



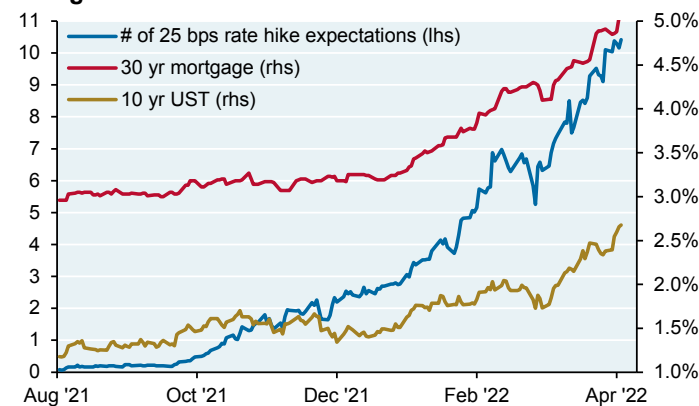
The Tide Goes Out: asset allocation, equity mutual funds and hedge funds after the growth stock selloff

Russia. This interview in Italian daily Corriere della Serra is a disturbing look at the world according to Russia, as per Putin/Yeltsin advisor Sergey Karaganov. It's entitled "[We are at war with the West. The European security order is illegitimate](#)". In addition to Karaganov's arguably distorted and at times absurd view of history, note his belief that Russia will eventually launch attacks on European countries supplying arms to Ukraine.

Market update. As I wrote in the March *Eye on the Market*, we expect the March 15 equity market lows to hold as long as there is no US recession. Some recession indicators are rising: first inverted 2-year to 30-year yield curve since 2007; a collapse in consumer sentiment to one of the lowest levels in 70 years; declining small business surveys; and ISM business survey orders falling below inventory levels for the first time since the expansion began. In addition, more signs of prolonged goods shortages and inflation: China's supply chain delays and spikes in anchored containerships due to COVID, and additional sanctions on Russia in response to what has been described as executions, torture and other war crimes committed by Russian soldiers. Even so, I think a low growth period in 2022 in the US is more likely than a recession. Labor markets are very tight (there has never been a recession without a large spike in jobless claims), household and corporate balance sheets are in very good shape, and the release of the Strategic Petroleum Reserve lowers risk of recession in the near term (though it's still a bullish sign for oil prices in the medium term). US recession risks look higher for 2023-2024.

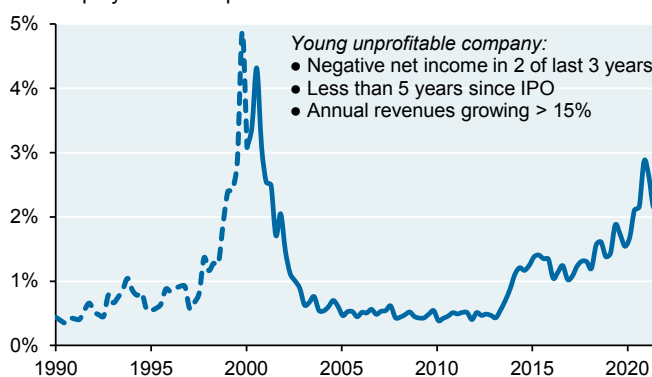
The Tide Goes Out: Growth Trade Aftermath. As of February 28th, the median NASDAQ stock was down ~40% from its prior peak, a consequence of rising interest rates and the unsustainable increase in unprofitable companies. These declines are large but pale in comparison to the 2001-2002 selloff when the median NASDAQ stock was down ~75% from its peak, and when growth outperformance vs value was completely erased (this time growth has only given up a modest amount of its outperformance vs value). In this note, we look at asset allocation, equity mutual fund and hedge fund performance after the growth stock selloff.

Rising rates

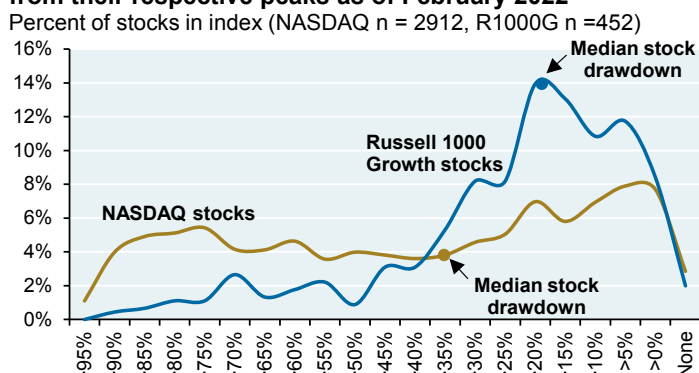


The YUCs: young unprofitable companies

% of equity market capitalization



Drawdowns of NASDAQ and Russell 1000 Growth stocks from their respective peaks as of February 2022



Next *Eye on the Market*: our 12th annual energy paper. Topics include a critical look at widely cited use cases for green hydrogen, China's coal fixation, the US transmission quagmire, electric heat pumps, the sharp recovery in oil & gas stocks relative to renewable stocks since mid-2020, US gasoline super-users and lessons from Europe about the journey to a renewable energy future.

Past performance is no guarantee of future results. It is not possible to invest directly in an index.



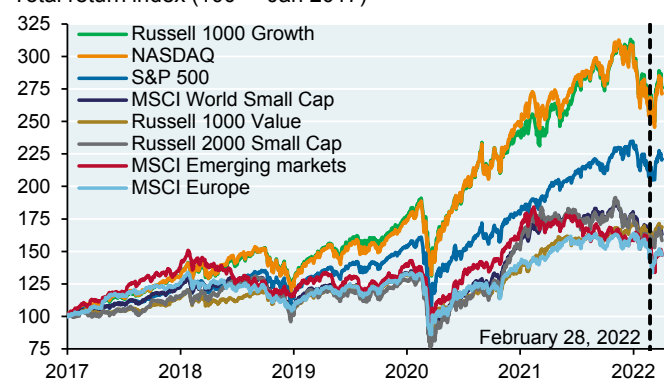
Analysis summary: a growth allocation generated substantial excess returns in pro-forma portfolios from 2017 to Feb 2022, even after the selloff. However, the four largest mega-stocks (Apple, Microsoft, Amazon and Google) accounted for almost half of these excess returns. Furthermore, only top quartile equity mutual fund and hedge fund managers delivered excess returns versus their growth benchmarks.

Asset Allocation: still a clear benefit from growth stock exposures in portfolios

To assess the benefit of an allocation to growth in equity portfolios, we compare an investment in the Russell 1000 Growth Index and the NASDAQ to other equity alternatives such as the S&P 500, Value stocks, Europe, US/Global Small Cap and Emerging Markets. The timeframe is of course a critical decision; looking back at our investment commentary over the last few years, I picked January 2017 as a starting point since that's when we began to focus on the higher revenue growth and profit margins of tech and healthcare in a slower growth world. Different starting dates would of course yield different results.

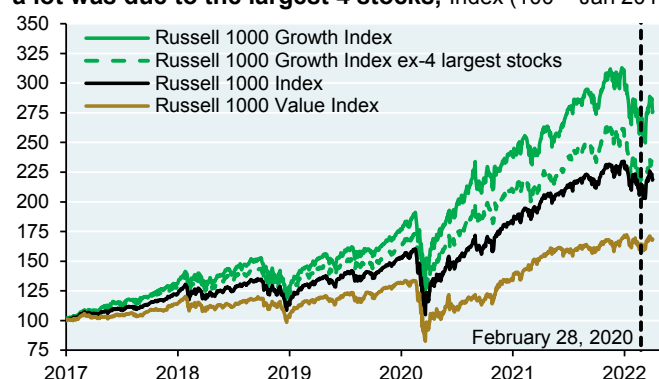
Equity benchmark performance

Total return index (100 = Jan 2017)



Source: Bloomberg, JPMAM. April 7, 2022.

Closer look at the Russell 1000: growth outperformed but a lot was due to the largest 4 stocks, Index (100 = Jan 2017)



Source: Bloomberg. April 7, 2022.

Results. Through the end of February 2022, an allocation to growth generated higher returns than the other options shown with comparable levels of volatility. However, **almost 50% of growth's outperformance vs value was derived from exposure to the largest four stocks (AAPL, MSFT, AMZN, GOOG).** For investors executing this view through passive index products, the performance discussion would stop here other than having to account for passive index fees which are generally comparable across the indexes shown¹.

Growth equity vs other equity benchmarks, January 2017 - February 2022

	Russell 1000 Growth	NASDAQ	Russell 1000 Value	Russell 2000 Small Cap	S&P 500	MSCI Europe	MSCI World Small Cap	MSCI Emerging markets
Cumulative return	171%	168%	64%	61%	115%	50%	66%	52%
Return (ann)	21%	21%	10%	10%	16%	8%	10%	8%
Volatility (ann)	17%	18%	16%	21%	16%	16%	19%	16%
Return / Risk	1.2x	1.2x	0.6x	0.5x	1.0x	0.5x	0.6x	0.5x
Cur value / peak	88%	88%	97%	89%	92%	93%	91%	86%

Source: JP Morgan Private Bank, Bloomberg. February 2022.

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¹ ETF fees generally range from 3 to 20 basis points for US equity ETFs. Global Small Cap ETF fees are around 45 basis points, and Emerging Market ETF fees are closer to 70 basis points

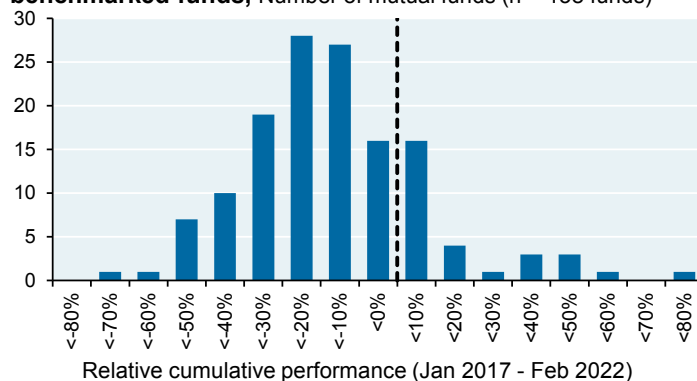
**Growth equity mutual funds: outperformance is scarce as diversification hurt returns**

Assessing mutual fund performance is a straightforward exercise:

- Use Morningstar to obtain a universe of funds in the Large Cap Growth category, excluding passive products
- Narrow to those funds with performance from Jan 2017 to Feb 2022. This does create a survivorship bias issue since we ignore funds that used to be in this category but dropped out for whatever reason
- Use the lowest fee share class for each fund as a proxy for its Institutional share class, and compute cumulative performance from 2017-2022
- Compute excess returns for each fund relative to its stated benchmark. Most growth managers use the Russell 1000 Growth Index; others use the S&P 500 and a few use the Russell 3000 Growth Index

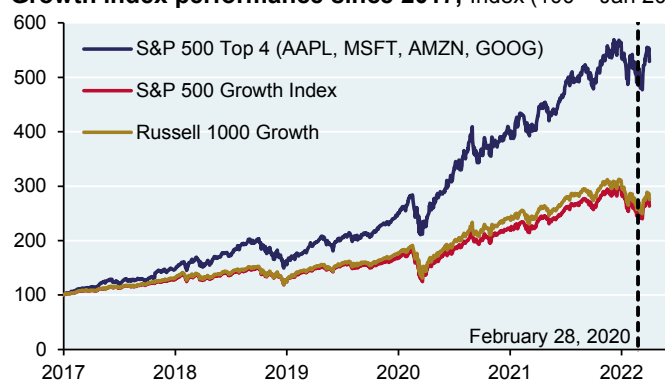
Results. Most funds with a R1000 Growth benchmark underperformed over this period. Many may have been reluctant to hold index-weight positions in the four largest stocks whose performance more than doubled the performance of growth stocks in recent years. Managers may also have been discouraged from doing so for regulatory reasons (see box). In March, the largest weights in the R1000 Growth index were AAPL 12.5%, MSFT 10.8%, AMZN 6.6%, GOOG 6.4%. **As a result, just holding market weight positions would imply 36% in these four stocks, above the 25% diversification threshold that many mutual funds seek to comply with², requiring them to be structurally underweight.** As shown in the third chart, we estimate the cost of the diversification rule applied to the Russell 1000 Growth Index to be ~15% over the time horizon.

Relative performance of Russell 1000 Growth benchmarked funds, Number of mutual funds (n = 138 funds)



Source: JPMAM. February 2022.

Performance of four largest stocks more than doubled Growth index performance since 2017, Index (100 = Jan 2017)



Source: Bloomberg. April 7, 2022.

Impact of diversification constraint on growth investors

%, cumulative outperformance of unconstrained portfolio



Source: Bloomberg, JPMAM. April 7, 2022. Assumes constrained managers remain at 23% weights across 4 largest stocks.

Diversification Rule of the 1940 Investment Company Act

Many 40 Act mutual fund managers seek to meet a **diversification test** which requires positions that are over 5% to sum to less than 25% of the fund. [Section 5-b-1] Certain investor types such as Defined Contribution plans generally prefer funds that pass the diversification test. If a diversified fund actively breaches the threshold, any securities purchased that caused the violation would need to be sold. Any losses would be reimbursed to the fund while any gains would be kept by the fund.

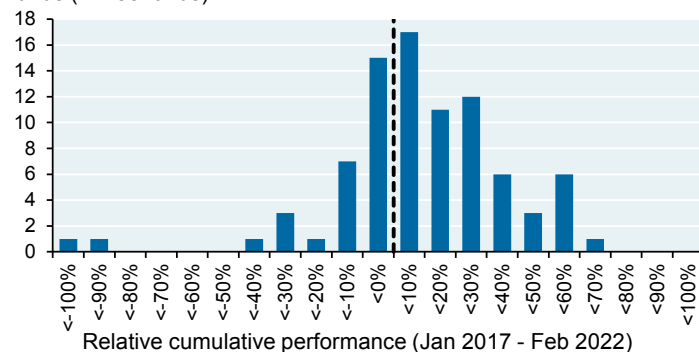
Past performance is no guarantee of future results. It is not possible to invest directly in an index.

² A mutual fund benchmarked to the S&P 500 Growth Index would face a similar problem: AAPL 14%, MSFT 12%, AMZN 7% and GOOG 8%. In other words, 41% of the index and well above the 25% threshold.



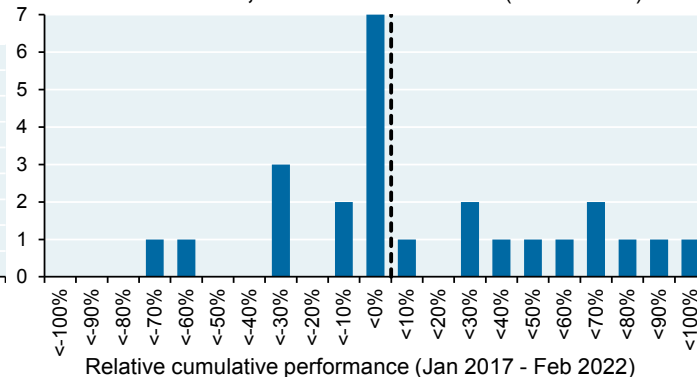
In contrast, most growth mutual funds using an S&P 500 benchmark *outperformed*. This may reflect the presence of core managers whose growth tilt was so high as to push them into Morningstar's growth category, but the manager still benchmarks their performance to the S&P 500 Index. Whether investors give managers with a strong growth tilt credit for outperformance vs a core benchmark is up to them. Not sure I would.

Relative performance of S&P 500 benchmarked funds in Morningstar's large cap growth category, Number of mutual funds (n = 85 funds)



Source: JPMAM. February 2022.

Relative performance of Russell 3000 Growth benchmarked funds, Number of mutual funds (n = 24 funds)



Source: JPMAM. February 2022.

Performance was mixed for the smaller number of mutual funds categorized by Morningstar as “growth” and who benchmark their performance to the Russell 3000 Growth Index. Given the underperformance of small cap shown on page 2 over this period, any manager with a structural underweight to small cap growth would have generated substantial excess returns over benchmark.

For legal and compliance reasons, I cannot cite JP Morgan Asset Management's large cap growth performance; you will have to look that up on your own.

Past performance is no guarantee of future results. It is not possible to invest directly in an index.

**Hedge fund performance: plenty of assumptions and triangulation required**

Measuring long only equity and fixed income mutual fund performance against stated benchmarks is a simple process. The prior section is one example of that.

As for private equity and venture capital, the development of the LP-sourced Burgiss performance database now allows for proper time-weighted performance measurement versus a variety of public equity market benchmarks without having to worry about survivorship bias or selective reporting. We discussed this in last year's [deep dive on private equity and venture capital](#). There is no easy answer to the question of what kind of illiquidity premium is “fair” to investors, but at least the magnitude of what investors earn in private equity and venture capital relative to public equity markets is much clearer.

In contrast, deciding whether a given hedge fund has performed well or not relative to its opportunity set is one of the more complicated questions in investment finance. The “LIBOR plus a spread” benchmark and the HFRI benchmarks that were popular in the 1990's are used less often now, and the “stock/bond mix” benchmark approach is used less often as well. When investors have look-through access to a hedge fund's exposures on a daily or weekly basis, they can construct a customized benchmark based on market factors to assess performance. But that is not a viable option when doing industry-level analysis with monthly data.

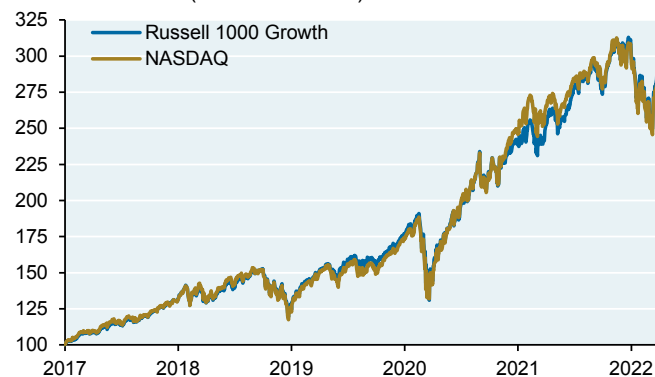
As a result, I'm going to use a simple approach to benchmark hedge fund performance. Many growth long-short hedge funds have “observed market betas” of ~0.45 relative to the Russell 1000 Growth index. In other words, over the long run their returns rise and fall at 45% of the rate of the Russell Index itself. So, we use 0.45 of the Russell 1000 Growth as a benchmark for growth long short hedge funds in this analysis. We sometimes look at a NASDAQ benchmark as well but since its performance is almost identical to the R1000 Growth Index, we only show the R1000 Growth benchmark in the charts and tables that follow. Note in the last chart how the beta-adjusted R1000 Growth benchmark is similar to a 50% S&P 500 / 50% Barclays Aggregate benchmark.

Market Beta of PivotalPath Technology and Tiger Cub hedge funds to Russell 1000 Growth Index, 2017 - 2022

Source: PivotalPath, JPMAM. February 2022.

Russell 1000 Growth vs NASDAQ performance

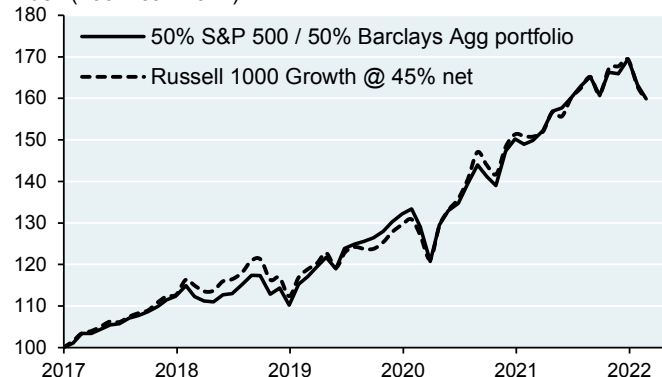
Total return index (100 = Jan 2017)



Source: Bloomberg, JPMAM. April 7, 2022.

Hedge fund benchmark comparison

Index (100 = Jan 2017)



Source: Bloomberg, JPMAM. Feb 2022.

**Then there's the challenge of *obtaining* hedge fund performance data in the first place**

Unlike the Burgiss database of LP-sourced private equity and venture capital flows, no such database exists for hedge funds. There are several aggregators that compile hedge fund performance but they all rely on hedge funds to consistently report their performance, and **many of the largest hedge funds simply have no interest in doing that**. Hedge fund managers provide performance history to investors considering an allocation, but such data is often subject to non-disclosure agreements that prevent it from being used for research publications like this one.

Once we obtain hedge fund performance data, there are still issues that make returns harder to compare. Some managers have **large private exposures** as high as 50% of the fund's NAV. When public equity markets decline, private exposures are often not repriced as quickly, making comparisons across funds harder. And of course, **gross and net leverage differ** across funds as well.

As a result, we have to triangulate and use **four separate self-reported universes of hedge fund monthly returns from January 2017 to February 2022**³. Our Asset Management's Hedge Fund Due Diligence team considers the first two more indicative of an institutional peer group, and shares the same reservations I have regarding the HFR dataset due to the lack of data from some of the largest well known funds.

- Long-short hedge funds categorized by PivotalPath as "Tech-focused"
- Long-short generalist growth hedge funds identified by JP Morgan Asset Management's Hedge Fund Due Diligence team as "Tiger Cubs" in the PivotalPath database⁴
- Long-short hedge funds categorized by HFR as "Technology" or "Healthcare" (note: we do not use the HFR Equity Hedge Growth category since it includes a lot of hedge funds investing in Emerging Markets)
- Long-short hedge funds in the eVestment database with observed market betas of at least 0.45 vs the S&P 500 Growth Index (eVestment does not have a Growth category, which is why we chose this method)

For each hedge fund universe, we identify the median, 75th percentile and 25th percentile manager⁵. For each of these managers, we show annualized returns, annualized volatility, return/risk, the fund's current NAV vs peak levels (i.e., drawdown) and its correlation with the Russell 1000 Growth Index.

Are you excited yet? I am.

³ While the Russell 1000 Growth Index rose by ~4% in March, some hedge funds may trail the beta-adjusted benchmark. The reasons: large caps outperformed small caps in March (often a headwind for hedge funds), an index of widely owned hedge fund positions was up 1% while a basket of stocks with the highest short interest rose by 6%, and while growth outperformed value, telecommunications services were up less than 1%. Finally, hedge funds with large private positions may still need to mark some of them down.

⁴ PivotalPath does not have every manager we know to be a Tiger Cub descendent, but they do have what we consider to be a large representative sample.

⁵ We equal-weight rather than asset-weight funds. As a result, we may include smaller funds with less industry impact. Asset-weighting can be problematic: what about a fund with large assets under management (AUM) at inception which then underperforms and suffers substantial outflows? If the ending AUM is used, it understates their impact. The same problem exists using inception AUM for managers that accumulate assets. Time-weighted AUM is better than using inception or ending AUM; but equal weighting is our preferred approach.



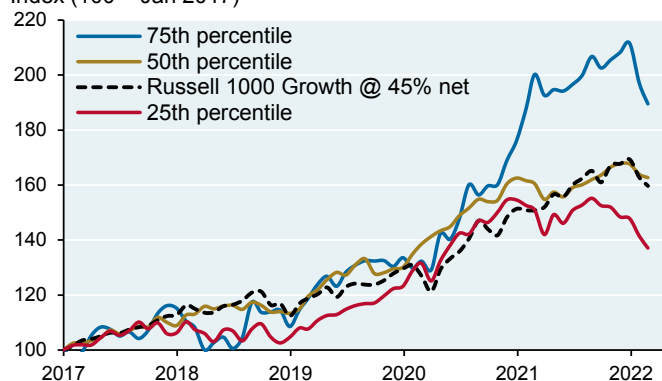
Hedge fund performance based on PivotalPath data

PivotalPath has data for 104 Technology long-short funds. However, many of these funds do not have consistent monthly data over our time horizon. We ended up with just 27 that we could analyze out of the original 104; some excluded funds began after January 2017, while others stopped reporting before February 2022. Data limitations are a frustrating and inescapable part of the hedge fund landscape.

The performance distribution looks “normal”: median Technology long-short hedge fund returns were close to our beta-adjusted growth benchmarks and also generated higher risk-adjusted returns. The 75th percentile manager’s outperformance was slightly larger than the 25th percentile manager’s underperformance.

PivotalPath Tech hedge funds, N=27

Index (100 = Jan 2017)



Source: PivotalPath, JPMAM. February 2022.

PivotalPath Tech fund performance by quartile

	25th	50th	75th	45% net exposure Russell 1000 Growth
Cumulative return	37%	63%	90%	60%
Return (ann)	6%	10%	13%	9%
Volatility (ann)	9%	6%	13%	8%
Return / Risk	0.7x	1.6x	1.0x	1.2x
Cur value / peak	88%	97%	90%	94%
Correl w Russ 1000 Gr	58%	36%	50%	

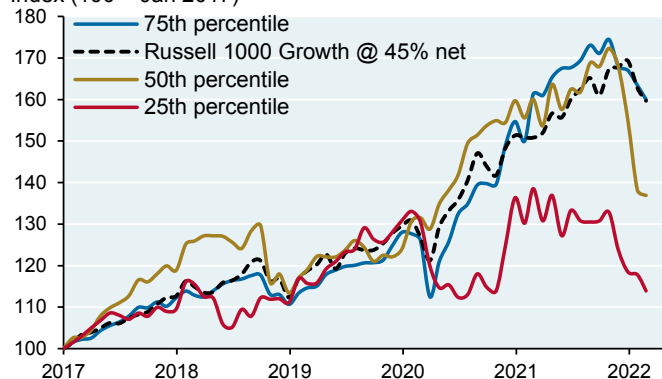
Source: PivotalPath, JPMAM. February 2022.

We then analyzed the 29 funds in the PivotalPath dataset that our Hedge Fund Due Diligence team identified as generalist growth-oriented “Tiger Cub” descendants of the original Tiger fund. However, PivotalPath only has consistent monthly performance from Jan 2017 to Feb 2022 for 12 of them.

The 75th percentile Tiger Cub fund kept pace with our Russell benchmark, while the median manager experienced a correction in Q1 2022 that left the fund well below it. The 25th percentile Tiger Cub manager generated weak performance with high levels of volatility relative to returns. Some Tiger Cub funds exhibit very high volatility: one such fund generated very high returns (above the 75th percentile over the time horizon) but also generated very high volatility (16%) and experienced a sharp selloff whose drawdown reached 37% by February 2022 (i.e., current value / peak value of 63%). This fund has reportedly experienced further large drawdowns in March despite the recovery in the Russell 1000 Growth Index.

PivotalPath Tiger Cub hedge funds, N=12

Index (100 = Jan 2017)



Source: PivotalPath, JPMAM. February 2022.

PivotalPath Tiger Cub fund performance by quartile

	25th	50th	75th	45% net exposure Russell 1000 Growth
Cumulative return	14%	37%	60%	60%
Return (ann)	3%	6%	10%	9%
Volatility (ann)	12%	11%	9%	8%
Return / Risk	0.2x	0.6x	1.0x	1.2x
Cur value / peak	82%	79%	92%	94%
Correl w Russ 1000 Gr	39%	61%	68%	

Source: PivotalPath, JPMAM. February 2022.

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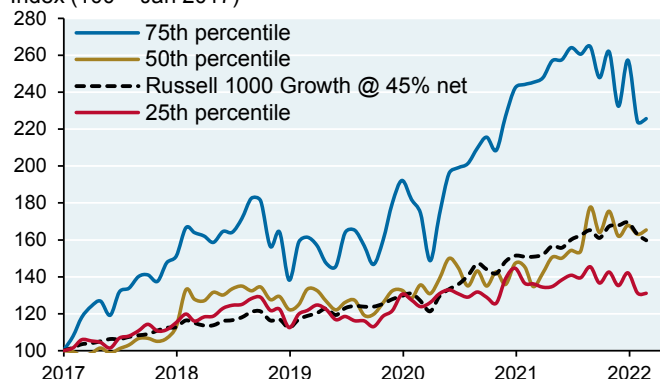


Hedge fund performance based on HFR and eVestment data

We were able to analyze 55 out of 96 long short hedge funds in the HFR dataset. As a reminder, we analyzed long-short hedge funds that were categorized by HFR as Technology or Healthcare. The results are similar to the PivotalPath Technology dataset: median manager close to beta-adjusted benchmark, with 75th and 25th percentile managers distributed on either side of them. Also similar: the 75th percentile manager outperformed by more than the 25th percentile manager underperformed. But to reiterate, we have concerns about the relevance of this dataset to institutional investors given which funds self-report.

HFR Tech/Healthcare hedge funds, N=55

Index (100 = Jan 2017)



Source: HFR, JPMAM. February 2022.

HFR tech/healthcare fund performance by quartile

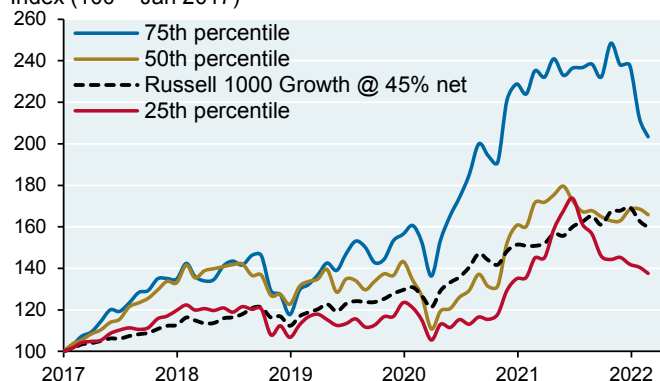
	25th	50th	75th	45% net exposure Russell 1000 Growth
Cumulative return	31%	65%	126%	60%
Return (ann)	5%	10%	17%	9%
Volatility (ann)	12%	17%	24%	8%
Return / Risk	0.4x	0.6x	0.7x	1.2x
Cur value / peak	90%	93%	85%	94%
Correl w Russ 1000 Gr	61%	40%	72%	

Source: HFR, JPMAM. February 2022.

The eVestment database has a lower rate of missing performance data than the other three datasets. We were able to analyze 231 out of 339 funds in their database. As a reminder, these funds were selected since they exhibited a beta to the S&P 500 Growth Index of at least 0.45 over the last two years. The results in most respects are almost identical to the HFR dataset results shown above.

eVestment high beta hedge funds, N=231

Index (100 = Jan 2017)



Source: eVestment, JPMAM. February 2022.

eVestment high beta fund performance by quartile

	25th	50th	75th	45% net exposure Russell 1000 Growth
Cumulative return	38%	66%	103%	60%
Return (ann)	6%	10%	15%	9%
Volatility (ann)	13%	15%	18%	8%
Return / Risk	0.5x	0.7x	0.8x	1.2x
Cur value / peak	79%	92%	82%	94%
Correl w Russ 1000 Gr	60%	66%	90%	

Source: eVestment, JPMAM. February 2022.

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Wrapping up: growth generated substantial asset allocation returns from 2017 to Feb 2022, but only top quartile equity and hedge fund managers delivered excess returns versus growth benchmarks

- **Asset allocation.** An allocation to growth since 2017 generated benefits in portfolios despite the selloff that took place through February 2022
- **Equity mutual funds.** Most growth mutual funds underperformed the R1000 Growth Index during this period. We believe that this reflects in part mutual fund manager reluctance/inability to hold market weight positions in the largest four stocks which outperformed the rest of the equity market by 300% from 2017 to February 2022, one of the largest such outperformance periods in history
- **Hedge fund performance**

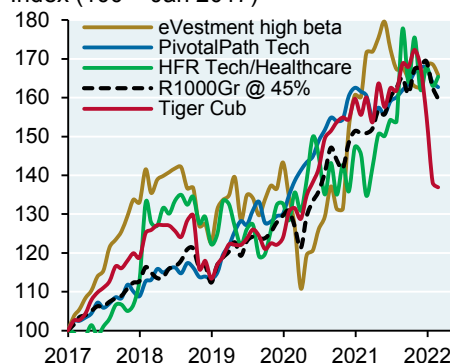
Median manager. Most median hedge fund managers tracked our beta-adjusted growth benchmarks even though they did not hold market-weight positions in the four largest stocks. The Tiger Cub manager was the exception, trailing the benchmark instead

Underperforming managers. The 25th percentile hedge fund managers all lagged our benchmark, and also generated from 1% to 5% higher volatility

Outperforming managers. The 75th percentile managers in three of the datasets generated large returns vs our benchmarks; the exception was the 75th percentile Tiger Cub fund which tracked the benchmark instead

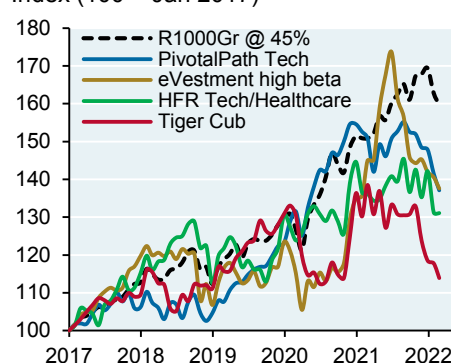
50th percentile manager

Index (100 = Jan 2017)



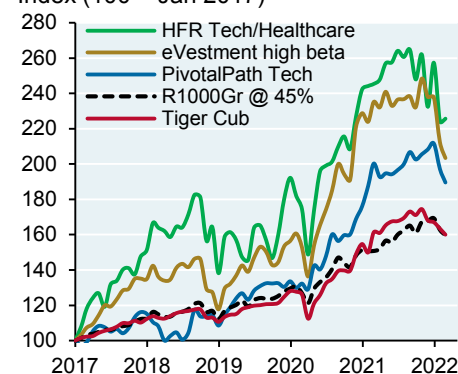
25th percentile manager

Index (100 = Jan 2017)



75th percentile manager

Index (100 = Jan 2017)



Source: PivotalPath, HFR, eVestment, JPMAM. February 2022.

- **Volatility.** Some hedge funds that experienced large drawdowns this year accumulated high prior returns, such that long term investors were still ahead of our benchmarks. This context is often missing from press articles⁶. However, volatility and risk may still be understated for funds with large private exposures
- **Benchmarks.** Using a stock-bond mix or a beta-adjusted equity index is a simple approach that does not take into account the investment style of the manager. Hedge fund researchers often take performance measurement analysis to a deeper level to determine what a fund is doing with its capital, and measuring performance relative to a customized benchmark (see Appendix I). Such an approach is beyond the scope of our industry wide analysis given the limitation of monthly returns
- **Data issues.** Selective reporting, survivorship bias and lack of comparability cloud the results. For the PivotalPath dataset, we were only able to analyze less than half the managers that existed during the time horizon due to missing data. Appendix II reviews the performance of partial managers which we excluded

⁶ One example: "Selling in speculative tech stocks knocks Tiger Cub hedge funds", Financial Times, March 8, 2022. The article has a table of 2020 and 2021 performance by fund but makes no mention of prior performance. The article does make interesting points about overlapping exposures in certain growth stocks, and allows readers to examine these positions based on fund regulatory filings.



Appendix I: Factor based hedge fund performance analysis

A large institutional investor can often obtain high frequency returns and leverage directly from a hedge fund. Hedge fund researchers can then regress these returns against market “factors” such as price-to-book, cash flow to enterprise value, price momentum, low volatility, etc. Each factor is constructed as a miniature long-short position; i.e. a price-to-book factor would show the daily returns on a portfolio that owned the “cheapest” stocks (lowest price to book) and was short the most expensive stocks (highest price to book).

If a hedge fund’s returns are highly correlated with one or more factors over time, that set of factors can be used as a benchmark with any residual performance differences measuring the manager’s excess return vs benchmark. The more customized a factor based benchmark is, the more the hedge fund is being measured against their *assumed* opportunity set. As a result, the benefit or penalty from investing in low volatility or low price to book stocks is assumed to be an asset allocation decision that the manager is not responsible for.

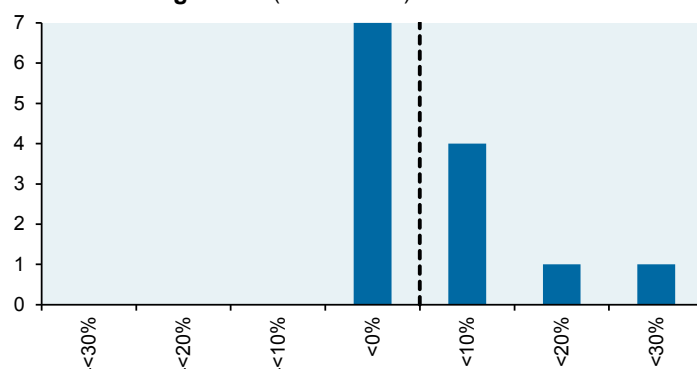
Other approaches require **position-level transparency**, which would allow for a hedge fund researcher to determine how much the fund made from market exposure, sector, country and style preferences, with any residual representing manager excess return.

Appendix II: Hedge fund survivorship bias and missing data

There’s not much we can do about missing data. But for hedge funds we excluded due to incomplete data, we can at least see if there is any performance skew for returns they *did* report during the 2017-2022 time horizon. As shown below, **we unsurprisingly found a modest bias towards outperformance in the partial returns that these excluded managers did report**. But the missing data remains a mystery, which is why we excluded these managers and their partial returns in the overall analysis.

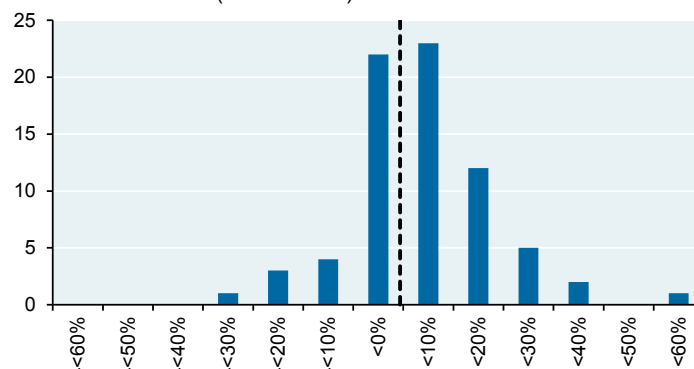
Number of excluded funds out/underperforming R1000 Growth based on their partially reported returns

PivotalPath Tiger Cub (n = 13 funds)



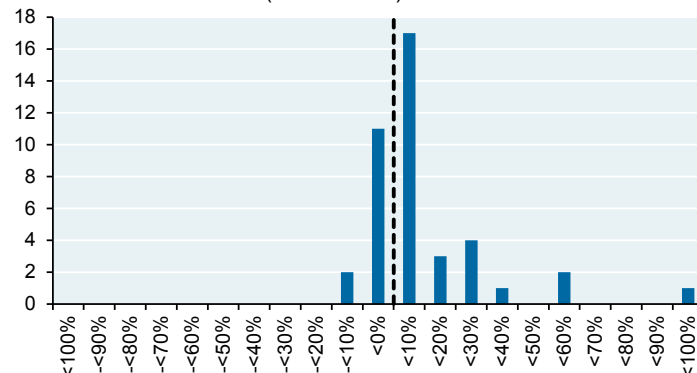
Excess ann. return vs Russell 1000 Growth @ 45% net exposure
Source: PivotalPath, JPMAM. February 2022.

PivotalPath Tech (n = 73 funds)



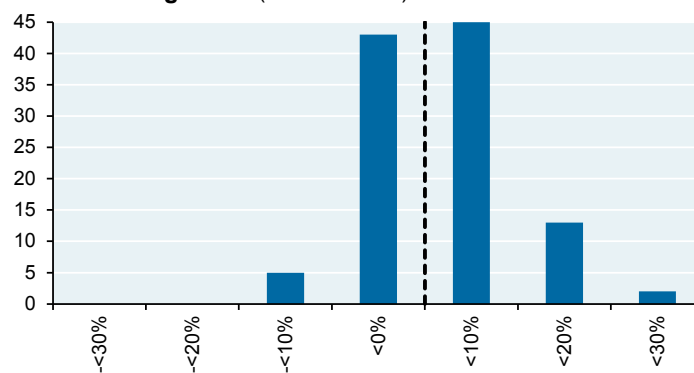
Excess ann. return vs Russell 1000 Growth @ 45% net exposure
Source: PivotalPath, JPMAM. February 2022.

HFR Tech/Healthcare (n = 41 funds)



Excess ann. return vs Russell 1000 Growth @ 45% net exposure
Source: HFR, JPMAM. February 2022.

eVestment high beta (n = 108 funds)



Excess ann. return vs Russell 1000 Growth @ 45% net exposure
Source: eVestment, JPMAM. February 2022.

**IMPORTANT INFORMATION**

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