

Forbes

How Trader Jeff Yass Parlayed Poker And Horse Race Handicapping Into A \$12 Billion Fortune

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In February, the U.S. House of Representatives summoned a line-up of villains for a public rebuke of the GameStop trading debacle. Among Wall Street's perps in attendance were Vlad Tenev, CEO of Robinhood, Melvin Capital hedge fund manager Gabe Plotkin and quantitative trading billionaire Ken Griffin of Citadel Securities. Missing from the line-up was a secretive trader from Bala Cynwyd, Pennsylvania named Jeff Yass.

Yass is the cofounder and head of a global trading powerhouse named Susquehanna International Group. His firm is the largest trader of listed stock options in America by some measures and like Citadel, Susquehanna's skilled traders devour the order flow coming from free trading apps like Robinhood. In 2020, Susquehanna's quants traded some 1.8 billion stock options contracts, 80% more than the prior year, and accounting for nearly a quarter of all options trades in the U.S., according to *Alphacution Research*.

Yass bootstrapped Susquehanna in part with startup capital plucked from racetrack pots and poker tables in the 1970s and early 1980s. He then applied his gambling instincts to options markets during the 1980s bull market, and his skill for handicapping odds and finding an edge set him apart. Yass's number one trading rule is also the mantra of every poker pro: there is no surer way to win, than to bet against someone who is dumber or less experienced than you, otherwise known as the "mark" at any poker table. On Wall Street, Robinhood is in the business of cultivating and serving up millions of marks daily.

"All of sports betting, all of playing poker, and all of options trading is making sure you're betting against someone you're smarter than," Yass told the *Bet The Process* podcast a year ago. "If you're not asking yourself, am I the sucker, or am I the [bait], you get arrogant and you get crushed."

Most members of Congress likely have no idea who Jeff Yass is. That's precisely the way he likes it. A secretive trader and registered Libertarian, Yass sits on the board of the influential Cato Institute. He's one of America's biggest donors to political action committees supporting low taxes and free markets, and has dedicated millions of dollars to school choice and charter schools in Philadelphia and New York.

At age 63, Yass has built Susquehanna into a global giant without taking a penny of outside capital. Today, Susquehanna's commands nearly 10% of the market making volume in exchange traded funds, moving over 130 million shares daily in 50 countries around the world. It's also

regularly among the top-five market makers in U.S. stocks traded by retail brokers. Yass has used Susquehanna's trading profits to invest in early-stage growth companies around the world, like TikTok parent company ByteDance, the world's most valuable private company. His firm is now among the 20 largest investors in venture capital-backed companies in the world, according to some estimates, owning tens of billions worth of investments spread across China, Israel and the United States and large stakes in tech companies like Agora Inc. in China, and Credit Karma and Payoneer in the United States.

There's more: Susquehanna is becoming a powerhouse in making markets for sports bets through its Dublin-based trading unit called Nellie Analytics. The operation also stakes bets on elections and won big on Joe Biden's victory in the 2020 Presidential election. Susquehanna has even become a force in the trading of cryptocurrencies.

Forbes spent more than two months digging into his vast holdings, speaking to former Susquehanna insiders, reviewing hundreds of securities filings, regulatory disclosures and court documents. We estimate that his firm and its portfolio of investments are worth well over \$30 billion and put his net worth conservatively at \$12 billion, landing him at No. 184 on *Forbes'* 2021 list of the World's Richest People. Yass initially did not respond to requests seeking an interview and didn't comment on our estimates.

"Susquehanna is one of the most remarkable stories in the business world that has never been told and is really not well known," says Steven H. Bloom, a cofounder of the firm who left amicably in the mid-1990s to start his own firm. "Jeff is a unique talent. He loves the game. He loves to figure things out, and he loves to win."

To understand how Yass got rich, start at the racetrack.

In July 1985, Yass was a 27-year-old trader based in Philadelphia, with a knack for quickly calculating the value of options contracts. On this day, however, he was on his way to Sportsman's Park, a horse racing track built by Al Capone on the outskirts of Chicago, with a few friends and \$250,000 in rolled up hundred-dollar bills stuffed into backpacks. Yass and his team of Pennsylvania-based traders had identified a rarity in the world of horse racing: A bet where the odds skewed heavily in the gambler's favor.

Back then, Sportsman's Park offered what's called a "Super Bet," a jackpot that could be won if gamblers successfully picked the winning order of three consecutive horse races. Super Bet pots carried over if no winners were found, growing in size like a Mega Millions lottery until someone finally won. Yass had figured out that once the Super Bet pot reached a certain size, gamblers with a large enough bankroll had an edge. With enough money, they could basically buy all the potential winning combinations and reap massive winnings with modest downside.

Months earlier, Yass's gambling syndicate, which he named "RAMJAC" after the fictionalized corporation in Kurt Vonnegut's novel *Jailbird* that owned 19% of the United States, brought bags filled with \$60,000 in cash to Sportsman's Park. They placed their bets, hit on the right horses, and walked out with the \$600,000. By July, Sportsman's Park had grown wise to Yass. When his syndicate returned with a quarter million dollars, they were swiftly escorted to the exits and barred from ever stepping foot in Sportsman's Park again.

Yass's syndicate raided similar jackpots across the country, traveling to Palm Beach to bet on Jai Alai, and to a track in the Boston suburbs to bet on Greyhounds.

While Yass's RAMJAC made hundreds of thousands of dollars in profits annually, he probably wouldn't have made it too far if he stuck to betting at the track. After all, for someone with his talents, lugging bags of cash around the country was both inefficient and risky when compared to the money he could make trading options in the 1980s bull market.

Born in the Bronx and raised in Bayside, Queens, Yass soaked up the world of arbitrage at an early age. The son of an accountant who was the CEO of a small, publicly-traded financial information company called Datalab, Yass his father Gerald would thumb through the business pages of the *New York Post*, studying stocks and esoteric securities like warrants. On weekends, Gerald would take his adolescent son to bet the trotters at the Bronx Yonkers Raceway and Roosevelt Raceway in Long Island.

By the time Secretariat won the Triple Crown at New York's Belmont Racetrack in 1973, Yass was a capable handicapper and a skilled poker player. He marvelled at an arbitrage in that legendary race. Demand was so high to bet on Secretariat to win, a gambler could make more money betting the racehorse would simply "place," which in racing parlance means finish either first or second. If it was possible, Yass would have bet on Secretariat to "place" and bet against the racehorse to win, guaranteeing at least a modest return. This is the basic theory that governs Yass's startling rise.

After graduating Bayside High School in 1975, he matriculated to the State University at Binghamton. He studied mathematics as a major and economics as a minor, hoping to sharpen his skills at gambling and trading. At Binghamton, he roomed with his best friend from Bayside High School, Arthur Dantchik, and made lifelong friends with Eric Brooks, Joel Greenberg, Andrew Frost and Steven H. Bloom, most of whom also came from working class neighborhoods Brooklyn and Queens.

On campus, Yass began to study the options contracts that would eventually make him rich. His senior thesis examined whether options, which had begun trading at the Chicago Board of Options Exchange in 1973, added value to society. For an economics class, he wrote a final paper titled, "An Econometric Analysis of Horse Racing," that he eventually published in *Gambling Times* magazine. For extracurriculars, Yass and his friends played poker and would drive two hours to bet on horses at the Monticello racetrack. Though he graduated with a mathematics degree, Yass likes to say he was a poker major.

After graduation in 1979, Yass and Dantchik moved to Las Vegas to become professional gamblers. At one game, Yass sat at a table with a trader on the Comex who explained how to buy a seat on a commodities exchange and make markets. Yass promptly returned east to trade options at the American Stock Exchange, hoping to buy a seat. There, he met Israel Englander, then a centimillionaire who routinely staked hungry young traders with his own capital and would later found hedge fund Millennium Management. In 1981, he offered Yass an empty seat on the Philadelphia Stock Exchange for \$30,000 and a 50/50 revenue share. Gerald Yass fronted his son most of the money to buy into Englander's proposition. Yass moved to the Philadelphia-area to begin trading.

After about a year on Englander's bankroll, Yass bought his seat outright and called his college buddies to join him at his nascent trading outfit, then called Philadelphia Trading. Like many other successful traders Yass took advantage of the so called Black/Scholes options pricing model named after and invented by three Ph.D.s—Fisher Black, Myron Scholes and Robert

Merton—who went on to win the Nobel Prize in economics in 1997. Against the traders of the day, using the Black/Scholes against “gut traders” was like shooting fish in a barrel. Eventually the competition wised up, so Yass then leaned on his well-honed poker skills—how to read the subtleties of markets, adjust based on new information and size bets—to keep his edge.

“The business for Jeff to compete in was one where you have to make a decision under intense pressure and stress, and you're going to have incomplete information,” says Susquehanna cofounder Bloom. “Jeff was spectacular at processing that information and deciding how big to bet.”

In 1987, Yass and his partners created Susquehanna International Group with no outside money, naming the firm after the Susquehanna River which flows past Binghamton and all the way through Pennsylvania. The firm thrived from the start, making millions on the Black Monday market crash of October 1987. Yass, always careful to protect himself against the risk of ruin, had bought insurance using out of the money put options. When the market cratered, Susquehanna’s puts became very valuable. Overall, the firm made about \$30 million that year.

By 1988, Susquehanna was a giant in program trading, which had grown controversial on Wall Street after the crash. Due to its models, tiny Susquehanna traded as much as 5%-to-10% of the volume of the New York Stock Exchange on any given day, but Yass was uncomfortable with growing criticism over his trading. Through a friend, he cold-called his libertarian idol, Milton Friedman of the University of Chicago, to get his blessing that Susquehanna was doing nothing wrong. Friedman returned Yass’s call and approved of the trades on the principle that they made markets more efficient. So Yass continued to program trade as most Wall Street firms abandoned the strategy, leaving Susquehanna to extract large profits for a few years.

In the 1990s, Yass and his partners began to institutionalize the firm. They recruited new hires and trained them to trade based on the self-taught process that had served Yass well. Susquehanna’s training programs involved a mix of tutorials on options pricing theories and poker-playing tournaments to test employees' decision making skills. To ensure they weren’t training future competitors, Susquehanna drafted extraordinarily restrictive employment contracts.

Dantchik began to oversee Susquehanna’s training regimen, while Joel Greenberg, a lawyer educated at Columbia University, acted as a chief operating officer. Eric Brooks, a skilled gambler and star trader, led Susquehanna's efforts to build new businesses. Even Yass’s father Gerald had a role, working to build the firm's back office bookkeeping operations.

By the late 1990s, Susquehanna was earning billion-dollar profits in some years, according to insiders. In addition to options market making and program trading, Susquehanna was skilled at trading convertible bonds, commodity options and index options. The popularization of the exchange traded fund became an opportunity for Susquehanna to apply its quantitative skills. Using computer models, Susquehanna’s search for value in the relationship between different securities like futures, options and stocks was perfectly suited for the ETFs, where market makers create and redeem new shares and look for mispricings between an index and its constituent stocks. Since 1993, Susquehanna has been one of Wall Street’s leading ETF market makers, playing a behind-the-scenes role in the rise of passive investing. Today ETFs account for no less than \$7.7 trillion in assets.

Despite its restrictive employment contracts, Susquehanna's trading floor has spawned other top trading firms. The three co-founders of equally secretive Jane Street trading, for instance, were trained by Yass and Dantchick. The *Financial Times* recently reported Jane Street made \$6.7 billion in the trading bonanza that was 2020.

When the 2000s came, ushering in an era of technological creative destruction on Wall Street and in American business, Susquehanna diversified and was adept at staving off obsolescence. Mark Dooley, one of Susquehanna's original employees, oversaw the firm's transformation from a floor trading operation into one that relied on technology.

Zhang Yiming, founder of Beijing ByteDance Technology Co., poses for a photograph at the company's headquarters in Beijing, China. Photographer: Giulia Marchi/Bloomberg

Cofounder Andrew Frost opened offices in San Francisco, and began to build a private investment business to redeploy Susuehanna's trading profits. Eventually, Yass's outfit built a venture investment team in the U.S. and China, overseen by Dantchik. Its deal scouts in China were the first to back Zhang Yiming, the creator of ByteDance, in 2013. Susquehanna's investment of a few million dollars in Bytedance is now worth tens of billions of dollars and rising.

"Susquehanna is one of the only proprietary trading firms founded in the 1980's to have successfully navigated decades of technological adoption from floor trading to electronic trading," says Paul Rowady, veteran quant trader who now heads Alphacution Research.

Susquehanna's sprawling headquarters in the Philadelphia suburb of Bala Cynwyd, Pennsylvania resemble an Ivy League college campus. There's free food, cooked by chefs daily, no dress code, and a 9,000 square foot gym with personal trainers. Yass has made sure to have the best amenities money can buy for his army of quants. Beneath all of the refinement, however, is a culture that mirrors Yass's dorm room days at Binghamton. Gambling is everywhere.

Susquehanna recruits traders from the math and engineering departments of schools like Columbia and the Massachusetts Institute of Technology by hosting poker tournaments, screening for future traders with acute problem solving abilities and even-keel temperaments. At headquarters, the gaming and poker only increases. Susquehanna's offices are filled with casino-quality poker tables. The art and skill of the Texas hold-em is given an equal shift to trading models and options math in Susquehanna's training of new hires. Its famous three month trader training program mixes simulated trading with poker playing; Yass and Dantchik study the hands that new hires play, looking for troubling traits like anchoring bias—the pegging of decisions to a past and irrelevant reference point—or availability bias, otherwise known as the “gambler's fallacy.” In this fatal flaw, a trader struggles to equally weight all new information appropriately.

“In the world of investing, gambling is a wonderful teacher,” says Edward O. Thorp, the legendary trader and blackjack card counter, “It teaches you how to manage your money, place your bets, and keep your cool.”

To blow off steam, Yass and his traders look elsewhere for edge and action. They bet sports lines, play even more poker, and look to find a hidden arbitrage in anything. They've rigorously tested game theory strategies in board games like *Monopoly* and *The Settlers of Catan*. An internal company blog plays mathematical Monday morning quarterback on controversial sports decisions, like the Atlanta Falcons decision to call a passing play late in the 2017 Super Bowl,

instead of a run to bleed out the clock. Susquehanna's verdict? It was a huge blunder, which boosted the New England Patriots odds of winning from 1.73% to 2.41%, an increase of about 40%.

Every year, Susquehanna hosts an internal World Series of Poker and three Susquehanna traders have actually won World Series of Poker Bracelets. Cofounder Eric Brooks won the 2008 bracelet in seven-card stud, winning \$415,856, which he donated to a non-profit that is pushing a field of thinking called "decision making science." Brooks married Annie Duke, the champion poker player turned investing guru.

There is almost nothing that goes on at Susquehanna that can't be turned into a gambling event, not even a pleasant evening at the ballpark for interns and new hires.

Yass is known to make his traders odds on any bet they want, and is particularly active on football Sundays and the Super Bowl. In the summer of 2019, when Susquehanna took its new hires to a Philadelphia Phillies game against the Mets, it offered \$10,000 to the employee who correctly guessed the final score of the game, detailing the probabilities of each team winning based on something called the Pythagoras formula. Thirty-five out of the firm's 998-participating employees correctly guessed the Phillies 5-4 winning score, so a tiebreaker on the game's ending time was used, with the winning employee picking within a minute of the 10:26 p.m. final pitch.

In some respects, the coronavirus crisis has been a tremendous boon for Jeff Yass. As society went into lockdown, gambling has flourished. Millennials took to trading apps to bet their stimulus checks on asymmetric options contracts, and hidebound sports enthusiasts placed record amounts of online sports bets. Tax-strapped local governments in the U.S. aren't complaining because the taxes of sports betting tickets can help fill the gaping budget holes caused by the pandemic. Yass is uniquely qualified to capitalize.

A few years ago, he was studying online sports gambling markets in Europe and noticed that Flutter, the parent company of betting exchange Betfair, traded at market capitalization north of \$10 billion. On the exchange, savvy handicappers publish bids and offers on sports lines, making markets in the same manner that stocks and options trade. In recent years, Yass has been building a Dublin-based sports trading outpost, which makes markets in everything from football to golf, basketball, hockey, and baseball. Susquehanna's sports traders focus on in-game betting, when odds change quickly based on new information, and Yass's two sons work in the unit. Yass is known to sweat games like any old punter, often calling down to his sons to find out which lines Susquehanna has taken.

There's no federal legalization of sports gambling in the United States, but Yass is an optimist. He wants to create the Betfair of the U.S., an opportunity that may be worth multiples of the London-listed sportsbook's \$30 billion market capitalization. "In America, there is this primitive notion that you have a bookmaker and the spreads are very, very wide, like what life was like on the New York Stock Exchange in the 1980s before electronic trading squashed the spreads," says Yass, "We're hoping the same thing happens with sports betting."

As he waits, he's expanding into cryptocurrency trading and conjuring up new financial products. Susquehanna was recently approved to begin offering futures contracts on U.S. tax rates, a derivative that he thinks can be used to hedge President Biden's efforts to raise rates on

corporations and high-earning individuals. A Libertarian who believes in the primacy of markets and skilled handicapping of odds above all else, Yass expects, perhaps simplistically, that these futures contracts will have a broad social reach. He hopes to offer futures on any Washington policy that comes down the pike. Hypothetically, if a President wanted to start a war, handicappers would show voters just how much it would cost, and at what human toll.

With these futures, “You're going to get an objective number made by the market, where there's no BS and there's no politics in it,” he says. “There are other products we want to list that we think could just make the world a more peaceful place. We can have a marketplace that has the respect of everyone, which will become the new harbinger of truth.”

All of this, he likes to say, is a “mission from God.”