GRIZZLE

WHITE PAPER

DISRUPTION AT A REASONABLE PRICE

A Framework for Investing in Innovation

EXECUTIVE SUMMARY

Grizzle views DARP, disruption at a reasonable price, as the optimal strategy within disruption. DARP focuses on companies with cash flow acceleration in a 4-6 year time horizon versus speculative themes like space travel with a time horizon of 10 years or more.

The traditional growth investing paradigm looks out 1-2 years, in the era of disruption this strategy has resulted in growth managers missing the largest outperforming companies in the market as they appeared significantly overvalued in the 2-year valuation window.

CONTENTS:

AUTHORS

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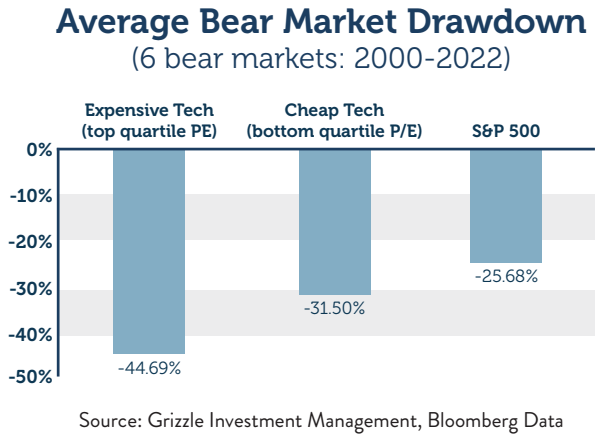
THE EVOLUTION OF GROWTH INVESTING

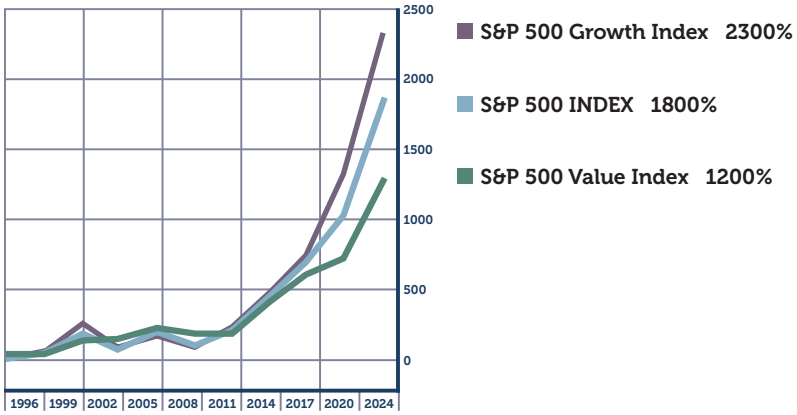
Valuation has historically been one of the best safeguards to protect investors from the exuberance that typically characterizes a stock bubble and the significant equity drawdowns that inevitably follow.

The following graph highlights the important attribute a valuation lens provides, downside protection. Over the last 6 bear markets, value technology stocks have outperformed expensive technology stocks by 13.19%, on average.



Source: Grizzle Investment Management, Bloomberg Data

However, growth investors have come to terms with the inherent downside volatility of higher valuations given the upside has been so significant in recent memory. Since 1995 the S&P Growth Index has outperformed the S&P 500 Index and S&P Value index by 460% and 1,030% respectively.



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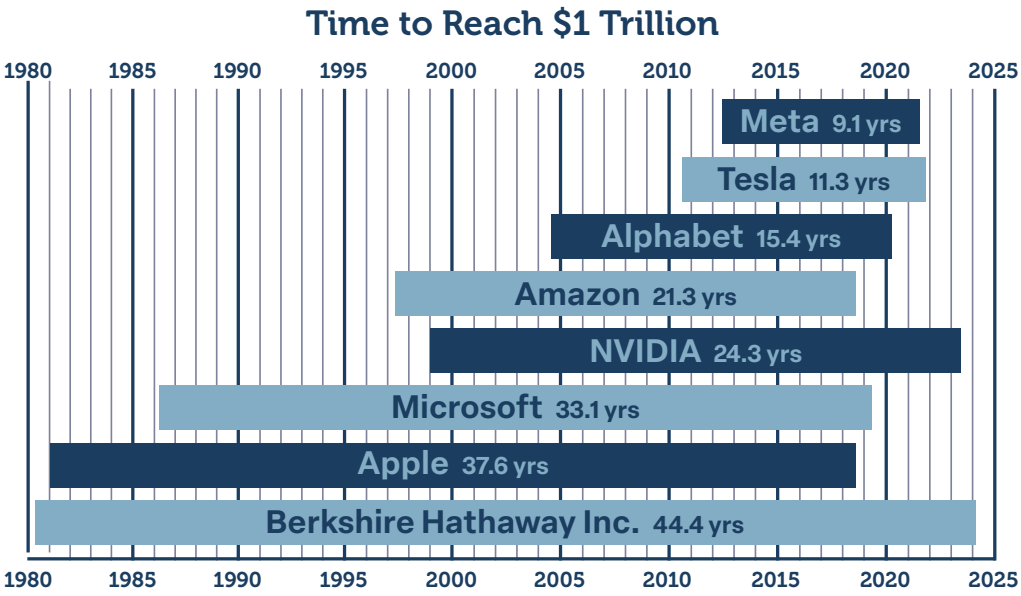
DISRUPTIVE COMPANIES ARE DRIVING MARKET RETURNS

Disruptive technology companies have been the largest source of outperformance for growth vs. value over the last two decades, their 'winner take all' business models have resulted in companies reaching market topping market capitalizations from IPO at a record pace.



https://talkmarkets.com/content/stocks--equities/berkshire-joins-the-1-trillion-club-how-long-did-it-take?post=460214

Technology stocks were the top performing companies in the S&P 500 over the last 15 years, accounting for 169% of the index's 600% total return. (28% of the total performed with an initial weight of only 16% of the index.)

Disruptive investing is the natural evolution of growth investing.

Value investing has been hamstrung by relying on book values that understate true economic productivity and backward-looking valuation metrics; growth investing is now facing similar challenges.

The traditional growth investing paradigm looks out 1-2 years. In the era of disruption this strategy has resulted in growth managers missing the largest outperforming companies in the market because they appeared significantly overvalued in the 2-year valuation window.

The first batch of disruption funds conversely look out 10+ years into the future, grasping for sci-fi investments, spanning space exploration to robo-taxis; high risk long duration bets with limited valuation guardrails.

Grizzle views DARP, disruption at a reasonable price, as the optimal strategy within disruption. DARP focuses on companies with cash flow acceleration in a 4-6 year time horizon versus speculative themes like space travel with a 10+ year time horizon.

A DARP lens limits forecast uncertainty while targeting periods of shareholder value creation through a focus on cashflow acceleration.

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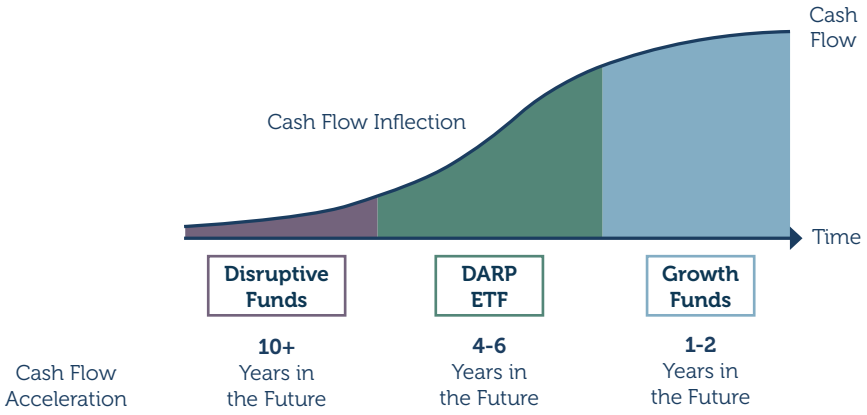
Disruption at a Reasonable Price

The Evolution of Growth Investing



This white paper will examine the following:

1. Key investment themes in disruption
2. Quantify the value of applying a DARP lens to the software sector
3. Disruptive company case studies
4. The real world performance of an actively managed DARP strategy

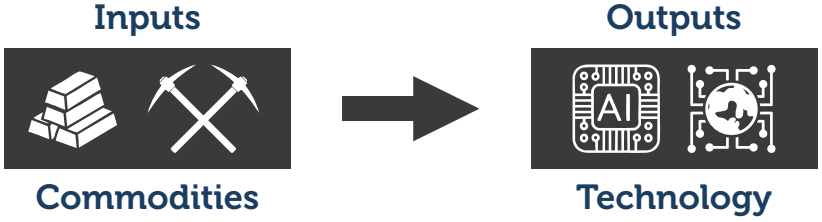
THE CONTINUUM OF DISRUPTION

Disruption as a mainstream investment strategy is still very much in its infancy; there are 65 equity ETFs in VettaFi's disruptive category, and the oldest fund is the Ark Innovation ETF (Inception: October 2014). The table below highlights the high valuation and low profitability these funds have returned to the market.

	Fwd Price/ Cash Flow	Fwd Price/ Earnings	Operating Margin	Return on Equity
Disruptive ETF Universe	76.10	39.73	-6.11%	-15.11%
S&P 500	16.15	21.57	14.16%	17.45%
Nasdaq 100	18.99	26.18	18.50%	21.00%

Source: Bloomberg, 12/31/2024, VettaFi Disruptive Equity Peer Group

The disruption category's narrow focus on high valuation, low profitability stocks misses a more fulsome view of the disruptive landscape; disruptive investors are lacking exposure across the supply chain – commodities in particular.



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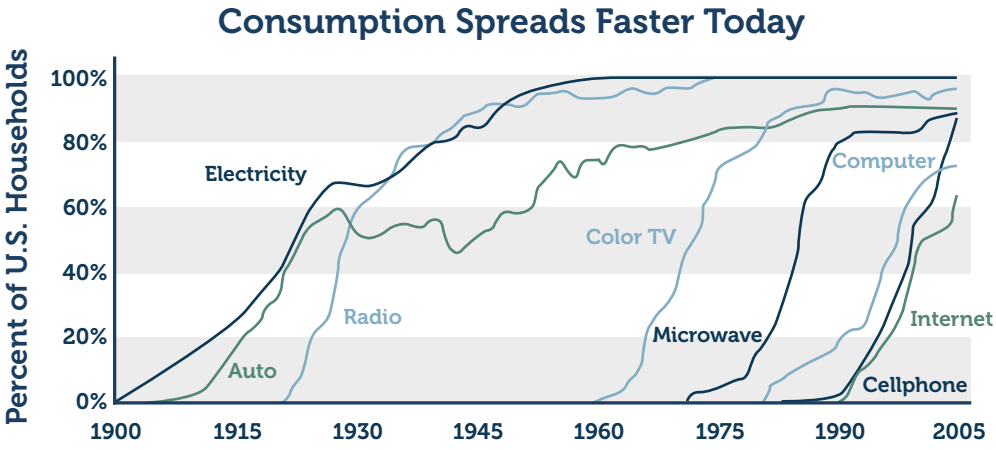
The major investment themes across the full stack of disruption include: Digitization, artificial intelligence, biotechnology, natural gas, electric metals and nuclear power.

Technology is ground zero for disruption, rapid advances in computing power over the past forty years have cut the cost and reduced the form factor of digital products dramatically. Widespread access to powerful computing tools, software and the internet are driving exponential advancements in productivity and communication.



Source: Michael Felton, The New York Times

The rapid mainstream proliferation of artificial intelligence models presents one of the greatest leaps in productivity since the internet. While the competition will be fierce among the large language models (ChatGPT, Deepseek, Claude), the underlying demand for chip processing power will be significant, Nvidia having the most advantaged position.

Artificial Intelligence has the potential to impact a majority of the workforce, an analysis of 900 occupations by Goldman Sachs found that approximately two-thirds of U.S. occupations are exposed to some degree of automation by AI.

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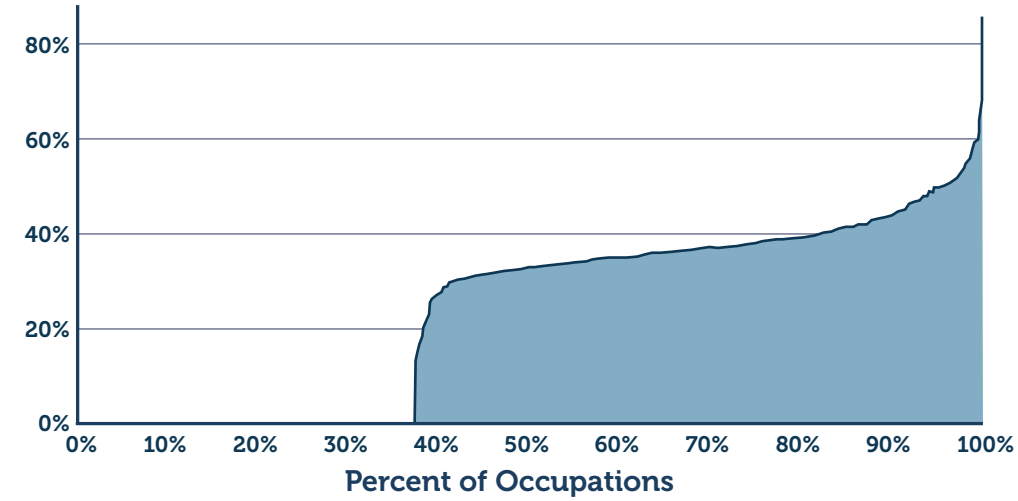
Share of Occupational Workload Exposed to Automation by AI

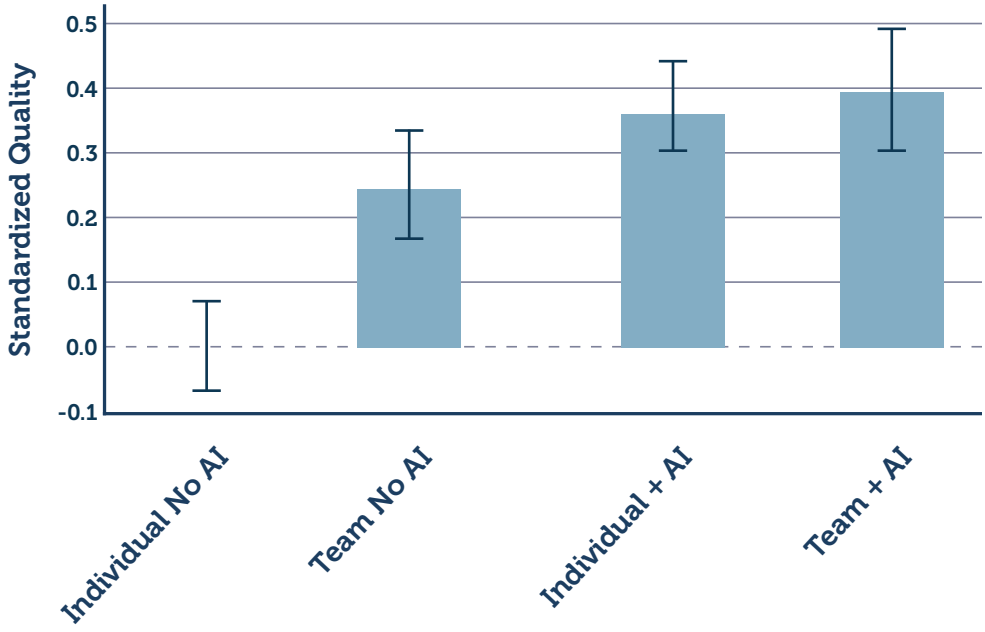


Source: Goldman Sachs Research

A quantitative study published by the Harvard Business School found that individuals randomly assigned to use AI did as well as teams of 2 people.

The experiment was run on 776 professionals at Procter & Gamble solving real world business problems.

AI Boosts Performance



Source: The Cybernetic Tammale, Harvard Business School Working Paper 25-043, 2023

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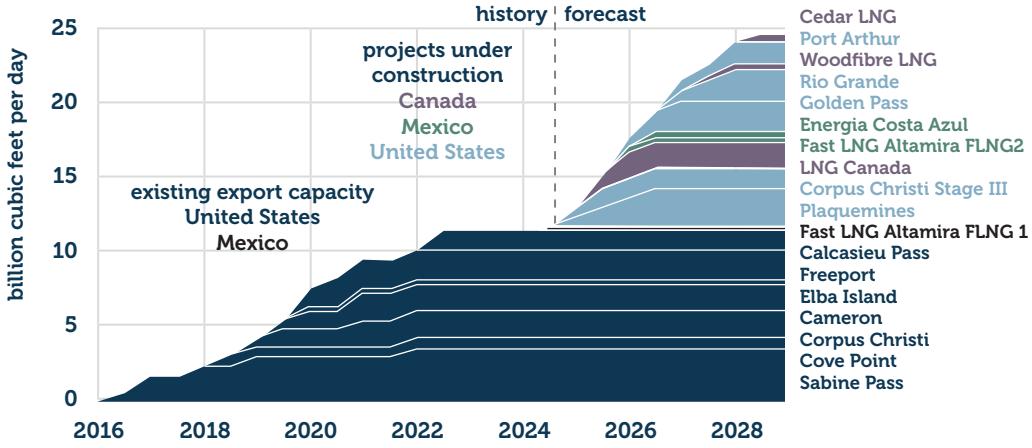
A major example of looking beyond technology is how artificial intelligence training models have created a large new vector of power demand, with natural gas emerging as the only scalable solution that can meet this demand in the near term while also possessing acceptable societal levels of pollution.

Outside of the US, AI and industrial demand will be fueled by liquified natural gas (LNG) to a major extent. US LNG export capacity is expected to double between now and 2027 according to the EIA. LNG exports are on pace to consume 20% of all gas produced in the US in two years, up from 10% last year.

Demand from AI and LNG are happening at the exact same time and will drive gas demand and prices materially higher than the market is expecting in our view.

LNG Export Forecast

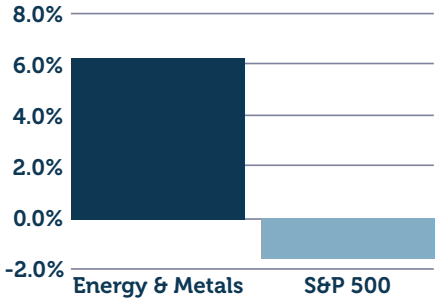
North America liquified natural gas export capacity by project (2016-2028)



Source: U.S. Energy Information Administration, *Liquefaction Capacity File*; trade press.

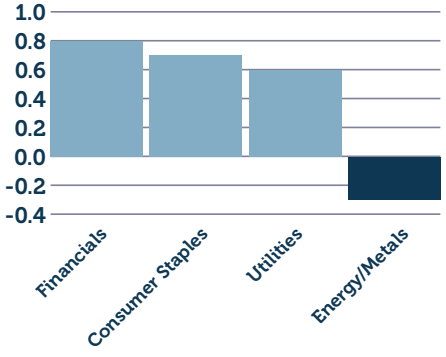
From a portfolio diversification perspective, commodities provide a disruptive investor exposure to uncorrelated returns vs. the market and inflation protection.

Annualized Real Return During Inflationary Periods (1926-2020)



As of 3/31/2020 | Source: CRSP, Federal Reserve, GMO Prior to March 1957, the S&P 500 is represented by the S&P 90 Index. Inflationary periods have been identified as periods where inflation was greater than 5% per annum for a period longer than one year.

10 Yr Correlation Between Sectors (1970-2024)



As of 3/31/2024 | Source: MSCI, CRSP, GMO

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QUANTIFYING THE VALUE OF DARP

The US software subsector provides an optimal population set to examine the quantitative efficacy of DARP. There is no other subsector of the market with a longer history of operational disruption.

We used a 20-year analysis period which captures the tech bubble recovery, the global financial crisis, the stimulus induced spike in tech multiples in 2021 and the rise of AI in 2022 through today.

The analysis focused on U.S. companies with market capitalizations greater than $100 million; we analyzed the sector by decile using forward price-to sales, equally weighted, and rebalancing quarterly.

We divided into 3 key investor types to compare against the software universe:

- VALUE INVESTOR: The cheapest decile (1st) = low forward P/S
- SCI-FI INVESTOR: The most expensive decile (10th) = high forward P/S
- DARP INVESTOR: Low P/S (1st – 4th deciles) + High Unit Profitability + High Sales Growth

QUANT ANALYSIS RESULTS

20 YEAR PERIOD: January 1st, 2004 – DECEMBER 31, 2024

The results of our study confirm the excess return potential of DARP. The DARP portfolio significantly outperformed both cheap and expensive stocks and was the only strategy to outperform the software universe as a whole; generating a return of 1,828% or 19.5% annualized over the 20 year period.

Importantly, the DARP strategy generated these returns with less volatility than the most expensive decile and only slightly higher than the overall index. As a result, DARP generated a Sharpe ratio 4x higher than the Sci-fi strategy and 70% higher than owning the entire software universe.

DARP works.

Strategy	Total Return	Volatility	Sharpe Ratio
DARP	1,828%	26%	**0.68%**
Bloomberg US Software Index	1,314%	25%	**0.48%**
Top 10% P/S	581%	33%	**0.45%**
Bottom 10% P/S	-44%	28%	**0.05%**

Source: Grizzle Investment Management, Bloomberg data

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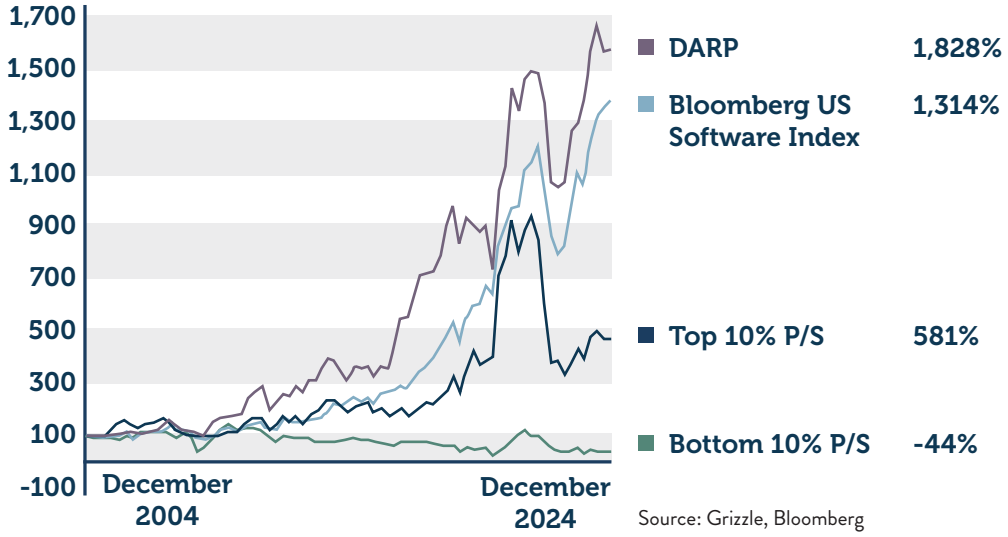
Software Sector: Quant Analysis of "Value": Dec. 2004-Dec. 2024



Source: Grizzle, Bloomberg

DARP COMPANY CASE STUDIES: IPO EXUBERANCE VS. DARP

DOES THE DARP FRAMEWORK WORK FOR "WINNER TAKE ALL" CHAMPIONS?

What if you knew with perfect hindsight at IPO that Apple would turn into the category juggernaut that it is? Would the stratospheric returns from buying and holding at IPO be superior to the DARP textbook investor who waited for confirmation Apple had become a cashflowing machine before buying in?

We set out to answer this question with two of the most iconic "I wish I just bought at IPO and held" stocks in the history of the stock market: Amazon and Apple.

COMPANY 1: AMAZON (TICKER: AMZN)

Amazon has revolutionized online retail, logistics and more importantly cloud storage and computing. Amazon Web Services arguably kicked off the current trend towards off-premise computing.

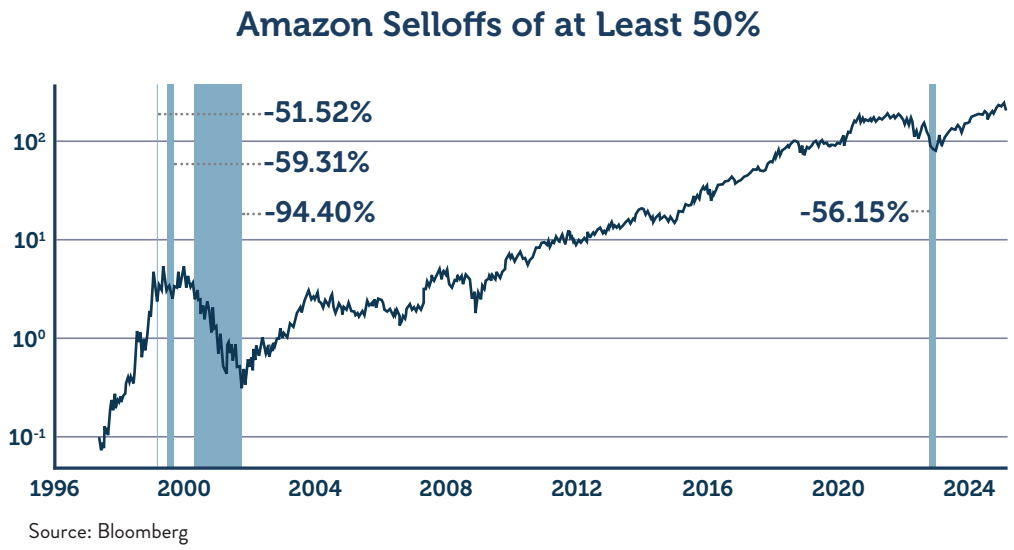
Though the company is currently viewed as a safe haven and operational leader in the technology sector, it has experienced its share of sometimes violent ups and downs on the way to gaining recognition from the investing community.

Risk Adjusted Return of the Three Strategies (AMZN)

	Start Price	End Price	Return CAGR	Annualized Volatility	Sharpe Ratio	50%+ Drawdowns
At IPO	$1.50	$3,349	37%	57%	0.61	5
6 Years Prior to Inflection	$59	$3,349	7%	31%	1.13	0
At Cashflow Inflection	$365	$3,349	38%	30%	1.20	0

Source: Bloomberg, yCharts, Standards & Poors

The first scenario in the table is if you had purchased Amazon stock in 1997 at the IPO price of $1.50/sh and held until today. An investor who bought and held from the IPO on May 23rd 1997 would have recognized a compound annual growth rate of 37% over the 24 years, an amazing return. But the return did not come without risk. Amazon's IPO investors had to navigate through five selloffs of 50% or more over the years including a 95% drawdown in 2001.



Source: Bloomberg

The second scenario looks at purchasing the stock on January 30th, 2009. This was the date 6 years ahead of the quarterly release which confirmed an inflection of cashflow was in motion.

The third scenario contemplates a purchase of the stock on market close January 30th, 2015. The day fourth quarter 2014 earnings confirmed the cashflow inflection.

An investor who waited to buy the stock until there was a solid operating history and what looked like a reasonable chance that the company would generate accelerating cashflow within a 4-6 year time horizon, was able to avoid all five major drawdowns and realized half the annual volatility of earlier investors with only slightly lower annual returns. The risk adjusted return was far superior, with a Sharpe ratio of 1.13 over the period compared to 0.61 for the IPO investor. Investor's who waited on the sidelines another six years until the cashflow inflection was confirmed had a similar outcome to the six-year prior investor though with a lower absolute return.

COMPANY 2: APPLE (TICKER: AAPL)

Apple has grown to become the world leader in personal electronics and has arguably the most profitable app ecosystem on the planet. However, even more than Amazon, Apple investors have endured operational ups and down on the company's way to becoming a market share leader.

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Similar to the Amazon example, we looked at purchasing Apple stock at the IPO in December 1980, 6 years before cashflow inflection, October 14th, 1998 and once we had earnings confirmation of the inflection, October 14th, 2004.

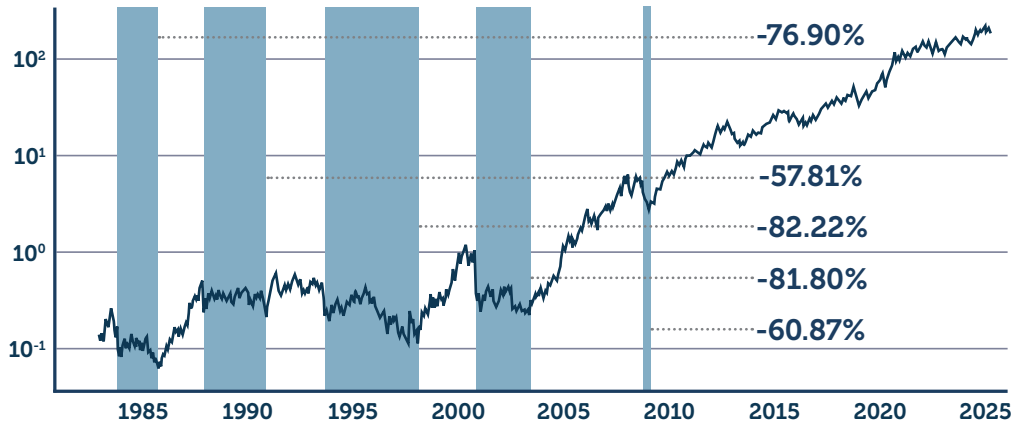
Risk Adjusted Return of the Three Strategies (AAPL)

	Start Price	End Price	Return CAGR	Annualized Volatility	Sharpe Ratio	50%+ Drawdowns
At IPO	$0.13	$182	19%	45%	0.38	6
6 Years Prior to Inflection	$0.33	$182	31%	41%	0.71	2
At Cashflow Inflection	$0.98	$182	31%	33%	1.00	1

Source: Bloomberg, yCharts, Standards & Poors

Apple went through a boom and bust soon after going public with investor's having to endure two 60%+ sell-offs in the first five years. Four more 50%+ sell-offs followed. Investor's who purchased Apple six years before the cashflow inflection saw two of these periods, and those who waited for cashflow confirmation saw one during the 2008 recession.

Apple Selloffs of at Least 50%



Source: Bloomberg

Looking at the return profile of each strategy, holding from IPO generated 40% and 46% lower annual returns respectively than the other two strategies, with higher volatility. Specific to Apple, the IPO investor had to weather four additional drawdowns and the financial uncertainty and resignation of Apple's CEO in 1985. The DARP strategy generated almost twice the Sharpe ratio and significantly higher annual compounding with less risk.

Waiting for confirmation of the cashflow inflection in 2004 did result in a better CAGR, while avoiding the 2000 tech bubble also improved annual volatility, though we would need a larger dataset to confirm waiting for financial confirmation generates better outcomes on average than DARP.

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DARP IN PRACTICE

The Grizzle Growth ETF (NYSE:DARP) was launched in December of 2021, an actively managed strategy based on the investment philosophy of disruption at a reasonable price (DARP).

The 3-year period since the fund's inception has provided an excellent market environment to capture both bull and bear markets at their extremes. Within this 3-year period (ending Dec 31, 2024) the DARP ETF was the top performing ETF within VettaFi's disruptive equity universe, with a total cumulative return of 33.04%; 7.21% ahead of the next closest competitor ETF, the Granite Shares Nasdaq Select Disruptors – DRUP.

3-Year Returns for the Top 10 Disruptive ETFs

Ticker	ETF Name	(Cumulative)	(Annualized)
DARP	Grizzle Growth ETF	33.04%	9.97%
DRUP	Graniteshares NASDAQ Select Disruptors ETF	25.83%	7.95%
IQM	Franklin Intelligent Machines ETF	23.18%	7.19%
AIQ	Global X Artificial Intelligence & Technology ETF	22.56%	7.01%
ILDR	First Trust Innovation Leaders ETF	17.21%	5.43%
SATO	Invesco Alerian Galaxy Crypto Economy ETF	13.15%	4.20%
DAT	Proshares Big Data Refiners ETF	12.55%	3.87%
THNQ	Robo Global Artificial Intelligence ETF	12.09%	3.87%
IDAT	iShares Future Cloud 5G and Tech ETF	11.63%	3.73%
FCLD	Fidelity Cloud Computing ETF	9.39%	3.03%

Source: Bloomberg, As of December 31, 2024

The performance data quoted represents past performance. Past performance does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when sold or redeemed, may be worth more or less than their original cost and current performance may be lower or higher than the performance quoted. Performance current to the most recent month-end can be obtained by calling 267-419-7469.

The DARP ETF had the lowest drawdown in the 2022 disruption & technology bear market versus the 3 largest disruptive ETFs (Global X Artificial Intelligence & Technology - AIQ, SPDR S&P Kensho New Economies Composite ETF - KOMP and the Ark Innovation ETF – ARKK). Additionally, the DARP ETF has outperformed the 3 largest disruptive ETFs on a 3-year total return basis (ending Dec 31st, 2024).

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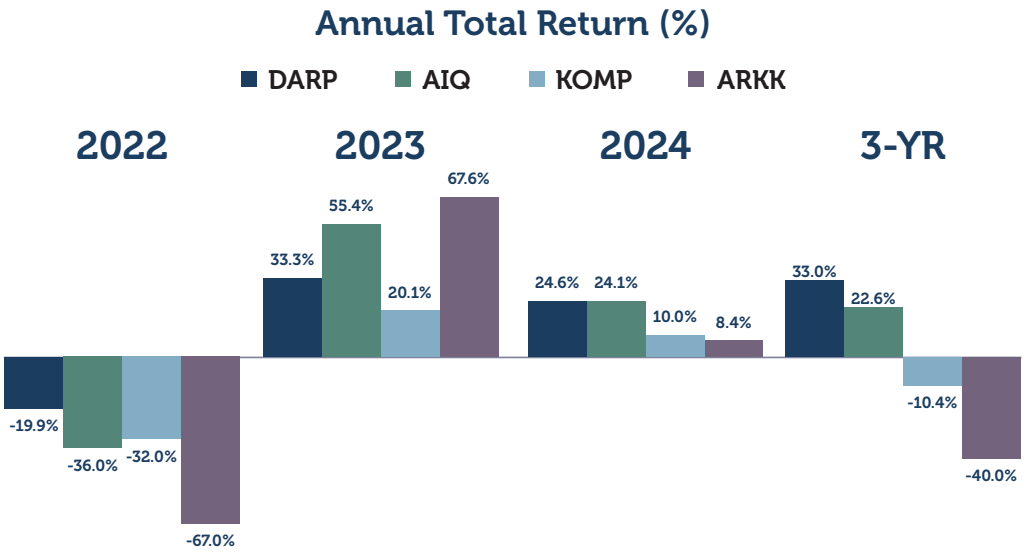
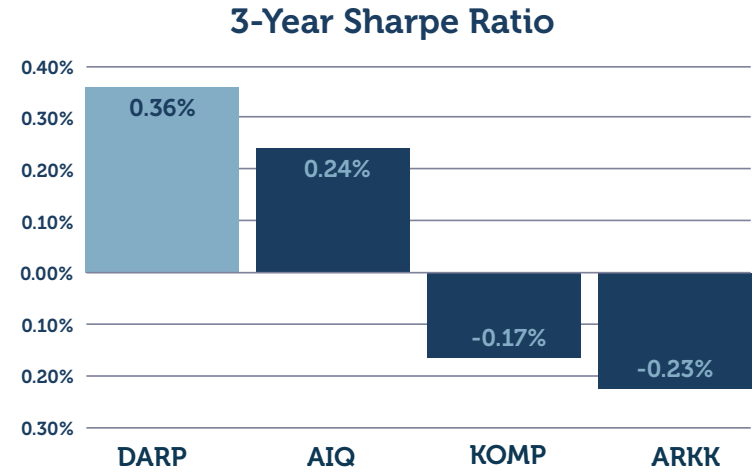
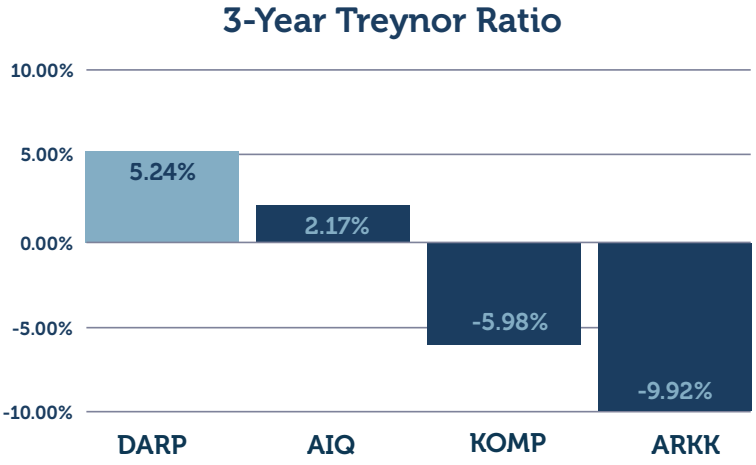


On a risk-adjusted basis the DARP ETF was also superior to the largest disruptive ETFs; with superior Sharpe (excess return per unit of risk taken) & Traynor (reward to volatility per unit of risk) ratios



Source: Bloomberg

This ratio measures the reward per risk unit. To derive this ratio, take the return of the fund, earned in excess of the risk-free rate, and divide it by the standard deviation of the fund over a 36-month time period. Three-year Sharpe = (annualized mean of monthly returns - average risk-free rate of the 36-month period) / annualized standard deviation of monthly returns. The Sharpe ratio is calculated monthly on a trailing basis.



Source: Bloomberg

A risk-adjusted measure that calculates the excess performance with respect to the risk-free rate per unit of beta over time. Performance is measured as mean return. The higher the Treynor ratio, the better the fund's historical risk-adjusted performance. This is useful for assessing the excess return from each unit of systematic risk.

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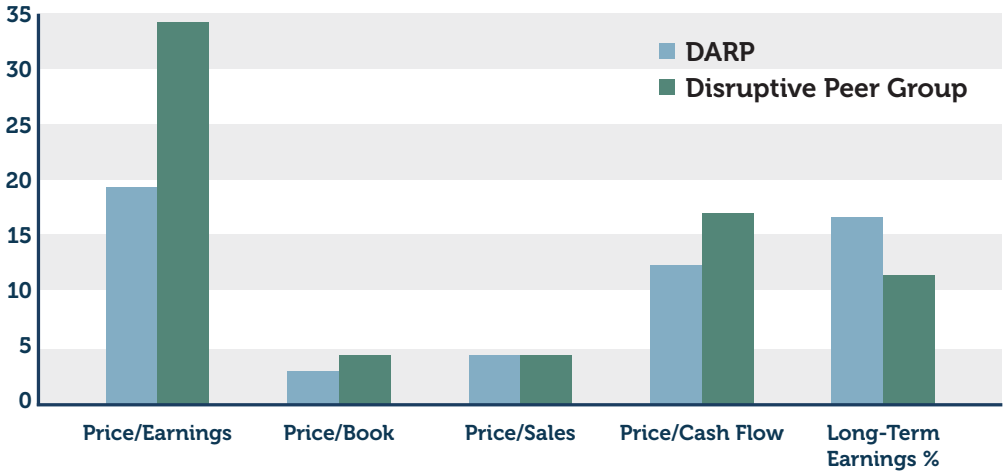
THE DARP ADVANTAGES: VALUATION & DIVERSIFICATION

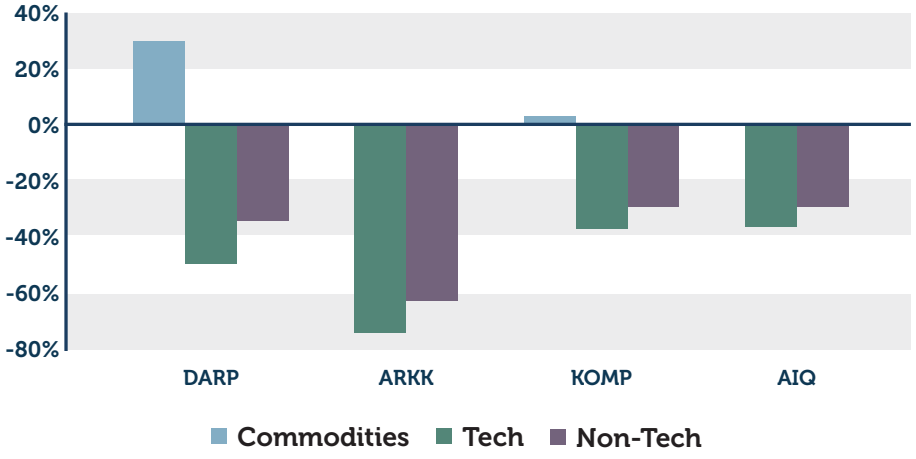
The DARP ETF's valuation focus has provided clear downside protection during market downturns vs. disruptive peers; the fund's outperformance of disruptive peers during the 2022 disruption bear market is the clearest example of this.

DARP vs. Disruptive Peer Average



The DARP strategy of investing across the continuum of disruption from commodities to technology provides diversification benefits. In the DARP ETF portfolio during the CY 2022 downturn, commodity equities (energy, materials & utilities) returned 30%, providing clear diversification benefits vs tech and non-tech disruptive stocks. The three largest disruptive ETFs (ARKK, KOMP & AIQ) lacked the portfolio diversification benefits from a commodity equity allocation.

Sector Performance During 2022 Bear Market



The DARP strategy's focus on cash flow acceleration 4-6 years into the future has allowed the DARP ETF to capture upside during the disruptive bull market of 2023-2024; 83% capture ratio vs. disruptive peer returns.

We believe the asymmetric return profile of the DARP strategy, significant downside protection and upside capture, is the optimal way to invest in the innovation and disruption asset class.

Total Return & Capture Ratio

	DARP ETF	Disruptive Peer	Capture Ratio Downside	Capture Ratio Upside
Bear Market 2022	-19.9%	-51.4%	39	-
Bull Market 2023-2024	66.0%	79.5%	-	83

Source: Morningstar

ABOUT THE AUTHORS

THOMAS GEORGE, CFA
PORTFOLIO MANAGER

Thomas is a co-portfolio manager of the Grizzle Growth ETF (Ticker: DARP). He began his career in 2002 at TD Asset Management. He held various roles, including Head of Resource Investments, head of equity portfolio analytics research, Portfolio Manager of the TD Resource Fund, TD Energy Fund, TD Precious Metals Fund. Mr. George graduated from The University of Waterloo in 2002 with an Honors Bachelors in Environmental Engineering. He is a CFA Charterholder.

SCOTT WILLIS, CFA
PORTFOLIO MANAGER

Scott is a co-portfolio manager of the Grizzle Growth ETF (Ticker: DARP). He began his career at BNY Mellon, managing portfolios for ultra-high net worth individuals. Mr. Willis later joined Credit Suisse, where he was an analyst covering the energy sector with a focus on exploration and production, refining and oilfield services. He later joined TD Asset Management, where he was a fixed income analyst covering the energy, industrials and transportation sectors. Mr. Willis graduated from Bucknell University in 2006 with a degree in Economics. He is a CFA Charterholder.

For more information about the Grizzle Growth ETF or Grizzle Investment Management visit ETF.GRIZZLE.COM.