\$586,050.00
9/24/2020	STNG 100 16 APR 21 12 CALL	\$1.62	5659	-29.57%	\$916,758.00
10/28/2020	STNG 100 16 APR 21 9 CALL	\$3.14	1636	42.73%	\$513,704.00
10/29/2020	T 100 16 APR 21 25 CALL	\$3.79	6698	40.37%	\$2,538,542.00
9/14/2020	T 100 16 APR 21 27 CALL	\$2.11	7596	-27.74%	\$1,602,756.00
10/8/2020	TGT 100 16 APR 21 165 CALL	\$17.75	1904	31.97%	\$3,379,600.00
10/13/2020	TGT 100 16 APR 21 170 CALL	\$14.00	1243	7.28%	\$1,740,200.00
10/9/2020	TGT 100 16 APR 21 190 CALL	\$5.70	2657	1.97%	\$1,514,490.00
11/9/2020	TJX 100 16 APR 21 35 CALL	\$32.01	12308	25.53%	\$39,397,908.00
11/9/2020	TJX 100 16 APR 21 52.5 CALL	\$14.98	1519	31.40%	\$2,275,462.00
11/4/2020	TSEM 100 16 APR 21 23 CALL	\$3.40	5898	42.26%	\$2,005,320.00
12/1/2020	TSEM 100 16 APR 21 27 CALL	\$1.72	5110	-23.56%	\$878,920.00
12/24/2020	TSM 100 16 APR 21 105 CALL	\$9.25	3867	1.09%	\$3,576,975.00
11/16/2020	TSM 100 16 APR 21 115 CALL	\$5.25	1733	34.62%	\$909,825.00
12/8/2020	TSN 100 16 APR 21 65 CALL	\$4.20	1326	-39.13%	\$556,920.00
11/24/2020	UPS 100 16 APR 21 185 CALL	\$6.31	1260	-14.15%	\$795,060.00
12/7/2020	UPWK 100 16 APR 21 40 CALL	\$5.60	1154	24.44%	\$646,240.00
6/8/2020	VIAC 100 16 APR 21 30 CALL	\$6.25	6508	38.89%	\$4,067,500.00
12/16/2020	VOD 100 16 APR 21 16 CALL	\$1.55	4845	-11.43%	\$750,975.00
11/16/2020	VOD 100 16 APR 21 17 CALL	\$0.99	33636	-8.33%	\$3,329,964.00
9/16/2020	WBA 100 16 APR 21 30 CALL	\$9.93	1692	28.96%	\$1,680,156.00
11/17/2020	WBA 100 16 APR 21 35 CALL	\$5.84	4671	-2.67%	\$2,727,864.00
9/3/2020	WBA 100 16 APR 21 37.5 CALL	\$3.98	2986	1.53%	\$1,188,428.00
12/8/2020	WDC 100 16 APR 21 57.5 CALL	\$2.60	9395	-38.10%	\$2,442,700.00
11/16/2020	WW 100 16 APR 21 27.5 CALL	\$4.58	1255	5.77%	\$574,790.00
12/14/2020	WWE 100 16 APR 21 40 CALL	\$9.24	1041	30.14%	\$961,884.00
9/16/2020	XERS 100 16 APR 21 5 CALL	\$1.25	5811	-19.35%	\$726,375.00
12/10/2020	XOM 100 16 APR 21 47.5 CALL	\$1.54	4528	-35.56%	\$697,312.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
12/16/2020	AG 100 16 APR 21 13 PUT	\$2.01	55257	-15.19%	\$11,106,657.00
11/9/2020	AXP 100 16 APR 21 105 PUT	\$4.95	1577	-1.98%	\$780,615.00
11/9/2020	AXP 100 16 APR 21 110 PUT	\$5.95	2633	-7.03%	\$1,566,635.00
11/30/2020	CCL 100 16 APR 21 20 PUT	\$3.15	8550	-17.11%	\$2,693,250.00
12/15/2020	CLVS 100 16 APR 21 8 PUT	\$3.70	2770	0.27%	\$1,024,900.00
12/7/2020	ELAN 100 16 APR 21 29 PUT	\$2.30	2783	-22.03%	\$640,090.00
11/17/2020	FDX 100 16 APR 21 270 PUT	\$23.90	1045	2.80%	\$2,497,550.00
11/19/2020	FE 100 16 APR 21 24 PUT	\$0.69	11492	-31.00%	\$792,948.00
11/27/2020	GME 100 16 APR 21 16 PUT	\$3.50	3060	-41.47%	\$1,071,000.00
12/3/2020	GSX 100 16 APR 21 30 PUT	\$6.43	5674	31.22%	\$3,648,382.00
12/24/2020	GSX 100 16 APR 21 40 PUT	\$9.30	4339	1.09%	\$4,035,270.00
11/16/2020	HLT 100 16 APR 21 95 PUT	\$4.70	4060	-18.97%	\$1,908,200.00
10/16/2020	HUYA 100 16 APR 21 35 PUT	\$16.00	1944	15.94%	\$3,110,400.00
12/1/2020	IVR 100 16 APR 21 4 PUT	\$0.95	7577	-5.00%	\$719,815.00
10/14/2020	KR 100 16 APR 21 33 PUT	\$3.02	2293	11.44%	\$692,486.00
11/11/2020	KR 100 16 APR 21 35 PUT	\$4.80	10129	7.87%	\$4,861,920.00
12/11/2020	KSS 100 16 APR 21 32.5 PUT	\$2.66	3356	-15.56%	\$892,696.00
10/14/2020	LOW 100 16 APR 21 150 PUT	\$5.85	1278	-24.03%	\$747,630.00
12/21/2020	MAR 100 16 APR 21 105 PUT	\$3.40	4271	-19.05%	\$1,452,140.00
12/18/2020	MAR 100 16 APR 21 130 PUT	\$13.48	1074	6.06%	\$1,447,752.00
12/9/2020	MRNA 100 16 APR 21 140 PUT	\$34.70	1060	34.50%	\$3,678,200.00
12/8/2020	MRNA 100 16 APR 21 155 PUT	\$45.20	1022	37.80%	\$4,619,440.00
11/25/2020	MRNA 100 16 APR 21 90 PUT	\$8.20	3103	-36.43%	\$2,544,460.00
11/17/2020	OLLI 100 16 APR 21 100 PUT	\$19.60	2001	1.03%	\$3,921,960.00
11/11/2020	OLLI 100 16 APR 21 95 PUT	\$16.58	1538	-7.89%	\$2,550,004.00
11/19/2020	PBR 100 16 APR 21 12 PUT	\$1.77	4562	-43.81%	\$807,474.00
11/16/2020	TRN 100 16 APR 21 25 PUT	\$2.65	10000	-24.29%	\$2,650,000.00
11/24/2020	TSN 100 16 APR 21 60 PUT	\$2.60	2631	-17.98%	\$684,060.00
12/10/2020	VALE 100 16 APR 21 16 PUT	\$1.53	4666	-5.56%	\$713,898.00
10/14/2020	VIR 100 16 APR 21 25 PUT	\$4.40	1513	-4.35%	\$665,720.00
11/17/2020	WBA 100 16 APR 21 40 PUT	\$3.70	12161	-6.33%	\$4,499,570.00
11/24/2020	WFC 100 16 APR 21 27.5 PUT	\$1.60	13988	-28.89%	\$2,238,080.00
10/15/2020	WKHS 100 16 APR 21 18 PUT	\$3.62	1638	-31.95%	\$592,956.00
12/7/2020	X 100 16 APR 21 17 PUT	\$2.66	2373	-2.92%	\$631,218.00
11/27/2020	XPEV 100 16 APR 21 65 PUT	\$24.35	1810	10.43%	\$4,407,350.00
11/23/2020	XPEV 100 16 APR 21 80 PUT	\$36.30	2070	16.35%	\$7,514,100.00

May 2021 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
10/8/2020	AAL 100 21 MAY 21 13 CALL	\$4.21	4002	19.60%	\$1,684,842.00
10/8/2020	AAL 100 21 MAY 21 16 CALL	\$2.80	3720	18.14%	\$1,041,600.00
10/7/2020	ABT 100 21 MAY 21 105 CALL	\$9.95	3011	-11.24%	\$2,995,945.00
11/5/2020	AGIO 100 21 MAY 21 45 CALL	\$5.78	1331	-23.95%	\$769,318.00
12/3/2020	AIR 100 21 MAY 21 35 CALL	\$5.40	6126	14.89%	\$3,308,040.00
12/14/2020	ALXN 100 21 MAY 21 170 CALL	\$4.00	1655	-31.03%	\$662,000.00
12/7/2020	ANF 100 21 MAY 21 22 CALL	\$2.45	793	-25.76%	\$194,285.00
11/17/2020	AYX 100 21 MAY 21 150 CALL	\$11.63	1616	41.83%	\$1,879,408.00
11/10/2020	BA 100 21 MAY 21 190 CALL	\$41.40	6416	32.91%	\$26,562,240.00
12/1/2020	BA 100 21 MAY 21 230 CALL	\$21.65	2000	-1.99%	\$4,330,000.00
12/2/2020	BA 100 21 MAY 21 250 CALL	\$15.05	3352	-22.82%	\$5,044,760.00
11/23/2020	BLDP 100 21 MAY 21 25 CALL	\$4.16	1649	48.57%	\$685,984.00
9/23/2020	BTAI 100 21 MAY 21 60 CALL	\$11.12	1582	11.20%	\$1,759,184.00
12/2/2020	CARA 100 21 MAY 21 20 CALL	\$2.30	1065	15.00%	\$244,950.00
12/22/2020	CDNA 100 21 MAY 21 75 CALL	\$12.40	1428	14.71%	\$1,770,720.00
10/30/2020	CHRW 100 21 MAY 21 85 CALL	\$12.00	1751	29.03%	\$2,101,200.00
10/22/2020	CHRW 100 21 MAY 21 90 CALL	\$9.37	5946	-31.95%	\$5,571,402.00
12/22/2020	CLDR 100 21 MAY 21 17.5 CALL	\$1.65	5781	37.50%	\$953,865.00
12/1/2020	CLDX 100 21 MAY 21 25 CALL	\$1.50	3001	-58.33%	\$450,150.00
12/7/2020	COHU 100 21 MAY 21 40 CALL	\$6.00	1632	11.11%	\$979,200.00
11/23/2020	COTY 100 21 MAY 21 8 CALL	\$1.35	4194	9.76%	\$566,190.00
12/15/2020	CRM 100 21 MAY 21 195 CALL	\$39.10	1054	12.20%	\$4,121,140.00
12/10/2020	CRM 100 21 MAY 21 240 CALL	\$14.80	2678	-4.52%	\$3,963,440.00
12/3/2020	CRM 100 21 MAY 21 250 CALL	\$12.00	3259	-19.19%	\$3,910,800.00
11/11/2020	CSTM 100 21 MAY 21 13 CALL	\$2.40	3109	41.18%	\$746,160.00
11/20/2020	CSTM 100 21 MAY 21 15 CALL	\$1.60	15900	25.98%	\$2,544,000.00
11/2/2020	CSX 100 21 MAY 21 40 CALL	\$50.10	8385	18.02%	\$42,008,850.00
11/10/2020	CVS 100 21 MAY 21 75 CALL	\$2.23	10942	-35.36%	\$2,440,066.00
11/10/2020	CVS 100 21 MAY 21 80 CALL	\$1.25	9479	-42.40%	\$1,184,875.00
12/18/2020	DASH 100 21 MAY 21 240 CALL	\$11.80	1126	-32.18%	\$1,328,680.00
12/8/2020	DBD 100 21 MAY 21 10 CALL	\$2.50	678	-3.85%	\$169,500.00
12/7/2020	DHI 100 21 MAY 21 75 CALL	\$6.05	9297	-19.33%	\$5,624,685.00
12/7/2020	DHI 100 21 MAY 21 85 CALL	\$2.92	2696	-22.96%	\$787,232.00
12/18/2020	DIS 100 21 MAY 21 190 CALL	\$8.40	1458	-15.32%	\$1,224,720.00
10/19/2020	DKNG 100 21 MAY 21 60 CALL	\$6.57	18098	-1.94%	\$11,890,386.00
11/18/2020	DKNG 100 21 MAY 21 70 CALL	\$4.10	9384	10.81%	\$3,847,440.00
12/7/2020	ELY 100 21 MAY 21 22 CALL	\$4.80	2271	9.09%	\$1,090,080.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/2/2020	FCX 100 21 MAY 21 25 CALL	\$3.10	3417	19.23%	\$1,059,270.00
12/17/2020	FCX 100 21 MAY 21 27 CALL	\$2.31	6326	-6.48%	\$1,461,306.00
12/2/2020	FCX 100 21 MAY 21 28 CALL	\$1.99	6431	11.80%	\$1,279,769.00
11/9/2020	GLW 100 21 MAY 21 31 CALL	\$6.25	4001	2.46%	\$2,500,625.00
12/1/2020	GOGO 100 21 MAY 21 12 CALL	\$1.50	2965	-18.92%	\$444,750.00
10/28/2020	GPN 100 21 MAY 21 90 CALL	\$75.00	1504	0.81%	\$11,280,000.00
12/9/2020	HES 100 21 MAY 21 60 CALL	\$4.55	1187	-1.94%	\$540,085.00
11/16/2020	HWM 100 21 MAY 21 30 CALL	\$2.25	8532	47.06%	\$1,919,700.00
12/17/2020	HZNP 100 21 MAY 21 75 CALL	\$9.90	5695	-7.48%	\$5,638,050.00
11/2/2020	HZNP 100 21 MAY 21 80 CALL	\$8.00	3623	-26.61%	\$2,898,400.00
10/30/2020	HZNP 100 21 MAY 21 85 CALL	\$6.80	1327	-27.66%	\$902,360.00
12/17/2020	IPOB 100 21 MAY 21 40 CALL	\$4.79	9124	22.82%	\$4,370,396.00
11/10/2020	LEN 100 21 MAY 21 72.5 CALL	\$12.80	3141	29.16%	\$4,020,480.00
12/15/2020	LEN 100 21 MAY 21 80 CALL	\$8.50	2697	45.30%	\$2,292,450.00
11/10/2020	LKQ 100 21 MAY 21 42.5 CALL	\$2.02	3507	-19.20%	\$708,414.00
11/24/2020	M 100 21 MAY 21 11 CALL	\$1.85	2808	-15.53%	\$519,480.00
12/1/2020	MRVL 100 21 MAY 21 47 CALL	\$5.10	1664	-14.29%	\$848,640.00
12/1/2020	NET 100 21 MAY 21 80 CALL	\$16.57	1199	41.62%	\$1,986,743.00
12/1/2020	NET 100 21 MAY 21 90 CALL	\$12.60	3039	63.64%	\$3,829,140.00
11/30/2020	NNDM 100 21 MAY 21 12.5 CALL	\$2.64	5207	9.09%	\$1,374,648.00
12/4/2020	NOV 100 21 MAY 21 17 CALL	\$0.90	11192	-37.93%	\$1,007,280.00
12/1/2020	OMER 100 21 MAY 21 9 CALL	\$7.00	1368	34.62%	\$957,600.00
11/24/2020	OZK 100 21 MAY 21 30 CALL	\$3.90	3249	21.88%	\$1,267,110.00
12/22/2020	PFSI 100 21 MAY 21 60 CALL	\$12.30	2057	-5.38%	\$2,530,110.00
12/11/2020	PINS 100 21 MAY 21 105 CALL	\$5.10	1127	3.03%	\$574,770.00
12/10/2020	PINS 100 21 MAY 21 80 CALL	\$9.70	8145	-1.72%	\$7,900,650.00
12/8/2020	PLTR 100 21 MAY 21 30 CALL	\$6.05	12811	-16.55%	\$7,750,655.00
12/9/2020	PSX 100 21 MAY 21 85 CALL	\$2.29	2686	-10.20%	\$615,094.00
12/1/2020	QRVO 100 21 MAY 21 160 CALL	\$21.00	1381	6.33%	\$2,900,100.00
10/5/2020	RAMP 100 21 MAY 21 30 CALL	\$29.25	1977	14.21%	\$5,782,725.00
12/22/2020	REZI 100 21 MAY 21 17.5 CALL	\$6.64	1149	15.48%	\$762,936.00
11/13/2020	SE 100 21 MAY 21 250 CALL	\$11.10	2040	-19.45%	\$2,264,400.00
12/10/2020	SGMO 100 21 MAY 21 13 CALL	\$6.50	2389	67.53%	\$1,552,850.00
12/2/2020	SNOW 100 21 MAY 21 400 CALL	\$34.40	1361	43.33%	\$4,681,840.00
11/6/2020	TMUS 100 21 MAY 21 145 CALL	\$5.22	2296	27.32%	\$1,198,512.00
12/7/2020	VIPS 100 21 MAY 21 35 CALL	\$1.30	1213	-10.34%	\$157,690.00
12/3/2020	WFC 100 21 MAY 21 30 CALL	\$2.80	16531	1.45%	\$4,628,680.00
12/10/2020	Z 100 21 MAY 21 100 CALL	\$46.00	1219	50.08%	\$5,607,400.00
11/30/2020	ZYXI 100 21 MAY 21 12.5 CALL	\$3.60	2977	-11.76%	\$1,071,720.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
10/21/2020	BSX 100 21 MAY 21 33 PUT	\$2.07	4072	1.47%	\$842,904.00
11/25/2020	CRDF 100 21 MAY 21 10 PUT	\$1.90	3002	-13.64%	\$570,380.00
11/11/2020	CVS 100 21 MAY 21 65 PUT	\$3.95	4659	5.33%	\$1,840,305.00
12/10/2020	FCX 100 21 MAY 21 19 PUT	\$1.00	6250	-4.76%	\$625,000.00
12/8/2020	HELE 100 21 MAY 21 220 PUT	\$25.40	2000	0.00%	\$5,080,000.00
11/25/2020	HELE 100 21 MAY 21 220 PUT	\$25.40	2000	-13.31%	\$5,080,000.00
10/14/2020	INO 100 21 MAY 21 12 PUT	\$4.65	2430	-11.26%	\$1,129,950.00
12/14/2020	LGND 100 21 MAY 21 110 PUT	\$30.20	2111	9.03%	\$6,375,220.00
9/23/2020	LGND 100 21 MAY 21 120 PUT	\$37.80	6345	-8.70%	\$23,984,100.00
9/24/2020	LGND 100 21 MAY 21 120 PUT	\$37.80	6345	-13.99%	\$23,984,100.00
12/10/2020	NNOX 100 21 MAY 21 95 PUT	\$60.00	1465	-2.60%	\$8,790,000.00
12/17/2020	PLTR 100 21 MAY 21 28 PUT	\$7.50	4289	-6.25%	\$3,216,750.00
11/25/2020	PSX 100 21 MAY 21 60 PUT	\$4.60	1322	-17.86%	\$608,120.00
12/8/2020	SNOW 100 21 MAY 21 240 PUT	\$18.70	1074	46.67%	\$2,008,380.00
11/17/2020	SYN 100 21 MAY 21 70 PUT	\$6.30	1029	-1.56%	\$648,270.00
11/12/2020	SYN 100 21 MAY 21 70 PUT	\$6.30	1029	-24.10%	\$648,270.00
11/30/2020	UNFI 100 21 MAY 21 20 PUT	\$5.90	7819	22.92%	\$4,613,210.00
10/13/2020	UNFI 100 21 MAY 21 20 PUT	\$5.90	7819	18.00%	\$4,613,210.00
10/19/2020	UNFI 100 21 MAY 21 25 PUT	\$10.14	12004	26.75%	\$12,172,056.00
10/15/2020	UNFI 100 21 MAY 21 25 PUT	\$10.14	12004	20.71%	\$12,172,056.00
12/16/2020	WH 100 21 MAY 21 52.5 PUT	\$4.67	2000	0.00%	\$934,000.00
11/18/2020	WYND 100 21 MAY 21 40 PUT	\$4.00	2012	-9.09%	\$804,800.00
11/19/2020	WYND 100 21 MAY 21 40 PUT	\$4.00	2012	-11.50%	\$804,800.00
9/14/2020	XOM 100 21 MAY 21 40 PUT	\$3.80	7526	-42.60%	\$2,859,880.00
12/18/2020	YNDX 100 21 MAY 21 65 PUT	\$5.20	1603	8.33%	\$833,560.00
12/4/2020	YY 100 21 MAY 21 80 PUT	\$13.60	1353	0.74%	\$1,840,080.00

June 2021 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
9/8/2020	AAPL 100 18 JUN 21 135 CALL	\$12.90	37085	24.04%	\$47,839,650.00
9/8/2020	AAPL 100 18 JUN 21 170 CALL	\$3.89	17674	-15.43%	\$6,875,186.00
8/3/2020	ADBE 100 18 JUN 21 490 CALL	\$51.50	1079	20.50%	\$5,556,850.00
11/2/2020	ADI 100 18 JUN 21 60 CALL	\$84.45	6177	44.36%	\$52,164,765.00
12/7/2020	ALLY 100 18 JUN 21 37 CALL	\$3.10	6218	58.16%	\$1,927,580.00
7/28/2020	AMD 100 18 JUN 21 130 CALL	\$3.80	3741	46.15%	\$1,421,580.00
9/9/2020	AMD 100 18 JUN 21 40 CALL	\$53.85	2737	25.52%	\$14,738,745.00
12/15/2020	AMD 100 18 JUN 21 97.5 CALL	\$11.15	8050	-23.42%	\$8,975,750.00
11/6/2020	AMWL 100 18 JUN 21 30 CALL	\$6.34	2720	-19.75%	\$1,724,480.00
11/6/2020	AMWL 100 18 JUN 21 35 CALL	\$4.67	1883	-24.68%	\$879,361.00
12/2/2020	AMZN 100 18 JUN 21 4450 CALL	\$45.00	1003	-21.05%	\$4,513,500.00
12/1/2020	APO 100 18 JUN 21 43 CALL	\$7.98	2922	40.00%	\$2,331,756.00
8/13/2020	ATH 100 18 JUN 21 40 CALL	\$5.13	1028	-3.21%	\$527,364.00
12/1/2020	ATH 100 18 JUN 21 50 CALL	\$2.30	2280	-42.50%	\$524,400.00
7/8/2020	ATVI 100 18 JUN 21 80 CALL	\$14.55	6739	45.65%	\$9,805,245.00
11/18/2020	AXP 100 18 JUN 21 125 CALL	\$7.08	1017	-17.19%	\$720,036.00
12/8/2020	BA 100 18 JUN 21 240 CALL	\$20.55	12915	-38.75%	\$26,540,325.00
5/28/2020	BABA 100 18 JUN 21 230 CALL	\$23.50	3,456	46.88%	\$8,121,600.00
6/29/2020	BABA 100 18 JUN 21 245 CALL	\$17.85	9826	19.00%	\$17,539,410.00
4/30/2020	BAC 100 18 JUN 21 28 CALL	\$3.67	20,172	56.17%	\$7,403,124.00
3/4/2020	BAC 100 18 JUN 21 32 CALL	\$1.71	65,802	-5.52%	\$11,252,142.00
12/15/2020	BIDU 100 18 JUN 21 200 CALL	\$22.30	2897	55.73%	\$6,460,310.00
10/30/2020	BIIB 100 18 JUN 21 400 CALL	\$4.50	1233	-26.23%	\$554,850.00
11/20/2020	BMJ 100 18 JUN 21 62.5 CALL	\$3.24	7597	-18.39%	\$2,461,428.00
11/11/2020	BMJ 100 18 JUN 21 65 CALL	\$2.37	2900	-38.44%	\$687,300.00
11/17/2020	BRK/B 100 18 JUN 21 250 CALL	\$5.30	3542	-39.57%	\$1,877,260.00
7/14/2020	BX 100 18 JUN 21 40 CALL	\$25.45	2098	57.29%	\$5,339,410.00
12/4/2020	C 100 18 JUN 21 70 CALL	\$2.54	7656	7.63%	\$1,944,624.00
12/8/2020	CCJ 100 18 JUN 21 15 CALL	\$1.60	5685	28.00%	\$909,600.00
12/21/2020	CDE 100 18 JUN 21 10 CALL	\$2.15	2835	-4.44%	\$609,525.00
9/16/2020	CHTR 100 18 JUN 21 760 CALL	\$10.90	7620	-24.83%	\$8,305,800.00
12/22/2020	CLDR 100 18 JUN 21 17.5 CALL	\$1.84	4229	27.78%	\$778,136.00
12/3/2020	CNK 100 18 JUN 21 10 CALL	\$7.50	1370	36.36%	\$1,027,500.00
12/4/2020	CNK 100 18 JUN 21 20 CALL	\$2.90	4788	11.54%	\$1,388,520.00
12/8/2020	COST 100 18 JUN 21 400 CALL	\$10.67	1464	-37.24%	\$1,562,088.00
12/15/2020	CRIS 100 18 JUN 21 10 CALL	\$2.70	2109	-5.26%	\$569,430.00
8/13/2020	CSCO 100 18 JUN 21 42 CALL	\$4.32	10351	-9.62%	\$4,471,632.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/3/2020	CVX 100 18 JUN 21 82.5 CALL	\$9.08	3173	-27.76%	\$2,881,084.00
9/11/2020	DAL 100 18 JUN 21 32 CALL	\$10.00	3398	48.15%	\$3,398,000.00
11/23/2020	DAL 100 18 JUN 21 42 CALL	\$4.59	9697	8.00%	\$4,450,923.00
12/11/2020	DIS 100 18 JUN 21 200 CALL	\$7.05	6522	-20.79%	\$4,598,010.00
10/5/2020	DISH 100 18 JUN 21 40 CALL	\$2.31	5414	-4.94%	\$1,250,634.00
10/27/2020	DOCU 100 18 JUN 21 250 CALL	\$33.50	1384	12.98%	\$4,636,400.00
12/9/2020	EA 100 18 JUN 21 135 CALL	\$15.35	2222	25.31%	\$3,410,770.00
12/23/2020	ETSY 100 18 JUN 21 250 CALL	\$12.75	1619	-4.85%	\$2,064,225.00
11/23/2020	F 100 18 JUN 21 10 CALL	\$0.66	110363	0.00%	\$7,283,958.00
11/24/2020	F 100 18 JUN 21 11 CALL	\$0.42	29689	-35.38%	\$1,246,938.00
6/12/2020	FB 100 18 JUN 21 230 CALL	\$52.17	18592	49.06%	\$96,994,464.00
8/3/2020	FB 100 18 JUN 21 280 CALL	\$22.00	11075	-8.71%	\$24,365,000.00
8/12/2020	FB 100 18 JUN 21 325 CALL	\$9.18	5437	-37.97%	\$4,991,166.00
12/2/2020	FSLR 100 18 JUN 21 115 CALL	\$10.15	1210	54.96%	\$1,228,150.00
10/23/2020	FSLY 100 18 JUN 21 100 CALL	\$19.20	1060	39.43%	\$2,035,200.00
12/17/2020	FUN 100 18 JUN 21 35 CALL	\$7.50	1166	-2.60%	\$874,500.00
11/20/2020	GE 100 18 JUN 21 10 CALL	\$1.73	121339	41.80%	\$20,991,647.00
11/23/2020	GE 100 18 JUN 21 9 CALL	\$2.33	16073	13.11%	\$3,745,009.00
11/16/2020	GM 100 18 JUN 21 45 CALL	\$3.50	22629	-16.67%	\$7,920,150.00
11/19/2020	GM 100 18 JUN 21 50 CALL	\$2.00	21725	-28.57%	\$4,345,000.00
12/2/2020	GOLD 100 18 JUN 21 22 CALL	\$2.84	2248	-23.24%	\$638,432.00
12/9/2020	GOLD 100 18 JUN 21 23 CALL	\$2.41	3104	-10.74%	\$748,064.00
11/27/2020	GOLD 100 18 JUN 21 24 CALL	\$2.01	7370	2.03%	\$1,481,370.00
6/5/2020	GPN 100 18 JUN 21 210 CALL	\$15.50	1582	-29.55%	\$2,452,100.00
12/21/2020	GS 100 18 JUN 21 280 CALL	\$12.41	1505	-2.44%	\$1,867,705.00
9/18/2020	IBM 100 18 JUN 21 130 CALL	\$6.01	1995	-22.45%	\$1,198,995.00
12/16/2020	IQ 100 18 JUN 21 20 CALL	\$2.43	2910	-8.65%	\$707,130.00
11/3/2020	JAZZ 100 18 JUN 21 115 CALL	\$37.30	1001	-8.78%	\$3,733,730.00
10/30/2020	JD 100 18 JUN 21 87.5 CALL	\$9.24	1136	-4.84%	\$1,049,664.00
10/30/2020	JD 100 18 JUN 21 92.5 CALL	\$7.35	2804	-8.24%	\$2,060,940.00
8/25/2020	JD 100 18 JUN 21 95 CALL	\$6.60	4915	0.46%	\$3,243,900.00
12/22/2020	LLY 100 18 JUN 21 185 CALL	\$7.10	1025	-2.07%	\$727,750.00
10/22/2020	LUV 100 18 JUN 21 45 CALL	\$6.29	6283	27.07%	\$3,952,007.00
10/28/2020	MA 100 18 JUN 21 320 CALL	\$37.45	6969	48.61%	\$26,098,905.00
10/27/2020	MA 100 18 JUN 21 340 CALL	\$25.00	2764	10.13%	\$6,910,000.00
12/21/2020	MARA 100 18 JUN 21 15 CALL	\$4.17	1830	6.92%	\$763,110.00
9/16/2020	MDLZ 100 18 JUN 21 57.5 CALL	\$3.25	1722	-33.40%	\$559,650.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/1/2020	MET 100 18 JUN 21 52.5 CALL	\$1.63	10102	-30.34%	\$1,646,626.00
11/25/2020	MGM 100 18 JUN 21 30 CALL	\$4.83	3488	23.85%	\$1,684,704.00
11/19/2020	MGM 100 18 JUN 21 32 CALL	\$4.00	4362	53.85%	\$1,744,800.00
9/23/2020	MSFT 100 18 JUN 21 215 CALL	\$21.75	4894	15.57%	\$10,644,450.00
8/3/2020	MSFT 100 18 JUN 21 240 CALL	\$10.85	15435	-36.18%	\$16,746,975.00
9/23/2020	MSFT 100 18 JUN 21 245 CALL	\$9.70	3869	-2.71%	\$3,752,930.00
8/3/2020	MSFT 100 18 JUN 21 250 CALL	\$8.18	16993	-32.40%	\$13,900,274.00
12/14/2020	MT 100 18 JUN 21 21 CALL	\$4.50	1311	47.54%	\$589,950.00
12/18/2020	MT 100 18 JUN 21 29 CALL	\$1.59	2379	-7.02%	\$378,261.00
12/3/2020	MU 100 18 JUN 21 75 CALL	\$7.10	9680	-8.97%	\$6,872,800.00
11/16/2020	NCLH 100 18 JUN 21 22.5 CALL	\$6.36	6467	36.77%	\$4,113,012.00
11/18/2020	NCLH 100 18 JUN 21 27.5 CALL	\$4.35	3622	55.36%	\$1,575,570.00
11/11/2020	NEM 100 18 JUN 21 70 CALL	\$2.63	3720	-42.83%	\$978,360.00
9/9/2020	NSC 100 18 JUN 21 120 CALL	\$113.39	3316	21.01%	\$37,600,124.00
11/25/2020	NTES 100 18 JUN 21 100 CALL	\$6.56	2733	-22.82%	\$1,792,848.00
12/21/2020	NVDA 100 18 JUN 21 430 CALL	\$116.33	2282	-8.15%	\$26,546,506.00
10/26/2020	NVDA 100 18 JUN 21 700 CALL	\$14.72	3108	-44.97%	\$4,574,976.00
12/1/2020	NVTA 100 18 JUN 21 55 CALL	\$8.10	6646	-19.80%	\$5,383,260.00
9/17/2020	ORCL 100 18 JUN 21 62.5 CALL	\$6.65	5536	23.61%	\$3,681,440.00
10/12/2020	ORCL 100 18 JUN 21 67.5 CALL	\$4.01	4217	21.52%	\$1,691,017.00
11/18/2020	PDD 100 18 JUN 21 190 CALL	\$16.00	2763	52.82%	\$4,420,800.00
11/24/2020	PFE 100 18 JUN 21 44 CALL	\$1.05	15228	6.06%	\$1,598,940.00
11/6/2020	PINS 100 18 JUN 21 70 CALL	\$14.00	1183	22.27%	\$1,656,200.00
11/6/2020	RBA 100 18 JUN 21 75 CALL	\$4.85	3007	-26.52%	\$1,458,395.00
10/23/2020	RKT 100 18 JUN 21 20 CALL	\$3.80	1861	-25.49%	\$707,180.00
11/18/2020	RTX 100 18 JUN 21 85 CALL	\$1.93	17123	-23.41%	\$3,304,739.00
12/10/2020	SAP 100 18 JUN 21 135 CALL	\$6.90	1196	4.55%	\$825,240.00
11/18/2020	SBUX 100 18 JUN 21 110 CALL	\$4.35	2975	22.54%	\$1,294,125.00
12/8/2020	SCI 100 18 JUN 21 45 CALL	\$6.30	1081	-1.56%	\$681,030.00
12/23/2020	SEDG 100 18 JUN 21 370 CALL	\$41.00	1011	-5.53%	\$4,145,100.00
11/25/2020	SNAP 100 18 JUN 21 55 CALL	\$6.65	17655	35.71%	\$11,740,575.00
11/23/2020	SONO 100 18 JUN 21 22.5 CALL	\$5.60	6005	43.59%	\$3,362,800.00
11/19/2020	SPG 100 18 JUN 21 80 CALL	\$14.95	1784	31.72%	\$2,667,080.00
10/5/2020	SQ 100 18 JUN 21 52.5 CALL	\$183.27	1698	43.09%	\$31,119,246.00
10/19/2020	SQ 100 18 JUN 21 62.5 CALL	\$149.65	3999	18.09%	\$59,845,035.00
12/9/2020	SRNE 100 18 JUN 21 10 CALL	\$2.25	18665	-16.67%	\$4,199,625.00
11/30/2020	STKL 100 18 JUN 21 10 CALL	\$2.75	2638	14.58%	\$725,450.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/3/2020	STKL 100 18 JUN 21 7.5 CALL	\$3.63	1547	-6.92%	\$561,561.00
12/3/2020	STX 100 18 JUN 21 75 CALL	\$1.90	4463	11.76%	\$847,970.00
11/9/2020	TCBI 100 18 JUN 21 65 CALL	\$4.80	1515	20.00%	\$727,200.00
12/10/2020	TEVA 100 18 JUN 21 12 CALL	\$0.65	17222	-41.96%	\$1,119,430.00
11/25/2020	TISI 100 18 JUN 21 12.5 CALL	\$2.00	8261	-5.66%	\$1,652,200.00
11/27/2020	TSLA 100 18 JUN 21 660 CALL	\$120.91	10801	17.00%	\$130,594,891.00
12/4/2020	TSLA 100 18 JUN 21 950 CALL	\$42.50	1428	-2.19%	\$6,069,000.00
12/10/2020	TWTR 100 18 JUN 21 60 CALL	\$5.75	2840	19.79%	\$1,633,000.00
12/11/2020	TWTR 100 18 JUN 21 65 CALL	\$4.50	5882	5.88%	\$2,646,900.00
10/29/2020	TWTR 100 18 JUN 21 70 CALL	\$3.35	6991	-34.95%	\$2,341,985.00
12/16/2020	UBER 100 18 JUN 21 55 CALL	\$6.70	28653	22.71%	\$19,197,510.00
12/23/2020	UBER 100 18 JUN 21 60 CALL	\$5.10	13692	-8.93%	\$6,982,920.00
12/4/2020	UBER 100 18 JUN 21 65 CALL	\$3.70	4683	-20.43%	\$1,732,710.00
12/10/2020	UBER 100 18 JUN 21 75 CALL	\$2.14	5266	-11.93%	\$1,126,924.00
8/12/2020	UNP 100 18 JUN 21 200 CALL	\$17.05	4013	2.40%	\$6,842,165.00
9/2/2020	V 100 18 JUN 21 100 CALL	\$106.95	1212	-9.17%	\$12,962,340.00
8/18/2020	V 100 18 JUN 21 185 CALL	\$29.57	1159	4.86%	\$3,427,163.00
9/25/2020	V 100 18 JUN 21 210 CALL	\$14.65	4446	4.49%	\$6,513,390.00
12/17/2020	VALE 100 18 JUN 21 19 CALL	\$1.13	9936	-11.02%	\$1,122,768.00
11/24/2020	VIAC 100 18 JUN 21 28 CALL	\$8.85	2065	8.59%	\$1,827,525.00
12/14/2020	VLO 100 18 JUN 21 65 CALL	\$3.52	2261	-22.64%	\$795,872.00
12/7/2020	VRNT 100 18 JUN 21 60 CALL	\$7.40	1420	40.42%	\$1,050,800.00
12/9/2020	WBT 100 18 JUN 21 12.5 CALL	\$2.50	8104	31.58%	\$2,026,000.00
7/17/2020	WMT 100 18 JUN 21 140 CALL	\$11.67	5184	15.32%	\$6,049,728.00
9/9/2020	WMT 100 18 JUN 21 145 CALL	\$9.20	5440	-38.26%	\$5,004,800.00
9/22/2020	WMT 100 18 JUN 21 155 CALL	\$5.55	7258	-22.38%	\$4,028,190.00
12/11/2020	WPM 100 18 JUN 21 55 CALL	\$1.55	3529	13.97%	\$546,995.00
12/17/2020	WYNN 100 18 JUN 21 100 CALL	\$25.40	1057	-0.08%	\$2,684,780.00
12/9/2020	ZM 100 18 JUN 21 380 CALL	\$64.54	1297	-10.20%	\$8,370,838.00
12/4/2020	ZM 100 18 JUN 21 400 CALL	\$56.60	1297	-32.35%	\$7,341,020.00
12/8/2020	ZM 100 18 JUN 21 410 CALL	\$60.10	1183	-25.80%	\$7,109,830.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
11/18/2020	AAPL 100 18 JUN 21 92.5 PUT	\$1.91	9963	-34.81%	\$1,902,933.00
10/29/2020	AMC 100 18 JUN 21 2 PUT	\$0.96	12707	-4.95%	\$1,219,872.00
12/11/2020	AMC 100 18 JUN 21 3.5 PUT	\$2.03	2928	28.48%	\$594,384.00
7/2/2020	BABA 100 18 JUN 21 225 PUT	\$28.13	2740	6.15%	\$7,707,620.00
1/13/2020	BABA 100 18 JUN 21 250 PUT	\$43.34	14,816	8.35%	\$64,212,544.00
12/16/2020	BMJ 100 18 JUN 21 62.5 PUT	\$5.35	1640	14.81%	\$877,400.00
11/17/2020	BUD 100 18 JUN 21 60 PUT	\$2.55	3924	-37.04%	\$1,000,620.00
11/10/2020	BYND 100 18 JUN 21 150 PUT	\$33.15	13149	-17.54%	\$43,588,935.00
11/18/2020	BYND 100 18 JUN 21 155 PUT	\$33.85	6706	-12.08%	\$22,699,810.00
11/27/2020	BYND 100 18 JUN 21 165 PUT	\$42.20	6579	2.43%	\$27,763,380.00
9/28/2020	BYND 100 18 JUN 21 195 PUT	\$65.80	1049	2.09%	\$6,902,420.00
12/14/2020	C 100 18 JUN 21 57.5 PUT	\$5.15	2333	-13.30%	\$1,201,495.00
12/7/2020	CRM 100 18 JUN 21 220 PUT	\$19.17	4592	-13.14%	\$8,802,864.00
11/30/2020	CTXS 100 18 JUN 21 115 PUT	\$6.00	3057	-26.02%	\$1,834,200.00
12/14/2020	DIS 100 18 JUN 21 165 PUT	\$11.50	7162	-0.86%	\$8,236,300.00
9/4/2020	FB 100 18 JUN 21 235 PUT	\$13.30	3717	-42.35%	\$4,943,610.00
11/10/2020	GEO 100 18 JUN 21 6 PUT	\$0.68	13548	-2.86%	\$921,264.00
12/7/2020	IGMS 100 18 JUN 21 60 PUT	\$13.40	1588	-13.55%	\$2,127,920.00
6/15/2020	INTC 100 18 JUN 21 45 PUT	\$3.67	25203	7.94%	\$9,249,501.00
9/30/2020	INTC 100 18 JUN 21 55 PUT	\$10.25	5682	28.13%	\$5,824,050.00
12/18/2020	IQ 100 18 JUN 21 15 PUT	\$2.12	2482	-2.75%	\$526,184.00
10/19/2020	IRBT 100 18 JUN 21 115 PUT	\$38.70	7501	10.89%	\$29,028,870.00
11/5/2020	JD 100 18 JUN 21 87.5 PUT	\$12.00	1234	7.62%	\$1,480,800.00
10/27/2020	JKS 100 18 JUN 21 85 PUT	\$32.00	1511	-9.60%	\$4,835,200.00
12/17/2020	LI 100 18 JUN 21 20 PUT	\$1.91	1749	4.95%	\$334,059.00
11/24/2020	MCD 100 18 JUN 21 190 PUT	\$6.07	1899	16.73%	\$1,152,693.00
9/16/2020	MDLZ 100 18 JUN 21 57.5 PUT	\$3.65	1420	-20.65%	\$518,300.00
2/7/2020	MET 100 18 JUN 21 50 PUT	\$6.89	2,160	36.44%	\$1,488,240.00
12/14/2020	MS 100 18 JUN 21 62.5 PUT	\$4.08	4924	-33.11%	\$2,008,992.00
10/13/2020	MSFT 100 18 JUN 21 200 PUT	\$9.58	7882	-33.93%	\$7,550,956.00
12/17/2020	PDD 100 18 JUN 21 150 PUT	\$24.40	1447	-13.63%	\$3,530,680.00
11/27/2020	RTX 100 18 JUN 21 65 PUT	\$4.80	1667	24.68%	\$800,160.00
12/9/2020	TSLA 100 18 JUN 21 300 PUT	\$7.45	11703	-33.18%	\$8,718,735.00
12/17/2020	UNM 100 18 JUN 21 22.5 PUT	\$3.10	3794	-6.06%	\$1,176,140.00
12/18/2020	USB 100 18 JUN 21 45 PUT	\$3.75	1466	-15.73%	\$549,750.00
11/5/2020	V 100 18 JUN 21 205 PUT	\$14.05	4649	-34.19%	\$6,531,845.00
12/18/2020	VALE 100 18 JUN 21 21 PUT	\$5.50	1210	6.80%	\$665,500.00

July 2021 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
12/7/2020	ADNT 100 16 JUL 21 40 CALL	\$5.00	7069	-15.68%	\$3,534,500.00
9/4/2020	AG 100 16 JUL 21 12 CALL	\$2.79	14330	-10.00%	\$3,998,070.00
11/9/2020	AL 100 16 JUL 21 45 CALL	\$5.29	1549	46.94%	\$819,421.00
8/17/2020	AMZN 100 16 JUL 21 3200 CALL	\$336.00	2374	-25.23%	\$79,766,400.00
11/23/2020	APA 100 16 JUL 21 17.5 CALL	\$2.53	10533	58.13%	\$2,664,849.00
8/25/2020	CCJ 100 16 JUL 21 15 CALL	\$1.77	8710	47.50%	\$1,541,670.00
11/24/2020	CCL 100 16 JUL 21 22.5 CALL	\$3.90	16533	-1.27%	\$6,447,870.00
12/9/2020	CCL 100 16 JUL 21 25 CALL	\$3.20	21149	-39.28%	\$6,767,680.00
12/9/2020	CHEF 100 16 JUL 21 35 CALL	\$2.60	2528	-11.86%	\$657,280.00
12/8/2020	CNDT 100 16 JUL 21 5 CALL	\$1.49	5228	6.43%	\$778,972.00
8/20/2020	COST 100 16 JUL 21 350 CALL	\$34.18	1085	33.52%	\$3,708,530.00
12/8/2020	COST 100 16 JUL 21 390 CALL	\$15.20	4474	-31.99%	\$6,800,480.00
12/8/2020	COST 100 16 JUL 21 400 CALL	\$12.20	2643	-32.60%	\$3,224,460.00
8/3/2020	CRM 100 16 JUL 21 220 CALL	\$27.65	1386	31.54%	\$3,832,290.00
8/4/2020	CRM 100 16 JUL 21 230 CALL	\$23.30	8517	39.52%	\$19,844,610.00
12/10/2020	DT 100 16 JUL 21 45 CALL	\$7.30	1036	58.70%	\$756,280.00
12/3/2020	EPR 100 16 JUL 21 45 CALL	\$2.85	5745	-26.92%	\$1,637,325.00
11/23/2020	ET 100 16 JUL 21 5 CALL	\$1.67	4636	-2.91%	\$774,212.00
8/17/2020	FB 100 16 JUL 21 270 CALL	\$28.35	9162	-16.98%	\$25,974,270.00
8/7/2020	FB 100 16 JUL 21 295 CALL	\$18.45	14014	-39.01%	\$25,855,830.00
8/12/2020	FB 100 16 JUL 21 325 CALL	\$10.75	6421	-32.39%	\$6,902,575.00
12/1/2020	FE 100 16 JUL 21 30 CALL	\$2.45	3626	35.36%	\$888,370.00
12/2/2020	GMS 100 16 JUL 21 35 CALL	\$3.60	7196	-27.27%	\$2,590,560.00
12/16/2020	HAL 100 16 JUL 21 16 CALL	\$4.92	1164	-13.53%	\$572,688.00
12/14/2020	INFN 100 16 JUL 21 10 CALL	\$2.95	15696	47.50%	\$4,630,320.00
12/17/2020	INFN 100 16 JUL 21 11 CALL	\$2.47	6049	15.42%	\$1,494,103.00
12/3/2020	INVH 100 16 JUL 21 30 CALL	\$2.05	2597	-19.29%	\$532,385.00
12/3/2020	JWN 100 16 JUL 21 30 CALL	\$6.15	8195	-2.38%	\$5,039,925.00
12/3/2020	JWN 100 16 JUL 21 35 CALL	\$4.40	8272	-5.38%	\$3,639,680.00
12/23/2020	KSS 100 16 JUL 21 27.5 CALL	\$13.60	3898	-6.21%	\$5,301,280.00
12/23/2020	LTHM 100 16 JUL 21 22.5 CALL	\$3.20	1749	-15.79%	\$559,680.00
12/17/2020	LTHM 100 16 JUL 21 25 CALL	\$2.75	3093	44.74%	\$850,575.00
12/16/2020	MRNA 100 16 JUL 21 100 CALL	\$42.03	1188	-23.44%	\$4,993,164.00
12/14/2020	MS 100 16 JUL 21 67.5 CALL	\$6.50	1206	57.38%	\$783,900.00

Date	Description	Current Price	Current OI	Price Change	Current Value
8/17/2020	MSFT 100 16 JUL 21 215 CALL	\$23.84	1383	-3.68%	\$3,297,072.00
8/10/2020	MSFT 100 16 JUL 21 230 CALL	\$16.37	8001	-13.61%	\$13,097,637.00
8/7/2020	MSFT 100 16 JUL 21 240 CALL	\$12.31	11407	-31.80%	\$14,042,017.00
12/9/2020	NKE 100 16 JUL 21 140 CALL	\$13.60	1628	2.64%	\$2,214,080.00
12/2/2020	PBR 100 16 JUL 21 11 CALL	\$1.48	6462	18.40%	\$956,376.00
12/10/2020	PBR 100 16 JUL 21 13 CALL	\$0.82	23574	-23.36%	\$1,933,068.00
12/2/2020	PBR 100 16 JUL 21 15 CALL	\$0.45	18451	21.62%	\$830,295.00
12/17/2020	PHM 100 16 JUL 21 44 CALL	\$6.51	11392	-1.36%	\$7,416,192.00
12/17/2020	PHM 100 16 JUL 21 55 CALL	\$2.40	2490	-9.09%	\$597,600.00
12/8/2020	PRTY 100 16 JUL 21 6 CALL	\$2.01	6221	24.07%	\$1,250,421.00
12/22/2020	ROKU 100 16 JUL 21 360 CALL	\$64.90	2039	-1.67%	\$13,233,110.00
11/19/2020	RVP 100 16 JUL 21 15 CALL	\$2.60	2190	4.00%	\$569,400.00
12/8/2020	SIG 100 16 JUL 21 30 CALL	\$5.40	1052	-17.56%	\$568,080.00
12/16/2020	SOL 100 16 JUL 21 10 CALL	\$4.14	4007	42.76%	\$1,658,898.00
12/23/2020	SOL 100 16 JUL 21 7.5 CALL	\$4.70	2930	-0.42%	\$1,377,100.00
12/18/2020	SPR 100 16 JUL 21 40 CALL	\$6.50	1660	3.17%	\$1,079,000.00
12/15/2020	STM 100 16 JUL 21 35 CALL	\$6.09	11556	3.40%	\$7,037,604.00
12/15/2020	STM 100 16 JUL 21 40 CALL	\$3.88	3584	-0.51%	\$1,390,592.00
12/23/2020	T 100 16 JUL 21 26 CALL	\$3.15	1895	-7.35%	\$596,925.00
12/21/2020	T 100 16 JUL 21 29 CALL	\$1.57	4671	-10.29%	\$733,347.00
12/11/2020	TM 100 16 JUL 21 175 CALL	\$2.60	1949	-16.13%	\$506,740.00
11/24/2020	TSEM 100 16 JUL 21 26 CALL	\$4.13	3918	56.44%	\$1,618,134.00
12/4/2020	TSEM 100 16 JUL 21 27 CALL	\$3.20	2004	-10.61%	\$641,280.00
12/11/2020	TWTR 100 16 JUL 21 60 CALL	\$6.25	1345	8.32%	\$840,625.00
12/11/2020	TWTR 100 16 JUL 21 65 CALL	\$4.65	4838	1.09%	\$2,249,670.00
12/11/2020	TWTR 100 16 JUL 21 70 CALL	\$3.55	6378	-3.53%	\$2,264,190.00
12/11/2020	TWTR 100 16 JUL 21 75 CALL	\$2.84	2794	-1.73%	\$793,496.00
11/23/2020	VRRM 100 16 JUL 21 15 CALL	\$1.32	9124	20.00%	\$1,204,368.00
12/17/2020	WB 100 16 JUL 21 50 CALL	\$4.50	4458	-16.67%	\$2,006,100.00
12/4/2020	WFC 100 16 JUL 21 32.5 CALL	\$2.24	5789	-9.31%	\$1,296,736.00
12/7/2020	XOM 100 16 JUL 21 50 CALL	\$1.80	44075	9.76%	\$7,933,500.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
12/2/2020	CGC 100 16 JUL 21 27.5 PUT	\$6.30	2341	0.80%	\$1,474,830.00
11/27/2020	GME 100 16 JUL 21 20 PUT	\$7.60	6803	-20.83%	\$5,170,280.00
12/10/2020	GPRO 100 16 JUL 21 7 PUT	\$1.07	5288	-6.14%	\$565,816.00
11/24/2020	GSX 100 16 JUL 21 85 PUT	\$37.56	7502	6.40%	\$28,177,512.00
8/13/2020	IBM 100 16 JUL 21 115 PUT	\$6.80	1932	-34.93%	\$1,313,760.00
12/23/2020	PDD 100 16 JUL 21 100 PUT	\$5.64	1078	-17.66%	\$607,992.00
12/14/2020	PFE 100 16 JUL 21 43 PUT	\$7.55	2312	13.19%	\$1,745,560.00
12/8/2020	TJX 100 16 JUL 21 65 PUT	\$5.70	1546	-14.93%	\$881,220.00
12/9/2020	TME 100 16 JUL 21 19 PUT	\$2.46	3276	1.23%	\$805,896.00
11/24/2020	WFC 100 16 JUL 21 30 PUT	\$3.55	2320	-16.47%	\$823,600.00
12/22/2020	X 100 16 JUL 21 19 PUT	\$4.75	2228	0.21%	\$1,058,300.00

August 2021 and September 2021 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
12/21/2020	AMD 100 17 SEP 21 100 CALL	\$13.10	2901	-10.70%	\$3,800,310.00
11/24/2020	AMD 100 17 SEP 21 95 CALL	\$14.85	17011	29.69%	\$25,261,335.00
12/8/2020	CRM 100 17 SEP 21 240 CALL	\$22.95	7678	-15.63%	\$17,621,010.00
12/22/2020	GILD 100 20 AUG 21 60 CALL	\$3.95	2260	-4.82%	\$892,700.00
12/7/2020	INTC 100 17 SEP 21 47.5 CALL	\$4.80	4326	-25.00%	\$2,076,480.00
12/7/2020	MSFT 100 17 SEP 21 230 CALL	\$19.02	5601	21.15%	\$10,653,102.00
10/29/2020	MSFT 100 17 SEP 21 265 CALL	\$8.42	16258	5.91%	\$13,689,236.00
12/14/2020	NUAN 100 20 AUG 21 50 CALL	\$3.45	1411	11.29%	\$486,795.00
11/30/2020	PK 100 17 SEP 21 17.5 CALL	\$3.60	2014	4.96%	\$725,040.00
11/13/2020	SE 100 17 SEP 21 250 CALL	\$19.90	1381	-3.49%	\$2,748,190.00
12/14/2020	TSLA 100 17 SEP 21 1000 CALL	\$53.34	1684	-20.98%	\$8,982,456.00
12/7/2020	TSLA 100 17 SEP 21 520 CALL	\$209.20	1650	2.47%	\$34,518,000.00
12/7/2020	TSLA 100 17 SEP 21 620 CALL	\$157.75	1887	-3.83%	\$29,767,425.00
12/18/2020	TSLA 100 17 SEP 21 680 CALL	\$134.05	1837	-9.43%	\$24,624,985.00
11/27/2020	TSLA 100 17 SEP 21 700 CALL	\$127.00	27621	10.92%	\$350,786,700.00
12/8/2020	TSLA 100 17 SEP 21 720 CALL	\$119.91	23919	-7.41%	\$286,812,729.00
12/18/2020	TSLA 100 17 SEP 21 740 CALL	\$111.85	6180	10.74%	\$69,123,300.00
7/10/2020	V 100 17 SEP 21 205 CALL	\$20.85	5831	9.16%	\$12,157,635.00
11/30/2020	V 100 17 SEP 21 215 CALL	\$16.09	8891	-11.84%	\$14,305,619.00
12/7/2020	WBT 100 17 SEP 21 12.5 CALL	\$2.55	6518	6.25%	\$1,662,090.00
12/8/2020	WBT 100 17 SEP 21 15 CALL	\$1.60	5047	-7.51%	\$807,520.00
12/11/2020	WBT 100 17 SEP 21 15 CALL	\$1.60	5047	-13.51%	\$807,520.00
12/23/2020	WFC 100 17 SEP 21 30 CALL	\$3.71	8450	-9.73%	\$3,134,950.00
12/9/2020	Z 100 17 SEP 21 100 CALL	\$48.50	1726	55.70%	\$8,371,100.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
11/9/2020	AAPL 100 17 SEP 21 120 PUT	\$11.47	6189	-21.22%	\$7,098,783.00
12/3/2020	C 100 17 SEP 21 52.5 PUT	\$4.35	1569	-19.74%	\$682,515.00
12/22/2020	CCXI 100 20 AUG 21 50 PUT	\$7.60	1015	2.70%	\$771,400.00
2/28/2020	CVX 100 17 SEP 21 80 PUT	\$8.80	1,080	6.41%	\$950,400.00
11/19/2020	MSFT 100 17 SEP 21 250 PUT	\$39.90	1033	-15.64%	\$4,121,670.00
10/27/2020	NFLX 100 17 SEP 21 340 PUT	\$11.45	2230	-41.19%	\$2,553,350.00
12/14/2020	PFE 100 16 JUL 21 43 PUT	\$7.55	2312	13.19%	\$1,745,560.00
12/2/2020	V 100 17 SEP 21 200 PUT	\$16.50	1258	1.23%	\$2,075,700.00

October, November, December 2021 Notable Open Interest**Bullish:**

Date	Description	Current Price	Current OI	Price Change	Current Value
11/18/2020	ACIA 100 19 NOV 21 70 CALL	\$4.00	13802	21.21%	\$5,520,800.00
12/11/2020	BLMN 100 17 DEC 21 15 CALL	\$5.00	10164	-10.71%	\$5,082,000.00
10/14/2020	BLMN 100 17 DEC 21 15 CALL	\$5.00	10164	-13.34%	\$5,082,000.00
12/10/2020	CRM 100 15 OCT 21 240 CALL	\$24.44	1781	-3.97%	\$4,352,764.00
8/11/2020	DELL 100 17 DEC 21 60 CALL	\$17.06	1324	30.23%	\$2,258,744.00
8/13/2020	DELL 100 17 DEC 21 62.5 CALL	\$16.70	2332	56.07%	\$3,894,440.00
12/23/2020	DKNG 100 15 OCT 21 50 CALL	\$14.20	1854	-8.92%	\$2,632,680.00
11/5/2020	LIN 100 17 DEC 21 380 CALL	\$1.70	4780	-5.56%	\$812,600.00
12/17/2020	MP 100 17 DEC 21 40 CALL	\$10.80	2621	16.13%	\$2,830,680.00
8/19/2020	RKT 100 17 DEC 21 30 CALL	\$2.84	5923	-40.83%	\$1,682,132.00
9/1/2020	UTZ 100 17 DEC 21 12.5 CALL	\$10.50	1653	38.16%	\$1,735,650.00
11/11/2020	XPEV 100 15 OCT 21 35 CALL	\$17.03	1471	48.09%	\$2,505,113.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
11/9/2020	ARMK 100 15 OCT 21 37 PUT	\$6.30	1050	-17.11%	\$661,500.00
9/3/2020	DELL 100 17 DEC 21 62.5 PUT	\$9.24	1104	-15.23%	\$1,020,096.00
12/11/2020	GME 100 19 NOV 21 13 PUT	\$4.25	1127	-29.17%	\$478,975.00
12/4/2020	LCA 100 17 DEC 21 7.5 PUT	\$1.10	1294	-15.38%	\$142,340.00
11/12/2020	XPEV 100 15 OCT 21 40 PUT	\$11.87	1481	-17.28%	\$1,757,947.00
10/29/2020	BABA 100 15 OCT 21 295 PUT	\$54.45	5644	36.47%	\$30,731,580.00

January 2022 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	OI Differential	Current Value
10/29/2020	AAP 100 21 JAN 22 160 CALL	\$23.04	12533	16.95%	0.07%	\$28,876,032.00
9/22/2020	AAP 100 21 JAN 22 170 CALL	\$20.40	2591	10.87%	-32.21%	\$5,285,640.00
2/10/2020	ABBV 100 21 JAN 22 85 CALL	\$20.42	2,214	31.74%	89.39%	\$4,520,988.00
2/10/2020	ABBV 100 21 JAN 22 97.5 CALL	\$12.35	1251	36.46%	127.04%	\$1,544,985.00
1/15/2020	ADM 100 21 JAN 22 45 CALL	\$7.10	1,335	44.90%	92.92%	\$947,850.00
11/17/2020	AEO 100 21 JAN 22 10 CALL	\$9.30	1181	25.68%	-37.58%	\$1,098,330.00
11/10/2020	AGI 100 21 JAN 22 10 CALL	\$1.69	5773	-19.52%	52.93%	\$975,637.00
10/16/2020	AKAM 100 21 JAN 22 125 CALL	\$7.00	1064	-32.76%	0.85%	\$744,800.00
8/3/2020	AMD 100 21 JAN 22 140 CALL	\$7.45	19580	14.62%	1180.58%	\$14,587,100.00
2/13/2020	ATUS 100 21 JAN 22 27 CALL	\$10.80	1,540	54.29%	2.39%	\$1,663,200.00
12/2/2020	AU 100 21 JAN 22 17 CALL	\$6.70	2857	-15.30%	15.67%	\$1,914,190.00
7/27/2020	AUPH 100 21 JAN 22 7 CALL	\$7.90	1699	-12.22%	13.12%	\$1,342,210.00
1/9/2020	AZN 100 21 JAN 22 45 CALL	\$7.37	1113	-13.29%	89.29%	\$820,281.00
11/13/2020	BA 100 21 JAN 22 230 CALL	\$37.38	2362	39.32%	43.76%	\$8,829,156.00
11/16/2020	BA 100 21 JAN 22 295 CALL	\$21.70	1477	22.60%	-36.96%	\$3,205,090.00
12/2/2020	BA 100 21 JAN 22 320 CALL	\$14.70	2907	-24.62%	-37.21%	\$4,273,290.00
6/16/2020	BABA 100 21 JAN 22 160 CALL	\$77.00	1649	-1.03%	-6.52%	\$12,697,300.00
6/2/2020	BABA 100 21 JAN 22 200 CALL	\$52.00	5877	14.34%	-30.92%	\$30,560,400.00
9/18/2020	BABA 100 21 JAN 22 240 CALL	\$33.65	5796	-44.20%	0.28%	\$19,503,540.00
2/4/2020	BAC 100 21 JAN 22 28 CALL	\$4.81	35,379	-37.12%	445.13%	\$17,017,299.00
9/17/2020	BGS 100 21 JAN 22 30 CALL	\$4.20	1868	40.00%	-11.97%	\$784,560.00
6/2/2020	BHC 100 21 JAN 22 20 CALL	\$4.08	20419	-26.09%	359.58%	\$8,330,952.00
5/28/2020	BHC 100 21 JAN 22 30 CALL	\$1.30	10,690	-39.53%	268.49%	\$1,389,700.00
6/30/2020	BK 100 21 JAN 22 40 CALL	\$4.84	1464	-6.92%	-3.81%	\$708,576.00
4/24/2020	BMJ 100 21 JAN 22 52.5 CALL	\$10.66	1042	-22.13%	18.81%	\$1,110,772.00
10/15/2019	BMJ 100 21 JAN 22 55 CALL	\$9.04	3,454	36.97%	191.23%	\$3,122,416.00
6/10/2020	BMJ 100 21 JAN 22 62.5 CALL	\$5.20	3749	-18.75%	28.13%	\$1,949,480.00
11/24/2020	BMJ 100 21 JAN 22 70 CALL	\$2.79	15100	-23.56%	-6.11%	\$4,212,900.00
9/30/2020	BP 100 21 JAN 22 13 CALL	\$8.20	2742	54.72%	239.36%	\$2,248,440.00
2/28/2020	BRK/B 100 21 JAN 22 175 CALL	\$55.44	6,428	18.21%	115.56%	\$35,636,832.00
11/17/2020	BRK/B 100 21 JAN 22 250 CALL	\$12.10	11601	-23.66%	7.18%	\$14,037,210.00
11/20/2020	BSX 100 21 JAN 22 30 CALL	\$7.15	2191	2.14%	16.92%	\$1,566,565.00
7/22/2020	BX 100 21 JAN 22 65 CALL	\$6.85	2078	34.05%	38.81%	\$1,423,430.00
8/10/2020	C 100 21 JAN 22 55 CALL	\$10.73	22231	34.13%	111.36%	\$23,853,863.00
8/28/2020	C 100 21 JAN 22 70 CALL	\$4.57	14941	42.81%	0.55%	\$6,828,037.00
10/21/2020	CAR 100 21 JAN 22 45 CALL	\$7.08	1728	-17.96%	2.43%	\$1,223,424.00

Date	Description	Current Price	Current OI	Price Change	OI Differential	Current Value
8/24/2020	CBOE 100 21 JAN 22 80 CALL	\$17.70	4776	-6.84%	945.08%	\$8,453,520.00
12/14/2020	CCJ 100 21 JAN 22 17 CALL	\$2.05	9977	-3.30%	-11.40%	\$2,045,285.00
3/31/2020	CCL 100 21 JAN 22 15 CALL	\$8.62	35,158	51.23%	1097.89%	\$30,306,196.00
6/4/2020	CCL 100 21 JAN 22 40 CALL	\$1.95	41268	-5.80%	137.47%	\$8,047,260.00
9/4/2020	CDE 100 21 JAN 22 10 CALL	\$3.14	20715	28.16%	43.97%	\$6,504,510.00
12/26/2019	CLDR 100 21 JAN 22 5 CALL	\$9.25	1544	20.92%	162.14%	\$1,428,200.00
1/2/2020	CMCSA 100 21 JAN 22 45 CALL	\$8.40	10,294	51.35%	306.24%	\$8,646,960.00
3/30/2020	COP 100 21 JAN 22 40 CALL	\$6.20	4,386	25.76%	-30.40%	\$2,719,320.00
8/28/2020	COUP 100 21 JAN 22 400 CALL	\$56.70	1406	18.62%	155.64%	\$7,972,020.00
11/24/2020	CPB 100 21 JAN 22 47 CALL	\$5.68	1926	-12.62%	19.40%	\$1,093,968.00
12/9/2020	CPE 100 21 JAN 22 20 CALL	\$4.70	3491	-10.82%	24.95%	\$1,640,770.00
8/25/2020	CRM 100 21 JAN 22 220 CALL	\$38.15	1730	3.25%	148.21%	\$6,599,950.00
12/21/2020	CS 100 21 JAN 22 10 CALL	\$2.92	2500	-1.02%	58.43%	\$730,000.00
3/20/2020	CSCO 100 21 JAN 22 37.5 CALL	\$8.40	5,636	34.19%	9.18%	\$4,734,240.00
12/4/2019	CVS 100 21 JAN 22 55 CALL	\$15.21	1,984	-32.58%	556.95%	\$3,017,664.00
5/8/2020	CVS 100 21 JAN 22 70 CALL	\$6.19	5,961	-2.52%	98.90%	\$3,689,859.00
11/11/2020	CVX 100 21 JAN 22 85 CALL	\$10.49	1600	7.04%	-12.14%	\$1,678,400.00
11/30/2020	CXW 100 21 JAN 22 8 CALL	\$1.49	5554	-14.86%	67.95%	\$827,546.00
11/6/2020	CYRX 100 21 JAN 22 45 CALL	\$15.00	3064	-6.25%	52.51%	\$4,596,000.00
3/27/2020	DAL 100 21 JAN 22 40 CALL	\$8.00	15,360	21.21%	246.49%	\$12,288,000.00
9/16/2020	DAL 100 21 JAN 22 80 CALL	\$0.97	8000	-11.82%	84.93%	\$776,000.00
2/6/2020	DB 100 21 JAN 22 10 CALL	\$2.33	20,397	5.43%	6.46%	\$4,752,501.00
8/13/2020	DB 100 21 JAN 22 15 CALL	\$0.56	18454	40.00%	-25.99%	\$1,033,424.00
12/1/2020	DHR 100 21 JAN 22 240 CALL	\$21.00	4606	-17.00%	28.27%	\$9,672,600.00
11/16/2020	DHR 100 21 JAN 22 250 CALL	\$17.82	1195	-14.53%	207.20%	\$2,129,490.00
6/16/2020	DISH 100 21 JAN 22 35 CALL	\$6.10	4798	-39.00%	20.43%	\$2,926,780.00
6/15/2020	DISH 100 21 JAN 22 40 CALL	\$4.75	6102	-42.91%	767.99%	\$2,898,450.00
12/16/2020	DISH 100 21 JAN 22 45 CALL	\$3.65	6192	-17.61%	16.54%	\$2,260,080.00
6/11/2020	DISH 100 21 JAN 22 55 CALL	\$2.24	4509	-30.00%	120.06%	\$1,010,016.00
9/14/2020	DOW 100 21 JAN 22 55 CALL	\$6.64	3062	27.69%	47.85%	\$2,033,168.00
9/16/2020	DOW 100 21 JAN 22 57.5 CALL	\$5.73	1857	16.94%	-21.74%	\$1,064,061.00
7/20/2020	EA 100 21 JAN 22 135 CALL	\$21.95	1369	-20.04%	-36.41%	\$3,004,955.00
12/4/2020	EBAY 100 21 JAN 22 50 CALL	\$7.20	1845	-5.26%	-23.41%	\$1,328,400.00
8/28/2020	EHTH 100 21 JAN 22 135 CALL	\$6.97	1327	-4.39%	78.12%	\$924,919.00
12/4/2020	EPR 100 21 JAN 22 45 CALL	\$4.50	4599	-10.00%	126.33%	\$2,069,550.00
5/20/2020	EQT 100 21 JAN 22 5 CALL	\$8.76	25,066	-5.81%	506.92%	\$21,957,816.00

Date	Description	Current Price	Current OI	Price Change	OI Differential	Current Value
3/18/2020	ET 100 21 JAN 22 4 CALL	\$2.50	8,189	22.55%	110.19%	\$2,047,250.00
3/17/2020	ET 100 21 JAN 22 5 CALL	\$1.87	32,865	-10.95%	257.46%	\$6,145,755.00
11/27/2020	EVH 100 21 JAN 22 10 CALL	\$6.80	2466	-1.45%	12.50%	\$1,676,880.00
10/27/2020	EXAS 100 21 JAN 22 165 CALL	\$21.90	1065	-1.08%	5.03%	\$2,332,350.00
11/16/2020	EXC 100 21 JAN 22 43 CALL	\$3.26	3295	-20.49%	2.90%	\$1,074,170.00
11/20/2020	EXPE 100 21 JAN 22 130 CALL	\$24.50	16332	15.29%	53.04%	\$40,013,400.00
12/8/2020	F 100 21 JAN 22 10 CALL	\$1.18	259133	-13.24%	-8.20%	\$30,577,694.00
6/1/2020	FB 100 21 JAN 22 230 CALL	\$61.05	1745	41.71%	-15.37%	\$10,653,225.00
5/21/2020	FB 100 21 JAN 22 290 CALL	\$31.50	8,538	39.38%	363.02%	\$26,894,700.00
11/5/2020	FB 100 21 JAN 22 310 CALL	\$24.60	1259	-41.01%	-15.62%	\$3,097,140.00
12/3/2020	FE 100 21 JAN 22 35 CALL	\$1.63	5356	20.74%	-5.70%	\$873,028.00
10/22/2020	FISV 100 21 JAN 22 110 CALL	\$14.90	5212	19.20%	203.55%	\$7,765,880.00
5/21/2020	FISV 100 21 JAN 22 115 CALL	\$12.80	5377	-18.42%	1906.34%	\$6,882,560.00
12/16/2020	FSLR 100 21 JAN 22 125 CALL	\$12.50	3029	45.35%	159.33%	\$3,786,250.00
6/25/2020	FSLY 100 21 JAN 22 100 CALL	\$25.50	2101	-5.56%	291.98%	\$5,357,550.00
11/27/2020	FUN 100 21 JAN 22 50 CALL	\$4.68	4449	-2.50%	173.28%	\$2,082,132.00
9/19/2019	GE 100 21 JAN 22 10 CALL	\$2.35	128,167	4.44%	9100.79%	\$30,119,245.00
9/17/2020	GGB 100 21 JAN 22 3.5 CALL	\$1.64	4492	26.15%	0.16%	\$736,688.00
2/3/2020	GILD 100 21 JAN 22 100 CALL	\$0.56	12,671	-34.12%	452.59%	\$709,576.00
12/14/2020	GILD 100 21 JAN 22 57.5 CALL	\$6.30	2671	-18.18%	8.44%	\$1,682,730.00
6/9/2020	GIS 100 21 JAN 22 57.5 CALL	\$5.85	1432	-35.71%	248.42%	\$837,720.00
5/5/2020	GLUU 100 21 JAN 22 10 CALL	\$2.50	2,860	3.31%	23.38%	\$715,000.00
11/18/2020	GM 100 21 JAN 22 60 CALL	\$2.20	6799	-26.17%	422.60%	\$1,495,780.00
12/3/2020	GOGO 100 21 JAN 22 10 CALL	\$2.75	12347	-10.13%	5.97%	\$3,395,425.00
11/24/2020	GOGO 100 21 JAN 22 12 CALL	\$2.35	2698	-14.55%	63.91%	\$634,030.00
10/5/2020	GPRE 100 21 JAN 22 20 CALL	\$1.60	9518	-43.86%	117.85%	\$1,522,880.00
11/3/2020	HBAN 100 21 JAN 22 8 CALL	\$4.42	2654	30.00%	-25.26%	\$1,173,068.00
11/24/2020	HST 100 21 JAN 22 15 CALL	\$1.90	10112	-29.10%	1.72%	\$1,921,280.00
11/24/2020	HWM 100 21 JAN 22 35 CALL	\$2.90	6949	24.46%	233.13%	\$2,015,210.00
3/30/2020	IBM 100 21 JAN 22 100 CALL	\$27.01	2256	23.90%	34.45%	\$6,093,456.00
1/13/2020	IP 100 21 JAN 22 35 CALL	\$15.40	3,280	45.70%	171.52%	\$5,051,200.00
12/8/2020	IQ 100 21 JAN 22 25 CALL	\$2.68	5714	-36.19%	7.24%	\$1,531,352.00
11/23/2020	IVR 100 21 JAN 22 2 CALL	\$1.45	9064	3.57%	74.17%	\$1,314,280.00
9/1/2020	JBLU 100 21 JAN 22 20 CALL	\$1.68	5811	4.35%	-6.50%	\$976,248.00
11/4/2020	JD 100 21 JAN 22 90 CALL	\$13.60	2535	-19.05%	42.10%	\$3,447,600.00
12/17/2020	JNJ 100 21 JAN 22 100 CALL	\$53.41	1449	-1.29%	-1.29%	\$7,739,109.00

Date	Description	Current Price	Current OI	Price Change	OI Differential	Current Value
11/10/2020	K 100 21 JAN 22 57.5 CALL	\$7.20	1254	-18.18%	48.93%	\$902,880.00
11/10/2020	K 100 21 JAN 22 60 CALL	\$5.70	1064	-25.00%	15.40%	\$606,480.00
5/27/2020	KL 100 21 JAN 22 60 CALL	\$3.05	2,613	-35.11%	23.02%	\$796,965.00
7/23/2020	KO 100 21 JAN 22 42.5 CALL	\$11.55	2866	44.38%	-15.11%	\$3,310,230.00
9/11/2020	KO 100 21 JAN 22 47.5 CALL	\$7.73	4611	36.81%	-2.86%	\$3,564,303.00
11/5/2019	KO 100 21 JAN 22 50 CALL	\$6.25	6,408	0.81%	685.29%	\$4,005,000.00
12/4/2020	KSS 100 21 JAN 22 32.5 CALL	\$12.17	1065	-10.51%	-9.05%	\$1,296,105.00
12/3/2020	LB 100 21 JAN 22 45 CALL	\$6.85	12579	-2.84%	-0.16%	\$8,616,615.00
1/31/2020	LEVI 100 21 JAN 22 17 CALL	\$5.93	1027	18.60%	251.71%	\$609,011.00
1/30/2020	LEVI 100 21 JAN 22 20 CALL	\$4.40	1,609	15.79%	121.02%	\$707,960.00
8/24/2020	LL 100 21 JAN 22 37 CALL	\$9.48	1402	41.49%	38.13%	\$1,329,096.00
3/4/2020	LUV 100 21 JAN 22 40 CALL	\$11.40	4,274	-5.00%	709.47%	\$4,872,360.00
6/24/2020	LVS 100 21 JAN 22 77.5 CALL	\$3.30	2609	53.49%	28.90%	\$860,970.00
11/30/2020	MA 100 21 JAN 22 350 CALL	\$37.27	15612	-5.65%	81.87%	\$58,185,924.00
11/30/2020	MAG 100 21 JAN 22 12.5 CALL	\$7.54	1787	47.84%	2.94%	\$1,347,398.00
9/14/2020	MAG 100 21 JAN 22 15 CALL	\$6.80	1818	24.54%	38.78%	\$1,236,240.00
5/20/2020	MCD 100 21 JAN 22 210 CALL	\$19.50	2,970	37.81%	34.03%	\$5,791,500.00
12/10/2020	MET 100 21 JAN 22 50 CALL	\$4.01	2400	-10.89%	-8.71%	\$962,400.00
5/15/2020	MO 100 21 JAN 22 30 CALL	\$12.20	14,067	14.02%	497.07%	\$17,161,740.00
6/11/2020	MO 100 21 JAN 22 32.5 CALL	\$10.00	1312	2.99%	-9.02%	\$1,312,000.00
9/3/2020	MOS 100 21 JAN 22 15 CALL	\$8.40	1048	29.23%	-20.97%	\$880,320.00
11/11/2020	MPC 100 21 JAN 22 40 CALL	\$6.37	2469	24.41%	6.79%	\$1,572,753.00
12/17/2020	MPC 100 21 JAN 22 45 CALL	\$4.50	3686	-13.46%	-14.42%	\$1,658,700.00
10/1/2020	MRVL 100 21 JAN 22 42 CALL	\$10.65	1329	42.00%	350.51%	\$1,415,385.00
12/15/2020	MRVL 100 21 JAN 22 50 CALL	\$7.25	3659	8.21%	28.25%	\$2,652,775.00
12/16/2020	MS 100 21 JAN 22 65 CALL	\$10.20	3352	28.46%	1.48%	\$3,419,040.00
9/11/2020	MSFT 100 21 JAN 22 230 CALL	\$23.89	5974	12.42%	69.67%	\$14,271,886.00
11/3/2020	MSFT 100 21 JAN 22 245 CALL	\$17.75	3497	18.25%	58.67%	\$6,207,175.00
11/2/2020	MSFT 100 21 JAN 22 275 CALL	\$9.97	13108	30.33%	5.15%	\$13,068,676.00
2/7/2020	MU 100 21 JAN 22 65 CALL	\$16.20	6,284	47.27%	181.92%	\$10,180,080.00
9/3/2020	NCLH 100 21 JAN 22 20 CALL	\$9.64	14613	31.16%	63.69%	\$14,086,932.00
7/7/2020	NCLH 100 21 JAN 22 27.5 CALL	\$6.85	7429	42.71%	370.19%	\$5,088,865.00
12/8/2020	NEE 100 21 JAN 22 75 CALL	\$8.60	18136	3.61%	70.95%	\$15,596,960.00
11/11/2020	NEE 100 21 JAN 22 85 CALL	\$4.60	5491	-26.98%	-30.18%	\$2,525,860.00
6/8/2020	NEM 100 21 JAN 22 70 CALL	\$5.05	3687	-28.37%	-5.19%	\$1,861,935.00
7/10/2020	NFLX 100 21 JAN 22 520 CALL	\$87.30	2434	-34.16%	2.14%	\$21,248,820.00

Date	Description	Current Price	Current OI	Price Change	OI Differential	Current Value
11/10/2020	NKE 100 21 JAN 22 125 CALL	\$27.78	6766	44.69%	195.72%	\$18,795,948.00
4/28/2020	NKTR 100 21 JAN 22 15 CALL	\$7.11	2,418	-28.90%	18.24%	\$1,719,198.00
2/11/2020	NLOK 100 21 JAN 22 20 CALL	\$3.40	2,094	-8.11%	-33.01%	\$711,960.00
3/27/2020	NRZ 100 21 JAN 22 8 CALL	\$2.53	3,841	-2.69%	211.26%	\$971,773.00
2/19/2020	NUE 100 21 JAN 22 40 CALL	\$15.36	1,869	49.85%	69.60%	\$2,870,784.00
1/24/2020	NUE 100 21 JAN 22 62.5 CALL	\$3.00	3,652	24.48%	333.73%	\$1,095,600.00
5/5/2020	OKE 100 21 JAN 22 50 CALL	\$3.00	2,834	-14.29%	21.32%	\$850,200.00
10/6/2020	ORCL 100 21 JAN 22 75 CALL	\$3.00	3892	11.11%	45.33%	\$1,167,600.00
7/22/2020	PAAS 100 21 JAN 22 40 CALL	\$5.57	5194	-41.37%	101.47%	\$2,893,058.00
2/21/2020	PE 100 21 JAN 22 12.5 CALL	\$3.40	1,905	-43.33%	80.06%	\$647,700.00
4/27/2020	PEP 100 21 JAN 22 105 CALL	\$41.24	1,618	21.44%	2.34%	\$6,672,632.00
5/14/2020	PEP 100 21 JAN 22 130 CALL	\$19.28	1278	17.92%	12.50%	\$2,463,984.00
1/6/2020	PFE 100 21 JAN 22 37 CALL	\$4.22	2,233	-12.08%	65.90%	\$942,326.00
4/2/2020	PG 100 21 JAN 22 185 CALL	\$1.14	14,428	-12.31%	205.61%	\$1,644,792.00
12/9/2020	PLAY 100 21 JAN 22 25 CALL	\$10.96	18341	25.26%	0.81%	\$20,101,736.00
12/17/2020	PLUG 100 21 JAN 22 42 CALL	\$10.90	2351	31.01%	3.20%	\$2,562,590.00
6/11/2020	PM 100 21 JAN 22 70 CALL	\$14.78	3664	50.66%	45.17%	\$5,415,392.00
12/17/2020	PM 100 21 JAN 22 85 CALL	\$6.15	1561	-18.33%	-17.67%	\$960,015.00
11/3/2020	PRU 100 21 JAN 22 80 CALL	\$7.13	1929	42.60%	-0.26%	\$1,375,377.00
12/21/2020	PTON 100 21 JAN 22 190 CALL	\$38.20	4444	39.26%	51.47%	\$16,976,080.00
12/22/2020	PTON 100 21 JAN 22 200 CALL	\$34.20	5182	-2.29%	-14.52%	\$17,722,440.00
5/29/2020	RCL 100 21 JAN 22 60 CALL	\$23.94	2100	24.36%	-30.14%	\$5,027,400.00
10/30/2020	RCL 100 21 JAN 22 70 CALL	\$18.74	2626	39.33%	-10.13%	\$4,921,124.00
12/23/2020	RIO 100 21 JAN 22 100 CALL	\$2.03	6829	1.50%	-1.22%	\$1,386,287.00
11/11/2020	RKT 100 21 JAN 22 25 CALL	\$4.05	8487	-13.83%	235.59%	\$3,437,235.00
6/3/2020	RTX 100 21 JAN 22 75 CALL	\$7.25	4799	-14.20%	325.44%	\$3,479,275.00
10/10/2019	SAND 100 21 JAN 22 10 CALL	\$0.85	14,050	-16.67%	944.61%	\$1,194,250.00
11/20/2020	SAVE 100 21 JAN 22 20 CALL	\$8.83	6153	36.48%	-4.96%	\$5,433,099.00
11/24/2020	SBUX 100 21 JAN 22 115 CALL	\$6.15	1591	30.85%	-34.01%	\$978,465.00
11/11/2020	SCHW 100 21 JAN 22 40 CALL	\$14.34	1140	43.40%	-27.48%	\$1,634,760.00
12/15/2020	SIX 100 21 JAN 22 35 CALL	\$7.80	2165	12.07%	0.00%	\$1,688,700.00
12/3/2020	SIX 100 21 JAN 22 40 CALL	\$6.10	1048	-4.69%	2.24%	\$639,280.00
4/6/2020	SLB 100 21 JAN 22 15 CALL	\$8.00	4,820	46.79%	82.23%	\$3,856,000.00
16-Mar	SLB 100 21 JAN 22 20 CALL	\$4.72	16,116	34.86%	960.26%	\$7,606,752.00
11/5/2020	SMSI 100 21 JAN 22 5 CALL	\$1.80	3977	38.46%	36.85%	\$715,860.00
10/23/2020	SNAP 100 21 JAN 22 50 CALL	\$11.43	12116	47.48%	-12.23%	\$13,848,588.00

Date	Description	Current Price	Current OI	Price Change	OI Differential	Current Value
0/23/2020	SNAP 100 21 JAN 22 55 CALL	\$9.55	2843	42.54%	61.90%	\$2,715,065.00
12/3/2020	SNAP 100 21 JAN 22 60 CALL	\$8.00	3516	0.00%	110.29%	\$2,812,800.00
2/14/2020	SNAP 100 21 JAN 22 75 CALL	\$4.85	4027	-17.09%	161.32%	\$1,953,095.00
1/23/2020	SONO 100 21 JAN 22 30 CALL	\$4.63	5289	32.29%	72.34%	\$2,448,807.00
2/13/2020	SPCE 100 21 JAN 22 22 CALL	\$11.35	2,888	12.38%	-16.07%	\$3,277,880.00
9/29/2020	SPCE 100 21 JAN 22 32 CALL	\$8.35	2607	30.47%	36.06%	\$2,176,845.00
5/11/2020	SPG 100 21 JAN 22 70 CALL	\$22.25	1,635	46.19%	33.69%	\$3,637,875.00
12/3/2020	SPLK 100 21 JAN 22 150 CALL	\$48.00	1448	23.08%	22.50%	\$6,950,400.00
12/8/2020	SPLK 100 21 JAN 22 155 CALL	\$46.17	1085	41.84%	29.17%	\$5,009,445.00
5/5/2020	SPLK 100 21 JAN 22 200 CALL	\$23.00	4,712	53.33%	844.29%	\$10,837,600.00
12/1/2020	SQ 100 21 JAN 22 310 CALL	\$25.80	2795	35.79%	144.10%	\$7,211,100.00
9/14/2020	SRNE 100 21 JAN 22 10 CALL	\$3.20	17768	-30.43%	44.74%	\$5,685,760.00
2/10/2020	SRNE 100 21 JAN 22 2.5 CALL	\$5.90	1341	0.85%	1.44%	\$791,190.00
2/11/2020	SSYS 100 21 JAN 22 20 CALL	\$5.84	2,138	11.66%	0.71%	\$1,248,592.00
4/9/2020	SSYS 100 21 JAN 22 30 CALL	\$2.80	3,358	21.74%	9.56%	\$940,240.00
1/11/2020	STM 100 21 JAN 22 35 CALL	\$7.89	1619	36.51%	-36.86%	\$1,277,391.00
2/12/2020	STX 100 21 JAN 22 75 CALL	\$4.50	1,408	21.62%	-8.09%	\$633,600.00
7/10/2020	SU 100 21 JAN 22 18 CALL	\$3.00	7937	0.00%	343.90%	\$2,381,100.00
2/23/2020	SYF 100 21 JAN 22 40 CALL	\$3.43	2359	0.00%	-0.92%	\$809,137.00
7/9/2020	TME 100 21 JAN 22 20 CALL	\$2.84	2453	5.19%	-0.37%	\$696,652.00
2/18/2020	TMUS 100 21 JAN 22 165 CALL	\$6.05	1462	15.90%	38.05%	\$884,510.00
2/7/2020	TRIP 100 21 JAN 22 30 CALL	\$4.65	2,556	-29.55%	266.19%	\$1,188,540.00
0/19/2020	TSM 100 21 JAN 22 135 CALL	\$7.40	1413	34.55%	9.70%	\$1,045,620.00
0/28/2020	TSM 100 21 JAN 22 40 CALL	\$64.00	7661	41.37%	-2.36%	\$49,030,400.00
6/4/2020	TSN 100 21 JAN 22 65 CALL	\$7.38	2080	-28.00%	52.38%	\$1,535,040.00
2/22/2020	TWOU 100 21 JAN 22 60 CALL	\$4.60	1829	-2.13%	-0.11%	\$841,340.00
0/21/2019	TWTR 100 21 JAN 22 20 CALL	\$34.94	3,352	54.94%	54.83%	\$11,711,888.00
9/23/2020	TWTR 100 21 JAN 22 42 CALL	\$18.40	3866	43.86%	140.57%	\$7,113,440.00
2/18/2020	TWTR 100 21 JAN 22 70 CALL	\$6.35	2180	-10.56%	-15.27%	\$1,384,300.00
2/11/2020	TWTR 100 21 JAN 22 75 CALL	\$5.25	1842	6.06%	-8.54%	\$967,050.00
1/20/2020	UA 100 21 JAN 22 25 CALL	\$0.84	9082	-11.58%	279.52%	\$762,888.00
4/9/2020	UAL 100 21 JAN 22 40 CALL	\$12.51	19,799	25.73%	628.98%	\$24,768,549.00
7/9/2020	UAL 100 21 JAN 22 42 CALL	\$11.59	2487	53.51%	107.42%	\$2,882,433.00
7/13/2020	UAL 100 21 JAN 22 47 CALL	\$9.61	2139	30.75%	6.90%	\$2,055,579.00
6/22/2020	UAL 100 21 JAN 22 50 CALL	\$8.60	6896	-6.62%	158.08%	\$5,930,560.00
0/23/2020	UAL 100 21 JAN 22 80 CALL	\$2.68	13001	24.65%	0.85%	\$3,484,268.00

Date	Description	Current Price	Current OI	Price Change	OI Differential	Current Value
6/3/2020	UAL 100 21 JAN 22 90 CALL	\$2.13	12995	-38.08%	79.29%	\$2,767,935.00
12/10/2020	UBER 100 21 JAN 22 75 CALL	\$4.95	9966	-11.61%	165.69%	\$4,933,170.00
11/9/2020	ULTA 100 21 JAN 22 330 CALL	\$24.84	2335	-4.46%	-20.87%	\$5,800,140.00
9/28/2020	UNFI 100 21 JAN 22 10 CALL	\$7.20	3360	-33.33%	316.36%	\$2,419,200.00
6/2/2020	UNIT 100 21 JAN 22 10 CALL	\$3.10	8205	47.62%	36.93%	\$2,543,550.00
3/2/2020	UNIT 100 21 JAN 22 5 CALL	\$6.70	13,377	19.64%	341.49%	\$8,962,590.00
10/29/2020	UNP 100 21 JAN 22 90 CALL	\$113.40	1970	29.23%	81.90%	\$22,339,800.00
8/18/2020	UPLD 100 21 JAN 22 30 CALL	\$16.50	2027	54.93%	100.89%	\$3,344,550.00
10/5/2020	UPLD 100 21 JAN 22 35 CALL	\$15.20	2020	21.60%	-0.25%	\$3,070,400.00
9/10/2020	USB 100 21 JAN 22 65 CALL	\$0.66	8037	32.00%	98.59%	\$530,442.00
11/12/2020	USFD 100 21 JAN 22 30 CALL	\$7.80	5137	47.17%	-1.21%	\$4,006,860.00
9/16/2020	VEEV 100 21 JAN 22 350 CALL	\$27.00	1108	17.39%	14.82%	\$2,991,600.00
6/8/2020	VKTX 100 21 JAN 22 3 CALL	\$3.90	1804	-20.89%	-4.95%	\$703,560.00
11/24/2020	VLO 100 21 JAN 22 60 CALL	\$7.25	3032	-30.02%	28.97%	\$2,198,200.00
4/30/2020	VOD 100 21 JAN 22 15 CALL	\$2.75	2,212	44.74%	20.61%	\$608,300.00
10/16/2020	VZ 100 21 JAN 22 67.5 CALL	\$1.18	9421	-18.62%	69.66%	\$1,111,678.00
9/17/2020	W 100 21 JAN 22 280 CALL	\$56.90	1345	-20.53%	17.06%	\$7,653,050.00
9/3/2020	WBA 100 21 JAN 22 30 CALL	\$10.80	18316	14.89%	290.12%	\$19,781,280.00
11/20/2020	WDAY 100 21 JAN 22 330 CALL	\$12.50	1515	45.35%	-0.13%	\$1,893,750.00
5/28/2020	WDC 100 21 JAN 22 55 CALL	\$7.34	1,302	-4.05%	-32.64%	\$955,668.00
5/22/2020	WFC 100 21 JAN 22 17.5 CALL	\$13.50	7,696	51.69%	-24.84%	\$10,389,600.00
6/3/2020	WFC 100 21 JAN 22 40 CALL	\$1.52	53053	-18.72%	91.39%	\$8,064,056.00
7/15/2020	WFC 100 21 JAN 22 42.5 CALL	\$1.20	40215	-1.64%	176.07%	\$4,825,800.00
7/1/2020	WMB 100 21 JAN 22 25 CALL	\$1.07	19459	-17.69%	53.96%	\$2,082,113.00
7/10/2020	WMT 100 21 JAN 22 180 CALL	\$4.40	6966	17.33%	70.82%	\$3,065,040.00
8/6/2020	YNDX 100 21 JAN 22 55 CALL	\$20.10	2041	38.62%	-5.03%	\$4,102,410.00
9/3/2020	ZM 100 21 JAN 22 115 CALL	\$274.40	4496	3.18%	-0.93%	\$123,370,240.00
6/1/2020	ZNGA 100 21 JAN 22 12 CALL	\$1.16	50711	-21.62%	534.92%	\$5,882,476.00
6/15/2020	ZUO 100 21 JAN 22 5 CALL	\$8.97	1014	-0.33%	34.13%	\$909,558.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
3/5/2020	AAL 100 21 JAN 22 10 PUT	\$1.96	62,734	-21.60%	\$12,295,864.00
2/24/2020	ABBV 100 21 JAN 22 100 PUT	\$12.45	2491	-39.56%	\$3,101,295.00
8/13/2020	ABBV 100 21 JAN 22 105 PUT	\$14.70	2491	-35.67%	\$3,661,770.00
9/3/2020	ABBV 100 21 JAN 22 95 PUT	\$10.70	1192	-39.72%	\$1,275,440.00
11/2/2020	AMRS 100 21 JAN 22 2 PUT	\$0.75	7953	7.14%	\$596,475.00
9/15/2020	ARMK 100 21 JAN 22 13 PUT	\$1.75	4936	-20.45%	\$863,800.00
8/6/2020	ATVI 100 21 JAN 22 85 PUT	\$9.95	1763	-32.31%	\$1,754,185.00
8/10/2020	AYX 100 21 JAN 22 90 PUT	\$11.57	1461	-42.15%	\$1,690,377.00
6/9/2020	BABA 100 21 JAN 22 155 PUT	\$12.80	2391	8.75%	\$3,060,480.00
6/29/2020	BABA 100 21 JAN 22 160 PUT	\$13.10	6811	-3.82%	\$8,922,410.00
7/17/2020	BABA 100 21 JAN 22 250 PUT	\$55.20	8438	42.86%	\$46,577,760.00
12/5/2019	BAC 100 21 JAN 22 32 PUT	\$5.28	20,958	16.81%	\$11,065,824.00
12/12/2019	BB 100 21 JAN 22 12.5 PUT	\$6.40	1,366	2.40%	\$874,240.00
12/4/2020	BBD 100 21 JAN 22 5 PUT	\$0.84	102417	-11.58%	\$8,603,028.00
12/8/2020	BCE 100 21 JAN 22 45 PUT	\$6.20	5005	53.09%	\$3,103,100.00
10/4/2019	BHC 100 21 JAN 22 20 PUT	\$3.78	2,286	-29.35%	\$864,108.00
4/22/2020	BP 100 21 JAN 22 23 PUT	\$4.75	6,040	-20.17%	\$2,869,000.00
11/13/2020	BYND 100 21 JAN 22 95 PUT	\$12.20	1368	-30.01%	\$1,668,960.00
6/10/2020	C 100 21 JAN 22 47.5 PUT	\$3.61	6515	-44.03%	\$2,351,915.00
2/28/2020	C 100 21 JAN 22 57.5 PUT	\$7.80	7,653	-2.50%	\$5,969,340.00
12/11/2020	CAH 100 21 JAN 22 42.5 PUT	\$3.10	1711	-7.74%	\$530,410.00
3/6/2020	CCL 100 21 JAN 22 17.5 PUT	\$4.05	8,686	-11.96%	\$3,517,830.00
11/11/2020	CCL 100 21 JAN 22 20 PUT	\$5.35	11134	-28.28%	\$5,956,690.00
4/14/2020	CCL 100 21 JAN 22 30 PUT	\$12.35	5,356	-38.19%	\$6,614,660.00
12/22/2020	CHGG 100 21 JAN 22 65 PUT	\$5.95	1647	0.00%	\$979,965.00
7/29/2020	CHRW 100 21 JAN 22 90 PUT	\$11.00	1140	-7.41%	\$1,254,000.00
1/16/2020	CI 100 21 JAN 22 175 PUT	\$17.45	1,621	-1.41%	\$2,828,645.00
3/9/2020	COP 100 21 JAN 22 35 PUT	\$5.50	8,515	-43.88%	\$4,683,250.00
6/8/2020	CVX 100 21 JAN 22 75 PUT	\$8.65	2303	18.17%	\$1,992,095.00
2/10/2020	DISH 100 21 JAN 22 17.5 PUT	\$1.75	5,147	10.76%	\$900,725.00
10/19/2020	DXCM 100 21 JAN 22 340 PUT	\$58.90	1014	5.31%	\$5,972,460.00
2/28/2020	EPD 100 21 JAN 22 18 PUT	\$2.15	2,663	13.16%	\$572,545.00
12/9/2020	ETSY 100 21 JAN 22 140 PUT	\$17.50	1309	-25.53%	\$2,290,750.00
2/4/2020	EXAS 100 21 JAN 22 75 PUT	\$7.52	1,451	-40.69%	\$1,091,152.00
12/9/2019	F 100 21 JAN 22 10 PUT	\$2.27	16,007	-4.22%	\$3,633,589.00
7/31/2020	FANG 100 21 JAN 22 40 PUT	\$9.35	1625	-34.15%	\$1,519,375.00
12/24/2019	FL 100 21 JAN 22 40 PUT	\$8.05	5152	-14.36%	\$4,147,360.00

Date	Description	Current Price	Current OI	Price Change	Current Value
12/11/2020	FSLR 100 21 JAN 22 67.5 PUT	\$4.33	1529	-42.27%	\$662,057.00
10/7/2019	GILD 100 21 JAN 22 62.5 PUT	\$11.70	3,385	1.74%	\$3,960,450.00
2/25/2020	GILD 100 21 JAN 22 70 PUT	\$17.10	2,597	43.70%	\$4,440,870.00
1/6/2020	GLNG 100 21 JAN 22 5 PUT	\$1.20	14,606	53.85%	\$1,752,720.00
12/20/2019	GLNG 100 21 JAN 22 7.5 PUT	\$2.55	7,977	45.71%	\$2,034,135.00
1/27/2020	GM 100 21 JAN 22 30 PUT	\$2.31	11,007	-41.96%	\$2,542,617.00
1/23/2020	GM 100 21 JAN 22 33 PUT	\$2.92	12,458	-41.60%	\$3,637,736.00
4/22/2020	GOLD 100 21 JAN 22 22 PUT	\$3.06	24,414	-24.63%	\$7,470,684.00
8/28/2020	GOLD 100 21 JAN 22 27 PUT	\$6.48	5805	36.42%	\$3,761,640.00
11/23/2020	GS 100 21 JAN 22 200 PUT	\$13.35	2605	-33.42%	\$3,477,675.00
12/16/2020	HPQ 100 21 JAN 22 22 PUT	\$2.77	3149	4.92%	\$872,273.00
8/19/2020	IBM 100 21 JAN 22 145 PUT	\$32.10	2642	6.12%	\$8,480,820.00
6/29/2020	ICPT 100 21 JAN 22 25 PUT	\$8.50	1279	30.77%	\$1,087,150.00
8/5/2020	INTC 100 21 JAN 22 57.5 PUT	\$14.40	6823	5.11%	\$9,825,120.00
12/18/2020	IQ 100 21 JAN 22 12.5 PUT	\$2.55	15649	4.51%	\$3,990,495.00
6/24/2020	IQ 100 21 JAN 22 7.5 PUT	\$1.07	26708	7.00%	\$2,857,756.00
12/14/2020	KR 100 21 JAN 22 25 PUT	\$1.59	6025	6.00%	\$957,975.00
1/9/2020	KSS 100 21 JAN 22 40 PUT	\$10.25	3,997	34.87%	\$4,096,925.00
2/24/2020	KSS 100 21 JAN 22 42.5 PUT	\$11.05	3,019	13.92%	\$3,335,995.00
12/13/2019	M 100 21 JAN 22 13 PUT	\$4.45	8,978	45.90%	\$3,995,210.00
11/16/2020	MAR 100 21 JAN 22 95 PUT	\$7.15	6314	-24.74%	\$4,514,510.00
9/18/2020	MDLA 100 21 JAN 22 20 PUT	\$3.60	2054	-20.00%	\$739,440.00
9/29/2020	MSFT 100 21 JAN 22 220 PUT	\$26.67	2955	-29.26%	\$7,880,985.00
11/24/2020	MU 100 21 JAN 22 57.5 PUT	\$7.02	1376	-14.39%	\$965,952.00
12/15/2020	MU 100 21 JAN 22 80 PUT	\$19.20	1249	10.22%	\$2,398,080.00
6/30/2020	NEM 100 21 JAN 22 50 PUT	\$4.25	5786	-39.80%	\$2,459,050.00
11/20/2019	NOK 100 21 JAN 22 4 PUT	\$0.68	31,603	-32.00%	\$2,149,004.00
9/25/2020	ORCL 100 21 JAN 22 75 PUT	\$15.88	2003	-16.42%	\$3,180,764.00
10/4/2019	PCG 100 21 JAN 22 20 PUT	\$8.20	2,776	-41.22%	\$2,276,320.00
11/18/2020	PDD 100 21 JAN 22 60 PUT	\$2.30	4240	-41.03%	\$975,200.00
7/15/2020	QURE 100 21 JAN 22 45 PUT	\$16.50	1131	-5.17%	\$1,866,150.00
12/9/2020	SEDG 100 21 JAN 22 145 PUT	\$13.10	3796	-10.94%	\$4,972,760.00
6/8/2020	SKT 100 21 JAN 22 15 PUT	\$6.00	10367	-25.93%	\$6,220,200.00
3/6/2020	SLB 100 21 JAN 22 22.5 PUT	\$4.62	8,023	-6.67%	\$3,706,626.00
2/27/2020	SLB 100 21 JAN 22 27.5 PUT	\$8.30	4,324	36.07%	\$3,588,920.00
1/15/2020	SPCE 100 21 JAN 22 15 PUT	\$3.45	2,843	-36.11%	\$980,835.00
11/17/2020	TJX 100 21 JAN 22 60 PUT	\$5.85	1870	-28.66%	\$1,093,950.00

Date	Description	Current Price	Current OI	Price Change	Current Value
11/30/2020	TRIP 100 21 JAN 22 24 PUT	\$4.40	1942	-2.22%	\$854,480.00
12/2/2020	TWTR 100 21 JAN 22 47 PUT	\$7.25	2764	-21.20%	\$2,003,900.00
11/12/2020	UBER 100 21 JAN 22 40 PUT	\$4.40	10134	-25.42%	\$4,458,960.00
11/18/2020	UBER 100 21 JAN 22 42 PUT	\$5.20	4074	-13.33%	\$2,118,480.00
10/2/2020	UNP 100 21 JAN 22 185 PUT	\$18.20	2275	-27.49%	\$4,140,500.00
2/14/2020	VALE 100 21 JAN 22 17 PUT	\$3.76	10,265	-36.38%	\$3,859,640.00
12/15/2020	VIAC 100 21 JAN 22 35 PUT	\$5.85	5786	-8.59%	\$3,384,810.00
10/26/2020	VXX 100 21 JAN 22 10 PUT	\$1.77	10946	4.12%	\$1,937,442.00
10/26/2020	VXX 100 21 JAN 22 12 PUT	\$2.96	13354	11.70%	\$3,952,784.00
10/22/2020	VXX 100 21 JAN 22 8 PUT	\$0.83	12263	-15.31%	\$1,017,829.00
11/18/2020	WBA 100 21 JAN 22 32.5 PUT	\$3.25	1800	4.84%	\$585,000.00
12/16/2020	WDC 100 21 JAN 22 55 PUT	\$12.57	2067	11.24%	\$2,598,219.00
4/24/2020	WPM 100 21 JAN 22 40 PUT	\$6.20	1338	-34.87%	\$829,560.00
11/24/2020	X 100 21 JAN 22 20 PUT	\$6.70	4849	-15.19%	\$3,248,830.00
11/6/2019	YY 100 21 JAN 22 30 PUT	\$3.50	11,627	18.64%	\$4,069,450.00
11/2/2020	ZGNX 100 21 JAN 22 30 PUT	\$11.25	2015	-2.17%	\$2,266,875.00

January 2023 Notable Open Interest

Bullish:

Date	Description	Current Price	Current OI	Price Change	Current Value
11/10/2020	AAL 100 20 JAN 23 20 CALL	\$5.30	6595	45.21%	\$3,495,350.00
9/14/2020	AAPL 100 20 JAN 23 135 CALL	\$26.90	3760	43.09%	\$10,114,400.00
12/17/2020	ABEV 100 20 JAN 23 2.5 CALL	\$1.00	10019	-18.70%	\$1,001,900.00
11/30/2020	AFL 100 20 JAN 23 35 CALL	\$11.94	2023	0.34%	\$2,415,462.00
10/1/2020	BA 100 20 JAN 23 120 CALL	\$110.00	1216	48.53%	\$13,376,000.00
11/9/2020	BA 100 20 JAN 23 260 CALL	\$44.00	1872	55.04%	\$8,236,800.00
12/3/2020	BA 100 20 JAN 23 330 CALL	\$26.20	2018	-36.10%	\$5,287,160.00
12/7/2020	BABA 100 20 JAN 23 270 CALL	\$38.61	2176	-37.52%	\$8,401,536.00
9/14/2020	BABA 100 20 JAN 23 420 CALL	\$13.50	1844	-15.63%	\$2,489,400.00
11/9/2020	BIIB 100 20 JAN 23 430 CALL	\$16.00	2867	29.03%	\$4,587,200.00
12/7/2020	BMJ 100 20 JAN 23 62.5 CALL	\$7.65	2918	-6.71%	\$2,232,270.00
12/15/2020	BMJ 100 20 JAN 23 70 CALL	\$5.32	2224	-4.66%	\$1,183,168.00
12/11/2020	BMJ 100 20 JAN 23 95 CALL	\$1.30	4545	-3.70%	\$590,850.00
11/24/2020	CCJ 100 20 JAN 23 15 CALL	\$3.85	4221	97.44%	\$1,625,085.00
9/17/2020	CCL 100 20 JAN 23 17.5 CALL	\$8.60	6950	19.44%	\$5,977,000.00
12/2/2020	CCL 100 20 JAN 23 27.5 CALL	\$5.75	3359	-13.01%	\$1,931,425.00
10/13/2020	CHTR 100 20 JAN 23 650 CALL	\$94.20	1300	-8.63%	\$12,246,000.00
12/10/2020	COG 100 20 JAN 23 13 CALL	\$6.10	2166	-1.61%	\$1,321,260.00
11/30/2020	COTY 100 20 JAN 23 5 CALL	\$4.10	2313	1.23%	\$948,330.00
12/23/2020	CRSP 100 20 JAN 23 130 CALL	\$94.42	1065	0.00%	\$10,055,730.00
9/15/2020	CVS 100 20 JAN 23 40 CALL	\$28.10	1396	47.12%	\$3,922,760.00
10/8/2020	CVS 100 20 JAN 23 45 CALL	\$25.00	1032	36.24%	\$2,580,000.00
11/3/2020	CVS 100 20 JAN 23 47.5 CALL	\$21.50	1762	27.60%	\$3,788,300.00
10/5/2020	CVS 100 20 JAN 23 50 CALL	\$19.80	11534	35.62%	\$22,837,320.00
9/18/2020	CVS 100 20 JAN 23 60 CALL	\$13.40	15553	46.45%	\$20,841,020.00
12/10/2020	DBX 100 20 JAN 23 10 CALL	\$15.30	4907	20.00%	\$7,507,710.00
10/19/2020	DXCM 100 20 JAN 23 300 CALL	\$124.78	1016	-28.91%	\$12,677,648.00
12/21/2020	EQT 100 20 JAN 23 5 CALL	\$9.98	5040	7.31%	\$5,029,920.00
9/18/2020	EQX 100 20 JAN 23 12.5 CALL	\$3.00	5124	-44.44%	\$1,537,200.00
10/20/2020	ERIC 100 20 JAN 23 10 CALL	\$3.00	3095	0.00%	\$928,500.00
12/17/2020	ETSY 100 20 JAN 23 230 CALL	\$42.00	2020	0.00%	\$8,484,000.00
10/27/2020	EXAS 100 20 JAN 23 100 CALL	\$59.00	1014	-3.81%	\$5,982,600.00

Da	Description	Current Price	Current OI	Price Chang	Current Value
11/3/2020	FB 100 20 JAN 23 220 CALL	\$80.85	2014	-6.67%	\$16,283,190.00
11/4/2020	FB 100 20 JAN 23 240 CALL	\$72.70	1269	-15.80%	\$9,225,630.00
9/22/2020	FB 100 20 JAN 23 260 CALL	\$60.85	1740	6.75%	\$10,587,900.00
11/4/2020	FB 100 20 JAN 23 280 CALL	\$52.15	4579	-22.02%	\$23,879,485.00
11/5/2020	FB 100 20 JAN 23 340 CALL	\$33.50	6515	-33.16%	\$21,825,250.00
11/19/2020	FLR 100 20 JAN 23 12.5 CALL	\$7.86	1265	4.80%	\$994,290.00
12/7/2020	FSLR 100 20 JAN 23 110 CALL	\$23.50	2057	42.42%	\$4,833,950.00
12/7/2020	FSLR 100 20 JAN 23 115 CALL	\$21.65	1017	49.31%	\$2,201,805.00
12/7/2020	FSLR 100 20 JAN 23 120 CALL	\$20.20	2090	45.32%	\$4,221,800.00
11/20/2020	GILD 100 20 JAN 23 50 CALL	\$13.25	10055	-3.28%	\$13,322,875.00
9/25/2020	GILD 100 20 JAN 23 60 CALL	\$8.50	1819	-23.01%	\$1,546,150.00
12/21/2020	GM 100 20 JAN 23 50 CALL	\$7.00	2591	2.94%	\$1,813,700.00
11/19/2020	GOGO 100 20 JAN 23 15 CALL	\$2.77	5836	10.80%	\$1,616,572.00
12/2/2020	GOLD 100 20 JAN 23 20 CALL	\$6.06	5317	-15.24%	\$3,222,102.00
11/18/2020	GOLD 100 20 JAN 23 23 CALL	\$4.90	3146	-22.83%	\$1,541,540.00
11/11/2020	GOLD 100 20 JAN 23 27 CALL	\$3.73	1417	-27.57%	\$528,541.00
10/30/2020	GSK 100 20 JAN 23 35 CALL	\$4.40	3656	37.50%	\$1,608,640.00
12/2/2020	IBM 100 20 JAN 23 110 CALL	\$22.18	1504	-4.60%	\$3,335,872.00
11/24/2020	IBM 100 20 JAN 23 150 CALL	\$7.80	1896	7.88%	\$1,478,880.00
12/17/2020	INO 100 20 JAN 23 5 CALL	\$7.25	1995	0.00%	\$1,446,375.00
11/9/2020	INTC 100 20 JAN 23 47.5 CALL	\$8.05	4347	3.21%	\$3,499,335.00
11/25/2020	INTC 100 20 JAN 23 60 CALL	\$4.40	4291	9.45%	\$1,888,040.00
12/23/2020	ISRG 100 20 JAN 23 700 CALL	\$225.56	1091	0.00%	\$24,608,596.00
12/7/2020	ITUB 100 20 JAN 23 4.5 CALL	\$2.06	2745	-3.74%	\$565,470.00
9/16/2020	IVR 100 20 JAN 23 4 CALL	\$0.60	28201	33.33%	\$1,692,060.00
12/11/2020	JNPR 100 20 JAN 23 15 CALL	\$8.18	1008	9.07%	\$824,544.00
11/18/2020	JNPR 100 20 JAN 23 18 CALL	\$5.90	1125	4.42%	\$663,750.00
10/13/2020	KGC 100 20 JAN 23 7 CALL	\$2.41	3008	-33.97%	\$724,928.00
10/30/2020	KHC 100 20 JAN 23 32.5 CALL	\$5.70	1649	39.02%	\$939,930.00
10/7/2020	KHC 100 20 JAN 23 37.5 CALL	\$4.00	4303	15.94%	\$1,721,200.00
11/17/2020	KMI 100 20 JAN 23 12 CALL	\$2.80	2232	-6.35%	\$624,960.00
9/17/2020	LCA 100 20 JAN 23 10 CALL	\$17.50	3047	37.80%	\$5,332,250.00

Date	Description	Current Price	Current OI	Price Change	Current Value
11/23/2020	LI 100 20 JAN 23 10 CALL	\$23.00	6381	-33.33%	\$14,676,300.00
9/15/2020	LI 100 20 JAN 23 30 CALL	\$14.05	4227	41.92%	\$5,938,935.00
12/17/2020	LYFT 100 20 JAN 23 45 CALL	\$16.93	10660	-5.15%	\$18,047,380.00
11/5/2020	MA 100 20 JAN 23 250 CALL	\$103.00	1063	6.12%	\$10,948,900.00
9/16/2020	MSFT 100 20 JAN 23 220 CALL	\$38.28	2919	6.63%	\$11,173,932.00
12/17/2020	MSFT 100 20 JAN 23 230 CALL	\$34.19	2032	7.69%	\$6,947,408.00
10/2/2020	NLOK 100 20 JAN 23 25 CALL	\$2.80	2792	-4.44%	\$781,760.00
9/14/2020	NOK 100 20 JAN 23 7 CALL	\$0.29	105012	-35.56%	\$3,045,348.00
10/19/2020	NVDA 100 20 JAN 23 480 CALL	\$153.90	1068	-15.00%	\$16,436,520.00
11/4/2020	NVTA 100 20 JAN 23 35 CALL	\$24.00	2867	20.72%	\$6,880,800.00
12/8/2020	OXY 100 20 JAN 23 22 CALL	\$5.25	6857	-6.25%	\$3,599,925.00
11/30/2020	PAA 100 20 JAN 23 7 CALL	\$5.70	2327	100.00%	\$1,326,390.00
12/8/2020	PAGS 100 20 JAN 23 50 CALL	\$14.80	2394	22.31%	\$3,543,120.00
12/21/2020	PAGS 100 20 JAN 23 57.5 CALL	\$12.50	1400	0.81%	\$1,750,000.00
12/17/2020	PANW 100 20 JAN 23 380 CALL	\$67.00	1817	59.52%	\$12,173,900.00
12/2/2020	PAYX 100 20 JAN 23 70 CALL	\$29.10	1306	6.48%	\$3,800,460.00
11/25/2020	PFE 100 20 JAN 23 33 CALL	\$7.20	1562	9.09%	\$1,124,640.00
12/22/2020	PINS 100 20 JAN 23 70 CALL	\$27.40	1362	0.18%	\$3,731,880.00
11/16/2020	RCL 100 20 JAN 23 50 CALL	\$35.00	1100	-15.05%	\$3,850,000.00
12/4/2020	SLB 100 20 JAN 23 12.5 CALL	\$10.00	1078	-18.03%	\$1,078,000.00
12/14/2020	SNAP 100 20 JAN 23 55 CALL	\$12.20	4705	-7.92%	\$5,740,100.00
12/9/2020	SNAP 100 20 JAN 23 60 CALL	\$10.45	7390	-10.15%	\$7,722,550.00
12/14/2020	SNAP 100 20 JAN 23 70 CALL	\$8.00	6019	-17.95%	\$4,815,200.00
12/14/2020	SNAP 100 20 JAN 23 75 CALL	\$7.22	2006	-17.86%	\$1,448,332.00
11/4/2020	SPCE 100 20 JAN 23 20 CALL	\$14.60	2016	52.08%	\$2,943,360.00
12/22/2020	SPLK 100 20 JAN 23 175 CALL	\$49.00	1078	16.20%	\$5,282,200.00
11/23/2020	SPLK 100 20 JAN 23 230 CALL	\$27.00	2375	-23.08%	\$6,412,500.00
12/2/2020	SPLK 100 20 JAN 23 320 CALL	\$11.35	6181	-35.18%	\$7,015,435.00
11/24/2020	SRNE 100 20 JAN 23 10 CALL	\$4.00	15743	11.11%	\$6,297,200.00
10/13/2020	SRNE 100 20 JAN 23 4 CALL	\$5.40	6399	-40.00%	\$3,455,460.00
9/23/2020	T 100 20 JAN 23 30 CALL	\$2.75	13340	34.15%	\$3,668,500.00
11/3/2020	TGT 100 20 JAN 23 120 CALL	\$62.85	1282	30.21%	\$8,057,370.00
12/3/2020	TGTX 100 20 JAN 23 15 CALL	\$39.70	2190	120.56%	\$8,694,300.00

Date	Description	Current Price	Current OI	Price Change	Current Value
11/4/2020	TME 100 20 JAN 23 20 CALL	\$3.85	1894	59.09%	\$729,190.00
9/15/2020	TSLA 100 20 JAN 23 600 CALL	\$253.65	10161	43.61%	\$257,733,765.00
10/19/2020	TSM 100 20 JAN 23 60 CALL	\$47.80	1156	31.54%	\$5,525,680.00
11/4/2020	TWTR 100 20 JAN 23 35 CALL	\$25.55	1072	52.99%	\$2,738,960.00
10/2/2020	UAL 100 20 JAN 23 50 CALL	\$13.00	2845	21.50%	\$3,698,500.00
11/23/2020	UAL 100 20 JAN 23 60 CALL	\$10.10	1508	12.22%	\$1,523,080.00
11/12/2020	UBER 100 20 JAN 23 45 CALL	\$18.75	1392	33.93%	\$2,610,000.00
12/8/2020	UBER 100 20 JAN 23 55 CALL	\$14.15	3825	-5.03%	\$5,412,375.00
12/18/2020	ULTA 100 20 JAN 23 330 CALL	\$42.50	1032	-5.56%	\$4,386,000.00
12/2/2020	ULTA 100 20 JAN 23 340 CALL	\$39.80	1147	-16.89%	\$4,565,060.00
12/9/2020	VZ 100 20 JAN 23 57.5 CALL	\$5.50	2838	-20.86%	\$1,560,900.00
12/10/2020	WFC 100 20 JAN 23 40 CALL	\$3.10	2925	0.00%	\$906,750.00
10/13/2020	WKHS 100 20 JAN 23 40 CALL	\$9.20	1040	-2.13%	\$956,800.00
9/25/2020	WKHS 100 20 JAN 23 45 CALL	\$7.70	2891	-29.36%	\$2,226,070.00
9/28/2020	WMT 100 20 JAN 23 110 CALL	\$39.03	1118	2.87%	\$4,363,554.00
12/8/2020	WMT 100 20 JAN 23 180 CALL	\$9.50	2711	-14.80%	\$2,575,450.00
9/22/2020	WORK 100 20 JAN 23 37 CALL	\$8.60	3490	20.79%	\$3,001,400.00
10/13/2020	WORK 100 20 JAN 23 45 CALL	\$4.50	9007	-43.75%	\$4,053,150.00
10/30/2020	WORK 100 20 JAN 23 47 CALL	\$3.90	6836	-8.24%	\$2,666,040.00
11/24/2020	XOM 100 20 JAN 23 30 CALL	\$13.82	6082	0.14%	\$8,405,324.00

Bearish:

Date	Description	Current Price	Current OI	Price Change	Current Value
9/28/2020	CCL 100 20 JAN 23 15 PUT	\$4.10	18484	-37.97%	\$7,578,440.00
12/10/2020	CCL 100 20 JAN 23 25 PUT	\$10.30	3300	0.88%	\$3,399,000.00
12/4/2020	CHWY 100 20 JAN 23 40 PUT	\$4.10	1256	-40.23%	\$514,960.00
12/23/2020	CRSP 100 20 JAN 23 130 PUT	\$46.13	1002	0.00%	\$4,622,226.00
11/17/2020	DISH 100 20 JAN 23 50 PUT	\$19.98	1352	-10.36%	\$2,701,296.00
10/5/2020	ENB 100 20 JAN 23 32.5 PUT	\$7.20	3059	-27.13%	\$2,202,480.00
9/24/2020	ET 100 20 JAN 23 4 PUT	\$0.93	5732	-33.57%	\$533,076.00
12/1/2020	F 100 20 JAN 23 15 PUT	\$6.70	1565	1.52%	\$1,048,550.00
12/15/2020	GE 100 20 JAN 23 10 PUT	\$2.25	21446	1.35%	\$4,825,350.00
12/9/2020	GE 100 20 JAN 23 20 PUT	\$9.80	2524	3.16%	\$2,473,520.00
9/17/2020	GEO 100 20 JAN 23 8 PUT	\$3.30	3021	17.86%	\$996,930.00
10/30/2020	GILD 100 20 JAN 23 57.5 PUT	\$12.30	1548	-8.21%	\$1,904,040.00
10/27/2020	INTC 100 20 JAN 23 37.5 PUT	\$4.80	6644	-7.69%	\$3,189,120.00
11/12/2020	INTC 100 20 JAN 23 57.5 PUT	\$16.85	2517	-2.88%	\$4,241,145.00
10/19/2020	MS 100 20 JAN 23 50 PUT	\$5.55	3399	-40.64%	\$1,886,445.00
10/14/2020	MU 100 20 JAN 23 45 PUT	\$5.60	2746	-44.28%	\$1,537,760.00
9/28/2020	NCLH 100 20 JAN 23 15 PUT	\$4.55	2469	-43.27%	\$1,123,395.00
12/15/2020	NCLH 100 20 JAN 23 25 PUT	\$10.35	1773	-1.43%	\$1,835,055.00
11/13/2020	PBR 100 20 JAN 23 10 PUT	\$2.32	8322	-28.83%	\$1,930,704.00
11/17/2020	PBR 100 20 JAN 23 12 PUT	\$3.90	5057	-11.56%	\$1,972,230.00
9/23/2020	RIG 100 20 JAN 23 3 PUT	\$1.91	28034	-22.67%	\$5,354,494.00
11/23/2020	SNAP 100 20 JAN 23 30 PUT	\$4.10	6817	-9.29%	\$2,794,970.00
10/14/2020	T 100 20 JAN 23 27 PUT	\$4.59	5958	-2.34%	\$2,734,722.00
10/6/2020	TD 100 20 JAN 23 40 PUT	\$5.00	3017	-13.79%	\$1,508,500.00
11/3/2020	TEVA 100 20 JAN 23 10 PUT	\$2.83	3373	-14.24%	\$954,559.00
11/3/2020	TGT 100 20 JAN 23 125 PUT	\$11.00	1250	-29.58%	\$1,375,000.00
11/4/2020	VLO 100 20 JAN 23 40 PUT	\$8.40	1090	-37.55%	\$915,600.00
10/22/2020	W 100 20 JAN 23 130 PUT	\$23.01	1273	-9.05%	\$2,929,173.00
11/24/2020	X 100 20 JAN 23 12 PUT	\$3.15	11294	-10.00%	\$3,557,610.00
11/24/2020	X 100 20 JAN 23 7 PUT	\$1.19	18481	-15.60%	\$2,199,239.00
10/14/2020	XOM 100 20 JAN 23 35 PUT	\$6.15	4760	-32.79%	\$2,927,400.00
11/19/2020	XOM 100 20 JAN 23 37.5 PUT	\$7.49	2989	-14.89%	\$2,238,761.00

Notable Short Puts

Word cloud of tickers in our OptionsHawk database, based on how frequently we added short puts to the database from September to the end-of-year



Short put positions are important to recognize in open interest because they show a trader's willingness to own stock at a certain level. It can often be an expression of where someone sees value in a stock that may be extended on a relative basis. And, it often shows confidence in a stock that may have sold off for one reason or another. When looking through options trades every day, we identify a number of these trades where someone is short naked puts. Some notable examples:

First Solar (FSLR) became a wildly popular name in late 2020 for short puts with millions of dollars in premium sold. On 12/7, there was a huge spate of put sales in the name in the January 2023 \$80, Jan. 2022 \$75 and \$80 strikes. On 12/9, the January 2022 \$87.50 puts were sold to open. At the February expiration, sellers have been active at the \$90 and \$85 strikes. The \$10.8B company has been strong in 2020 with shares up 83% and positioned well in the broader solar market with exposure to utilities, distributors, commercial and industrial applications. They expect installed PV to double in the next five years giving them a unique market opportunity to build out unsubsidized, utility-scale solar at a lower cost point and better ROI than previously. FSLR's series 6 tech should give them a key differentiator over peers and make them competitive in future build outs.

Air Products (APD) with some sizable short puts in November and December including the Jan. \$240 puts, Jan. 2022 \$280 puts, and Jan. 2022 \$260 puts. The \$59B company focuses on specialty gases and equipment like oxygen, nitrogen, and argon. They see growth returning into the high-single digits in 2021 with better pricing and healthier margins. APD is at the heart of a lot of global mega projects like hydrogen fuel cells and green energies for the transportation market. They are a smart play on ESG and climate-control themes through gasification, carbon-capture, and next-gen mobility.

KE Holdings (BEKE) name popular with put sellers in late November and early December with 2,000 January \$60 puts sold, 1800 July \$55 puts sold, and 1800 April \$55 puts sold. The \$80B company has traded well since its debut in August, up 74.5%, and plenty of room for expansion. BEKE is China's largest housing transaction platform with both online and offline sales and grown into the third-largest commerce platform globally behind only Alibaba (BABA) and Amazon (AMZN). They have a dominant share of the Chinese housing market with around 19% of all transaction dollars and expanding their store network and online capabilities to grow behind

tailwinds in the housing market from a growing middle class. BEKE has long-term potential to grow as they further digitize transaction data and processes and shift into more cloud/data analytics to make buying and selling efficiencies greater.

Below is a table of 100+ recent short put sales that are within 5-10% of the strike price.

Date	Ticker	Expiration	Year	Strike	Volume	Price Paid	\$ Value	Current Price	Distance from Short Put
12/2	A	JAN	22	\$115	1,000	\$14.30	\$1,430,000	\$119.30	3.74%
12/10	AAPL	JUL	21	\$130	1,202	\$17.27	\$2,075,854	\$126.66	-2.57%
12/15	ABBV	JAN	21	\$110	1,549	\$8.29	\$1,284,121	\$104.45	-5.05%
11/23	ABBV	JAN	22	\$105	1,000	\$16.25	\$1,625,000	\$104.45	-0.52%
10/16	AKAM	JAN	22	\$100	1,000	\$10.29	\$1,130,000	\$107.08	7.08%
12/10	AMD	FEB	21	\$88	1,798	\$6.65	\$1,195,670	\$95.92	9.62%
12/14	AMD	JAN	22	\$90	1,719	\$17.30	\$2,965,275	\$95.92	6.58%
12/15	AMD	JUN	21	\$105	1,502	\$20.00	\$2,996,490	\$95.92	-8.65%
12/14	AMZN	JAN	21	\$2,980	2,088	\$48.79	\$10,283,400	\$3,201.65	7.44%
12/10	ANTM	JUN	21	\$300	452	\$23.91	\$1,080,732	\$308.64	2.88%
11/13	APD	JAN	22	\$280	263	\$43.00	\$1,130,900	\$269.55	-3.73%
11/25	ATVI	JAN	22	\$85	1,014	\$16.03	\$1,625,442	\$90.37	6.32%
12/1	AU	JAN	22	\$22	5,000	\$4.20	\$2,200,000	\$23.17	5.32%
12/7	AXP	JAN	22	\$110	1,333	\$10.85	\$1,479,630	\$117.51	6.83%
12/7	AZO	JUN	21	\$1,100	400	\$77.42	\$3,096,800	\$1,181.90	7.45%
10/22	BABA	SEP	21	\$240	1,024	\$16.85	\$1,735,680	\$260.00	8.33%
11/11	BABA	FEB	21	\$240	2,153	\$12.95	\$2,874,255	\$260.00	8.33%
12/7	BABA	JAN	23	\$270	1,000	\$62.12	\$6,212,000	\$260.00	-3.70%
12/8	BABA	JAN	23	\$285	1,250	\$70.50	\$8,812,500	\$260.00	-8.77%
10/19	BAC	JAN	23	\$27	6,000	\$6.76	\$4,110,000	\$28.67	6.19%
11/25	BDX	JAN	23	\$230	300	\$38.00	\$1,140,000	\$252.09	9.60%
12/2	BEKE	JAN	21	\$60	2,325	\$5.10	\$1,185,750	\$64.46	7.43%
11/3	BMRN	JAN	22	\$90	880	\$23.20	\$2,041,600	\$88.85	-1.28%
12/15	BNTX	MAR	21	\$105	550	\$18.80	\$1,034,000	\$104.24	-0.72%
12/8	BNTX	MAR	21	\$100	1,200	\$14.70	\$1,908,000	\$104.24	4.24%
12/10	BRK/B	MAR	21	\$210	5,000	\$4.15	\$2,175,000	\$206.82	-1.51%
12/15	C	MAR	21	\$60	3,109	\$4.85	\$1,507,865	\$59.06	-1.57%
12/2	C	JUN	21	\$60	2,038	\$8.25	\$1,671,160	\$59.06	-1.57%
11/9	CAT	MAY	21	\$180	512	\$19.93	\$1,020,416	\$180.96	0.53%
12/3	CME	MAR	21	\$180	1,250	\$11.00	\$1,375,000	\$183.98	2.21%
11/17	CRM	JAN	23	\$250	250	\$49.20	\$1,230,000	\$227.43	-9.03%

12/7	CRM	JUN	21	\$230	2,613	\$27.32	\$7,138,716	\$227.43	-1.12%
11/19	CS	MAR	21	\$13	8,459	\$1.46	\$1,235,014	\$12.57	-3.31%
12/9	DHI	MAY	21	\$73	2,500	\$8.90	\$2,225,000	\$73.23	1.01%
10/12	DKNG	MAY	21	\$50	1,015	\$12.60	\$1,299,200	\$53.90	7.80%
10/28	DKNG	MAY	21	\$55	1,001	\$21.00	\$2,102,100	\$53.90	-2.00%
11/23	DPZ	JAN	21	\$400	501	\$21.20	\$1,062,120	\$396.71	-0.82%
12/3	DXCM	JAN	22	\$350	155	\$69.25	\$1,123,750	\$358.57	2.45%
12/11	EOG	JAN	22	\$48	1,473	\$8.50	\$1,252,050	\$51.77	8.99%
12/11	ETSY	JAN	21	\$175	3,008	\$14.65	\$4,406,720	\$190.76	9.01%
10/27	EXAS	JAN	23	\$140	1,000	\$40.29	\$4,029,000	\$137.05	-2.11%
11/4	FB	JAN	22	\$260	1,010	\$33.40	\$3,373,400	\$276.40	6.31%
11/9	FB	JAN	22	\$270	1,000	\$37.35	\$3,735,000	\$276.40	2.37%
12/11	FB	MAR	21	\$280	5,027	\$25.20	\$12,668,040	\$276.40	-1.29%
10/16	FDX	APR	21	\$280	390	\$29.50	\$1,158,300	\$275.57	-1.58%
10/13	FL	JAN	23	\$40	1,626	\$11.75	\$1,991,850	\$39.04	-2.40%
11/3	GE	JAN	23	\$10	5,002	\$4.00	\$2,000,800	\$10.81	8.10%
12/4	GM	JAN	23	\$40	2,022	\$8.20	\$1,658,040	\$41.01	2.53%
12/14	GOLD	JAN	23	\$23	2,004	\$5.20	\$1,042,080	\$23.27	1.17%
12/7	GOOG	JAN	22	\$1,800	309	\$213.00	\$6,640,410	\$1,731.01	-3.83%
12/4	GS	JAN	23	\$235	365	\$41.95	\$1,475,250	\$242.13	3.03%
11/5	GWPH	JAN	22	\$130	425	\$35.40	\$1,504,500	\$118.84	-8.58%
12/11	GWRE	JAN	21	\$125	4,620	\$6.20	\$2,864,400	\$125.72	0.58%
11/18	H	JAN	22	\$70	1,010	\$12.00	\$1,212,000	\$72.89	4.13%
12/15	HAL	JUL	21	\$20	3,002	\$3.25	\$1,005,670	\$19.68	-1.60%
11/2	HQY	JUN	21	\$60	902	\$13.95	\$1,258,290	\$65.26	8.77%
11/2	HQY	JUN	21	\$65	1,000	\$17.20	\$1,720,000	\$65.26	0.40%
11/19	HUM	JAN	22	\$430	206	\$61.10	\$1,258,660	\$391.62	-8.93%
10/13	INTC	MAR	21	\$50	3,011	\$3.02	\$1,008,685	\$47.46	-5.08%
10/27	INTC	JAN	23	\$45	2,017	\$9.17	\$1,849,589	\$47.46	5.47%
12/4	JD	JAN	22	\$83	732	\$13.95	\$1,021,140	\$81.53	-1.18%
11/30	JD	JAN	22	\$90	1,000	\$19.00	\$1,900,000	\$81.53	-9.41%
12/9	JD	JUN	21	\$75	5,494	\$6.54	\$3,653,510	\$81.53	8.71%
12/14	JPM	MAR	21	\$125	1,267	\$11.20	\$1,444,380	\$119.08	-4.74%
11/13	LI	MAR	21	\$30	1,504	\$7.75	\$1,165,600	\$31.77	5.90%
12/10	LI	MAR	21	\$33	3,031	\$6.70	\$2,152,010	\$31.77	-3.73%
10/15	LOW	JAN	22	\$175	1,000	\$26.60	\$2,680,000	\$163.20	-6.74%

12/8	LULU	JAN	22	\$390	132	\$76.65	\$1,039,500	\$378.05	-3.06%
12/7	LULU	JAN	21	\$360	2,023	\$18.80	\$3,803,240	\$378.05	5.01%
11/18	MAR	JAN	22	\$120	1,054	\$20.75	\$2,187,050	\$128.82	7.35%
12/4	MDT	FEB	21	\$115	2,116	\$6.15	\$1,301,340	\$116.71	1.49%
12/11	MIDD	JAN	21	\$140	5,400	\$8.06	\$4,352,400	\$131.86	-5.81%
12/11	MP	JUN	21	\$35	1,048	\$14.80	\$1,551,040	\$32.51	-7.11%
10/19	MRK	JAN	21	\$73	7,493	\$1.40	\$1,116,457	\$79.53	9.70%
11/27	MS	JAN	22	\$63	3,000	\$8.35	\$2,505,000	\$64.18	2.69%
11/5	MSFT	APR	21	\$200	2,035	\$8.85	\$1,800,975	\$218.59	9.30%
12/4	MSFT	JAN	21	\$215	17,179	\$7.91	\$13,588,589	\$218.59	1.67%
11/10	MSGS	FEB	21	\$165	1,302	\$7.80	\$1,015,560	\$177.35	7.48%
12/7	MU	JAN	23	\$73	810	\$18.20	\$1,628,100	\$71.46	-1.43%
12/11	NBIX	AUG	21	\$100	1,411	\$19.30	\$2,723,230	\$101.43	1.43%
12/2	NEE	JAN	23	\$70	1,000	\$10.10	\$1,010,000	\$74.51	6.44%
11/12	NFLX	JAN	22	\$510	353	\$96.80	\$3,417,040	\$534.45	4.79%
11/13	NIO	MAR	21	\$45	1,157	\$12.75	\$1,475,175	\$46.72	3.82%
12/2	NIO	MAY	21	\$44	2,003	\$12.30	\$2,463,690	\$46.72	6.18%
11/6	NIO	JAN	23	\$50	4,017	\$24.89	\$9,998,313	\$46.72	-6.56%
12/15	NVAX	MAR	21	\$130	300	\$38.60	\$1,158,000	\$124.85	-3.96%
12/10	NVDA	FEB	21	\$520	1,040	\$37.99	\$4,118,400	\$530.88	2.09%
12/8	PDD	JUN	21	\$160	403	\$31.30	\$1,261,390	\$149.37	-6.64%
12/9	PFE	JAN	22	\$35	4,320	\$3.00	\$1,317,600	\$37.68	7.66%
11/27	PH	FEB	21	\$260	872	\$12.60	\$1,098,720	\$272.00	4.62%
12/8	PLTR	MAY	21	\$27	4,029	\$7.70	\$3,102,330	\$25.97	-3.81%
11/18	QCOM	JAN	22	\$135	666	\$17.00	\$1,132,200	\$147.42	9.20%
12/14	QCOM	FEB	21	\$140	2,837	\$6.31	\$1,790,147	\$147.42	5.30%
12/2	QCOM	JAN	22	\$160	1,037	\$30.10	\$3,121,370	\$147.42	-7.86%
12/1	QCOM	MAR	21	\$145	4,537	\$9.75	\$4,423,575	\$147.42	1.67%
12/11	QCOM	JAN	22	\$145	3,737	\$24.81	\$9,271,497	\$147.42	1.67%
11/2	QURE	JAN	22	\$50	1,000	\$19.80	\$2,200,000	\$45.95	-8.10%
11/16	RCL	JUN	21	\$75	822	\$15.35	\$1,261,770	\$72.29	-3.61%
12/7	RCL	JAN	21	\$80	5,697	\$6.31	\$3,646,080	\$72.29	-9.64%
11/2	REGN	FEB	21	\$530	550	\$37.09	\$2,039,950	\$498.89	-5.87%
12/15	RTX	JAN	22	\$70	1,000	\$9.90	\$1,005,000	\$70.17	0.24%
12/9	SE	MAY	21	\$185	701	\$23.10	\$1,619,310	\$200.35	8.30%
12/14	SNAP	APR	21	\$55	1,108	\$9.40	\$1,052,600	\$52.99	-3.65%

10/22	SNV	MAY	21	\$35	1,006	\$10.00	\$1,006,000	\$31.96	-8.69%
12/2	SQ	JAN	22	\$220	400	\$57.50	\$2,282,000	\$235.45	7.02%
12/3	SQ	JUN	21	\$220	700	\$42.00	\$2,975,000	\$235.45	7.02%
10/19	TGT	JAN	21	\$170	1,000	\$13.00	\$1,300,000	\$170.42	0.25%
11/3	TGT	JAN	23	\$155	1,287	\$29.03	\$3,736,161	\$170.42	9.95%
11/9	TMO	JAN	22	\$480	500	\$57.90	\$2,895,000	\$466.68	-2.78%
11/17	TSLA	JAN	23	\$720	1,420	\$377.20	\$53,562,400	\$695.00	-3.47%
11/9	V	MAR	21	\$210	4,002	\$12.05	\$4,822,410	\$211.31	0.62%
11/9	V	MAR	21	\$205	5,086	\$9.90	\$5,035,140	\$211.31	3.08%
10/15	VRTX	JAN	22	\$240	251	\$41.30	\$1,036,630	\$236.72	-1.37%
10/15	VRTX	JAN	21	\$220	2,064	\$18.70	\$4,004,160	\$236.72	7.60%
10/20	WMT	JAN	21	\$145	2,449	\$8.00	\$1,946,955	\$145.95	0.66%
12/3	XPEV	APR	21	\$45	3,639	\$9.80	\$3,657,195	\$46.38	3.07%

DISCLAIMER:

Data Accuracy: This report was prepared from 12-01-2020 to 12-31-2020 so some of the figures may not be exact as of the end of 2020, but due to the time-intensive nature of the project it was required. The data provided is deemed to be reliable and was collected from multiple sources. Charts are provided courtesy of Finviz.com, TrendSpider and Tradingview.com.

Not Investment Advice or Recommendation

Any descriptions "to buy", "to sell", "long", "short" or any other trade related terminology should not be seen as a recommendation.

Content is for informational and educational purposes only. You alone will need to evaluate the merits and risks associated with the use of this content. Decisions based on information provided are your sole responsibility, and before making any decision on the basis of this information, you should consider (with or without the assistance of a financial and/or securities adviser) whether the information is appropriate in light of your particular investment needs, objectives and financial circumstances. Investors should seek financial advice regarding the suitability of investing in any securities or following any investment strategies.

I am not a registered investment advisor. Opinions and trade recommendations are solely my own, and I advise everyone to know the risks involved with trading stocks and options. I encourage every trader to do his/her own research prior to making a trade, and be sure to know all the risks involved.

No reference to any specific security constitutes a recommendation to buy, sell or hold that security or any other security. Nothing constitutes investment advice or offers any opinion with respect to the suitability of any security, and the views expressed on this website should not be taken as advice to buy, sell or hold any security. In preparing the information contained in this website, we have not taken into account the investment needs, objectives and financial circumstances of any particular investor. This information has no regard to the specific investment objectives, financial situation and particular needs of any specific recipient of this information and investments discussed may not be suitable for all investors.

OptionsHawk Inc. assumes no liability for any consequence relating directly or indirectly to any action or inaction taken based on the information contained in this report.

Any copying, re-publication or re-distribution of Provider content or of any content used on this site, including by framing or similar means, is expressly prohibited without prior written consent of Provider.

All rights are reserved. No license is granted to the user except for the user's personal use. No part of this publication or its contents may be copied, downloaded, stored in a retrieval system, further transmitted, or otherwise reproduced, stored, disseminated, transferred, or used, in any form or by any means, except as permitted under agreement with OptionsHawk Inc. Violators will be prosecuted to the full extent of the law.