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TRIVARIATE RESEARCH

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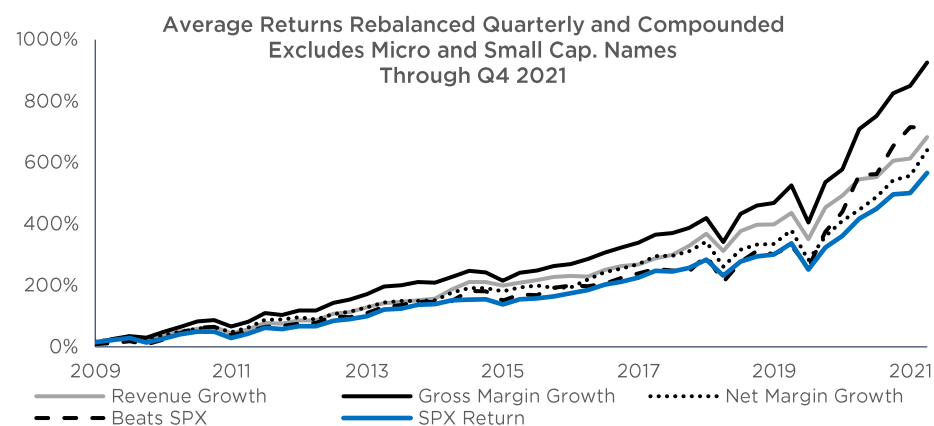
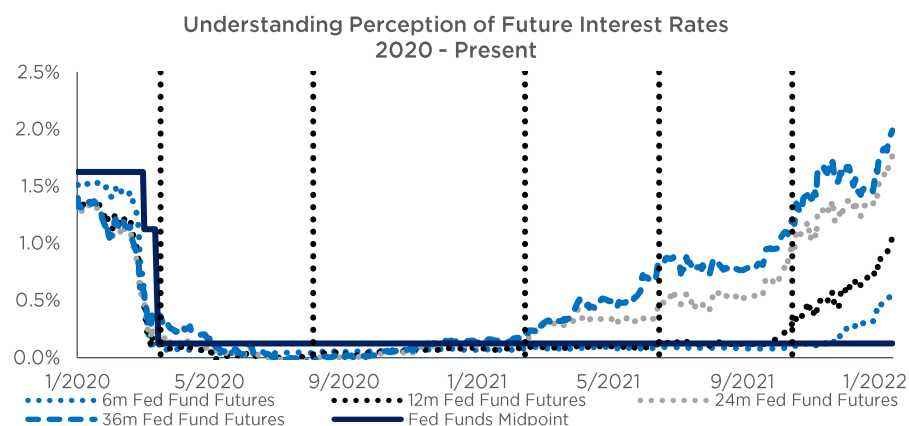
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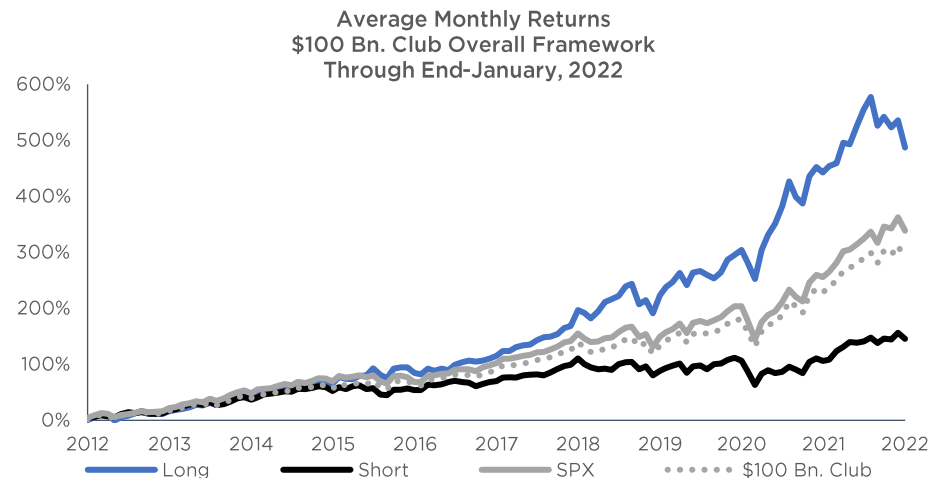
For further information on our Quantitative Framework, or our notes on the challenges of alpha generation, FAANGM, BATJ (Baidu, Alibaba, Tencent, JD.com) or ESG ETFs please contact us or log into our website www.trivariateresearch.com for access.

FOUR CHARTS YOU SHOULD NOT MISS

Investors are now more hawkish on perception of future interest rates (upper left). The key focus today should be gross margin expansion, as this leads to the highest likelihood of compounding (upper right). Our sector bets include energy / materials over industrials, discretionary over staples, healthcare over tech, and utilities over REITS (bottom left). We identified a stock picking framework for the Nifty Ninety (the stocks over \$100 billion market cap), including our quant models and sell-side consensus (bottom right).



Trivariate Sector Recommendations		
Sector	Recommendation	Comments
Materials	Max Overweight	Buy the cheap stocks with upward revisions
Energy	Max Overweight	Rising oil & supply-demand imbalance seem substantial
Health Care	Overweight	Services=cheap growth, & biotech sell-off=over-done
Communication Services	Equal-Weight	Most names have lagged materially in last year
Utilities	Equal-Weight	Some idiosyncratic investments are sensible
Consumer Discretionary	Equal-Weight	Peaking metrics, prefer select retail to durables
Information Technology	Equal-Weight	Market-weight FAANGM, prefer pos. FCF & growing margins to decelerating revenue & neg. FCF
Financials	Equal-Weight	Prefer large banks over small, increasingly cautious as expenses rise and hawkishness "peaks"
Real Estate	Under-Weight	Feel better about this group than a year ago, but still challenged in commercial space in many areas
Consumer Staples	Under-Weight	Many short ideas in idiosyncratic staples, & stretched large-cap valuations
Industrials	Max Underweight	Peaking activity, but high expectations. Have begun to reset, but good hedge against energy / materials.



INVESTMENT CONCLUSIONS

Our outlook for US equities generally assume mid-single digit annual returns, and that is still our base case for 2022. While the massive change to the perception of interest rates morphed into a full-on growth scare in January, we see earnings growth for 2022 over 2021 as likely. Perhaps the probability that 2023 earnings are not above 2022 earnings is now higher, the result of a more hawkish Fed and a softening economy, but we see limited build-up in inventory, capital spending, and hiring, so the main profit controversies are around pricing power and mix on the revenue side, and the rate at which inflationary pressures related to commodities, wages, and logistics abate on the cost side. The consensus views 2022 as a down year for US equities, and we do not agree, as the algorithm of 2% total yield, 1% mix shift from new companies added to the SP500, and 3-5% “organic” EPS growth, makes the total return algorithm of 6-8% attractive vs. most other asset classes in our judgment.

Valuation: Pushback is usually around the elevated market multiple. While the market is expensive relative to its own history at 20.4x forward earnings, the constitution of the market has changed. Nearly 20% of the top 3000 US stocks market cap is FAANGM. Roughly 20% of the market is pharma & biotech. or software companies, where belief in sustained growth matters. Signs of management hubris are missing, as capital spending-induced impediments to margin expansion in most industries do not appear likely and inventory risk is small. The key is whether wage and commodity inflation and supply chain disruption will cause broad based margin contraction, hampering 2022 earnings. We think the current perception of how hawkish the Fed is will prove wrong – as the Fed is unlikely to raise rates any where near as much as the consensus expectations in the next year. We do not have stable prices or full employment, the dual-mandate pre-requisites for that action.

BUY IDEAS

Our themes are as follows:

- 1) **Buy “old technology”:** It is extremely cheap and acts well when the Nasdaq does not. We recommend DELL.
- 2) **Buy select software:** Software with revenue growth, margin expansion, positive free cash flow, and pricing power work well following growth-stock sell-offs. We think CRM is interesting after its underperformance.
- 3) **Buy mid-cap biotechnology:** Innovation has been overly discounted, and the terminal value argument does not really make sense. We like mid-cap biotechnology.
- 4) **Buy healthcare services:** They have above average revenue growth, lower volatility of growth, yet lower valuation. We like UNH.
- 5) **Buy oil-sensitive energy stocks:** The risk-reward skewed to the upside for oil. XOM, CVX, SM, and CPE are statistically significantly sensitive to oil prices.
- 6) **Buy housing exposure:** housing generally looks strong, so finding idiosyncratic exposure is prudent. Homebuilders typically lag as rates rise, so Z is a potentially idiosyncratic bet on strong trends.
- 7) **Buy consumer services:** Restaurants have suppressed margins that should expand as reopening continues and cost pressures slowly abate. EAT could be a recovery play as cost pressures eventually abate.

SHORT IDEAS

We think that investors can short individual stocks more aggressively. Given the efficacy of the short interest signal lately, we think this is true even of names with higher short interest.

- 1) **Short low-quality work-from-home stocks:** High quality reopening has lagged low quality work-from-home since the beginning of COVID. While this has begun to correct in the last few months, we think this trend will continue. We pitched PTON as a short idea in our year-ahead outlook.
- 2) **Short profitless software:** Following growth stock sell-offs, outperformers have positive free cash flow and gross margin expansion. Short those with contracting or stagnating margins and negative free cash flow. BILL is one we highlighted as negative FCF, decelerating revenue growth, and high valuation.
- 3) **Short select industrials:** Industrials with high incremental gross margin expectations will underperform as industrial economic activity plateaus. Avoid capital goods / machinery with incremental gross margin expectations well above normal. IR has a high multiple on high expectations.
- 4) **Short expensive staples:** Some staples are over-earning due to COVID behavioral shifts, and now embed continued high growth and elevated valuation, creating potential downside as growth eventually disappoints. HELE appears to be over-earning.
- 5) **Short regional banks:** Some rate-sensitive banks have seen strong price-to-tangible book expansion on a changed perception of rates that may ultimately prove to be overly optimistic. SBNY is the most loved bank, so we will take the other side of that.

INVESTMENT CONCLUSIONS

- **Gross exposure advice:** We ingest over 150 macro variables and conclude that the consumer backdrop remains strong. Economic and industrial activity are at high levels but have stopped increasing in recent weeks. The consumer remains relatively robust. Commodities have stopped increasing, the short-term yield curve has transitioned to a bear-flattening, and the result is company-specific risk has stopped increasing- macro variables are explaining more of the average stock's returns than a month ago. This means investors should gross up consumer and energy, gross down durables.
- **If risks did not change, anyone could do risk management.** The importance of measuring “work from home” vs. “reopening” exposure crossed with quality and junk, inflation exposure, and the unprecedented correlation of signals in certain segments like REITS and industrials are all huge risks that grew after COVID-19 roiled markets in Q1 2020. When considering risk, investors should consider correlation convexity and negative asymmetric beta. We wrote recently about crypto as a new risk to monitor. All 11 GICS sectors on an equally-weighted basis lagged the SP500 in Q4 2021 for the first time ever, and yet have also underperformed YTD in a down market – that’s how much cap is a risk.
- **Growth managers should avoid expensive stocks with new CEOs,** as 65% of these stocks underperform over the next 4 to 8 months. They also should question whether buybacks are prudent, as in aggregate this has destroyed value since the financial crisis. The initial reaction to deals is prescient, as acquirers buying more than 20% of their market capitalization that lag the market for the first week of trading post the announcement tend to lag for nearly two years.

EARNINGS EXPECTATIONS TROUGH IN Q2 AND ACCELERATE AFTER

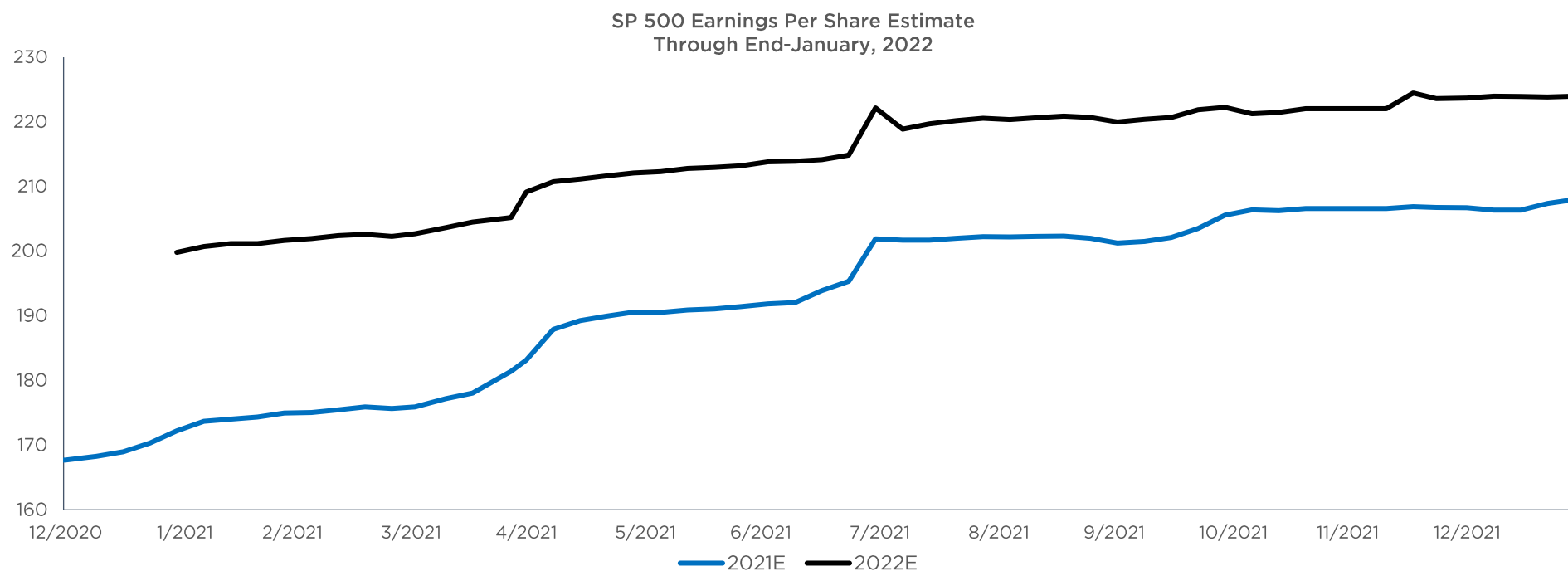
The bottom-up YoY earnings growth was 36.7% for Q3, down from the 92.4% growth in Q2 (a function of the COVID trough) but up from where expectations were at the end of Q2 2020. Earnings are expected to decelerate but remain in the mid-twenties through Q4, trough in Q2 2021, and then accelerate again from there. The energy sector lost money in 2020, so the rebound is to be expected. Industrials companies have very high YoY earnings growth expectations every quarter through 2022, which we thinks create poor relative estimate achievability – something we have seen so far during Q4 earnings season.

Bottom-Up Analyst Earnings Growth Expectations
January 28, 2022

Sector	1Q21	2Q21	3Q21	4Q21	1Q22E	2Q22E	3Q22E	4Q22E
S&P 500	46.7%	92.4%	36.7%	23.9%	6.0%	4.8%	7.9%	11.9%
S&P ex-Financials	33.2%	73.1%	38.0%	28.2%	13.6%	10.8%	11.0%	14.4%
Consumer Discretionary	224.2%	258.2%	12.1%	1.6%	(1.7%)	21.6%	37.4%	54.6%
Consumer Staples	8.3%	16.4%	(1.8%)	2.0%	3.3%	4.0%	12.6%	8.9%
Energy	16.0%	N/A	N/A	N/A	184.9%	71.3%	14.2%	(12.2%)
Financials	130.9%	251.8%	30.9%	6.5%	(21.4%)	(19.4%)	(6.7%)	(0.4%)
Health Care	21.7%	20.1%	25.5%	16.7%	10.6%	9.2%	3.1%	10.5%
Industrials	(4.6%)	384.1%	66.6%	75.1%	38.4%	25.7%	34.9%	58.5%
Info Tech	37.7%	41.9%	34.6%	19.0%	6.7%	5.2%	6.6%	9.8%
Materials	53.7%	128.3%	82.2%	44.0%	38.0%	3.7%	(2.3%)	0.1%
Communication Services	49.7%	68.2%	36.6%	9.9%	(1.5%)	(0.6%)	5.1%	13.7%
Utilities	(1.0%)	13.7%	5.9%	3.1%	8.4%	(10.1%)	(0.9%)	13.9%
REITS	3.4%	27.5%	22.8%	43.3%	12.3%	5.6%	9.8%	(9.0%)

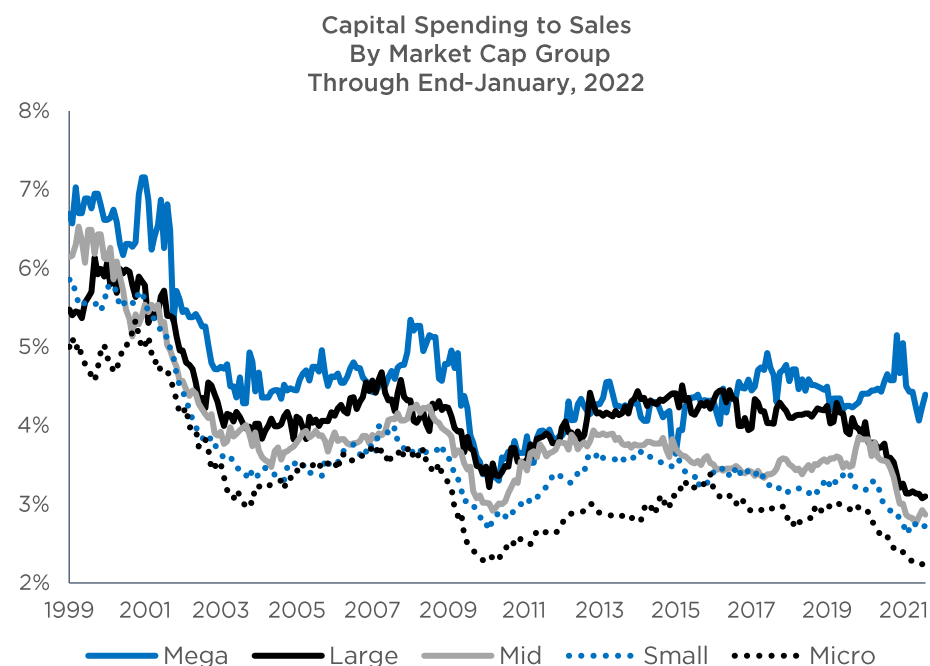
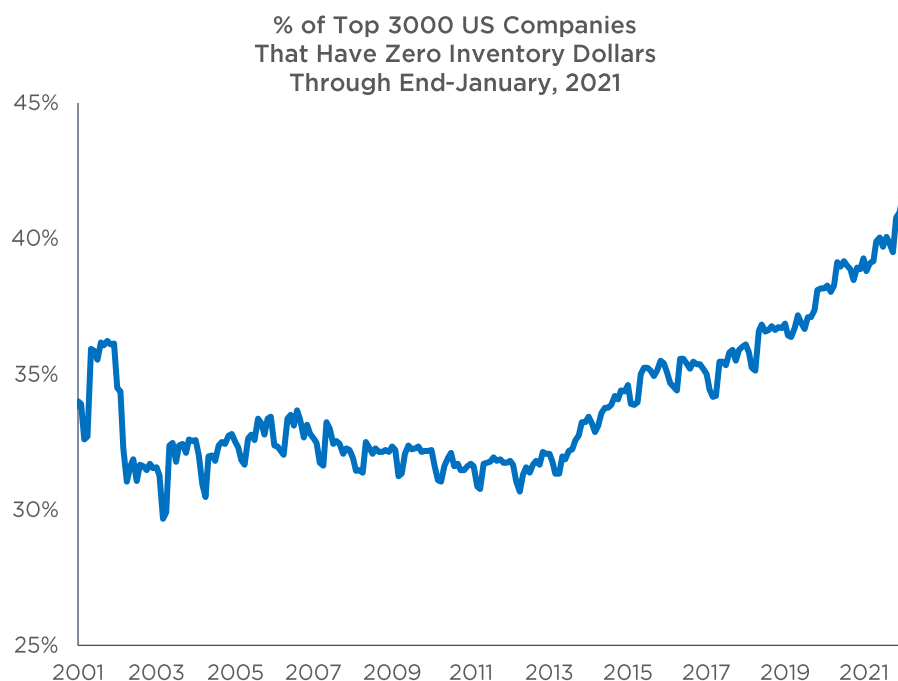
EARNINGS EXPECTATIONS HAVE RISEN OVER 23% IN THE LAST YEAR

The bottom-up median analyst earnings expectations have sharply risen all year. Since the end of 2020, 2021 estimated EPS is up 24.0% (from \$167.68 to \$207.97) and 2022 estimated EPS is up 12.1% (from \$199.80 to \$223.98). It is unusual for actual earnings estimates at the end of year to exceed the initial forecasted estimates for the following year. Analysts on average forecast 14% earnings growth at the beginning of each year, and the actual growth has been closer to 6%. The only year's initial analyst estimates have ultimately proven to be too low were recession recoveries, or the year after, when the analysts collectively get too pessimistic at the bottom. That behavior was born out again this cycle, though the sheer magnitude of the upward revisions throughout the year is notable



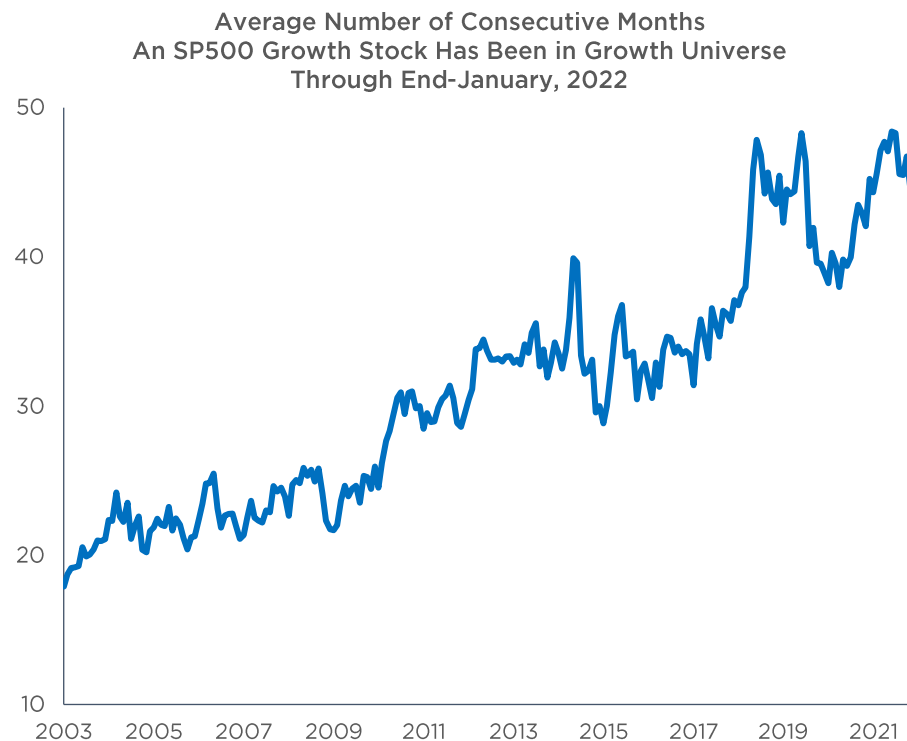
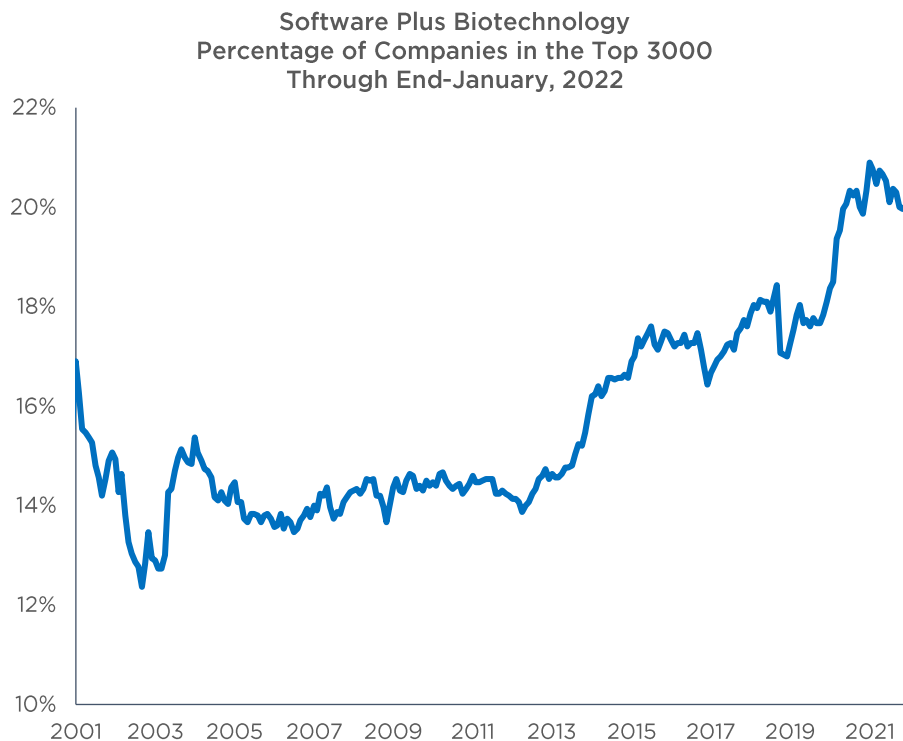
INVENTORY AND CAPITAL SPENDING ARE NOT BURDENS TO PROFITS

We do not believe that margins for US companies will mean-revert to a long-term average. Overall inventory is less of a risk than it was in the past, because over 40% of the top 3000 US equities now do not even *have* inventory. That is roughly 300 more stocks than 20 years ago. Moreover, we are still more likely to hear about shortages (semiconductor supply chain) than excesses in many areas of manufacturing today. Therefore, an inventory burn off or backlog cancellation seems highly unlikely to impede margin expectations resulting from higher factory absorption for the coming couple of quarters. Instead, restocking could drive higher factory utilization and margins for manufacturers. Excessive capital spending can also be bad. However, we generally have not seen any increases in capital intensity (right chart), with large cap capital intensity at 20-year lows, so there is limited fear of over-producing consumption in the near-to-medium term.



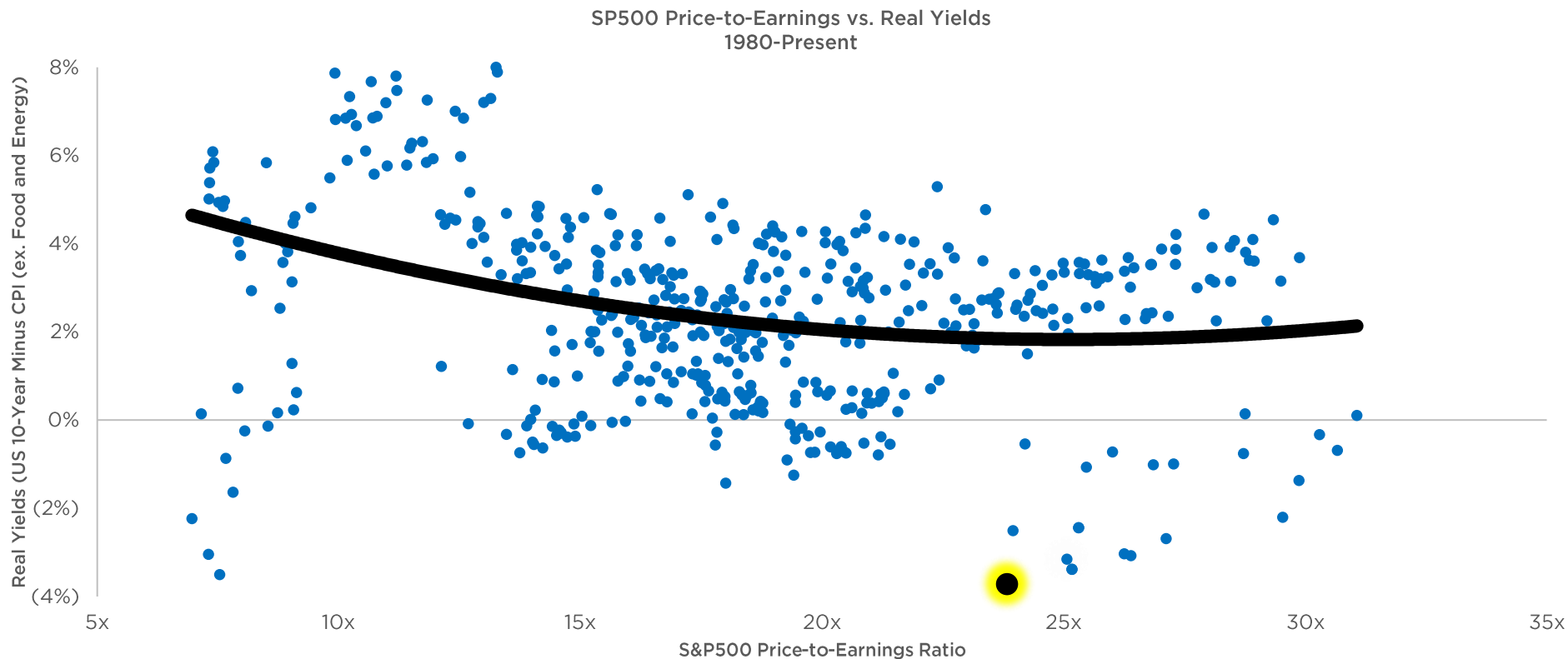
IS VALUATION DEFENSIBLE? CONSTITUENTS HAVE SHIFTED

Roughly 20%, or 600 of the biggest 3000 public US equities are currently in the Software & Services or Pharmaceuticals, Biotechnology, and Life Sciences industries. That is nearly twice the number we had 20 years ago! Investors are buying long-dated potential growth, not current profitability (left chart). We think that the elevated market valuation is in part sensible because these faster-growing businesses are maintaining their growth status for close to the longest amount of time ever (right chart) with the average number of consecutive months a growth stock in the SP500 has been able to grow near a record level of 44 months straight, up from just under two years in 2007.



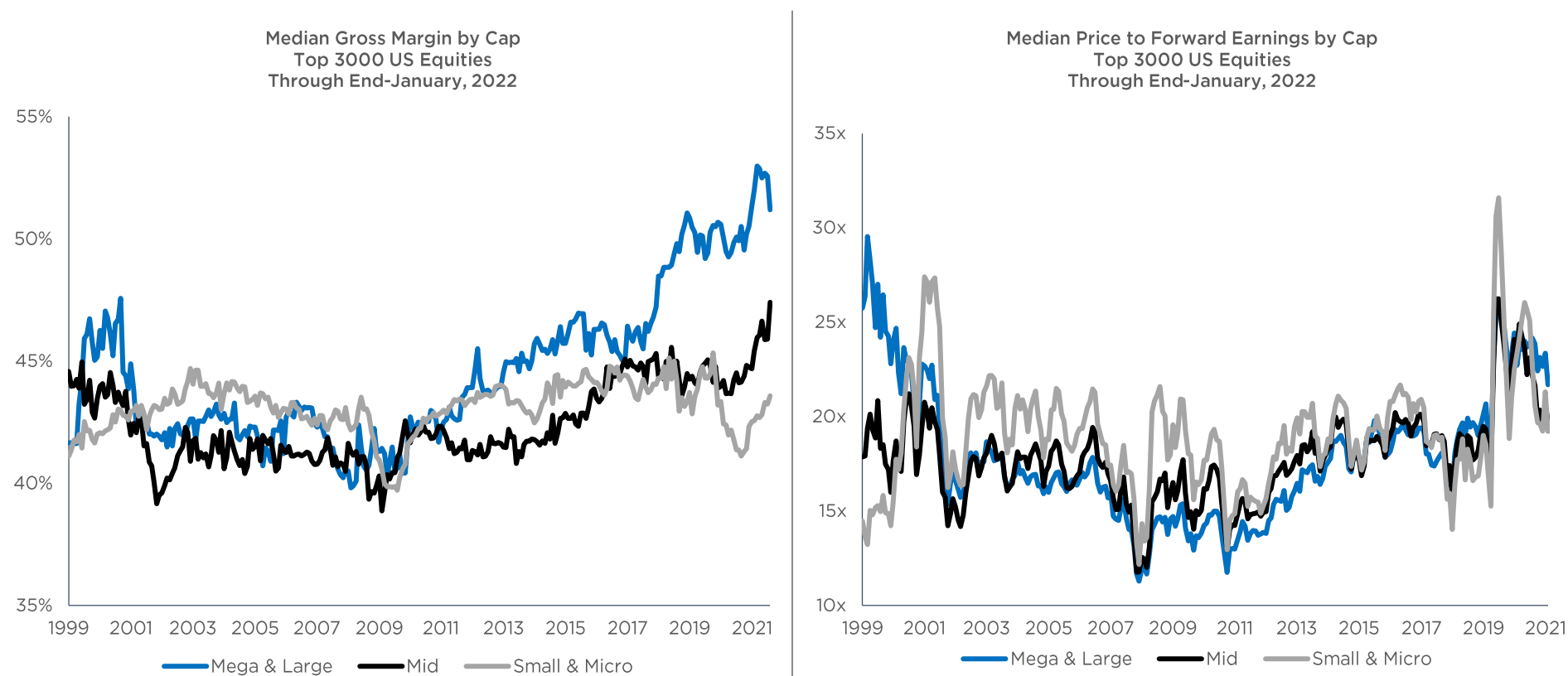
THE RELATIONSHIP BETWEEN REAL YIELDS AND MULTIPLES IS BROKEN

The interest rate environment is an important metric for assessing an appropriate price-to-earnings ratio for the overall market and individual stocks within it. Historically extreme real yields were accompanied by lower multiples because they were considered risk regimes. But when real-yields are negative, that are two clusters, as the market has determined that 10% minus 12% (an example of the 10-year yield minus CPI from the early 1980s) is different than 1.7% minus 5% (roughly today's figures).



DOES LARGE CAP PROFITABILITY JUSTIFY HIGHER MULTIPLES?

The median gross margin of large caps didn't dip during COVID (left chart), potentially at least partially justifying above average price-to-forward earnings multiples for the median large cap stocks (right side). Small and micro cap profitability still has more room for expansion, though multiples remain elevated for the median smaller stock.



SUMMARY OF VIEWS ON GROWTH STOCKS

- We evaluated 11 prior growth-stock sell-offs since 2008 and identified that the key signals to focus on following every sell-off are largely similar – positive free cash flow and gross margin expansion. These typically work better than very fast growing, high margin, and low free cash flow stocks, which were more the type of growth stock that worked in 2020. With the January 2022 correction, we look at prior drawdowns and thought it might be 80% over based on historical comparisons. In that case, software, healthcare services, and materials might lead from here.
- There is a non-linear relationship between revenue growth and relative price-to-sales multiples – the “Double Whammy” is identifying stocks that will not only grow faster(slower) but also begin to command a higher (lower) multiple – please contact us for stock ideas. We looked at industry-level revenue growth and relative to SP500 price-to-forward sales and compared the forecasted growth and multiples to historical averages. Every industry is forecasted to grow faster than its long-term average next year. Energy is expected to grow over 40% faster than its average over the next year, but its relative sales multiple is less than half of its long-term average, as oil prices recover. Software is expected to grow 9% slower than average but is 35% more relatively expensive than average.
- We analyzed attributes associated with compounding and found that sustained gross margin growth produces the highest level of subsequent stock performance, more than sustained revenue growth, net margin growth, earning per share growth, and stock performance. Attributes associated with identifying “melting ice cubes” are different – what matters is accruals and prior weak stock performance relative to peers.
- New CEOs for expensive growth stocks can underperform.

DIMENSIONING MARKET DRAWDOWNS SINCE THE FINANCIAL CRISIS

This growth scare has been sharper on the Nasdaq (right chart) than the SP500. For the SP500, this is the 11th worst drawdown so far since 2008. The longest was 143 days, so this sell-off is relatively short so far by “time.” For the Nasdaq, this drawdown has been lengthier, and one of the worst since the Financial Crisis other than the initial COVID trade. As a starting point, we thought it was reasonable to assume that this drawdown is 80% over, meaning it would be one of the worst sell-offs (other than COVID) since the Financial Crisis. If we look at the prior drawdowns, there was typically a tangible reason for the scare- COVID in 2020, extended valuation and rising rates in 2018, European crisis in 2011 and US QE in 2012, energy scare into early 2016, etc. **What will be the phrase to describe this sell-off? Our judgment based on history and the prior explanations for the market declines is that this correction is +/- 80% over.**

SPX Drawdowns Since the Financial Crisis

Start Date	End Date	Days of Drawdown	Drawdown
10/10/2007	3/9/2009	355	(55.3%)
2/20/2020	3/23/2020	23	(33.8%)
9/21/2018	12/24/2018	65	(19.4%)
5/2/2011	10/3/2011	108	(18.6%)
4/26/2010	7/2/2010	49	(15.6%)
7/21/2015	2/11/2016	143	(13.0%)
1/29/2018	2/8/2018	9	(10.1%)
10/31/2011	11/25/2011	19	(9.6%)
4/3/2012	6/1/2012	42	(9.6%)
9/3/2020	9/23/2020	14	(9.5%)
1/4/2022	as of 1/25/2022	15	(9.1%)

QQQ Drawdowns Since the Financial Crisis

Start Date	End Date	Days of Drawdown	Drawdown
2/20/2020	3/23/2020	23	(30.1%)
8/30/2018	12/24/2018	80	(23.6%)
5/2/2011	10/3/2011	108	(18.7%)
7/21/2015	2/11/2016	143	(18.2%)
4/26/2010	7/2/2010	49	(17.3%)
11/22/2021	as of 1/25/2022	44	(15.7%)
3/27/2012	6/1/2012	47	(12.0%)
9/3/2020	9/23/2020	14	(11.8%)
9/17/2012	11/15/2012	42	(10.9%)
10/28/2011	11/25/2011	20	(10.8%)
2/16/2021	3/8/2021	15	(10.5%)

WHAT WORKED TOWARD THE END OF DRAWDOWNS AND AFTER?

Using 80% over as a governor, we looked at which industries typically do best from that point in the past – Software, healthcare services, and materials do best.

Equal-Weighted Raw Returns after 80% of drawdown is done to 3 months after end of drawdown
GICS Groups

GICS Group	6/21/2010 to 10/4/2010	9/1/2011 to 1/4/2012	11/21/2011 to 2/29/2012	5/22/2012 to 8/31/2012	12/31/2015 to 5/13/2016	2/7/2018 to 5/11/2018	12/6/2018 to 3/28/2019	3/17/2020 to 6/23/2020	9/21/2020 to 12/23/2020	Mean	Median
Software & Services	8.0%	4.3%	12.8%	5.7%	(4.6%)	14.9%	18.4%	62.7%	34.6%	17.4%	12.8%
Health Care Equipment & Services	(1.2%)	2.3%	15.7%	9.3%	(5.8%)	12.5%	0.3%	53.9%	25.3%	12.5%	9.3%
Materials	8.3%	1.2%	15.8%	8.6%	14.3%	3.5%	4.9%	44.3%	24.3%	13.9%	8.6%
Telecommunication Services	8.6%	(3.0%)	12.2%	12.9%	4.9%	5.8%	(3.7%)	34.0%	10.9%	9.2%	8.6%
Real Estate	2.5%	1.8%	14.1%	10.1%	7.6%	8.0%	7.9%	29.1%	18.3%	11.1%	8.0%
Banks	(7.1%)	8.8%	13.6%	7.9%	(3.2%)	6.5%	0.1%	16.5%	33.8%	8.5%	7.9%
Retailing	0.6%	7.4%	16.0%	8.2%	(4.7%)	2.8%	3.3%	74.2%	36.6%	16.0%	7.4%
Insurance	1.1%	8.2%	11.9%	7.0%	0.9%	4.1%	1.6%	23.3%	16.3%	8.2%	7.0%
Media	(3.9%)	4.4%	14.1%	8.9%	(0.7%)	(4.0%)	7.0%	44.6%	30.0%	11.2%	7.0%
Diversified Financials	2.4%	(0.4%)	16.5%	7.5%	(4.8%)	7.0%	3.1%	32.3%	26.5%	10.0%	7.0%
Energy	2.5%	0.2%	12.3%	5.4%	6.8%	12.4%	(2.4%)	51.6%	30.7%	13.3%	6.8%
Semiconductors & Semis Equipment	(3.3%)	(1.1%)	15.8%	2.8%	(7.1%)	6.3%	11.4%	65.3%	41.1%	14.6%	6.3%
Pharma, Biotech & Life Sciences	0.3%	(1.9%)	17.8%	11.9%	(26.4%)	6.1%	3.8%	78.2%	19.2%	12.1%	6.1%
Utilities	5.3%	5.0%	2.6%	5.3%	12.5%	8.9%	6.1%	16.7%	12.3%	8.3%	6.1%
Food, Beverage & Tobacco	0.7%	0.5%	8.7%	5.9%	5.9%	(1.2%)	2.8%	29.0%	14.1%	7.4%	5.9%
Household & Personal Products	5.8%	2.9%	10.2%	10.5%	4.7%	0.7%	2.7%	38.2%	18.1%	10.4%	5.8%
Capital Goods	0.4%	5.2%	16.0%	5.5%	5.3%	3.3%	6.2%	40.9%	29.4%	12.5%	5.5%
Consumer Durables & Apparel	1.7%	5.2%	21.2%	11.6%	(0.9%)	2.2%	5.5%	72.8%	28.2%	16.4%	5.5%
Technology Hardware & Equipment	5.1%	1.0%	12.3%	4.5%	(2.9%)	4.8%	8.1%	46.6%	32.0%	12.4%	5.1%
Commercial & Professional Services	(0.3%)	7.3%	12.1%	4.9%	2.2%	5.0%	4.4%	26.7%	17.8%	8.9%	5.0%
Food & Staples Retailing	4.6%	6.6%	7.4%	4.4%	(1.3%)	(3.8%)	(5.1%)	44.1%	15.8%	8.1%	4.6%
Consumer Services	(0.6%)	4.3%	15.5%	2.4%	(0.1%)	7.6%	2.1%	66.0%	28.8%	14.0%	4.3%
Automobiles & Components	12.2%	(1.0%)	19.2%	4.0%	(5.1%)	(6.5%)	(4.7%)	65.0%	40.3%	13.7%	4.0%
Transportation	1.2%	1.7%	15.0%	(0.6%)	(2.5%)	3.5%	(1.9%)	36.5%	19.4%	8.0%	1.7%

WHICH VARIABLES HELP YOU PICK WINNERS FROM LOSERS NOW?

From the signal perspective, there are few signals that always helped investors pick winners from losers from 80% of the way through a drawdown until three months after it ended. Expensive stocks with forecasted earnings acceleration and revenue growth did well. Likely this is because the growth trade worked for most of the time following the Financial Crisis. That means if investors are trying to think about what to buy now if we are near the bottom, history dictates buying cheap stocks probably will not work as EV-to-EBITDA and price-to-sales historically failed. Instead, growthier metrics like 3-year revenue growth, forecast EPS acceleration, and high cash relative to assets help separate winners from losers at this stage, and those are more classic growth-stock metrics.

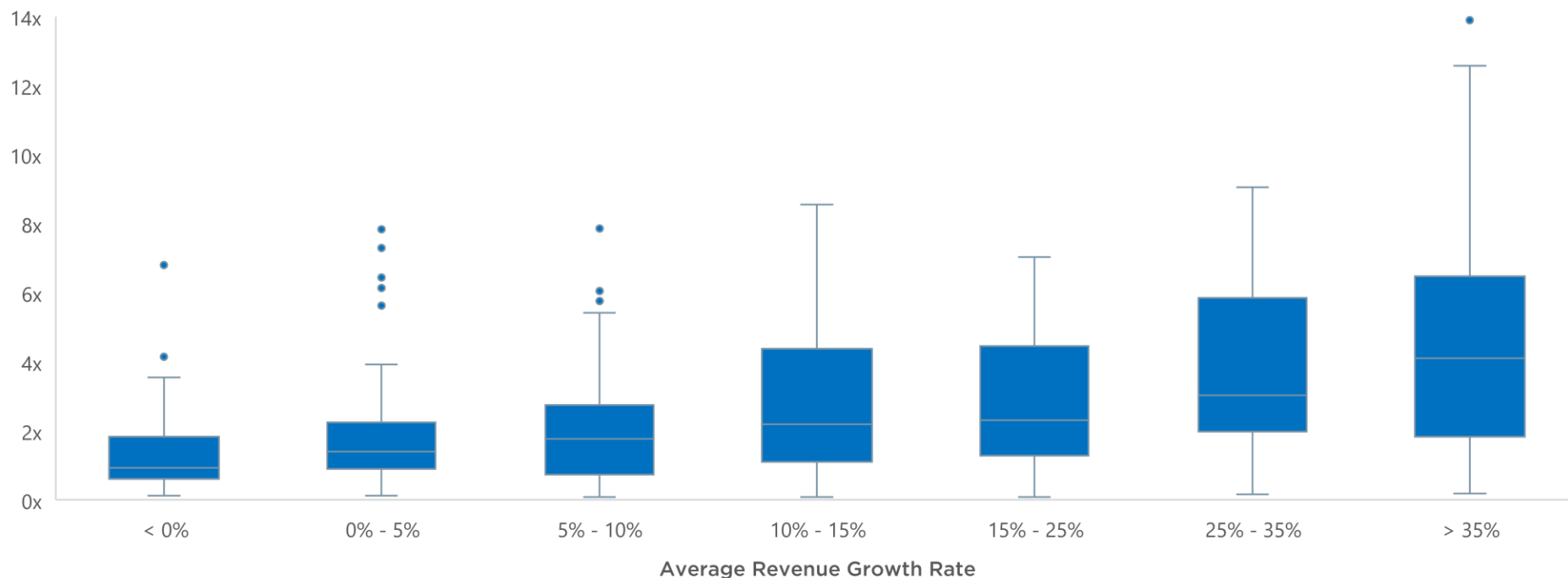
**Beta-Adjusted Spreads after 80% of Drawdown Is Complete to 3 Months After the Drawdown
Select Signals**

Signal	6/21/2010 to 10/4/2010	9/1/2011 to 1/4/2012	11/21/2011 to 2/29/2012	5/22/2012 To 8/31/2012	12/31/2015 to 5/13/2016	2/7/2018 to 5/11/2018	12/6/2018 to 3/28/2019	3/17/2020 to 6/23/2020	9/21/2020 to 12/23/2020	Mean	Median
Distance to Default	5.1%	7.2%	2.2%	1.2%	3.3%	4.5%	7.5%	3.5%	(8.3%)	2.9%	3.5%
Median YoY Revenue Growth over last 3 Years	3.4%	(6.0%)	4.7%	(3.3%)	(6.5%)	1.0%	2.7%	26.2%	9.1%	3.5%	2.7%
Cash to Assets	3.5%	(2.0%)	0.9%	(0.2%)	(4.5%)	3.0%	2.3%	16.2%	10.5%	3.3%	2.3%
Dividend Coverage	3.1%	3.7%	(2.4%)	0.5%	2.3%	0.9%	(0.8%)	2.4%	2.2%	1.3%	2.2%
Forecast EPS Acceleration	0.0%	(3.6%)	3.6%	0.1%	(3.0%)	3.5%	1.8%	14.9%	6.7%	2.7%	1.8%
Stability of YoY ROE Growth	3.2%	6.2%	(0.3%)	(0.1%)	7.9%	3.3%	2.6%	(4.2%)	(1.4%)	1.9%	2.6%
Price-to-Sales	(6.6%)	2.8%	(0.5%)	1.4%	(3.7%)	(2.4%)	(5.9%)	(12.0%)	(8.0%)	(3.9%)	(3.7%)
EV-to-EBITDA	(4.3%)	5.0%	1.6%	3.9%	2.6%	(4.8%)	(8.0%)	(26.1%)	(10.9%)	(4.6%)	(4.3%)

FASTER GROWTH MEANS DISPROPORTIONATELY HIGHER MULTIPLES

We analyzed the growth rates and relative to SP500 price-to-sales multiples for US stocks (excluding small / micro caps and value stocks). Growth / neither stocks with revenue growth below 0% have a relative price-to-sales multiple close to the market level, but as annual revenue growth exceeds 10%, the relative multiple begins to incrementally expand. Companies that grow 25-35% annual trade at nearly 4x the market multiple on sales on average, vs. 2x on average at 5-10% annual growth. **Higher growth means disproportionately higher multiples!**

Distribution of Relative to T500 Price-to-Forward Sales Multiple
By Growth Rate Bucket
End-January, 2022



LONG / SHORT GROWTH STOCK IDEAS

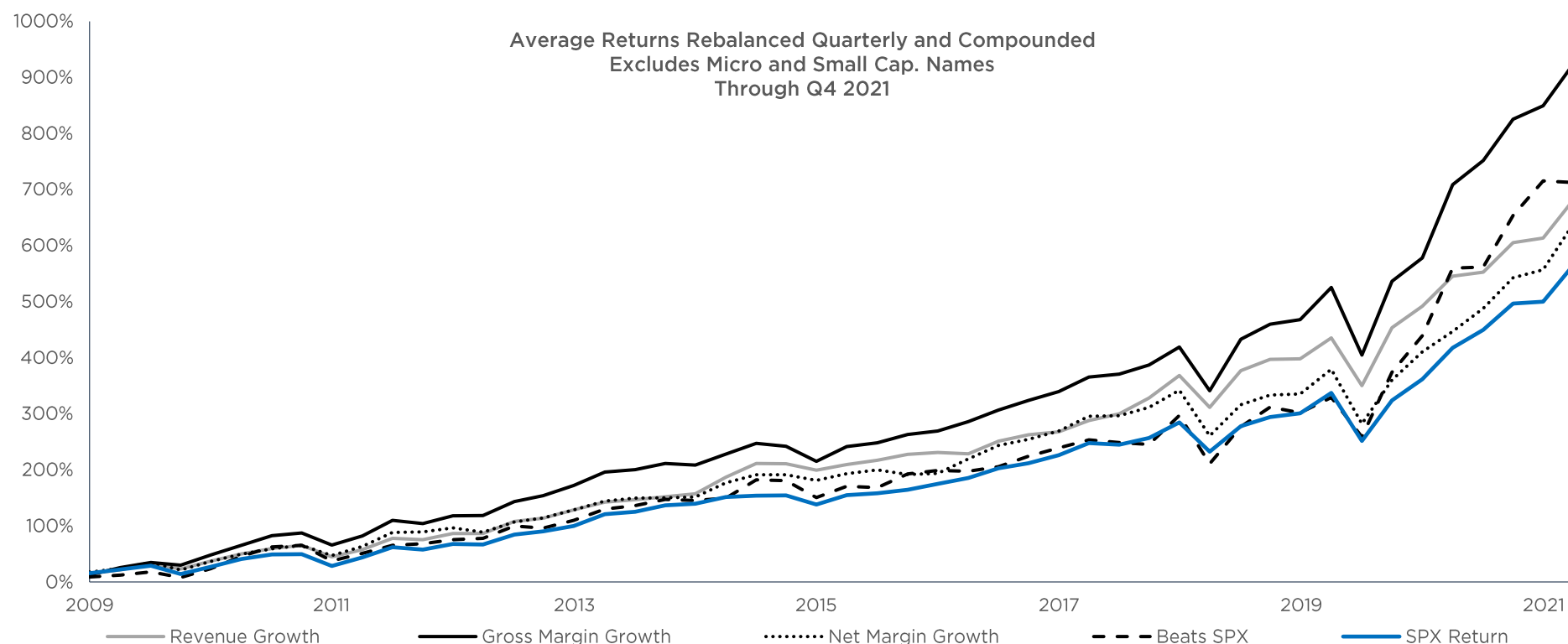
Current ideas where revenue growth is forecasted to accelerate but relative multiples are low (left) and where growth is forecasted to slow but multiples are high (right). Many of the buy ideas are levered to an economy that continues to reopen.

Buy Cheap Relative to Bucket or Moving to Higher Revenue Bucket, Short Expensive Relative to Bucket or Moving to Lower Revenue Bucket
End-January, 2022

Long				Short			
Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)	Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
MAR	Marriott International, Inc.	Consumer Services	52.47	V	Visa Inc.	Software & Services	474.50
HUM	Humana Inc.	Health Care Equip & Serv	50.45	ABT	Abbott Laboratories	Health Care Equip & Serv	218.59
CNC	Centene Corporation	Health Care Equip & Serv	45.37	NFLX	Netflix, Inc.	Media & Entertainment	189.63
MCK	McKesson Corporation	Health Care Equip & Serv	39.20	TGT	Target Corporation	Retailing	105.61
PSX	Phillips 66	Energy	37.17	ISRG	Intuitive Surgical, Inc.	Health Care Equip & Serv	101.52
ABC	AmerisourceBergen Corporation	Health Care Equip & Serv	28.48	FIS	Fidelity National Information Services	Software & Services	73.02
LUV	Southwest Airlines Co.	Transportation	26.49	BDX	Becton, Dickinson and Company	Health Care Equip & Serv	72.44
DAL	Delta Air Lines, Inc.	Transportation	25.31	PSA	Public Storage	Real Estate	62.87
BBY	Best Buy Co., Inc.	Retailing	23.88	DDOG	Datadog, Inc.	Software & Services	45.59
CCL	Carnival Corporation & plc	Consumer Services	22.83	ZS	Zscaler, Inc.	Software & Services	36.02
CHWY	Chewy, Inc.	Retailing	19.90	AVB	AvalonBay Communities, Inc.	Real Estate	34.07
CTRA	Coterra Energy Inc.	Energy	17.82	MTCH	Match Group, Inc.	Media & Entertainment	31.90
MOH	Molina Healthcare, Inc.	Health Care Equip & Serv	16.96	NET	Cloudflare, Inc.	Software & Services	31.02
W	Wayfair Inc.	Retailing	16.30	ANSS	ANSYS, Inc.	Software & Services	29.67
CZR	Caesars Entertainment, Inc.	Consumer Services	16.28	VRSN	VeriSign, Inc.	Software & Services	24.12
CAH	Cardinal Health, Inc.	Health Care Equip & Serv	14.53	MAA	Mid-America Apartment Communities	Real Estate	23.80
UAL	United Airlines Holdings, Inc.	Transportation	13.88	IR	Ingersoll Rand Inc.	Capital Goods	22.91
CVNA	Carvana Co.	Retailing	13.87	CLX	The Clorox Company	House & Personal Products	20.62
HST	Host Hotels & Resorts, Inc.	Real Estate	12.38	SSNC	SS&C Technologies Holdings, Inc.	Software & Services	20.31
AAL	American Airlines Group Inc.	Transportation	10.67	HOLX	Hologic, Inc.	Health Care Equip & Serv	17.65
BWA	BorgWarner Inc.	Automobiles & Components	10.51				
H	Hyatt Hotels Corporation	Consumer Services	10.07				
LEA	Lear Corporation	Automobiles & Components	9.98				

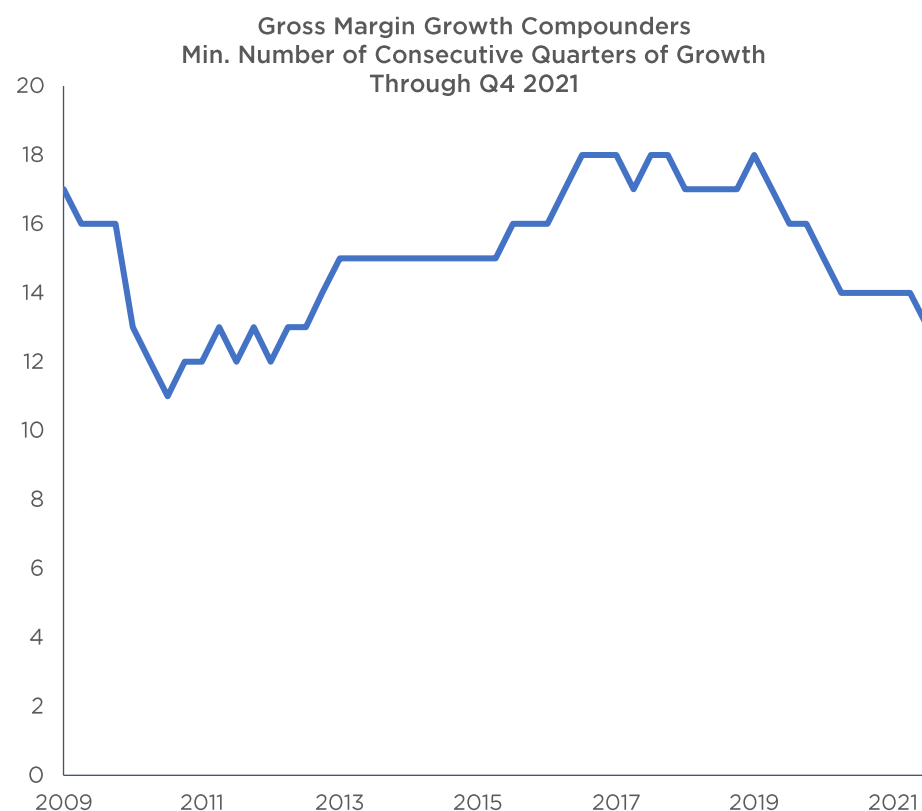
BUY CONSISTENT GROSS MARGIN EXPANDERS

Of the four signals we studied (prior relative stock performance, revenue growth, gross margin expansion, and net margin expansion) buying stocks in the top 10% of consistent previous gross margin expansion resulted in the best subsequent stock performance. While all four approaches beat the SP500, the consistency and total performance of the gross margin approach far bested the others. Net margin growth was clearly the weakest. Prior stock performance was strong, but much of this was generated since COVID.



GROSS MARGIN GROWTH COMPOUNDERS ARE BEST

Of the ~400 companies with at least two consecutive quarters of gross margin growth this last quarter, 35 companies (top decile) had quarterly year-over-year gross margin expansion for at least 13 straight quarters (left chart). This universe of stocks has typically resulted in strong, above market performance. The stocks among this list with forecasted further gross margin expansion include AVGO, AMD and TEAM (right chart) among others.



Gross Margin Growth Compounds
And Forecasted Gross Margin Growth Q4 2021

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
AMD	Advanced Micro Devices, Inc.	Semis & Semi. Equip.	173.78
TEAM	Atlassian Corporation Plc	Software	96.37
SNAP	Snap Inc.	Interactive Media & Services	75.71
SNPS	Synopsys, Inc.	Software	56.54
IDXX	IDEXX Laboratories, Inc.	Health Care Equip. & Supplies	55.83
KEYS	Keysight Technologies, Inc.	Electro. Equip. Inst. & Comp.	37.80
GPC	Genuine Parts Company	Distributors	19.97
QRVO	Qorvo, Inc.	Semis & Semi. Equip.	17.24
LSCC	Lattice Semiconductor	Semis & Semi. Equip.	10.55
DBX	Dropbox, Inc.	Software	9.33
NTRA	Natera, Inc.	Biotechnology	8.83
RL	Ralph Lauren Corporation	Textiles, App & Luxury Goods	8.75
AN	AutoNation, Inc.	Specialty Retail	7.66
LITE	Lumentum Holdings Inc.	Communications Equipment	7.65
AZTA	Azenta, Inc.	Semis & Semi. Equip.	7.61
NTNX	Nutanix, Inc.	Software	6.91

WHAT IS A MELTING ICE CUBE?

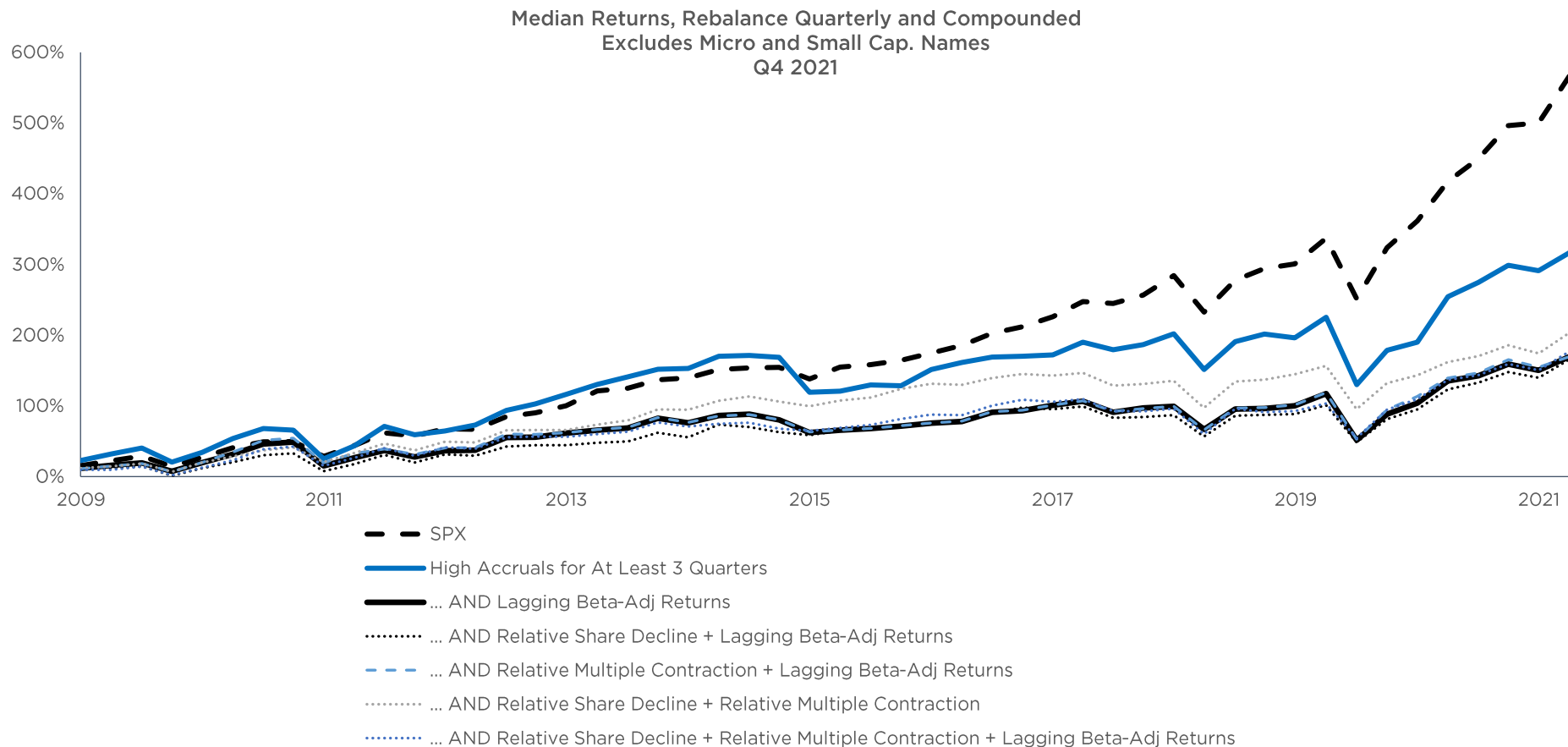
Accruals and price momentum are best: Our analysis clearly shows that these two variables identify relative underperformers far better than the others. This works confirms some work we had done years ago on short-selling, and while the result is not surprising to us, we found many in the past who were philosophically resistant to the conclusion. Analysts should focus on disconnects between earnings and free cash flow and should not try to short stocks at highs.

Other metrics do not incrementally help: No other major fundamental attribute comes close to achieving the level of success at predicting subsequent underperformers as either accruals or momentum. We are not saying that resource allocators should not hire shorting experts, we are only saying that if you focus on bigger companies that repeatedly exhibit negative attributes, i.e., steady melting ice-cubes, then accruals and momentum are far better signals than the common fundamental ones most bottom-up stock pickers focus on. Moreover, if you do not have a dedicated short seller, but industry experts, they should start with stocks with high relative accruals that have lagged and size those stocks larger than those with other negative attributes. Downward analyst earnings revisions, often an investor focus, is not fruitful, as these stocks go on to beat the market on average over the next quarter.

Conclusion and short ideas: Stocks repeatedly in the top quintile of the market on accruals are an inferior asset class. These “high accrual” stocks that have also underperformed their peer group (market cap and industry medians) form a cohort that substantially lags the S&P500 over time. Finding revenue share losers, prior multiple contractors, or gross margin contractors, does not lead to subsequent incremental underperformance. Our list of short ideas (i.e., the melting ice cubes) are shown below.

HIGH ACCRUALS WITH BAD MOMENTUM ARE GOOD SHORTS

The combination of high accruals and relative prior underperformance is compelling. By selecting only those names with high accruals for the previous three quarters that also have returns lagging their industry group and similarly-sized peers, performance can be cut nearly in half (solid blue line to solid black line compared to the SP500 returns that are the dotted black line). Further sub-setting, using changes in valuation or share, for example, have proven detrimental (in the case of forecasted share decline and prior relative contraction) or not accretive.



TODAY'S MELTING ICE CUBES OR CANDIDATE SHORT IDEAS

Below are companies with high accruals for the past three quarters that have had relatively poor stock performance in the last quarter.

**Select Names with High Accruals
At Least 3 Consecutive Quarters & Lagged Peers this past Quarter
Earnings after 2/10**

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
CPRT	Copart, Inc.	Commercial & Professional Services	30.66
HZNP	Horizon Therapeutics Public Limited Company	Pharmaceuticals, Biotechnology & Life Sciences	21.17
MKTX	MarketAxess Holdings Inc.	Diversified Financials	13.10
AXON	Axon Enterprise, Inc.	Capital Goods	9.58
RH	RH	Retailing	8.65
STOR	STORE Capital Corporation	Real Estate	8.63
ORI	Old Republic International Corporation	Insurance	7.70
GH	Guardant Health, Inc.	Health Care Equipment & Services	7.07
FYBR	Frontier Communications Parent, Inc.	Telecommunication Services	6.52
SRPT	Sarepta Therapeutics, Inc.	Pharmaceuticals, Biotechnology & Life Sciences	6.23
IAA	IAA, Inc.	Commercial & Professional Services	6.19

NOT ALL NEW CEOS ARE GOOD

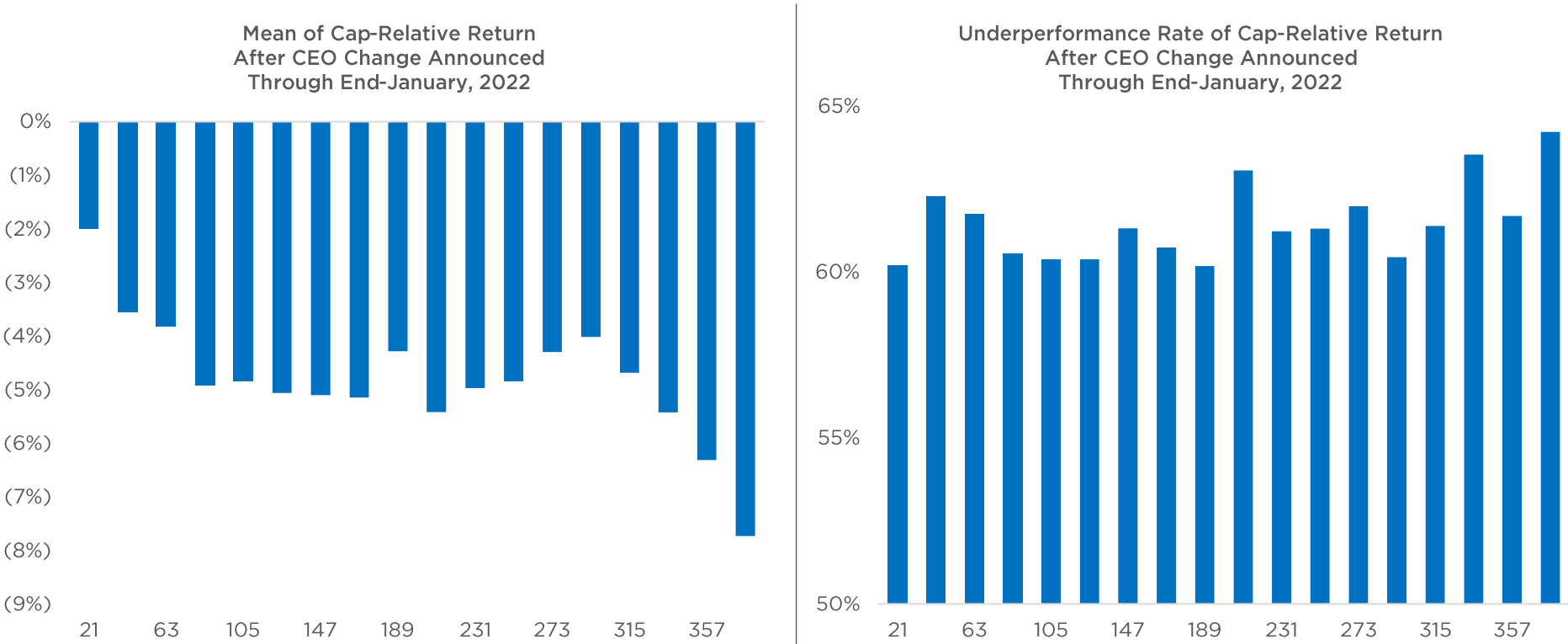
We analyzed stock behavior following the announcements of new CEOs. Stocks making new CEO announcements underperform on a volatility-adjusted basis, meaning short of some deep understanding of the new CEO's strategy, exiting / shorting stocks with a new CEO is on average prudent. The cumulative performance takes nearly 18 months to catch up to the average stock.

Size, style, and valuation matter: The average underperformance is longest for mega / large cap stocks, eight months on average, where management changes likely take longer to be effective. Micro/small and mid-cap underperformance is three-to-four months on average. Underperformance is most pronounced for growth stocks, in particular technology and healthcare, where the consensus perception of growth and management's confidence in its achievability is paramount and the need for a new CEO questions that outlook. Expensive stocks making CEO changes underperform, likely a correlated concept to growth stock underperformance.

Conclusion: We evaluated expensive growth stocks that made an announcement of a CEO change, 64% of which underperform their market-cap group over the subsequent eight months. We view selling long positions or initiating new shorts in expensive growth stocks making CEO changes as prudent. Value stocks, stocks with a meaningful dividend, or higher quality stocks do not statistically significantly lag following CEO announcements. For shorter-term strategies, the underperformance lasts sustainably even after the announcement date, so it is not too late to short the day after the announcement. Stocks with new CEOs are shown below. 20 of the last 27 expensive growth stocks have lagged their peer group YTD, with 16 of them down double digits in absolute terms since the news.

EXPENSIVE GROWTH STOCKS LAG WHEN THE CEO CHANGES

We analyzed the performance of the expensive growth universe that have new CEOs. Expensive growth stocks underperform the most dramatically of any sub-group and should on average be sold / shorted following the announcement for three-to four months (left chart). This strategy has a hit rate well over 60% for the first year (right chart).



EXPENSIVE GROWTH STOCKS WITH NEW CEOs IN THE LAST YEAR

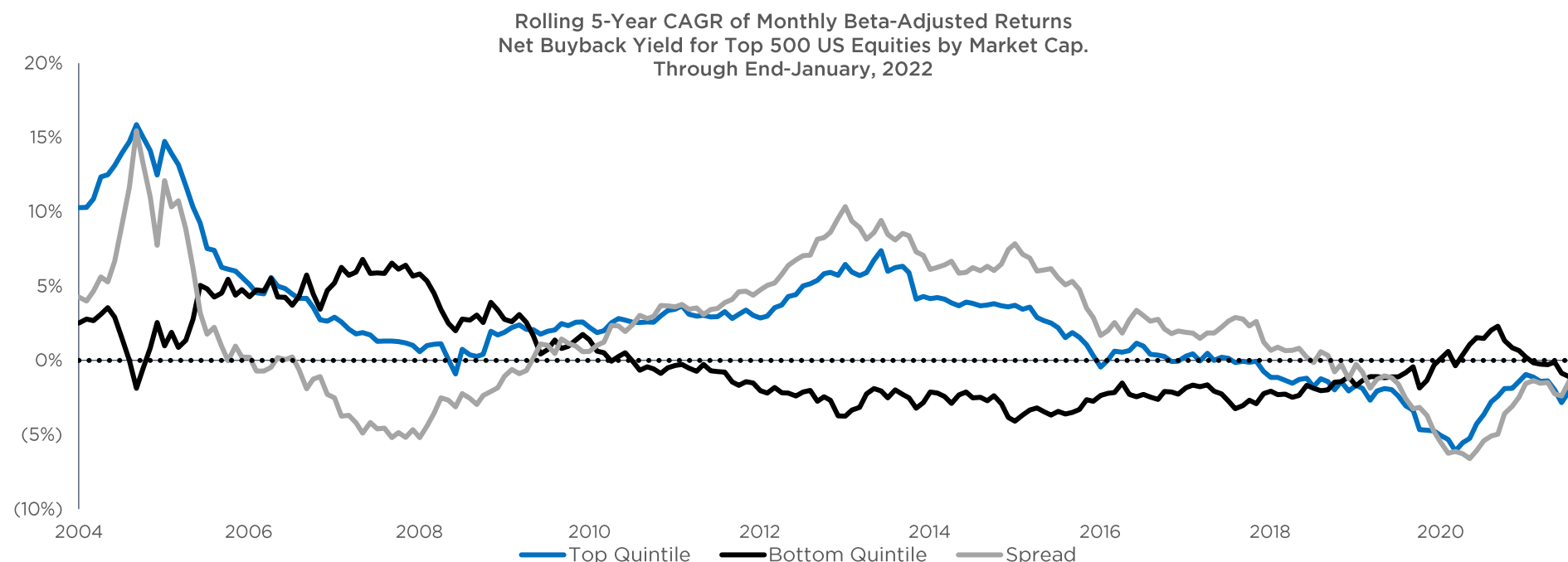
Below we show expensive growth stocks with CEO changes. Since the announcement, absolute performance, and performance of each stock relative to the average stock in their market cap cohort, shows this trend has continued this year. Only MAR has a positive return, and all have underperformed similarly sized companies.

Performance After CEO Change Announced
Expensive Growth Stocks
Through End-January, 2022

Ticker	Company Name	Industry	Date Announced	Return	Cap-Relative Return	Market Cap (\$ US. Bil)
MAR	Marriott International, Inc.	Hotels, Restaurants & Leisure	2/23/2021	7.7%	(2.0%)	37.72
HUBS	HubSpot, Inc.	Software	3/1/2021	(7.2%)	(10.1%)	23.86
ANGI	Angi Inc.	Interactive Media & Services	2/25/2021	(43.0%)	(46.8%)	6.99
NEO	NeoGenomics, Inc.	Life Sciences Tools & Services	3/2/2021	(56.3%)	(60.2%)	5.96
SFIX	Stitch Fix, Inc.	Internet & Direct Marketing Retail	4/14/2021	(64.9%)	(59.3%)	5.27
LIND	Lindblad Expeditions Holdings, Inc.	Hotels, Restaurants & Leisure	3/30/2021	(11.9%)	(3.0%)	1.04
OTRK	Ontrak, Inc.	Health Care Providers & Services	3/16/2021	(90.4%)	(76.3%)	1.03

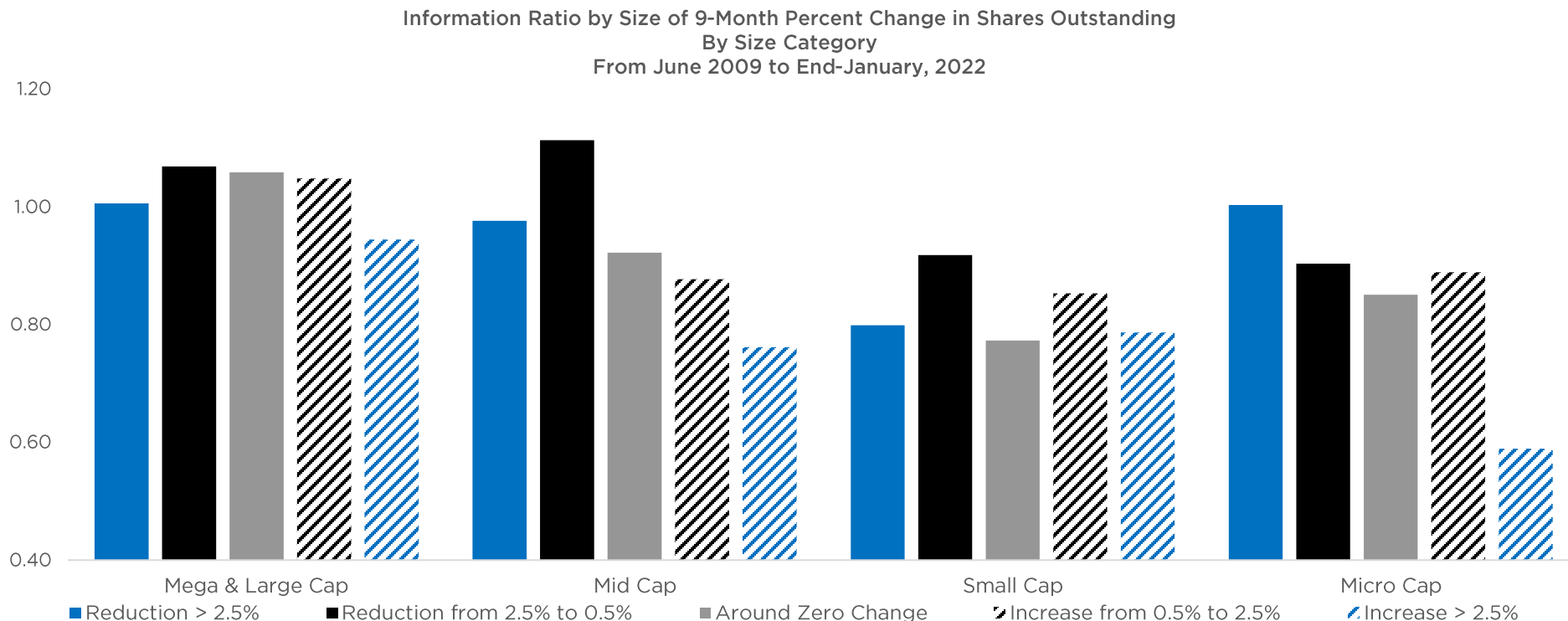
DO STOCK BUYBACKS DRIVE SHAREHOLDER VALUE? ANSWER: NO

We evaluated the relative performance of SP500 companies in the top quintile of buyback yield (blue line) and bottom quintile of buyback yield (net diluters, black line) over the past 20 years. Buybacks had been an effective use of capital prior the Financial Crisis. However, since then, the performance of the top (Q1) and bottom (Q5) quintile “spread” is roughly zero, with Q5 generally performing better than the Q1 over the past decade. The strong performance of Q5 is in part because growth companies issue stock options and require additional stock offerings to grow. This happened in a successful growth style regime fueling the bottom quintile’s strength. However, this does not explain the relative weakness of Q1.



LARGE CAP STOCKS DOING BUYBACKS HAVE WASTED THE MONEY

Management teams of mega / large cap companies should be questioning whether large buybacks are prudent. On average, they were not rewarded, as big share reductions over a 9-month period resulted in similar subsequent performance to those companies doing substantial dilution over the same period (left set of bars). Diluters in mid-cap and micro-cap seem to lag companies doing buybacks, but that relationship did not hold for small-caps.



MANAGEMENT TEAMS THAT SHOULD PIVOT TO DIVIDENDS?

We show companies since 2019 that have bought back 10% or more of their shares and are down in absolute terms since then (left side) including BIIB, ATUS, and FL. On the right, we show mega / large cap, quality, value stocks that have bought back 1% or more of their shares in the last 9 months, a strategy that was historically not effective for relative subsequent return for these cohorts. This includes CI, YUM, and ALL

Short Mega or Large Cap High Quality Value Names That Bought Back 1% or More Shares

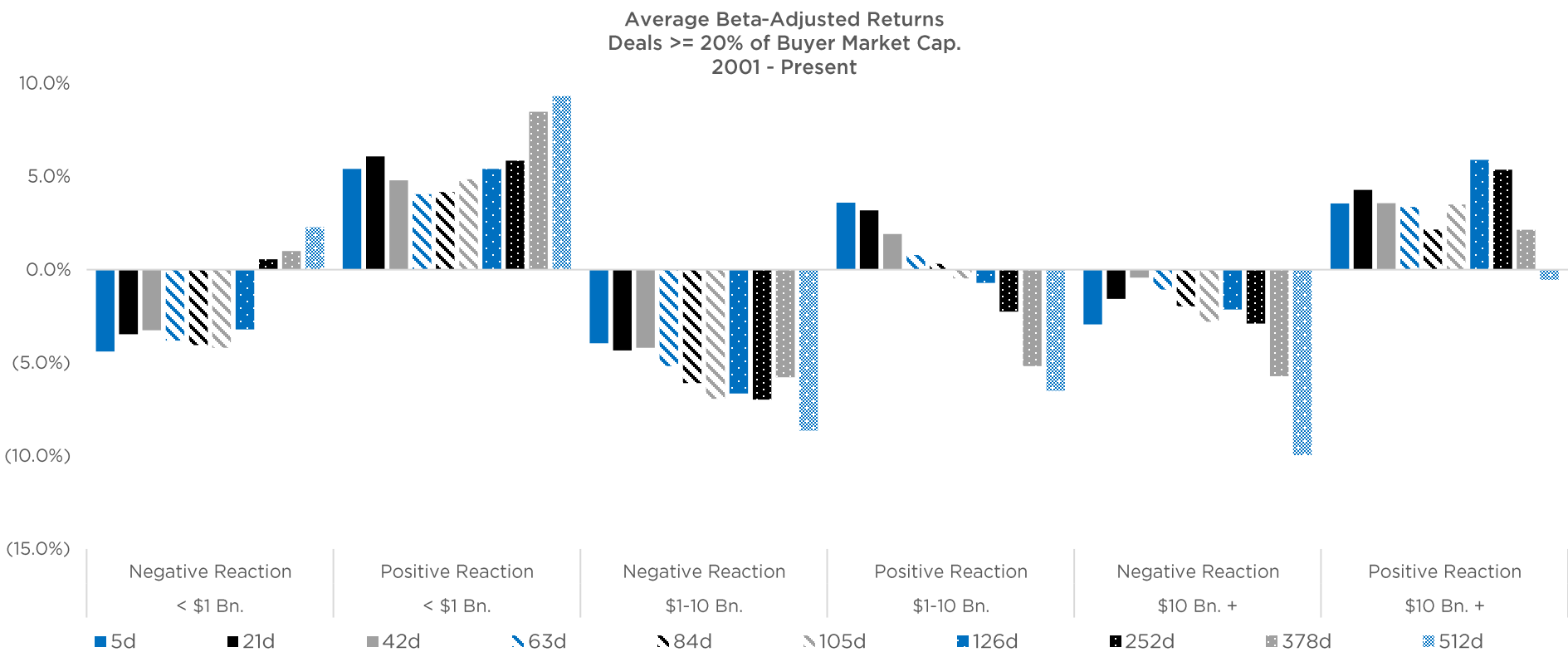
Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
CI	Cigna Corporation	Health Care Equipment & Services	76.38
ALL	The Allstate Corporation	Insurance	34.59

Short Names that Bought Back 10% or More of Shares & Underperformed From 2019 to End-January, 2022

BIIB	Biogen Inc.	Pharma Biotech	33.20
ATUS	Altice USA, Inc.	Media & Entertainment	6.56
FL	Foot Locker, Inc.	Retailing	4.48
HLF	Herbalife Nutrition Ltd.	Household & Personal Products	4.34
ALSN	Allison Transmission Holdings, Inc.	Capital Goods	3.96
LOPE	Grand Canyon Education, Inc.	Consumer Services	3.32
YELP	Yelp Inc.	Media & Entertainment	2.52
NUS	Nu Skin Enterprises, Inc.	House & Personal Products	2.40
WWW	Wolverine World Wide, Inc.	Consumer Durables & Apparel	2.18
LGND	Ligand Pharmaceuticals Inc.	Pharma Biotech	2.08
SATS	EchoStar Corporation	Telecommunication Services	2.05
USNA	USANA Health Sciences, Inc.	House & Personal Products	1.86
AMCX	AMC Networks Inc.	Media & Entertainment	1.80
CMPR	Cimpress plc	Commercial & Prof. Services	1.75
ATGE	Adtalem Global Education Inc.	Consumer Services	1.46
INVA	Innoviva, Inc.	Pharma Biotech	1.11
PLCE	The Children's Place, Inc.	Retailing	1.02
CAL	Caleres, Inc.	Retailing	0.91
UVE	Universal Insurance Holdings, Inc.	Insurance	0.54

FIRST IMPRESSIONS MATTER

We evaluated the subsequent performance over multiple horizons (one week, and each months 1-6, as well as 12, 18, and 24 months) to see if the initial market reaction to a deal announcement matters. It does. On the left of the below exhibit we show performance over each horizon for acquiring companies less than \$1 billion in market capitalization. The middle shows deals for companies \$1 to \$10 billion market capitalization. Here we can see particularly weak subsequent performance for stocks where the initial reaction is negative. Moreover, unlike for other sized companies doing deals, even positive initial reactions faded after 5 months for the acquirers. On the right we show deals for companies bigger than \$10 billion. The initial reaction carries the day for nearly 18 months if it is positive.



RECENT DEAL STOCKS WITH INITIAL / SUSTAINED POSITIVE REACTION

Select Recent Deals with Initial Positive Reaction
Buyer Market Cap. >= \$1 bn.
January 31, 2022

Ticker	Company	Industry Group	Target Company	Announcement Date	Beta-Adjusted Return	Market Cap. (US\$ Bil.)
APO	Apollo Global Management, Inc.	Diversified Financials	Great Canadian Gaming Corp.	11/10/2020	37%	42.00
DVN	Devon Energy Corporation	Energy	WPX Energy, Inc.	9/28/2020	415%	34.22
ABC	AmerisourceBergen Corporation	Health Care Equipment & Services	Alliance Healthcare	1/6/2021	8%	28.48
ALLY	Ally Financial Inc.	Diversified Financials	CardWorks, Inc.	2/18/2020	19%	16.13
KIM	Kimco Realty Corporation	Real Estate	Weingarten Realty Investors	4/15/2021	15%	14.95
EQT	EQT Corporation	Energy	Alta Resources, LLC	5/6/2021	7%	8.03
HGV	Hilton Grand Vacations Inc.	Consumer Services	Diamond Resorts International, Inc.	3/10/2021	4%	5.86
CIVI	Civitas Resources, Inc.	Energy	Extraction Oil & Gas	5/10/2021	31%	4.60
ARCB	ArcBest Corporation	Transportation	MoLo Solutions, LLC	9/29/2021	11%	2.26
NPO	EnPro Industries, Inc.	Capital Goods	NxEdge Inc.	11/5/2021	9%	2.16
LBRT	Liberty Oilfield Services Inc.	Energy	OneStim	9/1/2020	8%	2.16
PFS	Provident Financial Services, Inc.	Banks	SB One Bancorp	3/12/2020	9%	1.87
MGPI	MGP Ingredients, Inc.	Food, Beverage & Tobacco	Luxco, Inc.	1/25/2021	21%	1.66
CODI	Compass Diversified	Diversified Financials	Marucci Sports, LLC	3/9/2020	11%	1.66
CSR	Centerspace	Real Estate	17-Property Portfolio	6/3/2021	27%	1.36
LBAI	Lakeland Bancorp, Inc.	Banks	1st Constitution Bancorp	7/12/2021	12%	1.22
NCBS	Nicolet Bankshares, Inc.	Banks	County Bancorp, Inc.	6/22/2021	24%	1.11

RECENT DEAL STOCKS WITH INITIAL / SUSTAINED NEGATIVE REACTION

Select Recent Deals with Initial Negative Reaction
Buyer Market Cap. Between \$0.5-10 bn. (at time of announcement)
January 31, 2022

Ticker	Company	Industry Group	Target Company	Announcement Date	Beta-Adjusted Return	Market Cap. (US\$ Bil.)
PKI	PerkinElmer, Inc.	Pharma Biotech	BioLegend, Inc.	7/26/2021	(3%)	21.73
TDY	Teledyne Technologies Inc.	Capital Goods	FLIR Systems, Inc.	1/4/2021	(8%)	19.66
SNX	TD SYNNEX Corporation	Tech Hardware & Equip	Tech Data Corporation	3/22/2021	(20%)	10.08
ATUS	Altice USA, Inc.	Media & Entertainment	Cogeco Inc.	9/2/2020	(78%)	6.56
PFGC	Performance Food Group Company	Food & Staples Retailing	Core-Mark Holding Company, Inc.	5/18/2021	(23%)	6.51
SSB	SouthState Corporation	Banks	CenterState Bank Corporation	1/27/2020	(32%)	5.85
RUN	Sunrun Inc.	Capital Goods	Vivint Solar, Inc.	7/6/2020	(24%)	5.37
CLH	Clean Harbors, Inc.	Commercial & Prof Serv.	HydroChemPSC	8/4/2021	(10%)	5.04
NCR	NCR Corporation	Tech Hardware & Equip	Cardtronics plc	1/7/2021	(20%)	5.02
SWN	Southwestern Energy Company	Energy	GEP Haynesville	11/4/2021	(7%)	4.90
SAIC	Science Applications International Corporation	Software & Services	Unisys Federal	2/6/2020	(51%)	4.67
NFE	New Fortress Energy Inc.	Energy	Hygo Energy Transition Ltd	1/13/2021	(81%)	4.54
SWX	Southwest Gas Holdings, Inc.	Utilities	Dominion Energy Questar Pipeline Services, Inc.	10/5/2021	(7%)	4.12
INDB	Independent Bank Corp.	Banks	Meridian Bancorp, Inc.	4/22/2021	(2%)	3.99
ETRN	Equitrans Midstream Corporation	Energy	EQM Midstream Partners, LP	2/27/2020	(32%)	3.51
WSFS	WSFS Financial Corporation	Banks	Bryn Mawr Bank Corporation	3/10/2021	(20%)	3.43
CNNE	Cannae Holdings, Inc.	Diversified Financials	CoreLogic, Inc.	6/26/2020	(77%)	2.66
FTAI	Fortress Transportation and Infrastructure Investors LLC	Capital Goods	Transtar LLC.	6/8/2021	(18%)	2.65
AHCO	AdaptHealth Corp.	Health Care Equip & Serv	AeroCare Holdings, Inc.	12/1/2020	(72%)	2.50
CENTA	Central Garden & Pet Company	House & Personal Prod	Green Garden Products LLC	12/31/2020	(3%)	2.43
VCTR	Victory Capital Holdings, Inc.	Diversified Financials	WestEnd Advisors, LLC	11/4/2021	(10%)	2.22
FBK	FB Financial Corporation	Banks	Franklin Financial Network, Inc.	1/21/2020	(21%)	2.12
STEP	StepStone Group Inc.	Diversified Financials	Greenspring Associates, Inc	7/7/2021	(12%)	2.10
GTN	Gray Television, Inc.	Media & Entertainment	Meredith Corporation	5/3/2021	(14%)	1.97
ATGE	Adtalem Global Education Inc.	Consumer Services	Walden e-Learning, Inc.	9/11/2020	(37%)	1.46
PRIM	Primoris Services Corporation	Capital Goods	Future Infrastructure Holdings, Llc	12/14/2020	(30%)	1.38
PRA	ProAssurance Corporation	Insurance	NORCAL Mutual Insurance Company	2/20/2020	(62%)	1.29
DM	Desktop Metal, Inc.	Capital Goods	The ExOne Company	8/11/2021	(56%)	1.27
TWOU	2U, Inc.	Consumer Services	edX Inc.	6/29/2021	(68%)	1.22

ANY RELATIVE DOVISHNESS WILL CHANGE THE MARKET STRUCTURE

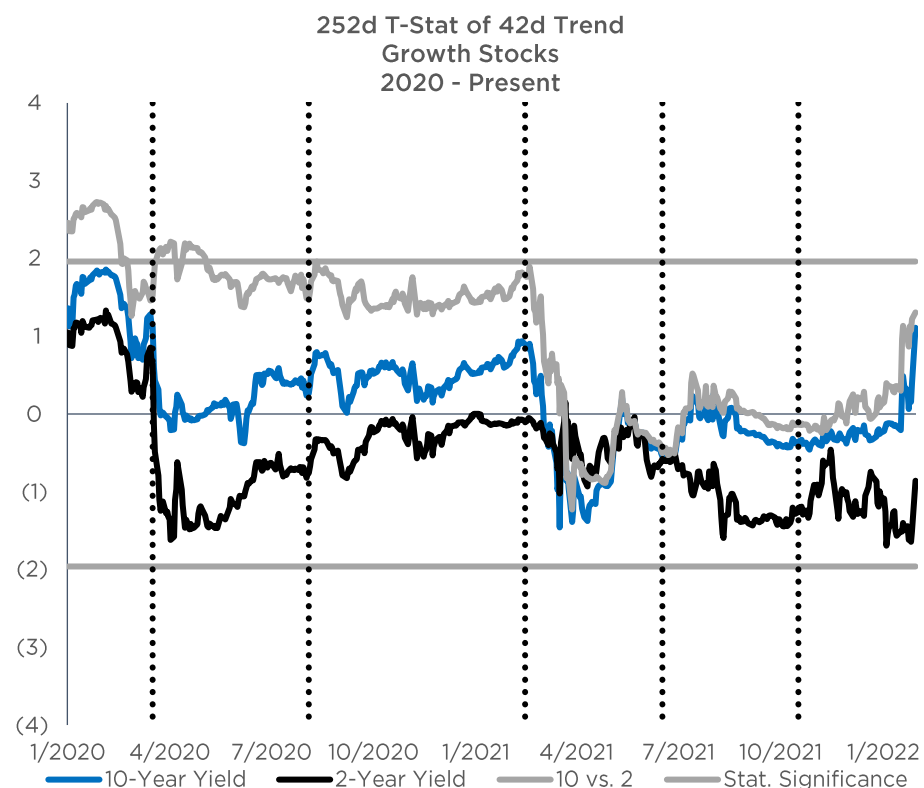
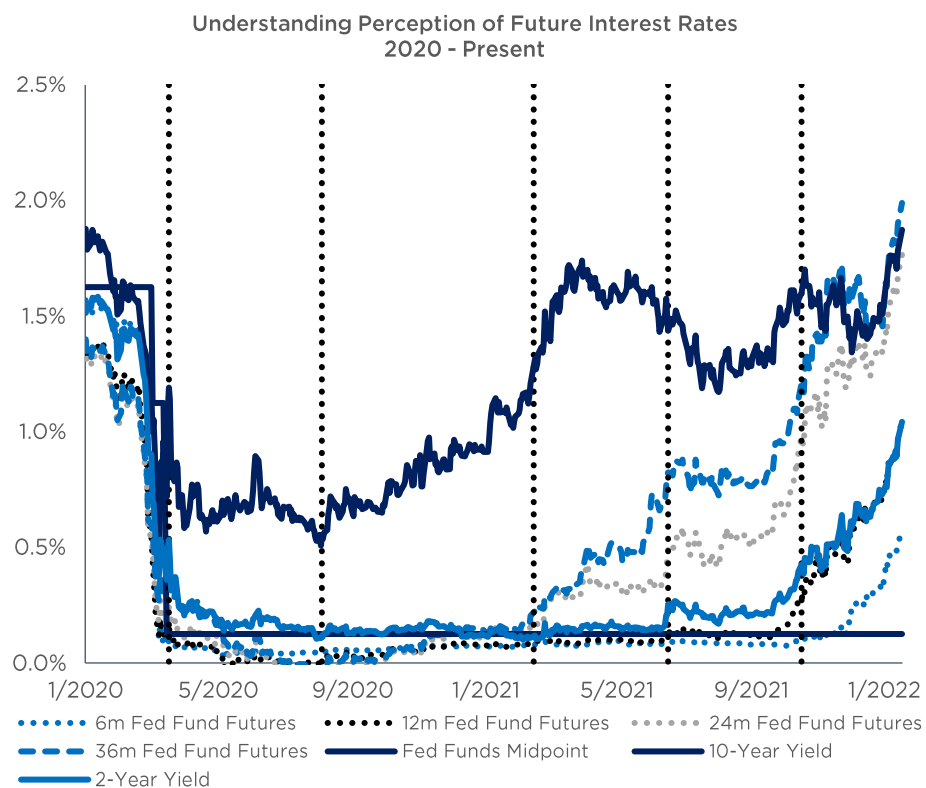
Anticipation of rate hikes leads actual rate hikes. There is not a statistically significant relationship between changes in the level and slope of interest rates (2-year yield, 10-year yield, 10-year minus 2-year yield) and beta-adjusted growth stock returns. However, there is a strong relationship between changes in perceptions about interest rates (the Fed Fund Futures Curve) and growth stock investing, and the current relationship is the most negative it has been since COVID. Therefore, the key to growth stocks working appears to be a moderation in the perception about Fed hawkishness.

Within the growth universe, performance of the software, biotechnology, IT services, and healthcare technology industries all have a statistically significant and negative relationship to changes in perceptions about the Fed Funds rate. While semiconductors have also recently lagged, their performance is not statistically significantly associated with perception about rate changes. Perhaps semis are a good place to look for long ideas.

Among the stocks with a high and significant negative relationship to perceptions about inflation, we think the biotechnology sell-off is overdone, with mid-cap. biotechnology at a ten-year low on relative price-to-sales. Only 15% of all biotechnology companies EVER generate cumulative positive free cash flow and most biotechnology companies that do eventually generate cash take on average five years to do so. Perceptions about Fed Fund futures likely will dramatically change several times in the interim. On the flip side, profitless software stocks seem less justified and rarely work after growth stock sell-offs. For stocks with high and positive relationships to the perception of rising Fed Fund rates, we prefer materials to select staples.

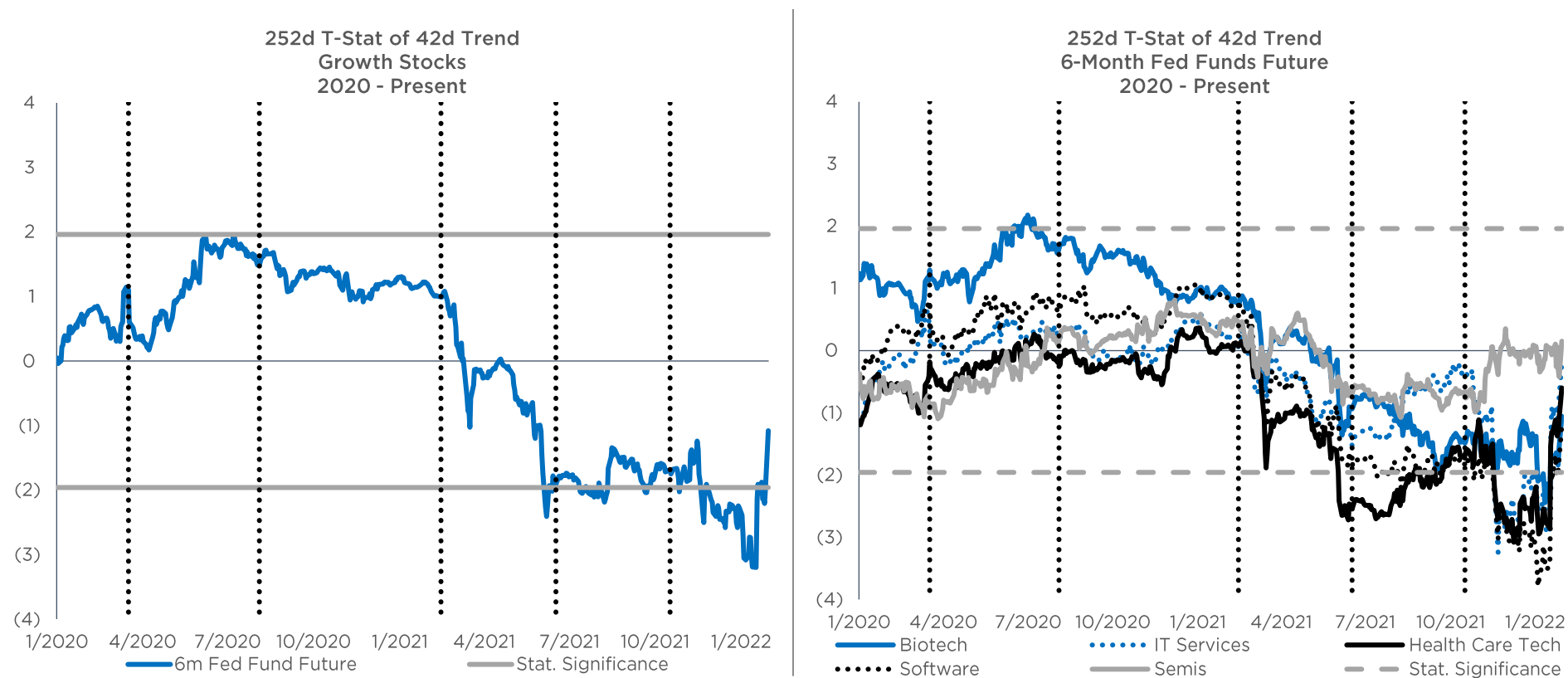
PERCEPTIONS OF INTEREST RATES LED ACTUAL INTEREST RATES

We show the Fed Fund futures moves for 6-,12-,24-, and 36-months over the last two years (left chart). The five vertical lines are 3/18/2020 (Initial COVID crash), 8/5/2020 (10-year yield bottoms), 2/15/2021 (longer-term Fed Fund Futures start to rise), 6/18/2021 (longer-term Fed funds slow), and 10/18/21 (an anticipation of the Fed pivot). Perception about Future Fed Funds Rates is clearly distinct from the actual rates (particularly the 24-and 36-month horizons). Additionally, we assessed statistical significance between the performance of growth stocks and the 2-month (42 trading days) trend of the 2-year, 10-year, and 10-year minus 2-year (slope) of interest rates (right chart). There is not much statistical significance in the last year, as the 10-year and slope essentially exhibit no relationship to growth stock returns. Hence, the traditional way people are thinking about this analysis really does not address the issue.



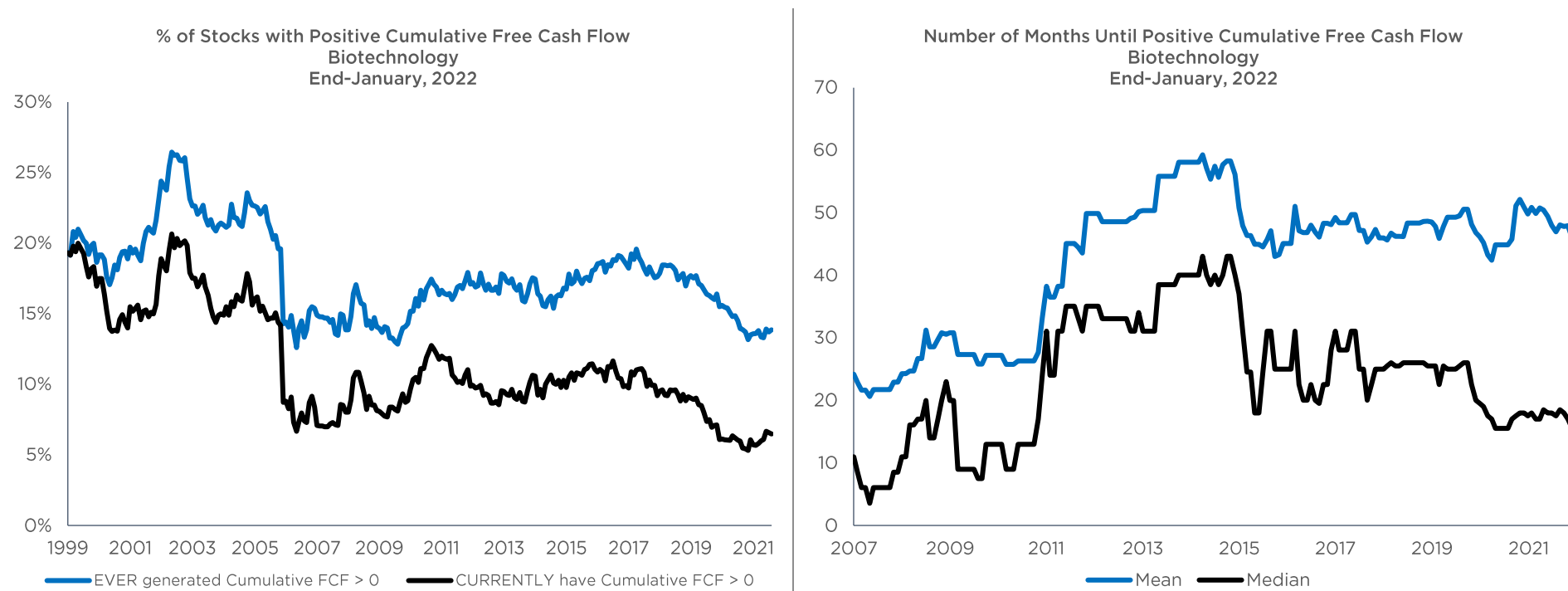
PERCEPTIONS ABOUT RATES FUELED GROWTH STOCK WEAKNESS

What matters far more than actual rates, is changes to perception in rates (left chart). Here, the 6-month Fed Futures Curve shows that there has been a statistically significant relationship since late June of 2021. The relationship has intensified since the “Powell Pivot” in Q4 and was the most negative since before COVID until the sharp growth-stock sell-off in January. The key to growth stocks working appears to be a moderation in the perception about Fed hawkishness. Within the growth universe, performance of the software, biotechnology, IT services, and healthcare technology industries all had statistically significant and negative relationship to changes in perceptions about the Fed Funds rate (right chart). On the contrary, semiconductors behaved differently.



IS THE BIOTECH SELL-OFF OVERDONE?

We suspect that any perception of dovishness will cause a rebound in the most negatively impacted areas. We think the biotech sell-off is overdone (as we pointed out in our December healthcare note, mid-cap. biotechnology is at a ten-year low on relative price-to-sale after a ~50% correction). First, only 15% of all biotechnology companies EVER generate cumulative positive free cash flow (left chart). So what terminal value is even impaired? The best argument is that these companies will have a higher cost of capital, but that merits a correction of 5-15% at most, not ~50%! If most of the value is in the terminal value, then rising short-term rates shouldn't impair something more than ten years out, as at that point, we will probably be onto the next rate cycle. Secondly, most companies that do eventually generate cash take on average five years to do so – and perceptions about Fed Fund futures likely dramatically change several times in the interim.



BUY MATERIALS & BIOTECH, SHORT STAPLES & SELECT SOFTWARE

The left side of this chart shows ideas with a highly positive (materials) and highly negative (biotechnology) relationship to changes in perceptions about rates. We think these are good areas to look for buy ideas. Select food, beverages, and tobacco (high positive) and profitless software (high negative) would make for a good “perception of rates” barbell.

Buy Interest Rate Perception Sensitive
Materials and Biotechnology

Materials				
Ticker	Company Name	Industry	T-Stat	Market Cap (\$ US. Bil)
SCCO	Southern Copper Corporation	Metals & Mining	1.55	49.39
DOW	Dow Inc.	Chemicals	2.13	43.81
LYB	LyondellBasell Industries N.V.	Chemicals	1.67	31.96
EMN	Eastman Chemical Company	Chemicals	1.80	15.34
FMC	FMC Corporation	Chemicals	2.43	13.99
RS	Reliance Steel & Aluminum Co.	Metals & Mining	1.62	9.58
CBT	Cabot Corporation	Chemicals	1.68	3.11
MTX	Minerals Technologies Inc.	Chemicals	1.79	2.33
IOSP	Innospec Inc.	Chemicals	1.88	2.29
KRO	Kronos Worldwide, Inc.	Chemicals	1.57	1.66
Biotechnology				
SGEN	Seagen Inc.	Biotech	(1.64)	24.60
ALNY	Alnylam Pharmaceuticals, Inc.	Biotech	(1.74)	16.46
KOD	Kodiak Sciences Inc.	Biotech	(2.57)	3.01
CCXI	ChemoCentryx, Inc.	Biotech	(1.72)	1.88
TVTX	Traverse Therapeutics, Inc.	Biotech	(1.74)	1.68
PRTA	Prothena Corporation plc	Biotech	(2.09)	1.59
ENTA	Enanta Pharmaceuticals, Inc.	Biotech	(1.94)	1.22
ADCT	ADC Therapeutics SA	Biotech	(1.72)	1.22
CDMO	Avid Bioservices, Inc.	Biotech	(1.63)	1.16
MRUS	Merus N.V.	Biotech	(1.52)	1.05

Short Interest Rate Perception Sensitive
Food, Beverage & Tobacco and Profitless Software & Services

Food, Beverage & Tobacco				
Ticker	Company Name	Industry	T-Stat	Market Cap (\$ US. Bil)
KO	The Coca-Cola Company	Beverages	1.51	263.53
MO	Altria Group, Inc.	Tobacco	1.82	92.76
ADM	Archer-Daniels-Midland	Food Products	2.23	41.97
MKC	McCormick & Company, Inc.	Food Products	2.55	26.83
TAP	Molson Coors Beverage	Beverages	1.70	10.37
LW	Lamb Weston Holdings, Inc.	Food Products	1.67	9.32
UVV	Universal Corporation	Tobacco	1.58	1.34
UTZ	Utz Brands, Inc.	Food Products	1.55	1.25
Profitless Software & Services				
TWLO	Twilio Inc.	IT Services	(1.53)	36.76
NET	Cloudflare, Inc.	IT Services	(2.51)	31.02
MDB	MongoDB, Inc.	IT Services	(2.03)	27.04
BILL	Bill.com Holdings, Inc.	Software	(1.88)	19.30
CDAY	Ceridian HCM Holding Inc.	Software	(3.35)	11.47
LPSN	LivePerson, Inc.	Software	(1.66)	2.17

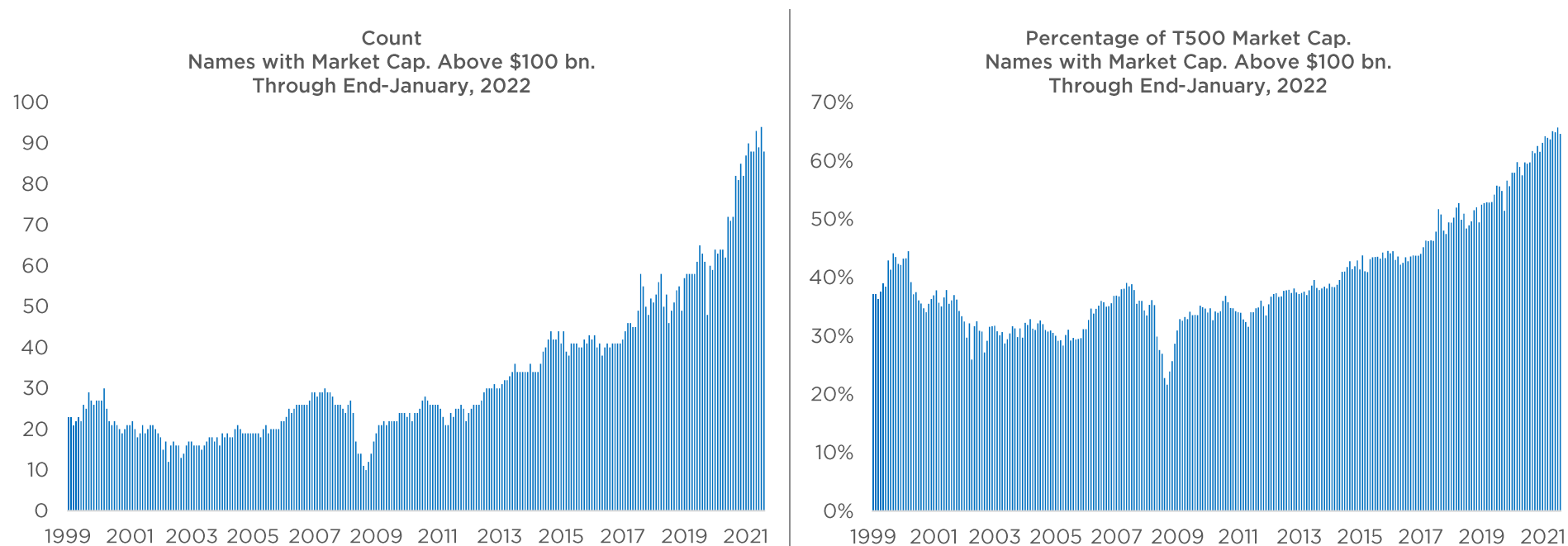
THE \$100 BILLION MARKET CAPITALIZATION CLUB – THE NIFTY NINETY

There are now ~90 stocks greater than \$100 billion market cap., more than 2x the number we had three years ago. This makes it increasingly challenging for generalist PMs to keep track of all of them. The group also has substantial alpha, and hence we wanted to provide ways for investors pick winners from losers. Our first approach is to evaluate the efficacy of our quantitative models, which we used to run live money at our prior venture, Trivariate Capital. Our approach is to forecast 18-month forward returns by first breaking the top 3000 US equities into 21 separate cohorts. Using balance sheet, cash flow statement, income statement, valuation, sentiment, and accounting metrics, we build traditional statistical models designed to identify subsequent winners and losers through a ranking system. Our model has historically worked well on these stocks, with the top quintile (Q1) consistently and substantially beating the SP500, and the bottom quintile (Q5) consistently lagging the market. The \$100 billion club overall modestly lags the market. As such, we think it make sense to use your quantitative model for idea generation in this Nifty Ninety group of stocks.

Following the assessment of our quant model, we looked for additional approaches to parse winners from losers. In total, we evaluated four additional methodologies to identify winners and losers in the \$100 billion club including consensus sell-side recommendations, non-consensus buy-side high conviction, share gain, and share loss.

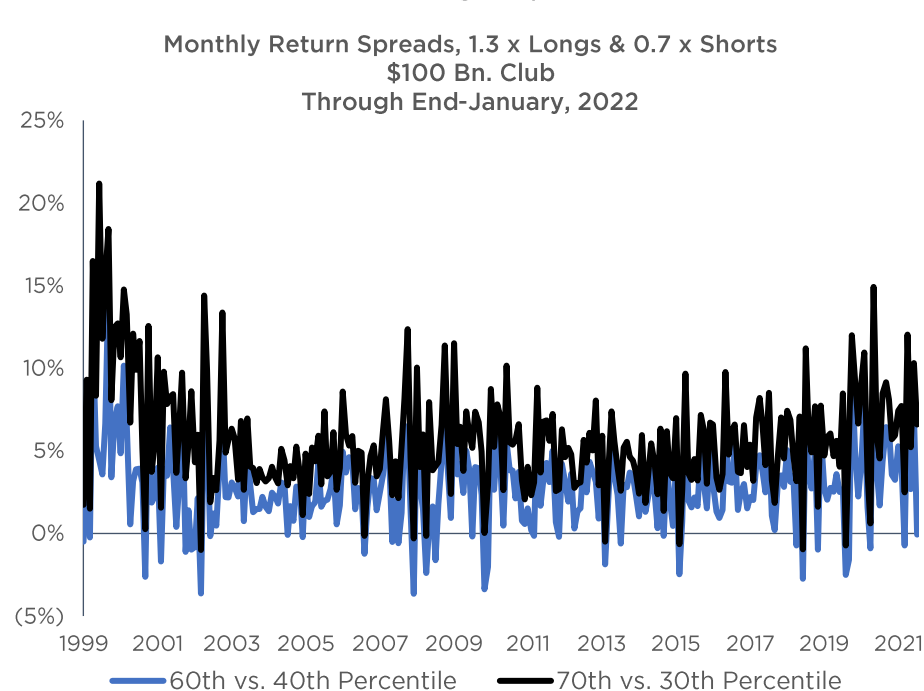
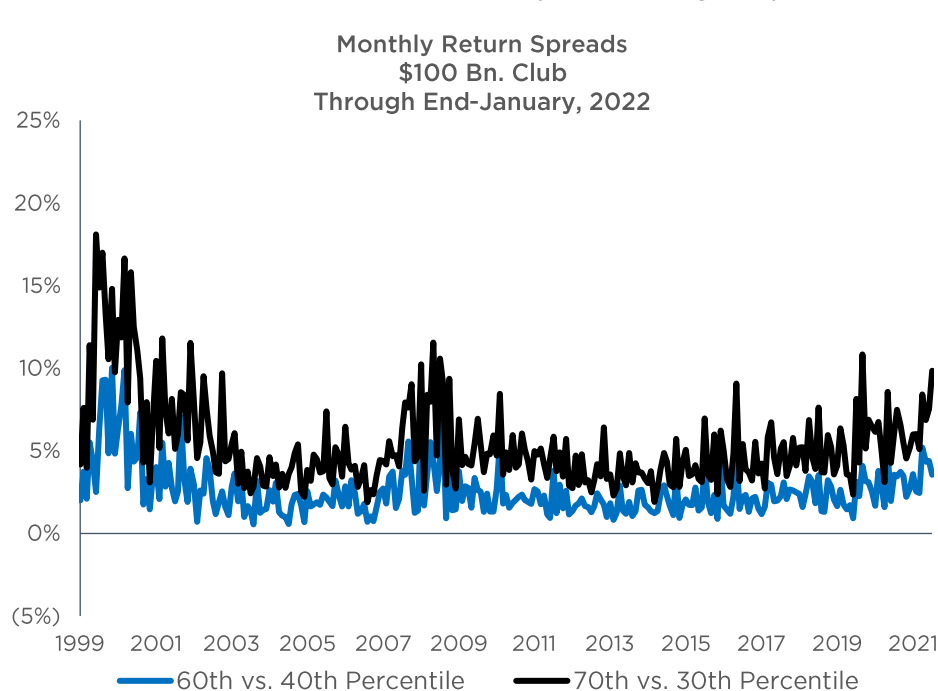
THE NUMBER OF STOCKS THAT ARE \$100 BILLION CAP. HAS GROWN

Ten year ago, there were roughly 30 companies in the US equity market that were greater than \$100 bn. market capitalization. At that time, most generalist portfolio managers had formed investment views on these companies, had seen the management teams present or met them over the years, and had a pretty good command of the investment debates for nearly all of these companies.. Today, however, there are nearly 95 companies (left) that have greater than 100b market capitalization, double the number of companies that had reached this exclusive barrier three years ago. These names account for roughly 60% of the total market cap. of the SP500 (right). For any equity investor whose performance is directly benchmarked to the SP500, it has never been more important – and more challenging – to be able to generate performance from these names.



ALPHA POTENTIAL IN THIS GROUP IS REASONABLE

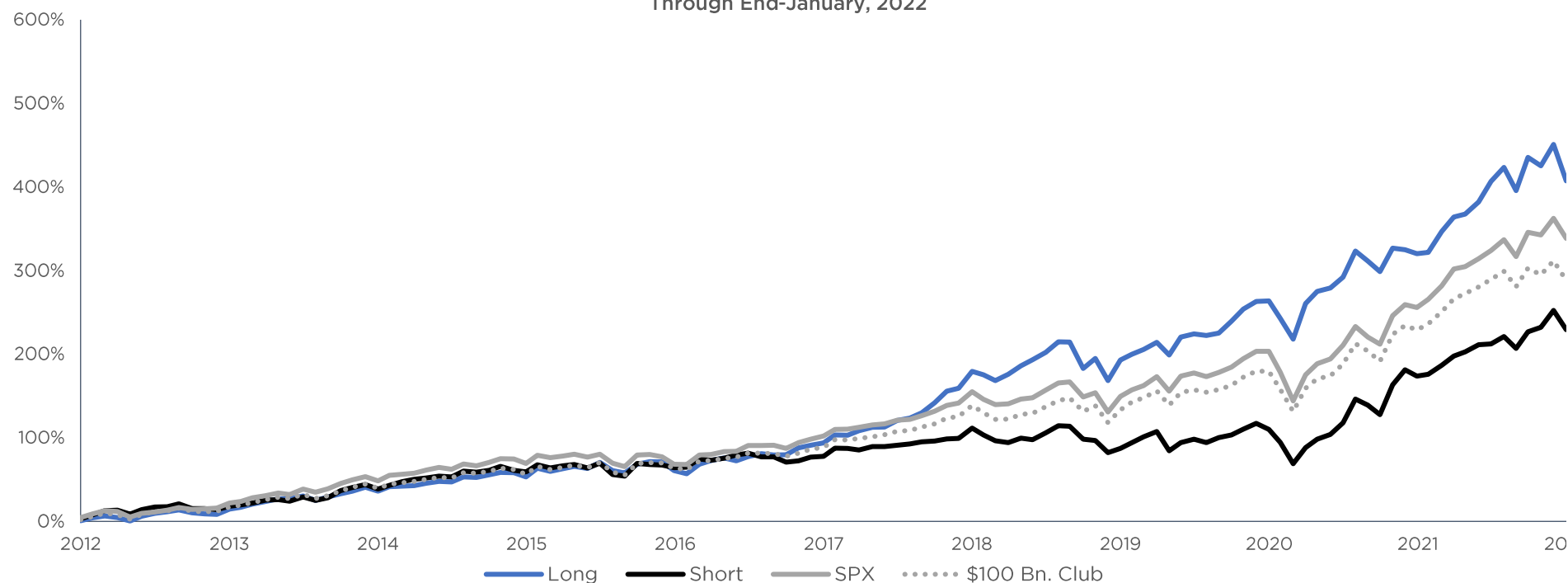
While conventional wisdom might say it is very difficult to generate alpha for mega cap stocks because they are well understood and covered, we wanted to dimension the potential alpha for this group before providing a time-saving, and alpha-generative framework for them. Below we show the annual performance potential of the 60th vs. 40th percentile and 70th vs. 30th percentile performers among the 100 billion club. By overweighting (or buying) stocks that perform in the 60th percentile of the group, and underweighting (shorting) stocks in the 40th percentile, the average performance is 2.6%. For a more skilled investors, getting 70th percentile overweight performance and 30th percentile underweight performance generates 5.5% performance in this group of large cap stocks (left). For hedge funds, who on average run with close to a 200% gross exposure and a 60% net exposure today, performance is 2.9% and 5.7% for 60-40 and 70-30 exposure (right) per month. Investors can do well in this group of stocks.



TRIVARIATE'S QUANTITATIVE MODEL DOES WELL ON \$100B+ STOCKS

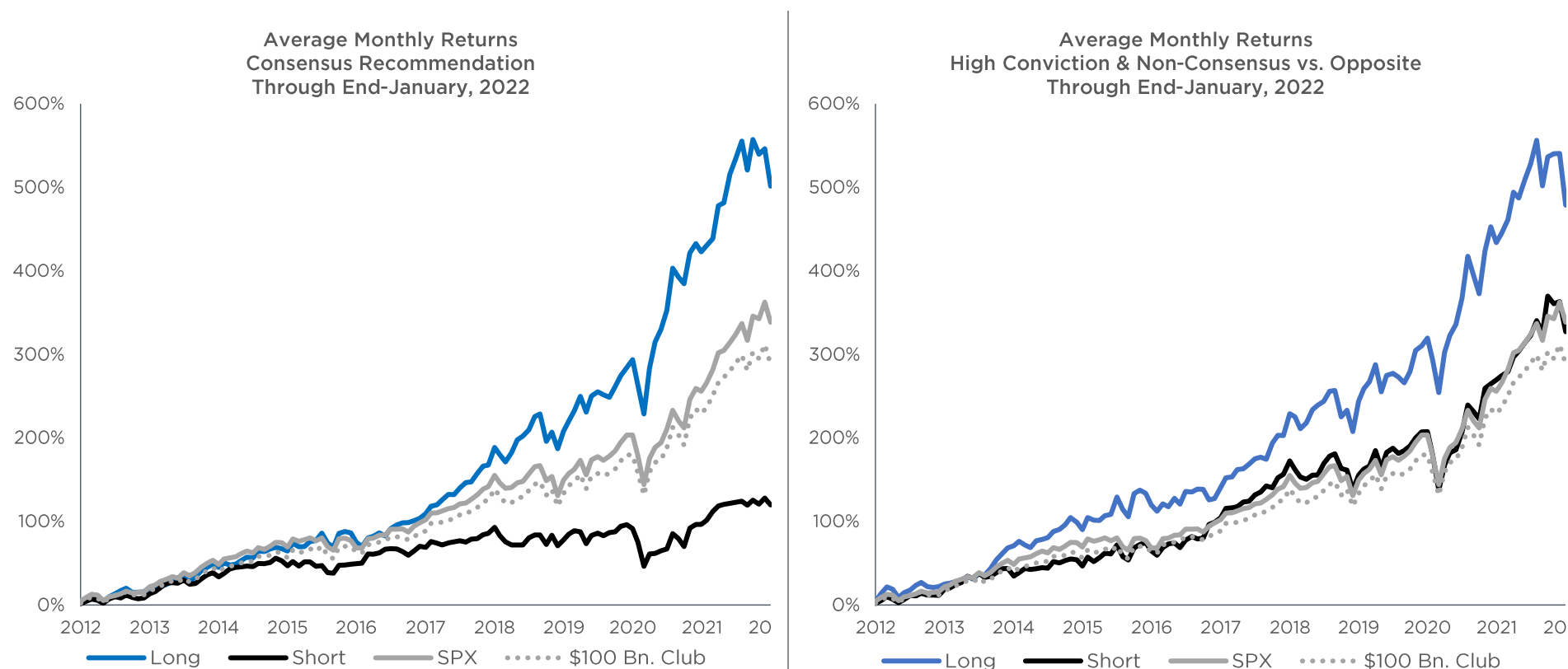
Given there is a huge group of stocks with some potential alpha, we wanted to provide ways for investors pick winners from losers. Our first approach is to evaluate the efficacy of our quantitative models, which we used to run live money at our prior venture, Trivariate Capital. Our approach is to forecast 18-month forward returns by first breaking the top 3000 US equities into 21 separate cohorts. Using balance sheet, cash flow statement, income statement, valuation, sentiment, and accounting metrics, we build traditional statistical models designed to identify subsequent winners and losers through a ranking system. Our model has historically worked well on these stocks, with the top quintile (Q1) consistently and substantially beating the SP500, and the bottom quintile (Q5) lagging the market. The \$100 billion club overall modestly lags the market. As such, we think it make sense to use your quantitative model for idea generation in this Nifty Ninety group of stocks.

Average Monthly Returns
Trivariate Quantitative Model
Through End-January, 2022



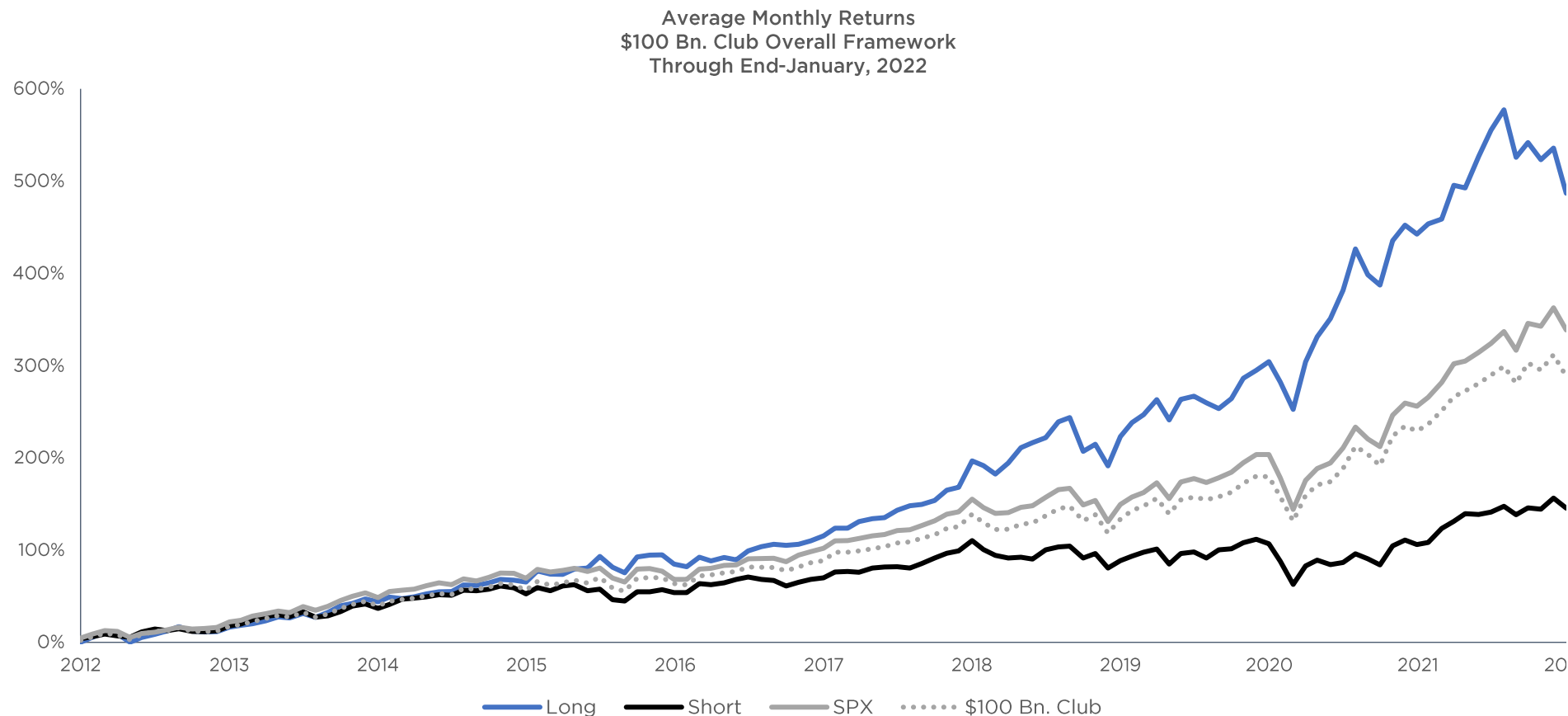
SURPRISINGLY SELL-SIDE AND BUY-SIDE CONSENSUS MATTERS

Following the assessment of our quant model, we looked for additional approaches to parse winners from losers. In total, we evaluated four additional methodologies to identify winners and losers in the \$100 billion club. Firstly, we thought it makes sense to see if there is any value in the widely available sell-side analyst ratings. To our surprise, there was strong efficacy. Buying the stocks in the top quintile of the sell-side's aggregate recommendation and shorting those in the bottom quintile generated strong spread. It may be that there are underlying factors, like these grow faster, having expanding margins, have positive momentum, but for whatever the reason, it is clear this aggregate sell-side rating score is helpful (left chart). We also looked at the performance high conviction (3% or more of long AuM) of a select group of approximately 60 hedge fund managers that are not widely owned by 500 other funds. These tended to strongly outperform (right chart), whereas the stocks with little high conviction ownership from our select group of funds by lots of high conviction ownership from others performed more in-line.



OVERALL FRAMEWORK – AVERAGE ALL FIVE APPROACHES

When we take all five of the approaches (model rankings, consensus sell-side ratings, high conviction non-consensus views, forecasted revenue growth, forecasted gross margin expansion) and equal-weight the rank of each of the stocks that are \$100 billion or larger and evaluate the subsequent return, we can see that those that are in the top quintile strongly beat the average and those in the bottom quintile strongly lag. We think this is a valuable approach to picking winners from losers among this group and that this has been particularly effective as the number of \$100 billion cap. stocks has grown since 2016.



THE TOP THIRD IDEAS IN THE \$100 BILLION CLUB

Stocks in the top third are shown below. There is clear bias toward large cap. technology today

Ideas in Top Third of \$100 Bn. Club Framework, End-January 2022

Ticker	Company	Industry Group	Model Rank	Consensus Recommendation	Relative Forecast Share Gain	Relative Forecast Gross Margin Growth	High Conviction & Non-Consensus	Overall Framework Ranking
NOW	ServiceNow, Inc.	Software & Services	5	4	18	18	21	1
CRM	salesforce.com, inc.	Software & Services	53	6	14	14	8	2
GOOGL	Alphabet Inc.	Media & Entertainment	12	3	17	17	7	3
AMZN	Amazon.com, Inc.	Retailing	67	1	9	9	5	4
FB	Meta Platforms, Inc.	Media & Entertainment	18	5	16	16	4	5
BKNG	Booking Holdings Inc.	Consumer Services	15	65	1	1	11	6
UNH	UnitedHealth Group Incorporated	Health Care Equip & Serv	1	13	53	53	2	7
BLK	BlackRock, Inc.	Diversified Financials	7	18	15	15		8
PYPL	PayPal Holdings, Inc.	Software & Services	44	21	25	25		9
MA	Mastercard Incorporated	Software & Services	31	9	34	34	13	10
COP	ConocoPhillips	Energy	50	11	7	7		11
BA	The Boeing Company	Capital Goods		55	5	5		12
RTX	Raytheon Technologies Corporation	Capital Goods		24	37	37		13
MRK	Merck & Co., Inc.	Pharma Biotech	19	55	12	12		14
ADBE	Adobe Inc.	Software & Services	29	19	58	58	9	15
SHOP	Shopify Inc.	Software & Services	10	51	6	6	10	16
NEE	NextEra Energy, Inc.	Utilities		45	4	4		17
MSFT	Microsoft Corporation	Software & Services	39	2	68	68	6	18
AMD	Advanced Micro Devices, Inc.	Semis & Semi Equip.		63	10	10	16.5	19
PM	Philip Morris International Inc.	Food, Bev & Tobacco	34	55	33	33		20
JNJ	Johnson & Johnson	Pharma Biotech	2	64	54	54		21
TSLA	Tesla, Inc.	Autos & Components	56	82	2	2	18.5	22
IBM	International Business Machines Corporation	Software & Services	4	85				23
LOW	Lowe's Companies, Inc.	Retailing	3	30	60	60	26.5	24
HD	The Home Depot, Inc.	Retailing	25	37	50	50	22.5	25
AMT	American Tower Corporation	Real Estate	16	47	26	26		26
PFE	Pfizer Inc.	Pharma Biotech	22	75	3	3		27
ABBV	AbbVie Inc.	Pharma Biotech	71	31	43	43		28
HON	Honeywell International Inc.	Capital Goods	17	72	45	45		29
GE	General Electric Company	Capital Goods	51	40.5	44	44	24.5	30

THE MIDDLE THIRD IDEAS IN THE \$100 BILLION CLUB

Stocks in the middle third are shown below.

Ideas in Middle Third of \$100 Bn. Club Framework, End-January 2022

Ticker	Company	Industry Group	Model Rank	Consensus Recommendation	Relative Forecast Share Gain	Relative Forecast Gross Margin Growth	High Conviction & Non-Consensus	Overall Framework Ranking
UNP	Union Pacific Corporation	Transportation		29	73	73	1	31
DHR	Danaher Corporation	Pharma Biotech	35	8	59	59	14	32
NKE	NIKE, Inc.	Consumer Durab. & App	68	20	51	51		33
PEP	PepsiCo, Inc.	Food, Bev & Tobacco	24	73	30	30		34
TGT	Target Corporation	Retailing	13	33	40	40		35
EL	The Estée Lauder Companies Inc.	House & Personal Prod.	76	44	13	13		36
CSCO	Cisco Systems, Inc.	Tech Hardware & Equip	9	71	47	47		37
WMT	Walmart Inc.	Food & Staples Retailing	32	35	42	42		38
ANTM	Anthem, Inc.	Health Care Equip & Serv	11	14	61	61		39
LIN	Linde plc	Materials	66	22	28	28		40
INTU	Intuit Inc.	Software & Services	59	17	32	32	26.5	41
KO	The Coca-Cola Company	Food, Bev & Tobacco	70	38.5	27	27		42
ISRG	Intuitive Surgical, Inc.	Health Care Equip & Serv	21	60	52	52		43
SBUX	Starbucks Corporation	Consumer Services	52	68	63	63		44
MDT	Medtronic plc	Health Care Equip & Serv	43	28	76	76		45
PG	The Procter & Gamble Company	House & Personal Prod	37	69	38	38		46
WFC	Wells Fargo & Company	Banks	36	38.5	72	72	15	47
TMUS	T-Mobile US, Inc.	Telecom Services	72	25	41	41	3	48
AMGN	Amgen Inc.	Pharma Biotech	27	83	64	64		49
XOM	Exxon Mobil Corporation	Energy	41	84	20	20		50
SCHW	The Charles Schwab Corporation	Diversified Financials	23	55	21	21	18.5	51
VZ	Verizon Communications Inc.	Telecom Services	26	86	48	48		52
NVDA	NVIDIA Corporation	Semis & Semi Equipment	81	10	8	8	35.5	53
CVX	Chevron Corporation	Energy	28	42	71	71		54
C	Citigroup Inc.	Banks	20	49	35	35	31.5	55
CAT	Caterpillar Inc.	Capital Goods	80	77	22	22		56
AAPL	Apple Inc.	Tech Hardware & Equip	79	15	46	46		57
ACN	Accenture plc	Software & Services	6	48	66	66		58
SPGI	S&P Global Inc.	Diversified Financials	73	16	23	23	33	59
BAC	Bank of America Corporation	Banks	62	67	24	24		60

THE BOTTOM THIRD IDEAS IN THE \$100 BILLION CLUB

Stocks in the bottom third are shown below. There is clear bias against semiconductors and banks.

Ideas in Bottom Third of \$100 Bn. Club Framework, End-December 2021

Ticker	Company	Industry Group	Model Rank	Consensus Recommendation	Relative Forecast Share Gain	Relative Forecast Gross Margin Growth	High Conviction & Non-Consensus	Overall Framework Ranking
PLD	Prologis, Inc.	Real Estate	8	55	86	86		61
V	Visa Inc.	Software & Services	45	7	62	62	35.5	62
TMO	Thermo Fisher Scientific Inc.	Pharma Biotech	47	12	65	65	16.5	63
BRK.B	Berkshire Hathaway Inc.	Diversified Financials	38	79				64
MS	Morgan Stanley	Diversified Financials	40	50	55	55	24.5	65
LLY	Eli Lilly and Company	Pharma Biotech	57	55	74	74		66
CMCSA	Comcast Corporation	Media & Entertainment	64	26	79	79		67
JPM	JPMorgan Chase & Co.	Banks	30	76	49	49		68
AXP	American Express Company	Diversified Financials	63	74	11	11		69
CVS	CVS Health Corporation	Health Care Equip & Serv	65	32	67	67		70
NFLX	Netflix, Inc.	Media & Entertainment	61	59	57	57	12	71
ABT	Abbott Laboratories	Health Care Equip & Serv	14	40.5	84	84	29	72
COST	Costco Wholesale Corporation	Food & Staples Retailing	42	43	29	29	29	73
GS	The Goldman Sachs Group, Inc.	Diversified Financials	33	66	83	83		74
DE	Deere & Company	Capital Goods	60	61	39	39		75
T	AT&T Inc.	Telecom Services	54	81	78	78		76
DIS	The Walt Disney Company	Media & Entertainment	82	34	19	19	34	77
AVGO	Broadcom Inc.	Semis & Semi Equip	74	23	56	56	22.5	78
LMT	Lockheed Martin Corporation	Capital Goods	49	78	75	75		79
CHTR	Charter Communications, Inc.	Media & Entertainment	48	70	81	81	20	80
MCD	McDonald's Corporation	Consumer Services	58	27	80	80		81
QCOM	QUALCOMM Incorporated	Semis & Semi Equip	77	36	31	31	31.5	82
AMAT	Applied Materials, Inc.	Semis & Semi Equip	69	46	36	36	29	83
TXN	Texas Instruments Incorporated	Semis & Semi Equip	46	80	70	70		84
BMJ	Bristol-Myers Squibb Company	Pharma Biotech	75	55	69	69		85
UPS	United Parcel Service, Inc.	Transportation		62	77	77		86
INTC	Intel Corporation	Semis & Semi Equip	55	88	85	85		87
ORCL	Oracle Corporation	Software & Services	78	87	82	82		88

HOW DO WE ASSESS WHERE ARE WE ARE TODAY?

We created twelve proprietary indices using over 100 variables that systematically process “macro” data. The macro data have various frequencies, ranging from daily through monthly and are downloaded from Bloomberg, except for corporate profitability and company-specific risk data, which we compute. We smooth and transform the data to create twelve indices or gauges of where we are in the investing world today. Our proprietary gauges include:

1. Economic activity
2. Consumer activity
3. Corporate profitability
4. Financial conditions
5. Currency
6. The slope and level of the US Treasury yield curve
7. Industrial activity
8. China activity
9. European activity
10. Oil
11. Commodities
12. Company-specific risk

MACRO IS MATTERING MORE, AND PEAKING IN MANY AREAS

Many of our signals have multiple inputs (right side of below chart) and are designed to capture larger and longer-term trends, not shorter-term / smaller counter-trend movements. When we look at our 12 gauges (listed alphabetically below) most are generally increasing / improving. The consumer remains very strong. Economic and industrial activity have both plateaued this month after rising the previous year. The 6-month and 12-month curves are bear flattening. Financial conditions are again. China has rolled over. The dollar is strengthening. Commodities has leveled off and company-specific risk is falling.

Current Regime for Each Macro Signal

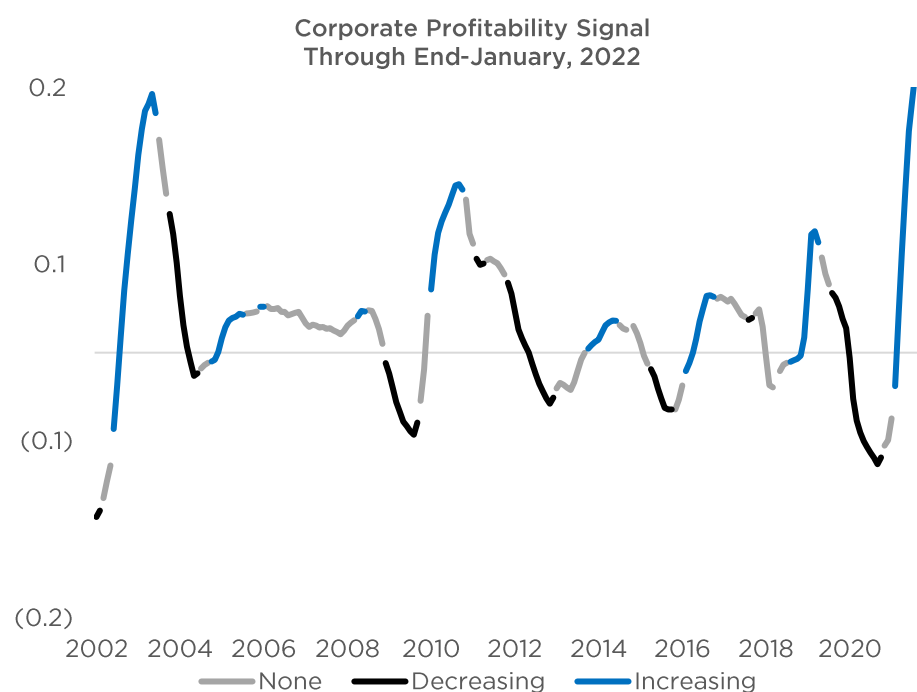
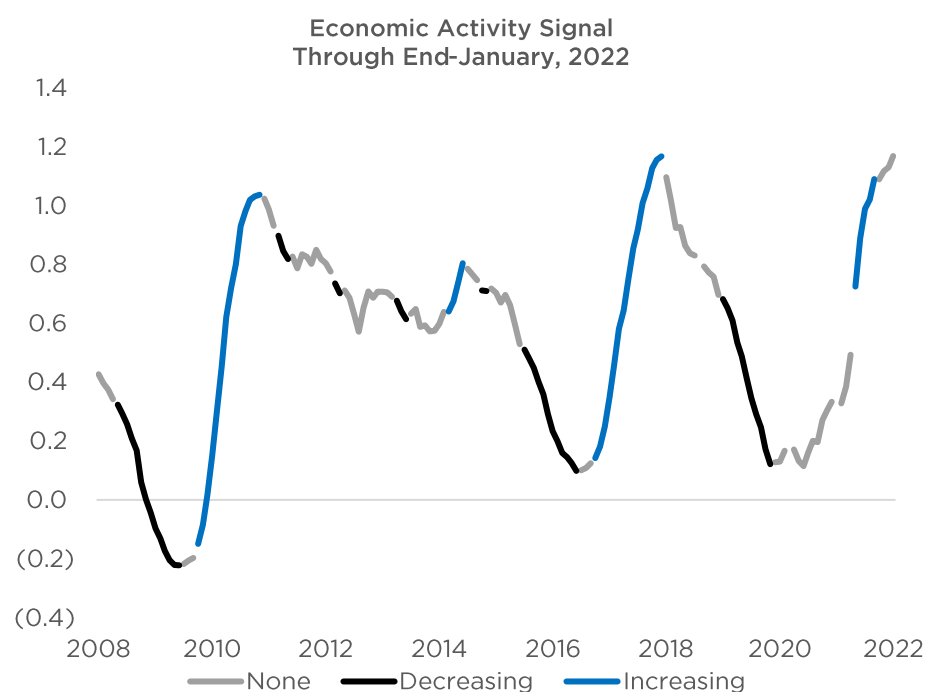
Macro Signal	Current Regime	Examples of Components
China	Decreasing	Fiscal Expenditures, New Auto Registrations, Electricity Consumption, Exports, Consumer Confidence, Financial Conditions, Residential Property Sales, 10-Year Yield
Commodities	None	Aluminum, Corn, Cotton, Copper, Lumber, Natural Gas, Soybeans, Sugar, Silver
Consumer Activity	Increasing	Credit Card Delinquency, Retail Sales, Consumer Confidence, Wage Growth, Unemployment
Corporate Profitability	Increasing	Operating Margin, 1-Year FWD Earnings Expectations, 2-Year FWD Earnings Expectations
Company-Specific Risk	None	The amount unexplained by our 7-factor model
Currency	Dollar Strengthening	AUD, CAD, CHF, DXY, EUR, GBP, INR, JPY, SEK
Economic Activity	None	CEO Confidence, Inflation, Philly Fed Business Outlook, Small Business Optimism, Leading Indicators
Europe	Increasing	Financial Conditions, 5y5y Forward Break-evens, Unemployment, Consumer Confidence, CDS Spreads
Financial Conditions	Tightening	Credit Spreads, US Treasury Implied Volatility, 30-Year Fixed Mortgage Rates
Industrial Activity	None	Dry Van Rate per Mile, Baker Hughes Total Rig Count, AAR N. America Total Carloads, US Capacity Utilization, Private Non-Residential Construction, US C&I Loans
Oil	Increasing	WTI, Brent
Yield Curve 63d	None	US 2-Year Yield, US 10-Year Yield
Yield Curve 126d	Bear Flattening	US 2-Year Yield, US 10-Year Yield
Yield Curve 252d	Bear Flattening	US 2-Year Yield, US 10-Year Yield

WHAT SHOULD WE DO ABOUT IT?

1. We recommend that investors **gross down their durables exposure**. We struggle to separate winners from losers in durables like homebuilders, air conditioners, and select durable apparel when corporate profitability is positive and increasing
2. We recommend that investors **gross up their consumer discretionary exposure**. Our consumer discretionary model performs better when our consumer activity gauge is positive and increasing and when company-specific risk is rising in the consumer sector
3. Other recommendations include: **gross up exposure to healthcare, energy, industrials, high yielding “junk” stocks, pharma biotech, and real estate**

ECONOMIC ACTIVITY FLATTENED, CORPORATE GAUGE STILL STRONG

We show the economic and consumer activity gauges below. We evaluate where we are in the economic activity cycle by looking at variables like CEO Confidence, Philly Fed Business Outlook, Small Business Optimism, US Economic Surprise, US LEI, US 5y5y Forward Breakeven, etc. This month the gauge moderated (left chart). Our corporate profitability gauge consists of current operating margins and forward earnings expectations (relative to current) for the fiscal years 1 and 2 years into the future. Our corporate profitability signal overall is at a high (right chart).



OTHER PROCESS FOR GROSS EXPOSURE RECOMMENDATIONS

Our durables model performs poorly when corporate profitability is increasing, fueling our judgment that picking winners from losers is challenging in areas like home builders, air conditioning, and select apparel today. The top quintile of our durables model UNDERPERFORMS the bottom quintile by 2.2% on average when corporate profitability is increasing but outperforms the bottom quintile by 8.4% when it is not increasing (left chart). Another illustration is our economic activity gauge. It recently stopped increasing, causing us to change our gross exposure recommendation for TMT, but the power of our quantitative model for TMT stocks when economic activity is increasing is substantial (right chart).

Durables Model Performance Through End-January, 2022				TMT Model Performance Through End-January, 2022			
Stat (Beta-Adjusted)	Corporate Profitability Increasing	Corporate Profitability Not Increasing	Difference	Stat (Beta-Adjusted)	Economic Activity Increasing	Economic Activity Not Increasing	Difference
Weighted Mean	(2.2%)	8.4%	(10.6%)	Weighted Mean	16.4%	6.9%	9.5%
Weighted Median	(2.6%)	11.2%	(13.8%)	Weighted Median	16.8%	5.7%	11.1%
Weighted Information Ratio	(0.21)	0.72	(0.93)	Weighted Information Ratio	1.87	0.74	1.14
Hit Rate	42.9%	63.4%	(20.5%)	Hit Rate	67.6%	55.2%	12.5%

IF RISKS DID NOT CHANGE, ANYONE COULD DO RISK MANAGEMENT

Four key risks worth monitoring:

1. **High signal correlation:** Variables both fundamental managers and quants use to pick winners from losers are highly correlated in industrials – REITS were but this has moderated
2. **COVID:** Quality “reopening” stocks have still massively underperformed “junk” “work from home” stocks – monitor exposure of “substance” and “work from home” / “reopening”.
3. **Correlations during downturns:** Many stocks become more correlated to other names during market sell-offs than during “normal” times, and an assessment of drawdowns can help locate better hedges.
4. **Asymmetric betas:** Measure beta during downturns as there appears to be a consistent group of stocks that have much higher betas during market corrections than “normal” times –many of these are REITS.

RISK ONE: HIGHLY CORRELATED SIGNALS IN INDUSTRIALS

We analyzed all 21 of our quantitative models to see if signals have become increasingly correlated recently. The two biggest risks we see are the increased correlation in REITS and industrials. For both, we have a model comprised of eight signals to predict subsequent 18-month returns for stocks in that industry. There were sustained periods during our model development (2012-2017) where the average pairwise correlation of these signals was near zero (even briefly negative). However, right after the Pfizer vaccine announcement on November 9th of 2020, the average pairwise correlation of our REITS-model signals jumped to near 70% as REITs names rose indiscriminately – that has begun to materially moderate however over the last six months. However, high signal correlation in the industrials model have continued to persist.

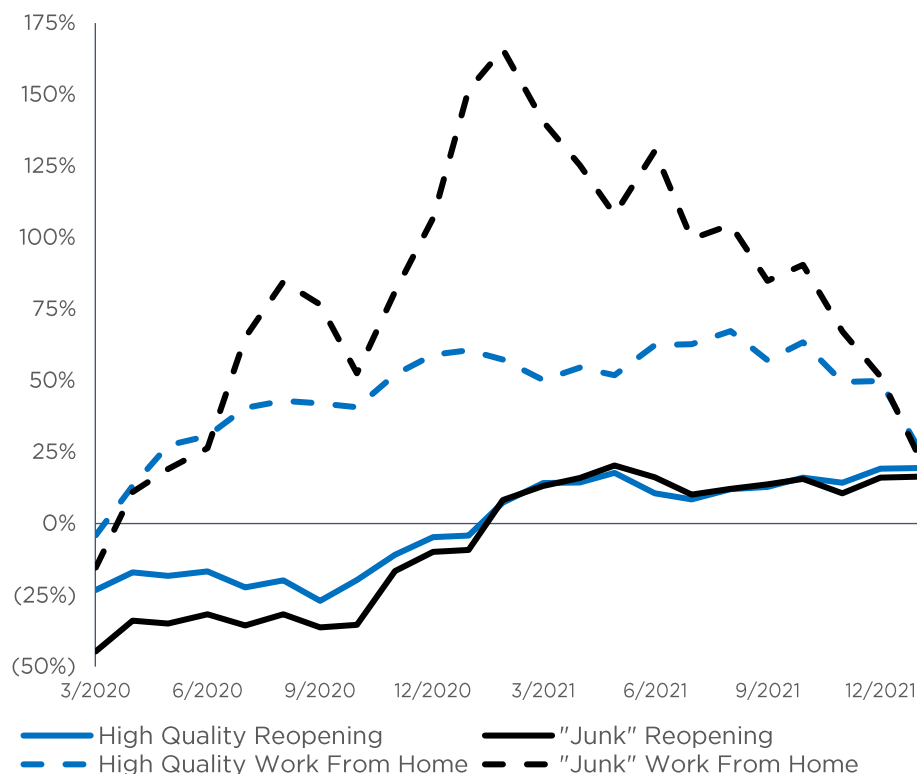
REITS and Industrials Cohort Model
Average 21-Day Pairwise Correlation
Through End-January, 2022



RISK TWO: JUNK WORK FROM HOME VS. QUALITY REOPENING

We created “work from home” and “reopening” baskets and looked at the correlation of every stock in our universe to both baskets – clearly this was a major new risk to monitor that formed last year. Given the simultaneous move in “junk” and “reopening”, we looked at performance of work from home quality and junk and reopening quality and junk since March of 2020 (left exhibit). In our minds, high quality reopening names seem poised for incremental catch up, and junk “work from home” ideas could continue to lag (right exhibit for ideas).

Compounded Median Return
Reopening vs. Work-from-Home, High Quality vs. Junk
Through End-January, 2022



Buy High Quality Reopening, Sell “Junk” Work-from-Home
Names in Top/Bottom Model Quartile with Market Cap. of at least \$1 Bil.
End-January, 2022

Long			
Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
HIG	The Hartford Financial Services Group, Inc.	Insurance	24.46
SNA	Snap-on Incorporated	Machinery	11.15
UGI	UGI Corporation	Gas Utilities	9.49
LEVI	Levi Strauss & Co.	Text., App. & Lux. Goods	8.73
PVH	PVH Corp.	Text., App. & Lux. Goods	6.65
IBOC	International Bancshares Corporation	Banks	2.66
FFWM	First Foundation Inc.	Banks	1.48
SCHL	Scholastic Corporation	Media	1.41
TCBK	TriCo Bancshares	Banks	1.29
PFC	Premier Financial Corp.	Thriffs & Mortgage Fin.	1.08
Short			
Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
PTON	Peloton Interactive, Inc.	Leisure Products	9.02
SAM	The Boston Beer Company, Inc.	Beverages	5.13
BYND	Beyond Meat, Inc.	Food Products	4.12
LMND	Lemonade, Inc.	Insurance	1.97
SHLS	Shoals Technologies Group, Inc.	Electrical Equipment	1.76
ARRY	Array Technologies, Inc.	Electrical Equipment	1.58
GENI	Genius Sports Limited	Interactive Media & Services	1.29
VRM	Vroom, Inc.	Specialty Retail	1.10
CANO	Cano Health, Inc.	Health Care Providers & Services	1.04

RISK THREE: BEAR CASE CORRELATIONS THAT RISE

We analyzed stock performance during market drawdowns of 10% or more and noticed that some stocks become increasingly correlated during market pullbacks. We like to monitor “bear case” correlations so we are not misled about the portfolio being hedged or defensive when there is a measurable phenomena during downturns.

Names with Higher 126d Correlations to Peers During SPX Drawdowns of at Least 10%
End-January, 2022

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
WMT	Walmart Inc.	Food & Staples Retailing	387.82
PFE	Pfizer Inc.	Pharmaceuticals	295.74
COST	Costco Wholesale Corporation	Food & Staples Retailing	223.99
VZ	Verizon Communications Inc.	Diversified Telecommunication Services	223.45
ORCL	Oracle Corporation	Software	216.73
TGT	Target Corporation	Multiline Retail	105.61
EW	Edwards Lifesciences Corporation	Health Care Equipment & Supplies	68.18
PSA	Public Storage	Equity Real Estate Investment Trusts (REITs)	62.87
CTSH	Cognizant Technology Solutions Corporation	IT Services	44.87
ORLY	O'Reilly Automotive, Inc.	Specialty Retail	43.91
WBA	Walgreens Boots Alliance, Inc.	Food & Staples Retailing	42.96
DLR	Digital Realty Trust, Inc.	Equity Real Estate Investment Trusts (REITs)	42.35
AZO	AutoZone, Inc.	Specialty Retail	40.99
AVB	AvalonBay Communities, Inc.	Equity Real Estate Investment Trusts (REITs)	34.07
EQR	Equity Residential	Equity Real Estate Investment Trusts (REITs)	33.28
EFX	Equifax Inc.	Professional Services	29.25
PCG	PG&E Corporation	Electric Utilities	25.39
K	Kellogg Company	Food Products	21.49
CLX	The Clorox Company	Household Products	20.62
CTRA	Coterra Energy Inc.	Oil, Gas & Consumable Fuels	17.82
CPT	Camden Property Trust	Equity Real Estate Investment Trusts (REITs)	16.36
EVERG	Evergy, Inc.	Electric Utilities	14.90
ELS	Equity LifeStyle Properties, Inc.	Equity Real Estate Investment Trusts (REITs)	14.53
LSI	Life Storage, Inc.	Equity Real Estate Investment Trusts (REITs)	11.05
DNB	Dun & Bradstreet Holdings, Inc.	Professional Services	8.65
ERIE	Erie Indemnity Company	Insurance	8.50
SWN	Southwestern Energy Company	Oil, Gas & Consumable Fuels	4.90

RISK FOUR: NEGATIVE ASYMMETRIC BETA

We analyzed the beta of stocks during periods where the market is down 10% or more. 43% of stocks with the highest negative asymmetric betas are REITS (left side). Non-REITs are shown on the right. This list represents names where we expect high underperformance in a market drawdown.

Names with Higher 252d Betas During SPX Drawdowns of at Least 10%
End-January, 2022

REITs				Non-REITs			
Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)	Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
PSA	Public Storage	REITs	62.87	CME	CME Group Inc.	Capital Markets	82.48
SPG	Simon Property Group, Inc.	REITs	48.37	ICE	Intercontinental Exchange, Inc.	Capital Markets	71.36
DLR	Digital Realty Trust, Inc.	REITs	42.35	TWLO	Twilio Inc.	IT Services	36.76
O	Realty Income Corporation	REITs	39.27	NDAQ	Nasdaq, Inc.	Capital Markets	29.97
SBAC	SBA Communications Corporation	REITs	35.40	LEN	Lennar Corporation	Household Durables	28.15
AVB	AvalonBay Communities, Inc.	REITs	34.07	LYV	Live Nation Entertainment, Inc.	Entertainment	24.12
EQR	Equity Residential	REITs	33.28	YUMC	Yum China Holdings, Inc.	Hotels, Restaurants & Leisure	20.62
ARE	Alexandria Real Estate Equities, Inc.	REITs	31.15	MKTX	MarketAxess Holdings Inc.	Capital Markets	13.10
EXR	Extra Space Storage Inc.	REITs	26.54	TDOC	Teladoc Health, Inc.	Health Care Technology	12.28
MAA	Mid-America Apartment Communities, Inc.	REITs	23.80	DECK	Deckers Outdoor Corporation	Textiles, App. & Luxury Goods	8.79
ESS	Essex Property Trust, Inc.	REITs	21.64	GPK	Graphic Packaging Holding Company	Containers & Packaging	5.81
PEAK	Healthpeak Properties, Inc.	REITs	19.07	QLYS	Qualys, Inc.	Software	4.97
UDR	UDR, Inc.	REITs	17.57	CIVI	Civitas Resources, Inc.	Oil, Gas & Consumable Fuels	4.60
BXP	Boston Properties, Inc.	REITs	17.51	SNDR	Schneider National, Inc.	Road & Rail	4.55
CPT	Camden Property Trust	REITs	16.36	ALKS	Alkermes plc	Biotechnology	4.12
KIM	Kimco Realty Corporation	REITs	14.95	RDN	Radian Group Inc.	Thriffs & Mortgage Finance	4.02
ELS	Equity LifeStyle Properties, Inc.	REITs	14.53	EXLS	ExlService Holdings, Inc.	IT Services	4.01
LSI	Life Storage, Inc.	REITs	11.05	AYX	Alteryx, Inc.	Software	3.85
NNN	National Retail Properties, Inc.	REITs	7.79	MTH	Meritage Homes Corporation	Household Durables	3.81

TRIVARIATE SECTOR OVERVIEW: SUMMARY RECOMMENDATIONS

Our sector recommendations are shown here- obviously there are nuances to the recommendations, but high level we like energy / materials over industrials, discretionary over staples, utilities over real estate, and healthcare over technology. Within technology, we prefer margin expansion and positive FCF to the “go-go” profitless but high growth group. With the growth stock sell-off in January substantial, we recently upgraded technology from under-weight to market-weight.

Trivariate Sector Recommendations

Sector	Total S&P 500 Market Cap. (US\$ Bil.)	Current S&P 500 Weight	Trivariate- Recommended Weight	Trivariate- Relative Weight	Trivariate Recommendation	Comments
Materials	955.12	2.2%	6.0%	3.8%	Maximum Overweight	Buy the cheap stocks with upward revisions
Energy	1,321.19	3.1%	6.0%	3.9%	Maximum Overweight	Oil is rising, and demand / supply imbalance seem substantial
Health Care	5,194.62	12.2%	15.0%	2.8%	Overweight	Healthcare services have cheap growth, and the biotechnology sell-off appears over-done
Communication Services	4,531.39	10.7%	12.0%	1.3%	Equal-Weight	Most names have lagged materially in last year
Utilities	9,30.42	2.2%	3.0%	0.8%	Equal-Weight	Some idiosyncratic investments are sensible
Consumer Discretionary	5,311.15	12.5%	13.0%	0.5%	Equal-Weight	Downgraded recently as consumer metrics are peaking, prefer select retail to durables
Information Technology	12,557.68	29.6%	29.0%	(0.6%)	Equal-Weight	About market-weight FAANGM, prefer positive FCF & growing margins to decelerating revenue & negative FCF
Financials	4,794.91	11.3%	10.0%	(1.3%)	Equal-Weight	Prefer large banks over small, increasingly cautious as expenses rise and hawkishness “peaks”
Real Estate	1,053.93	2.5%	1.0%	(1.5%)	Under-Weight	Feel better about this group than a year ago, but still challenged in commercial space in many areas
Consumer Staples	2,720.19	6.4%	2.0%	(4.4%)	Under-Weight	Plenty of short ideas in idiosyncratic staples, and valuation of large-caps is stretched
Industrials	3,112.78	7.3%	3.0%	(4.3%)	Maximum Underweight	Peaking activity, but high expectations. They have begun to reset, but a good hedge against energy / materials.

CAN YOU STILL OWN ENERGY AND MATERIALS?

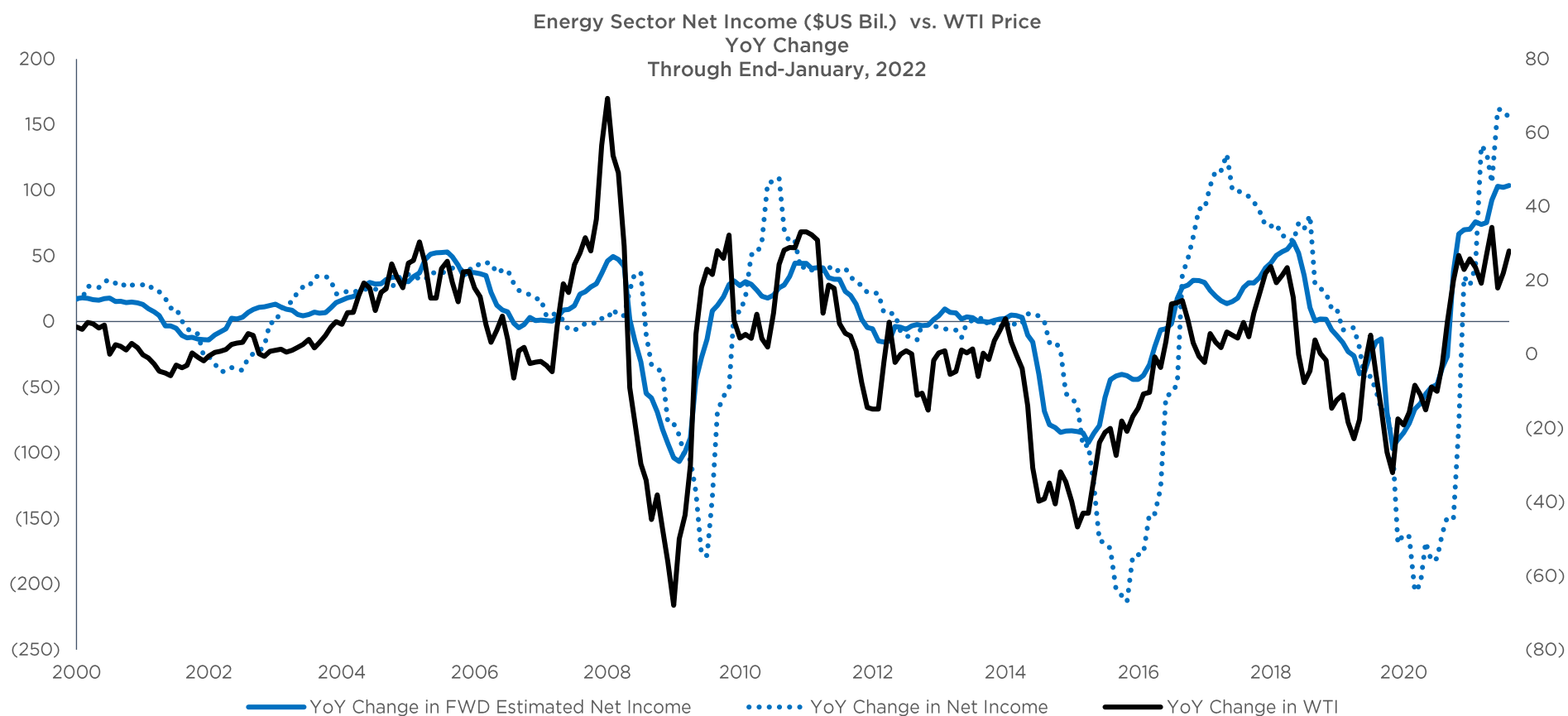
Oil was up over 17% in January, after being up 10% in December – and following the risk-off sell-off in November. We do not observe a materials change in the supply /demand dynamic and remain bullish on energy stocks.

For energy, rising oil means higher earnings revisions and higher net income for the group, and even with the recent sharp correction the longer-term trajectory has been higher for oil. Earnings revisions are highly effective at picking winners from losers within the cohort for the 6-months following periods when oil is rising, likely meaning energy stocks beating estimates will still perform strongly. Moreover, when the dollar is strengthening, our ability to pick winners from losers in energy and materials is enhanced. In addition, despite the strong rally (energy was the best performing sector last year), the sector remains attractively valued on price-to-book, which historically was the most efficacious valuation metric for picking energy stocks. It is VERY infrequent in the last decade where a sector has positive revisions, positive momentum, and cheap valuation versus history. Despite what seems to be sustained demand growth exceeding supply growth for the sustainable future, there is a lot of negative sentiment, and firms have dropped coverage or don't have analysts. We think oil-sensitive equities have incredibly attractive risk-reward.

For materials, the huge year-over-year move in commodities nearly guarantees the sector is poised to see record profitability next year, **yet valuation is at 18-year lows vs. the market excluding materials**. Revisions and valuation also work here so we offer long ideas in energy and materials, and we recommend investors own this group as the underlying commodities likely still rise in the coming year.

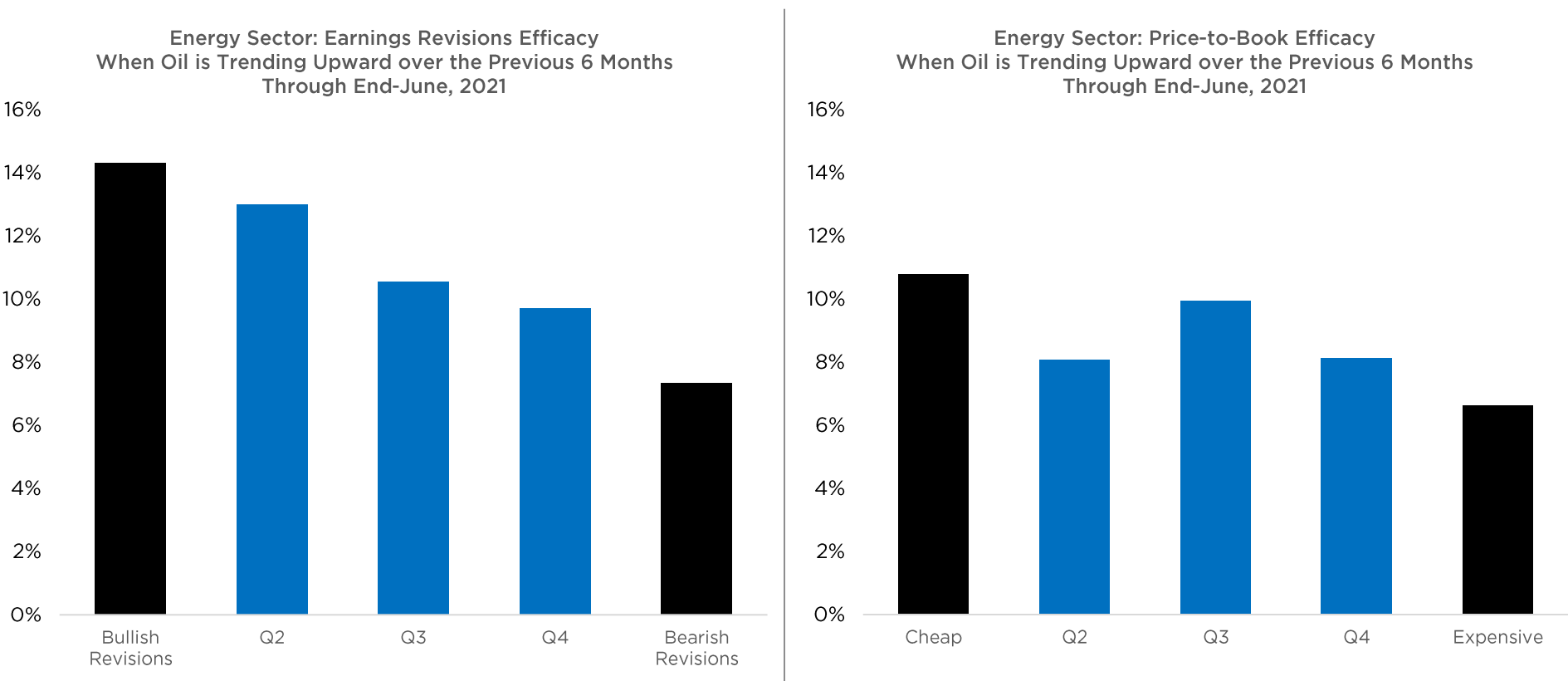
THERE IS A LAG BETWEEN OIL PRICES, ESTIMATES, AND REPORTS

For energy, oil prices are a leading indicator for net income of the energy sector. The black line below shows the change in WTI, which is typically a 3-to-6-month leading indicator for the dashed blue line, which is reported net income. The analysts typically wait until after oil lags (solid blue line), but right before the companies report earnings, so their forecasts are not particularly anticipatory.



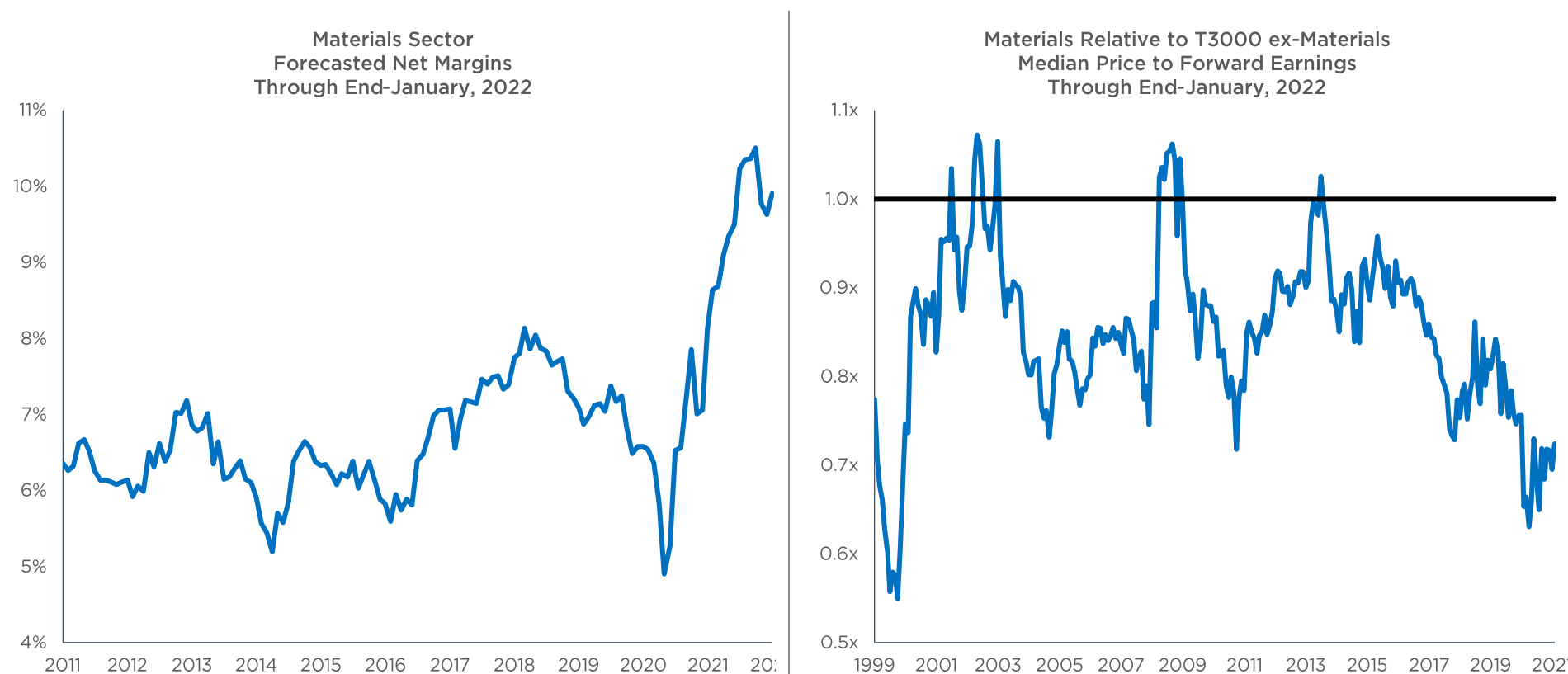
USE ENERGY EARNINGS REVISIONS & VALUATION WHEN OIL IS RISING

We analyzed whether earnings revisions were efficacious at predicting subsequent energy sector returns when oil is rising. Given that stock prices are typically anticipatory, we have received several questions about how much more energy stocks could rally. During a rising oil regime, analyst earnings revisions have historically been a highly effective signal, with the top quintile on revisions beating the bottom by ~7% during the average subsequent 6-month period. While for the broader market we do not necessarily anticipate valuation metrics to work particularly well, valuation has also worked, with the cheapest Q on price-to-book outperforms the most expensive by ~5%.



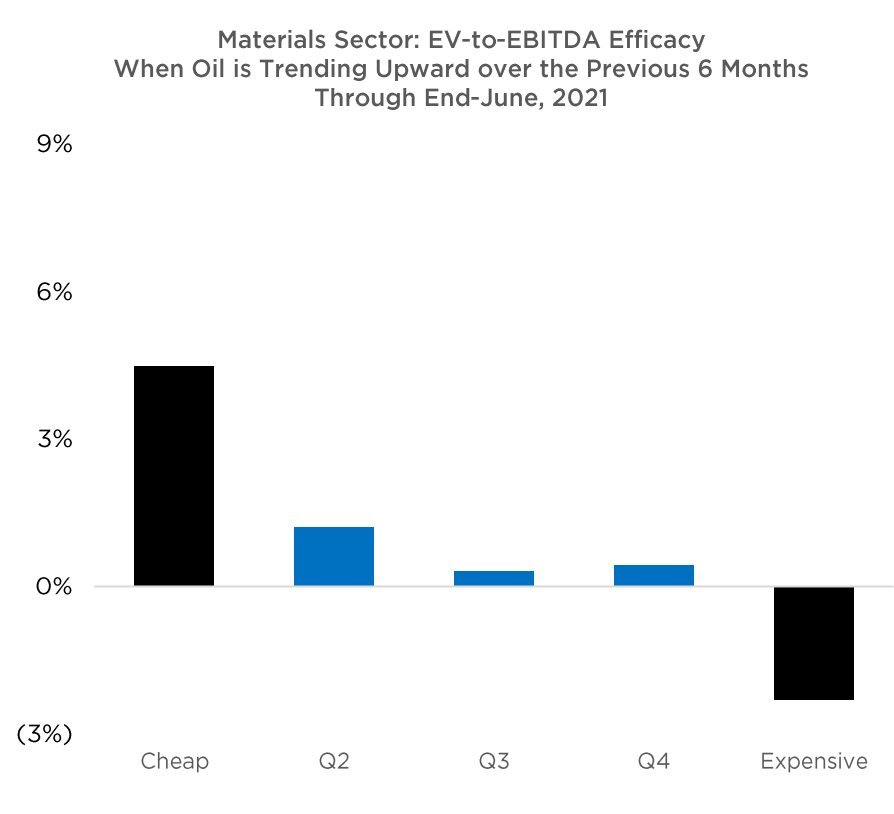
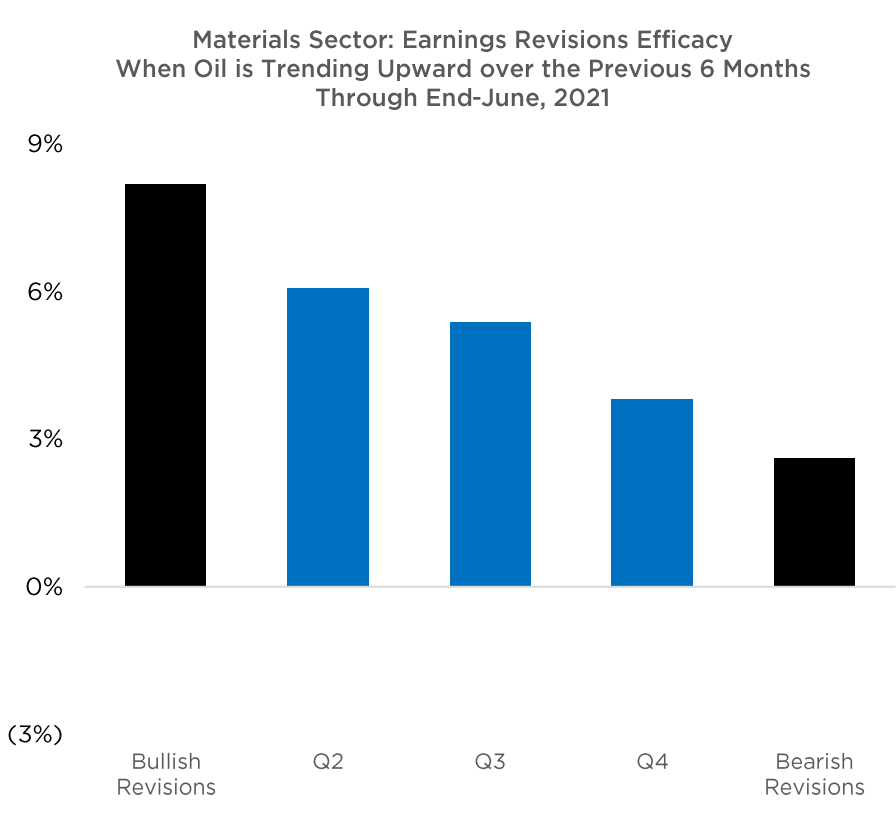
THE MARKET IS SKEPTICAL OF RECORD MATERIALS PROFIT ESTIMATES

The consensus expectations are that net margins for the materials sector will achieve record highs, and then dramatically roll-over, yet the valuation on a relative to the market basis has barely moved above 18-year lows. Our belief is that many of the companies structurally improved cycle to cycle, so while they clearly are over-earning today, there has been substantive balance sheet repair. We like the risk-reward of a sector with high but likely achievable near-term estimates and attractive relative valuation.



EARNINGS REVISIONS & VALUATION WORK FOR MATERIALS

As was the case in energy, materials stocks with upward analyst earnings revisions and cheaper valuation outperform those with less upward or downward revisions as oil and commodity prices rise. The top vs. bottom quintile spreads on earnings revisions average 6% on average over the subsequent six months following rising revisions, and the cheapest quintile on EV-to-EBITDA outperforms the most expensive by 7% on average.



ENERGY AND MATERIALS STOCKS WE THINK OUTPERFORM

Tying it together, we are bullish on energy and materials given the combination of estimate achievability and valuation. The below screen shows stocks that are in the energy and materials sector and are in the top 25% of both valuation and earnings revisions today

Energy and Materials Sector Top Quartile in Estimate Revisions and Valuation End-January, 2022

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
FCX	Freeport-McMoRan Inc.	Metals & Mining	54.66
DOW	Dow Inc.	Chemicals	43.81
LYB	LyondellBasell Industries N.V.	Chemicals	31.96
NUE	Nucor Corporation	Metals & Mining	27.61
MOS	The Mosaic Company	Chemicals	15.14
WLK	Westlake Chemical Corporation	Chemicals	12.61
STLD	Steel Dynamics, Inc.	Metals & Mining	11.02
AA	Alcoa Corporation	Metals & Mining	10.44
RS	Reliance Steel & Aluminum Co.	Metals & Mining	9.58
EQT	EQT Corporation	Oil, Gas & Consumable Fuels	8.03
OLN	Olin Corporation	Chemicals	7.95
LPX	Louisiana-Pacific Corporation	Paper & Forest Products	5.85
X	United States Steel Corporation	Metals & Mining	5.60
MUR	Murphy Oil Corporation	Oil, Gas & Consumable Fuels	4.88
CMC	Commercial Metals Company	Metals & Mining	4.06
TROX	Tronox Holdings plc	Chemicals	3.49
CBT	Cabot Corporation	Chemicals	3.11
CNX	CNX Resources Corporation	Oil, Gas & Consumable Fuels	3.00
GEF	Greif, Inc.	Containers & Packaging	2.88
CDEV	Centennial Resource Development, Inc.	Oil, Gas & Consumable Fuels	2.22
PBF	PBF Energy Inc.	Oil, Gas & Consumable Fuels	1.90
KRA	Kraton Corporation	Chemicals	1.49
ASIX	AdvanSix Inc.	Chemicals	1.18
AMR	Alpha Metallurgical Resources, Inc.	Metals & Mining	1.16
NEXA	Nexa Resources S.A.	Metals & Mining	1.10
SCHN	Schnitzer Steel Industries, Inc.	Metals & Mining	1.09
RFP	Resolute Forest Products Inc.	Paper & Forest Products	1.06

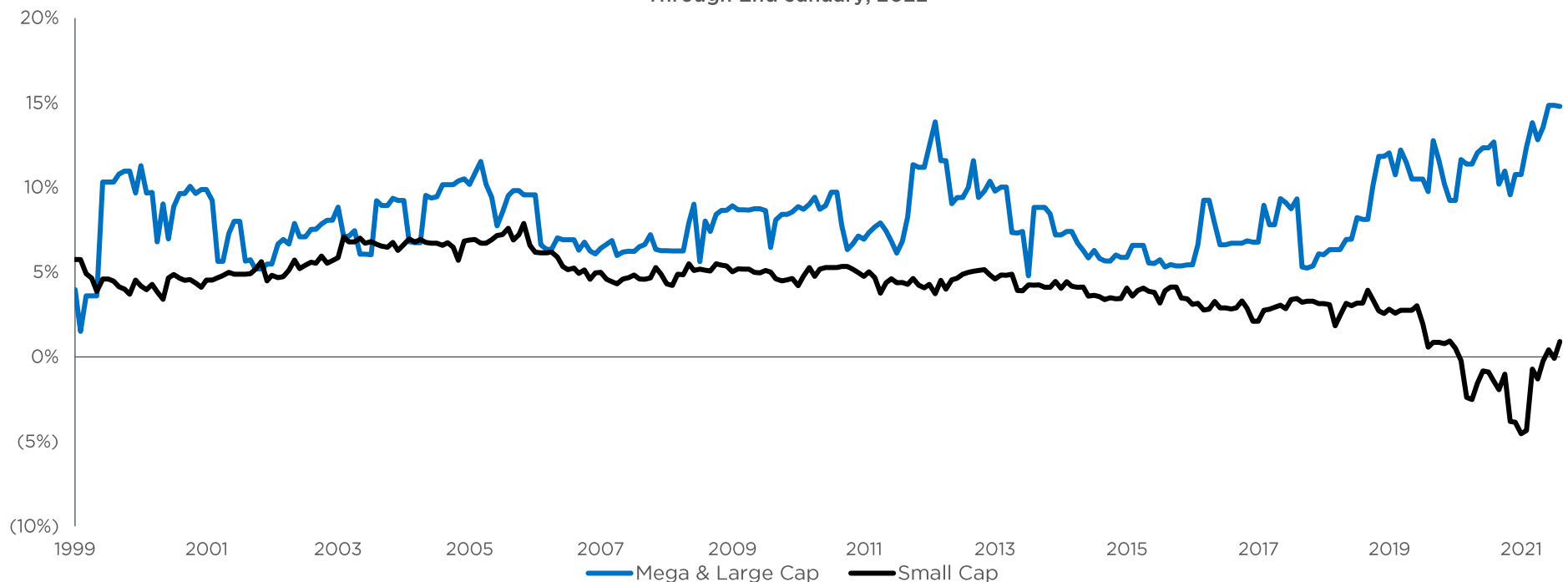
OPPORTUNITIES IN THE HEALTHCARE SECTOR

1. The biotechnology sell-off now appears too extreme, with forecasted sales growth strong and relative price-to-sales multiples now at multi-year lows. Adding exposure to biotechnology appears to be good risk-reward. Even if rising interest rates hurt terminal value assumptions, multi-year lows on sales seem overly punitive in our judgment.
2. Healthcare providers and services companies remain the cheapest industry within healthcare, with relative multiple contraction over the last five years, while all the other healthcare industry groups experienced relative multiple expansion on price-to-forward earnings. Interestingly, this contraction happened despite higher revenue growth and lower volatility of the revenue growth. Our prior work shows these stocks can be interest rate sensitive, so investors looking for businesses with pricing power, good revenue growth, low volatility of growth, and compelling relative valuation should look at healthcare providers and services for opportunities.
3. The relationship between classic defensive sectors like mega / large cap. pharma / biotechnology and consumer staples has consistently evolved. The relative valuation of the group is now at all time lows, with staples ripping in December and leaving mega /large biotech / pharma at 59% of the relative multiples when they used to trade at premiums, despite relatively good performance this year. The shareholder return is about constant (dividend plus repurchase yield), a potential sign of the attractiveness of pharma as a defensive play.

BIG HEALTHCARE COMPANIES ARE INCREASINGLY PROFITABLE

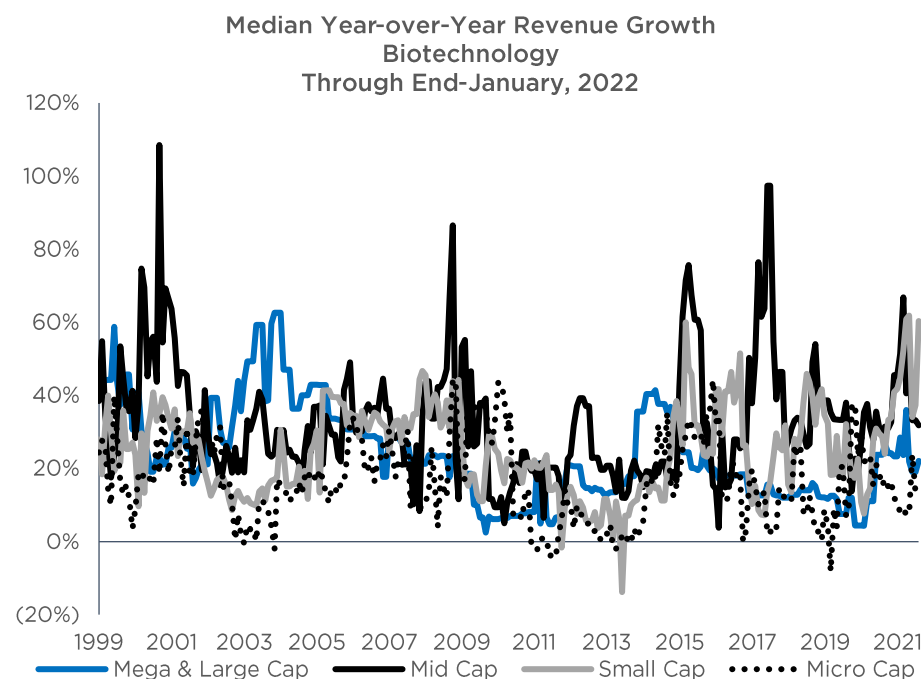
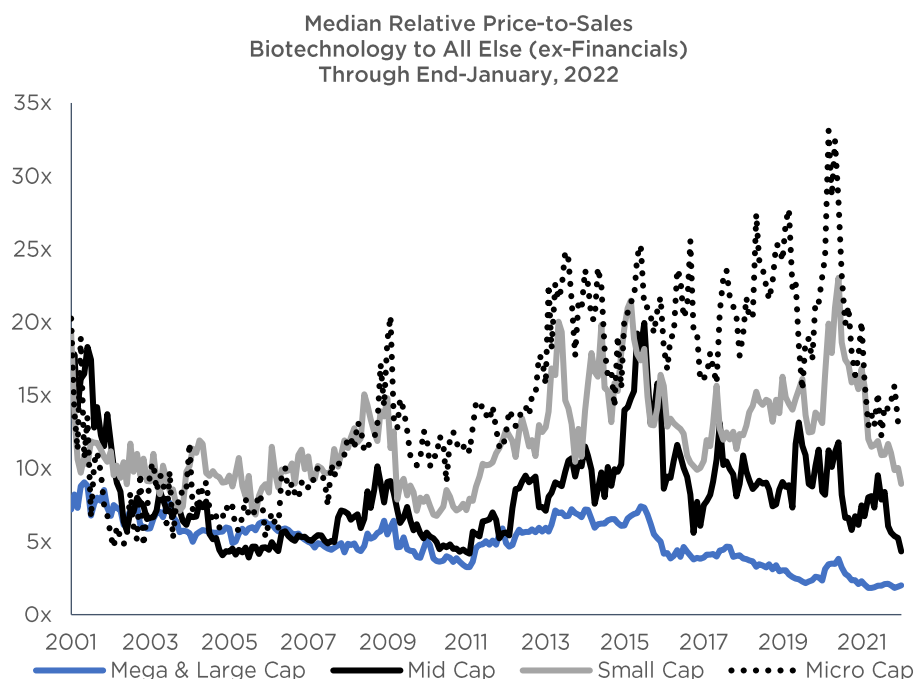
A potential explanation for this huge stock performance differential based on size might be profit margins. While mega / cap companies always were more profitable than small caps, that gap was consistent and flat for nearly 20 years. Now, there has been a widening, where the median small cap company is just about break-even today, and the median mega / large cap healthcare company has record net margins.

Median Net Margins
Health Care Sector
Through End-January, 2022



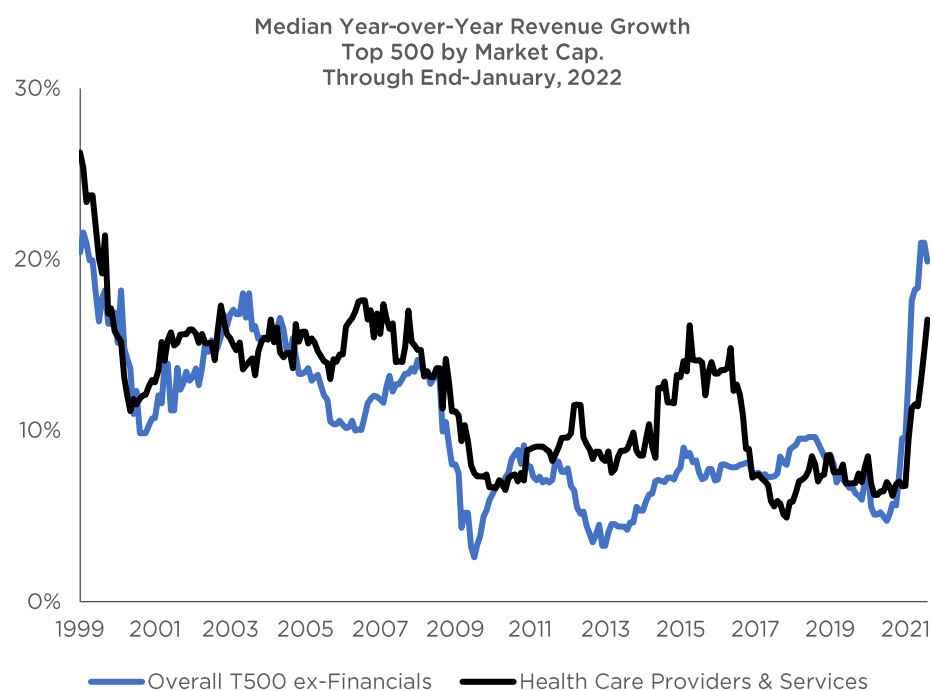
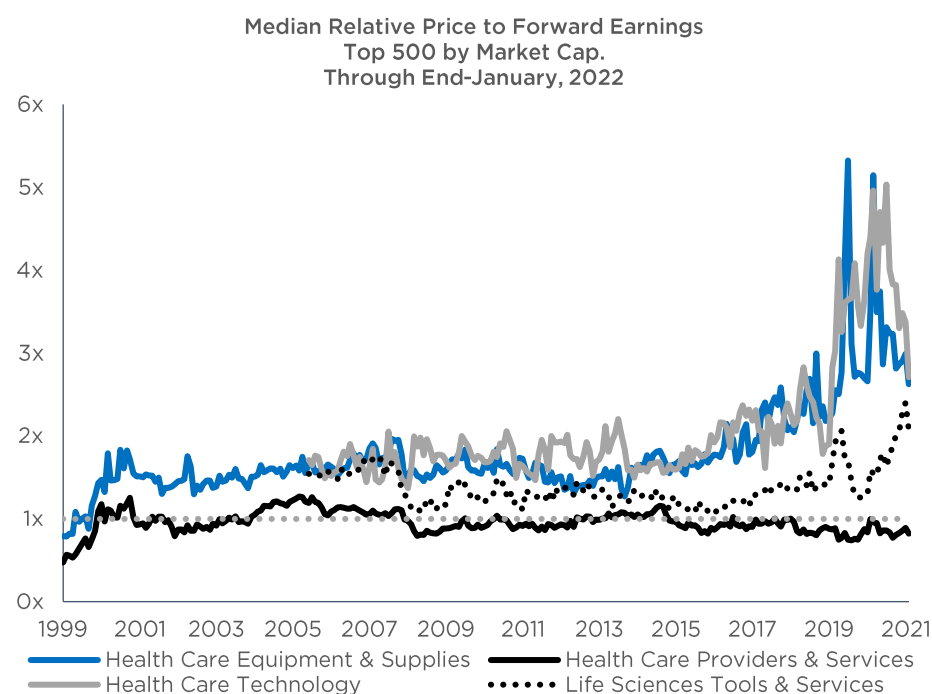
BIOTECHNOLOGY VALUATION VS. GROWTH OUTLOOK HAS CHANGED

The biotechnology sell-off now appears too extreme (left chart). Mega / large cap biotechnology stocks have never been cheaper, and mid-cap biotechnology stocks are at ten-year relative lows. Meanwhile, the revenue growth rates for companies remain robust (right chart) implying that this valuation reset has been material. Our judgment is the risk-reward looks positive for biotechnology today.



HEALTHCARE PROVIDERS AND SERVICES LOOK ATTRACTIVE

Healthcare providers and services companies remain the cheapest industry within healthcare, having seen relative multiple contraction over the last five years, while all the other healthcare industry groups experienced relative multiple expansion on price-to-forward earnings (left chart). Interestingly, this contraction happened despite higher revenue growth (right chart), and lower volatility of the revenue growth. Gross margins contracted for the group this year, and cost pressures are an obvious concern. However, our prior work shows these stocks can be interest rate sensitive, so investors looking for businesses with pricing power, good revenue growth, low volatility of growth, and compelling relative valuation should look at healthcare providers and services for opportunities.



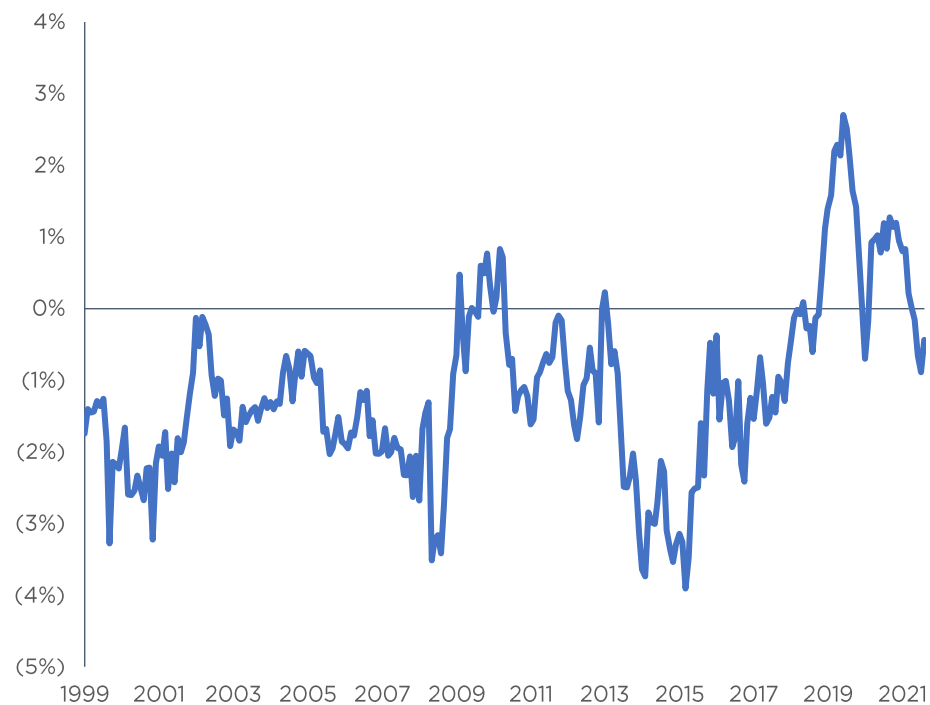
PHARMA SEEMS TOO CHEAP VS. CONSUMER STAPLES

The relationship between classic defensive sectors like mega / large cap. pharma / biotechnology and consumer staples has consistently evolved. The relative valuation of the group is now at all time lows (left chart), with staples ripping December of 2021 and leaving biotech / pharma at 59% of the relative multiples when they used to trade at premiums. The shareholder return is about constant (dividend plus repurchase yield), a potential sign of the attractiveness of pharma as a defensive play (right chart).

Median Relative Price to Forward Earnings
Mega & Large Cap. Pharma Biotech to Consumer Staples
Through End-January, 2022



Median Relative Total Indicated Yield
Mega & Large Cap. Pharma Biotech to Consumer Staples
Through End-January, 2022



THE US CONSUMER – GROSS UP EXPOSURE, BUT LOWERING NET

We downgraded discretionary from overweight to equal-weight recently as data are peaking. However, our models typically work well when our consumer activity gauge remains, fueling our judgment that high gross but low net is reasonable.

1. Investment Strategy #1: Long quality reopening, short junk work from home. Since the beginning of the pandemic:

- Quality reopening stocks have not outperformed junk reopening stocks
- Junk work from home stocks have still outperformed quality reopening stocks though recently they have massively underperformed, closing the gap

As the recovery continues, we see a high probability that quality outperforms junk, and reopening outperforms work from home. Hence, our recommendation is to:

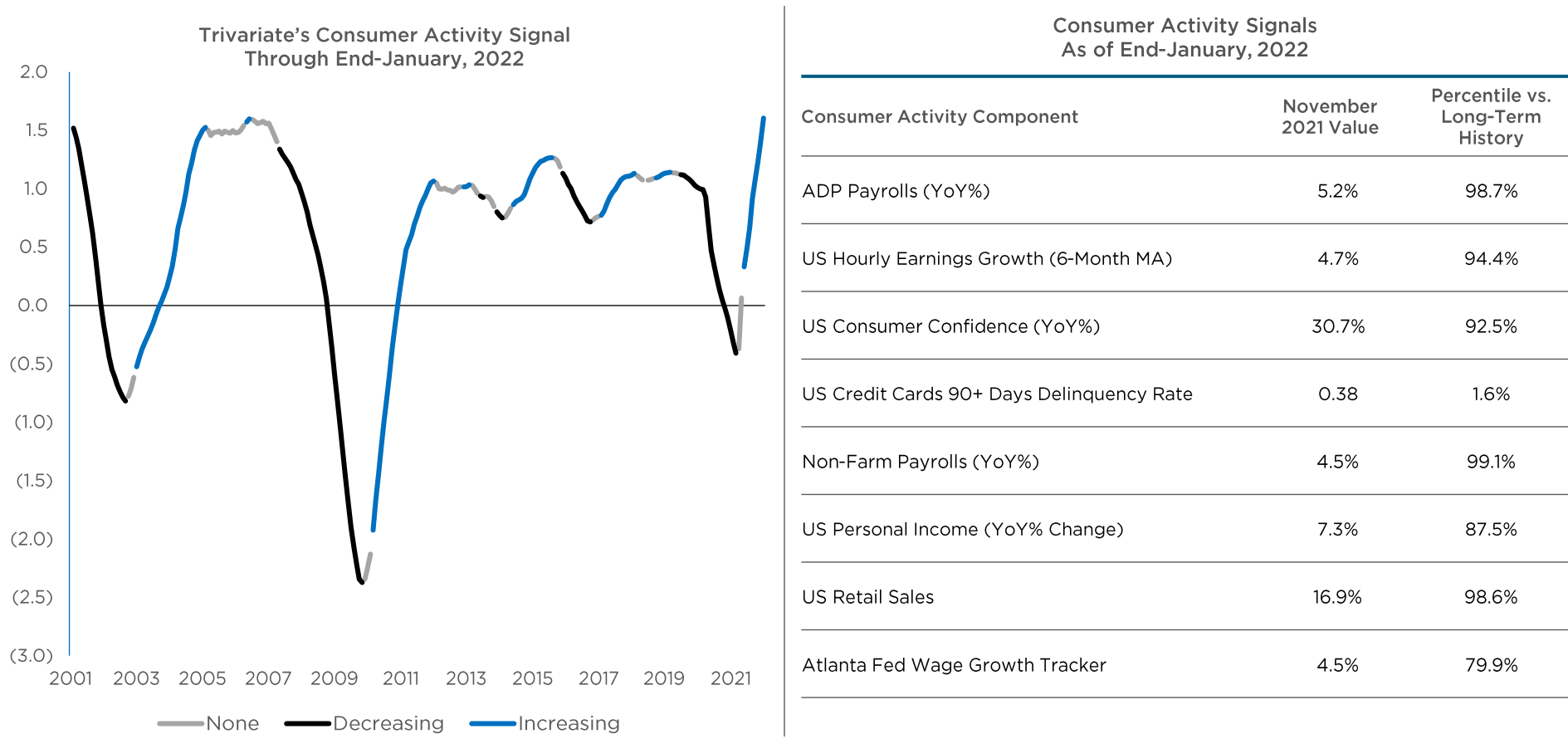
- **Long:** Quality stocks with high correlation to our “reopening” basket
- **Short:** “Junk” stocks with high correlation to our “work from home” basket

2. Investment strategy #2: We like a consumer barbell:

- **Long:** Consumer services with suppressed profitability that likely recover as reopening continues and demand for services grow
- **Long:** Select retailers given we want to run with higher-than-normal net exposure
- **Short:** Highly idiosyncratic staples. We can see the logic of being long a staples ETF (to capture long-term above average performance) and short some high company-specific risk staples names given the fact pattern
- **Short:** Durables that appear to trade like growth stocks with record momentum, and are likely over-earning (stocks ideas included)

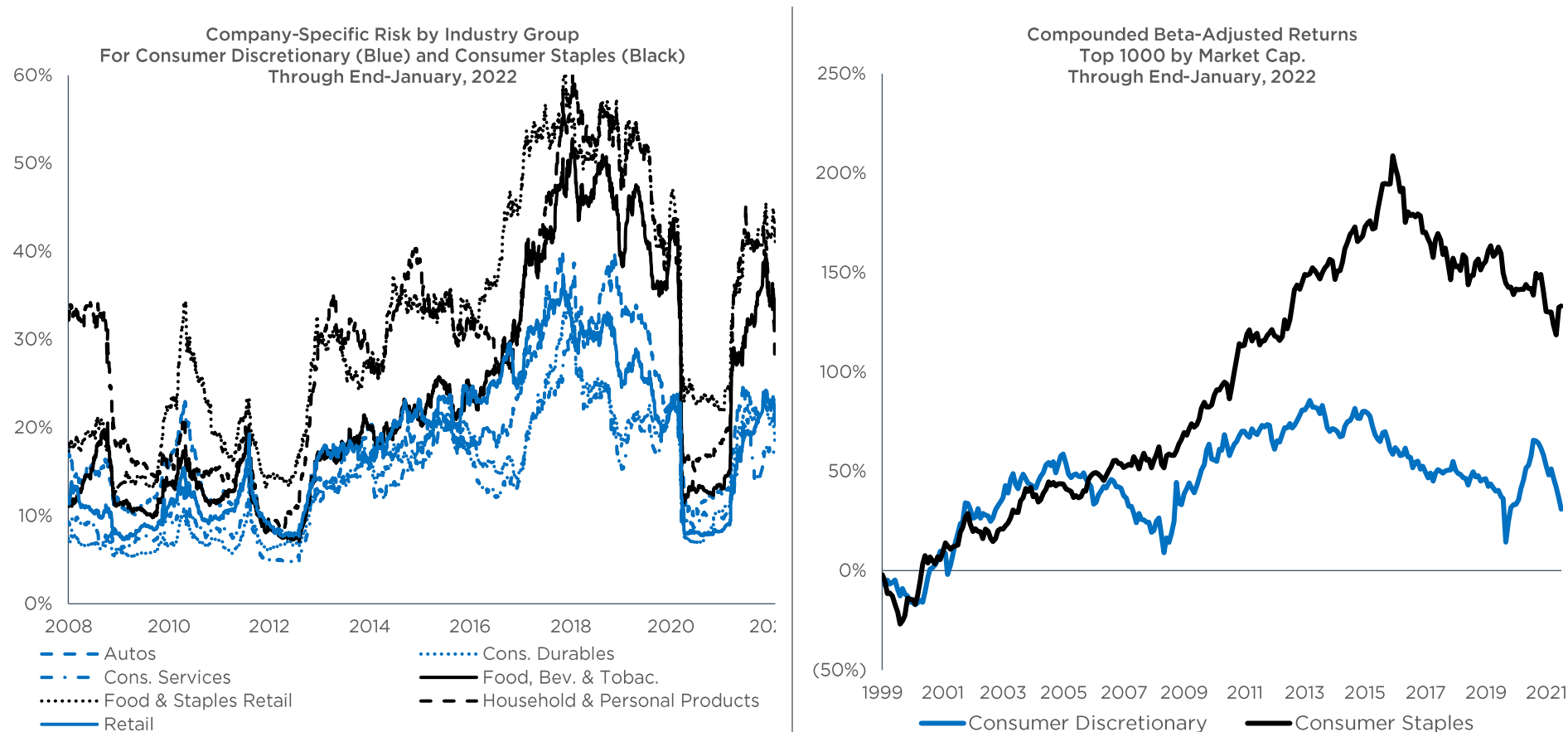
OUR CONSUMER ACTIVITY GAUGE REMAINS ROBUST

Our consumer activity gauge contains metrics like 90-day credit card delinquencies, retail sales, consumer confidence, wage growth, unemployment data, and several other metrics. While consumer activity was decreasing for much of 2020, it has rebounded sharply off the bottom. Obviously, the Delta and now Omicron variants are of concern to the pace of reopening and spend, but all indications are this will remain a robust holiday season.



STAPLES ARE MORE IDIOSYNCRATIC AND HAVE HAD HIGHER ALPHA...

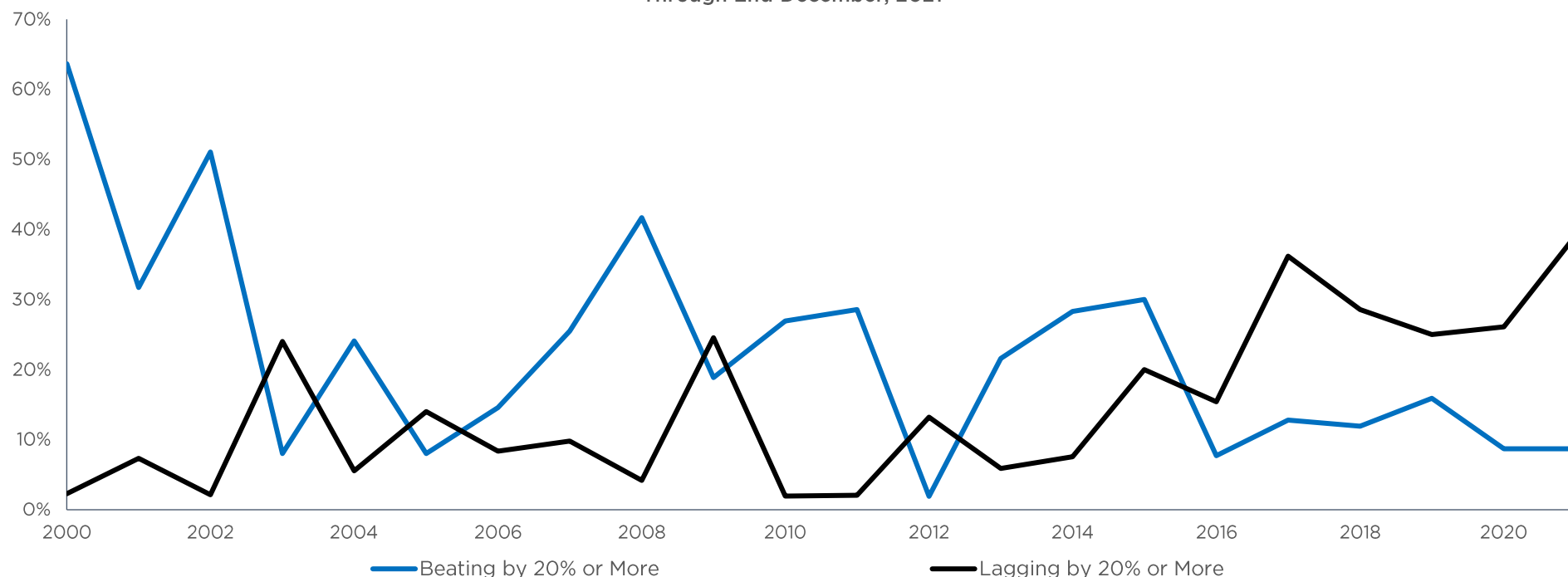
Conventional wisdom is that staples are more macro and discretionary stocks are more idiosyncratic among consumer analysts. However, (left chart) food, beverage & tobacco, and household and personal products tend to have more company-specific risk than retail, durables and consumer services. Since the TMT bubble, staples have also strongly beaten discretionary on a beta-adjusted basis (right chart)



...BUT THERE ARE MORE LARGE LAGGARDS IN STAPLES

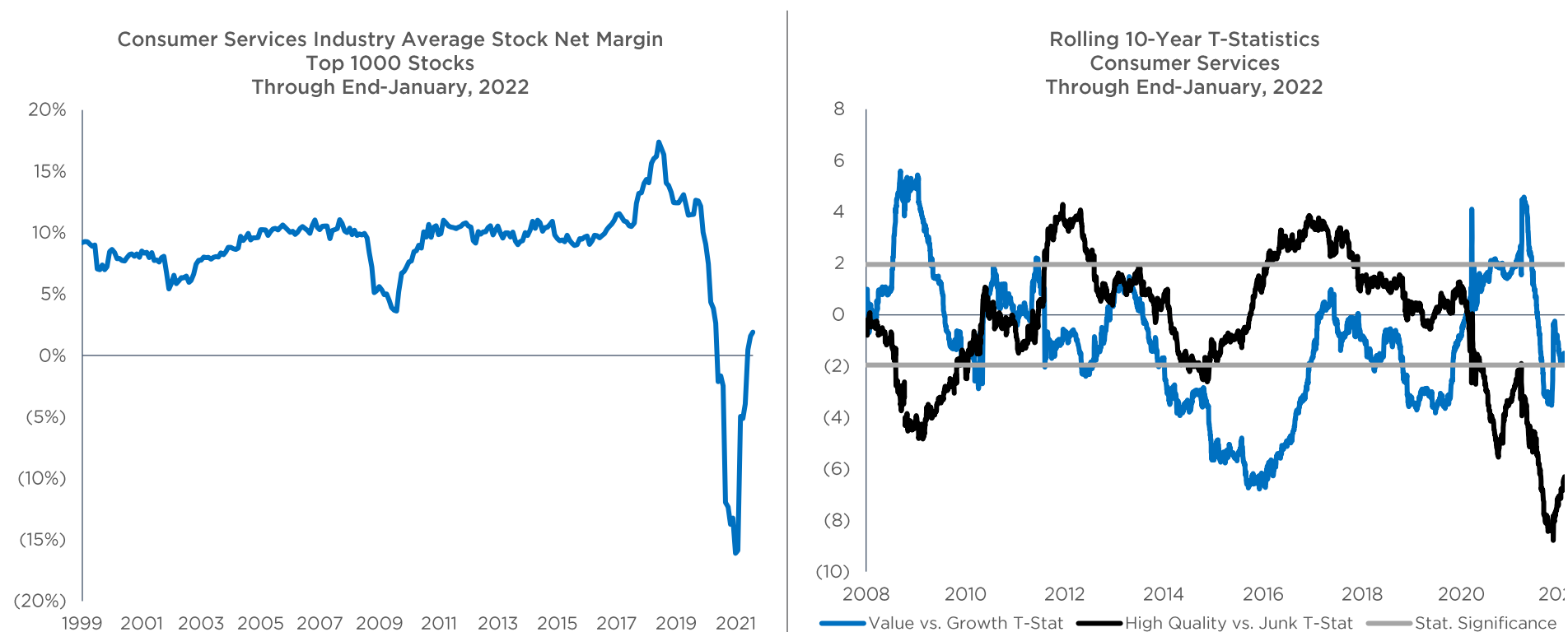
Identifying strong long ideas in staples is particularly challenging today. The fewest number of staples in nine years are beating the market by 20% or more but the largest number of staples stocks in 21 years are lagging the market by 20% or more. Given there is higher company-specific risk in staples than many might surmise, hunting for idiosyncratic shorts in staples is prudent. We could also see the logic to stay long a staples ETF and short some high company-specific risk staples to lower the net exposure.

Percentage Beating/Lagging by 20% or More
Consumer Staples
Through End-December, 2021



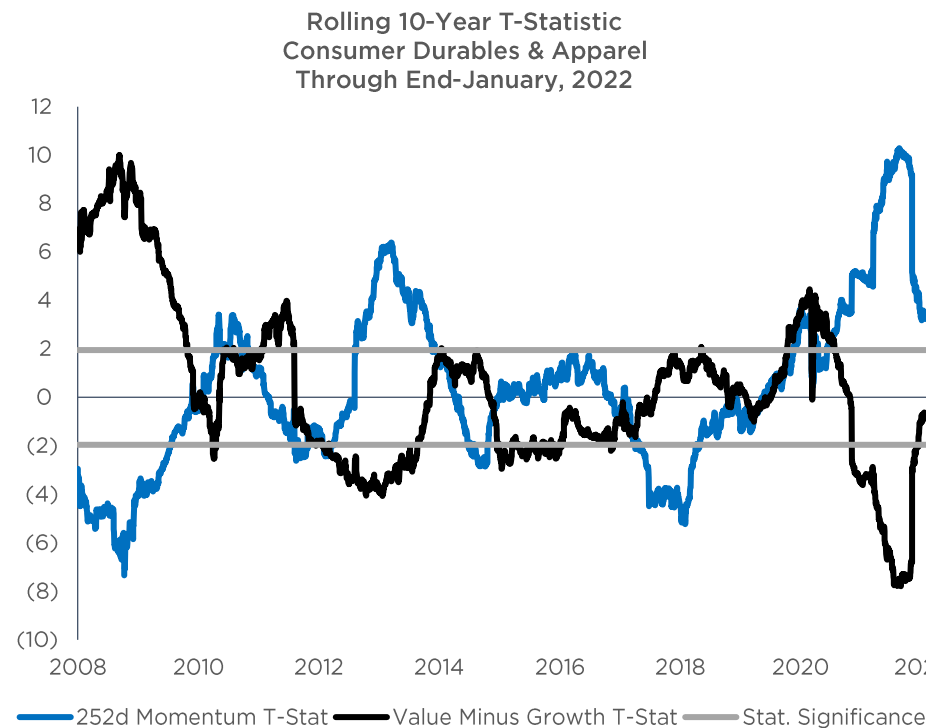
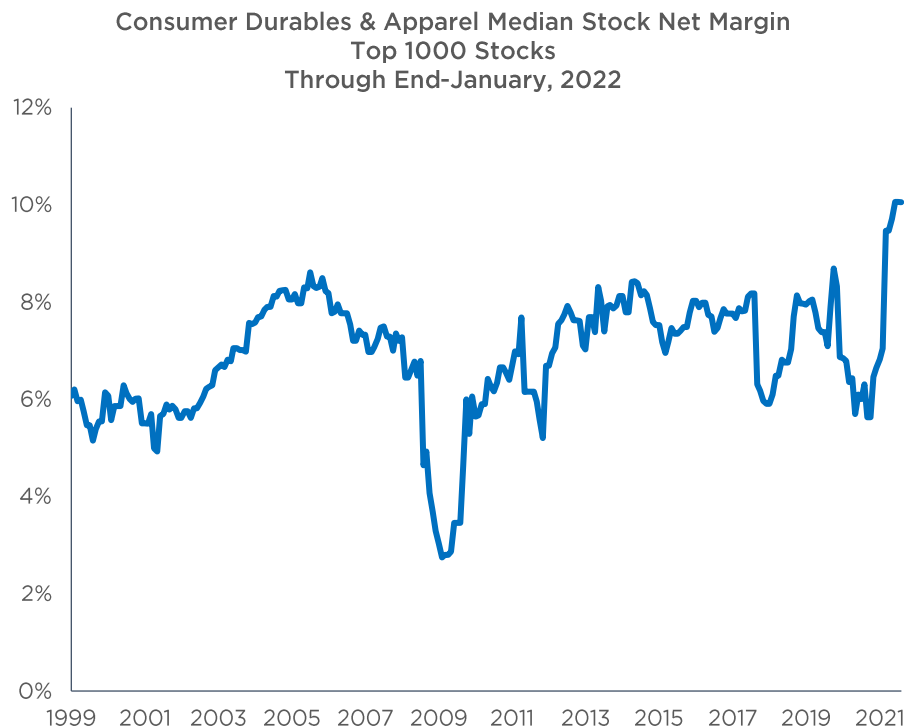
THE CONSUMER SERVICES INDUSTRY IS UNDER-EARNING THE MOST

The consumer service industry has been rocked by COVID-19, with the average companies' net margin bouncing just above record lows right now (left chart). As the economy and demand for services grow, it stands to reason that the services industry will regain profitability back toward the lower volatility high single-digit band it was in for the previous two decades. The result of the sustained losses in consumer services is the industry now has the strongest statistically significant relationship to junk and value this cycle (right chart).



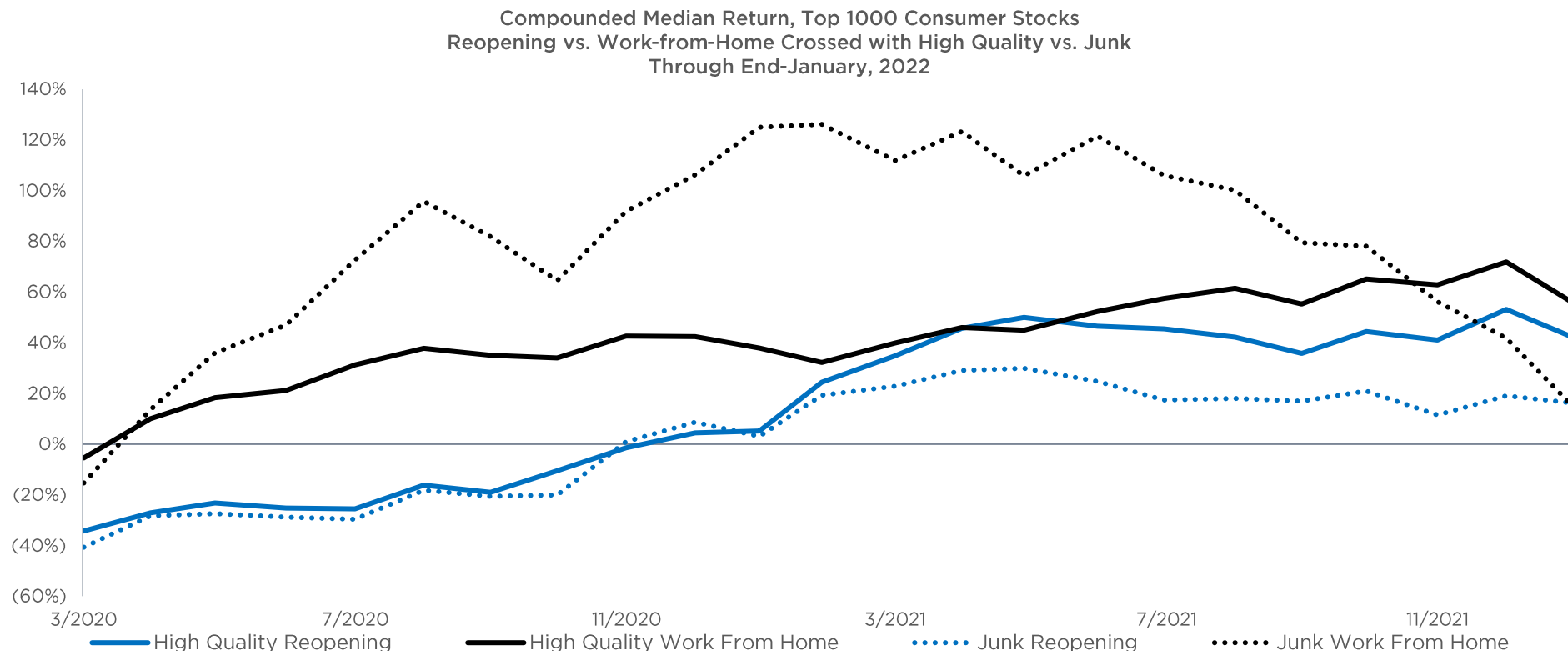
WHEREAS DURABLES MARGINS ARE AT ALL-TIME HIGHS

Durables appear to be over-earning the most, with record profitability due in large part to housing demand and the homebuilders (left chart), a trend that is likely to rollover in the coming quarters. The result of strong profitability is the industry now trades the most like the growth universe ever, with the highest momentum ever (right chart). While durables can have prolonged cycles, we doubt there will be a structural shift to growth and momentum for the industry, viewing this as a place to sell winners over the coming months and the relationship is now the exact opposite it was in the 2008 cycle recovery. Indeed, in the last month this shift has been unwound significantly.



HIGH QUALITY IS STARTING TO RELATIVELY WORK

We analyzed the returns of quality vs. junk within “work from home” and “reopening” consumer stocks, given the on-again-off-again nature of consumer demand and experience in a Delta-now-Omicron-variant world. We have two observations. Firstly, we think quality reopening will continue outperforming junk reopening by a more substantial margin over the coming quarters. Secondly, we think quality reopening will perform better than junk work from home as the world continues to adapt and adjust. Our advice is to look for quality reopening long ideas, and junk work from home short ideas.



STRATEGY 1: QUALITY CROSSED WITH WORK FROM HOME / REOPENING

Consistent with this theme, we offer long and short consumer ideas in the quality reopening and junk work from home buckets, respectively.

Long Quality Reopening, Short Junk Work From Home, As of End-January, 2022

Longs				Shorts			
Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)	Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
HLT	Hilton Worldwide Holdings Inc.	Consumer Services	40.45	MELI	MercadoLibre, Inc.	Retailing	57.12
GPC	Genuine Parts Company	Retailing	18.97	CPNG	Coupan, Inc.	Retailing	36.47
LKQ	LKQ Corporation	Retailing	16.00	TSCO	Tractor Supply Company	Retailing	24.85
MHK	Mohawk Industries, Inc.	Consumer Durables & App.	10.69	ETSY	Etsy, Inc.	Retailing	19.91
TPR	Tapestry, Inc.	Consumer Durables & App.	10.44	CHWY	Chewy, Inc.	Retailing	19.90
H	Hyatt Hotels Corporation	Consumer Services	10.07	CVNA	Carvana Co.	Retailing	13.87
LEVI	Levi Strauss & Co.	Consumer Durables & App.	8.73	PTON	Peloton Interactive, Inc.	Consumer Durables & App.	9.02
RL	Ralph Lauren Corporation	Consumer Durables & App.	8.16	DKNG	DraftKings Inc.	Consumer Services	8.98
CHH	Choice Hotels International, Inc.	Consumer Services	7.94	FTCH	Farfetch Limited	Retailing	8.06
PVH	PVH Corp.	Consumer Durables & App.	6.65	QS	QuantumScape Corporation	Automobiles & Components	7.05
				LAZR	Luminar Technologies, Inc.	Automobiles & Components	5.29
				SAM	The Boston Beer Company, Inc.	Food, Beverage & Tobacco	5.13
				MCW	Mister Car Wash, Inc.	Consumer Services	5.11

STRATEGY 2: A BARBELL - LONG RETAIL AND SHORT STAPLES

Another consumer theme we like is a barbell approach - long retail as discretionary tends to work when consumer activity is strong and services on a rebound of suppressed profitability - short idiosyncratic staples and durables which are potentially over-earning. If anyone wants more small-cap ideas please contact us.

Long Retailers and Services that Favored by Our Model, Short Highly Idiosyncratic Staples and Durables Our Model Disfavors, End-January, 2022

Longs				Shorts			
Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)	Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
HD	The Home Depot, Inc.	Retailing	383.21	VFC	V.F. Corporation	Consumer Durables & App.	25.36
LOW	Lowe's Companies, Inc.	Retailing	159.91	GRMN	Garmin Ltd.	Consumer Durables & App.	23.93
BKNG	Booking Holdings Inc.	Consumer Services	100.86	CAG	Conagra Brands, Inc.	Food, Beverage & Tobacco	16.67
DG	Dollar General Corporation	Retailing	48.31	CPB	Campbell Soup Company	Food, Beverage & Tobacco	13.31
ORLY	O'Reilly Automotive, Inc.	Retailing	43.91	HAS	Hasbro, Inc.	Consumer Durables & App.	12.76
CMG	Chipotle Mexican Grill, Inc.	Consumer Services	41.80	PTON	Peloton Interactive, Inc.	Consumer Durables & App.	9.02
AZO	AutoZone, Inc.	Retailing	40.99	BC	Brunswick Corporation	Consumer Durables & App.	7.00
HLT	Hilton Worldwide Holdings Inc.	Consumer Services	40.45	CASY	Casey's General Stores, Inc.	Food & Staples Retailing	6.97
YUM	Yum! Brands, Inc.	Consumer Services	36.69	YETI	YETI Holdings, Inc.	Consumer Durables & App.	5.75
ROST	Ross Stores, Inc.	Retailing	34.54	SAM	The Boston Beer Company, Inc.	Food, Beverage & Tobacco	5.13
DLTR	Dollar Tree, Inc.	Retailing	29.52	ELY	Callaway Golf Company	Consumer Durables & App.	4.44
BBY	Best Buy Co., Inc.	Retailing	23.88	SEB	Seaboard Corporation	Food, Beverage & Tobacco	4.43
MGM	MGM Resorts International	Consumer Services	20.03	LANC	Lancaster Colony Corporation	Food, Beverage & Tobacco	4.37
ULTA	Ulta Beauty, Inc.	Retailing	19.69	GOLF	Acushnet Holdings Corp.	Consumer Durables & App.	3.44
W	Wayfair Inc.	Retailing	16.30	SONO	Sonos, Inc.	Consumer Durables & App.	3.22
LKQ	LKQ Corporation	Retailing	16.00	MED	Medifast, Inc.	Household & Personal Prod.	2.30
				THS	TreeHouse Foods, Inc.	Food, Beverage & Tobacco	2.16
				BGS	B&G Foods, Inc.	Food, Beverage & Tobacco	2.02

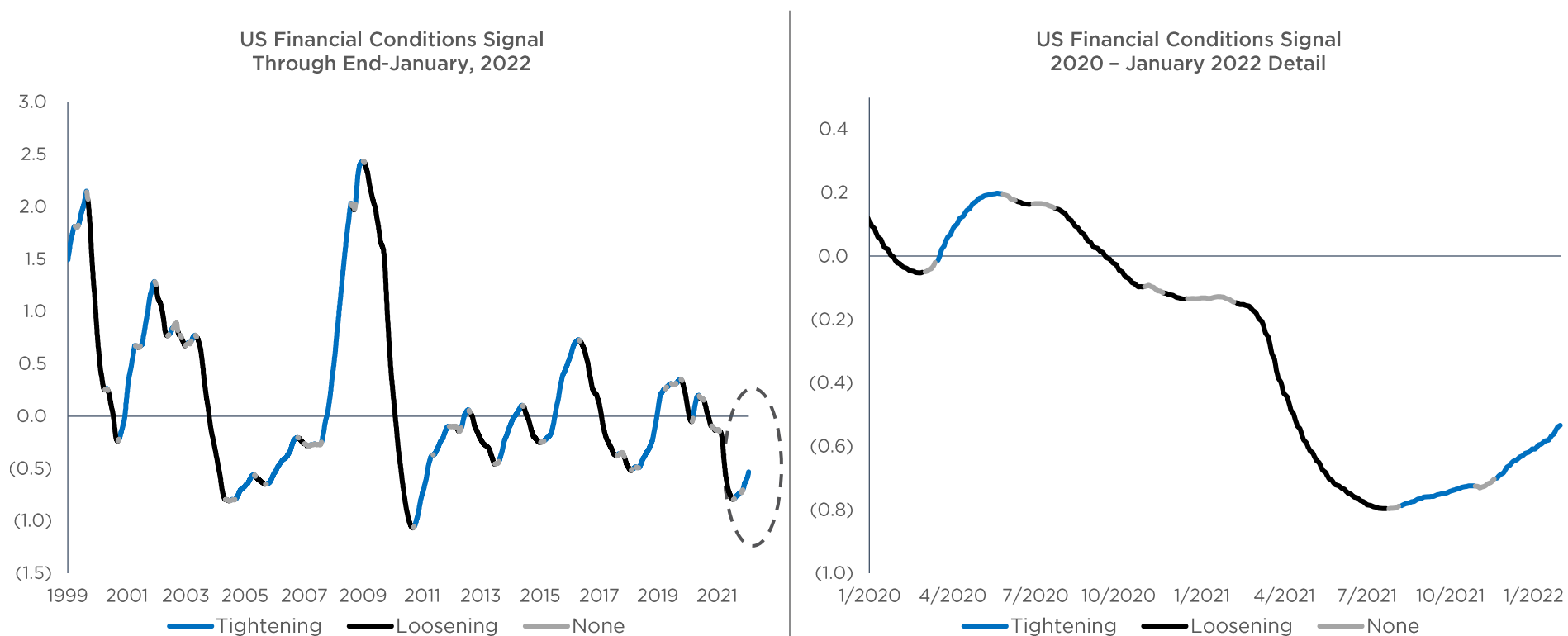
CONTROVERSIES AND VARIABLES TO MONITOR FOR BANKS

We took a detailed look at the banks sector and research key investment controversies facing bank stock investors and three data points to monitor. We think these concepts apply broadly to investors in other industries as well. The controversies are:

1. **Gross Exposure:** Our quantitative models work better at discriminating banks stocks when financial conditions are loosening, however, financial conditions have tightened over the past couple of months are near 1-year lows. Average pairwise bank stock correlations are near all-time highs, company-specific risk for the banks is low and valuation dispersion has not seen a sustained increase in banks like it has in the broader market. This remains a macro call, and directionally dovish sentiment could cause the group to lag.
2. **Long-term vs. short-term valuation:** While banks remain relatively cheap vs. their own history on price-to-tangible book, multiples have expanded substantially more than actual book value has grown since the 10-year yield bottomed in August of 2020, meaning investors have been excessively anticipatory of fundamentals – they think rates will continue to rise and this will help the net interest margins of banks
3. **Growth vs. expenses:** While NIMs have expanded and loan growth is strong, expenses have materially risen. Our conclusion is that **large banks look more attractive than small**, with balance sheets that have improved more without a commensurate improvement in relative valuation. We would continue to monitor financial conditions, the savings rate, and loan growth as three key variables to see whether growth can improve for the group.

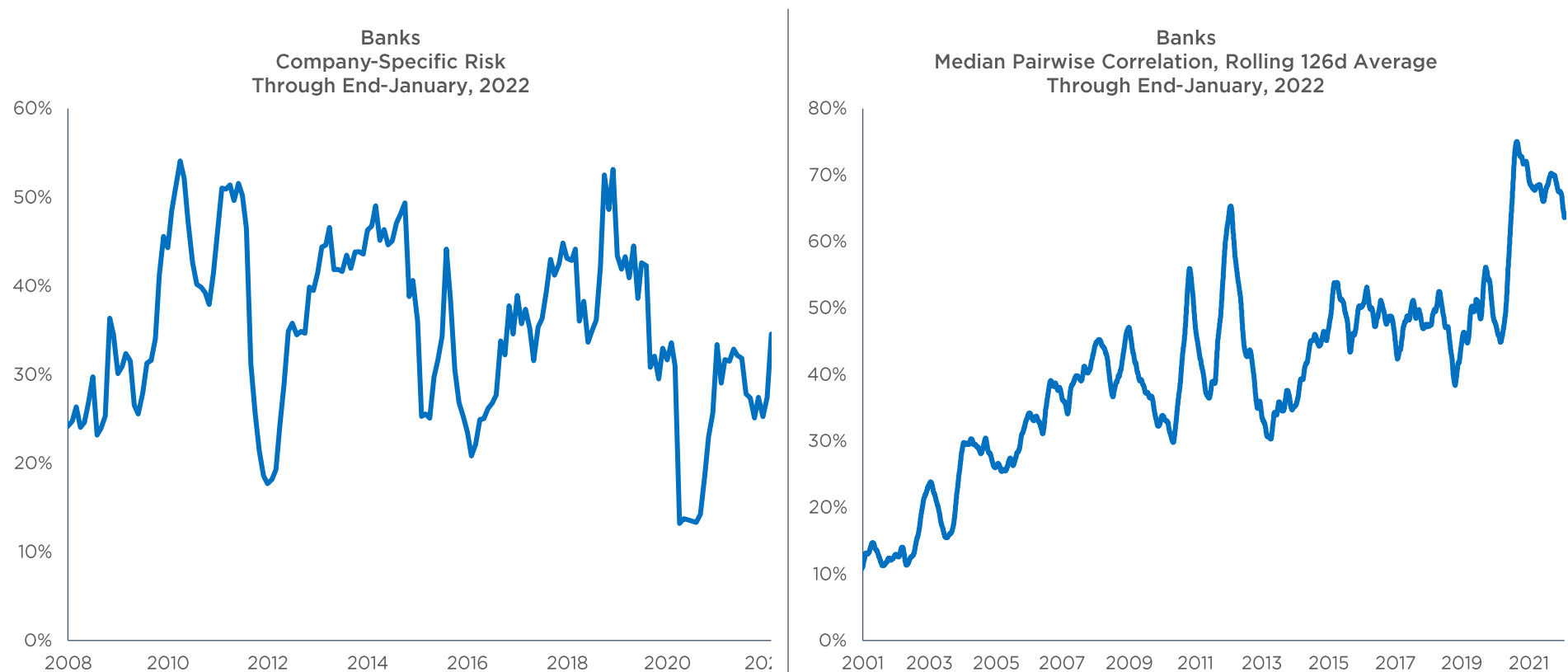
FINANCIAL CONDITIONS ARE TIGHTENING AGAIN

We evaluate financial conditions by combining credit spreads, mortgage rates, US Treasury volatility, the Bloomberg Financial Conditions Index, and other signals. We intentionally try to create a slower moving signal so that we are not over-reacting to shorter term moves in financial conditions. Our framework officially flagged loosening financial conditions in March of this year. This loosening stopped on July 26th according to our framework and tightening began on August 9th. Today, conditions are tightening after a short neutral period



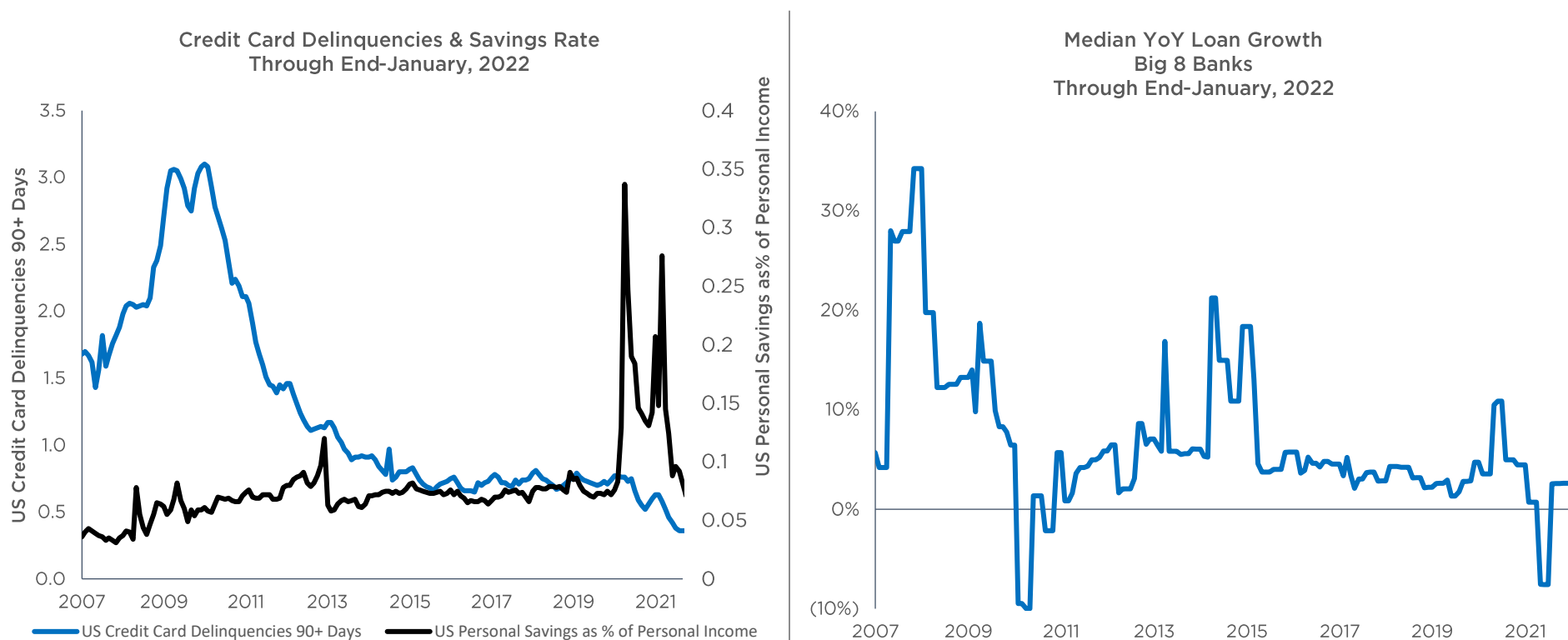
OTHER DATA SUGGEST STOCK SELECTION IN BANKS IS TOUGH TODAY

Company-specific risk for banks has remained relatively low, and below long-term averages for banks (left chart). The average pairwise return correlation of banks is currently 0.7 on a twenty-year trend of higher correlation that was only 0.2 following the TMT crisis (right chart)



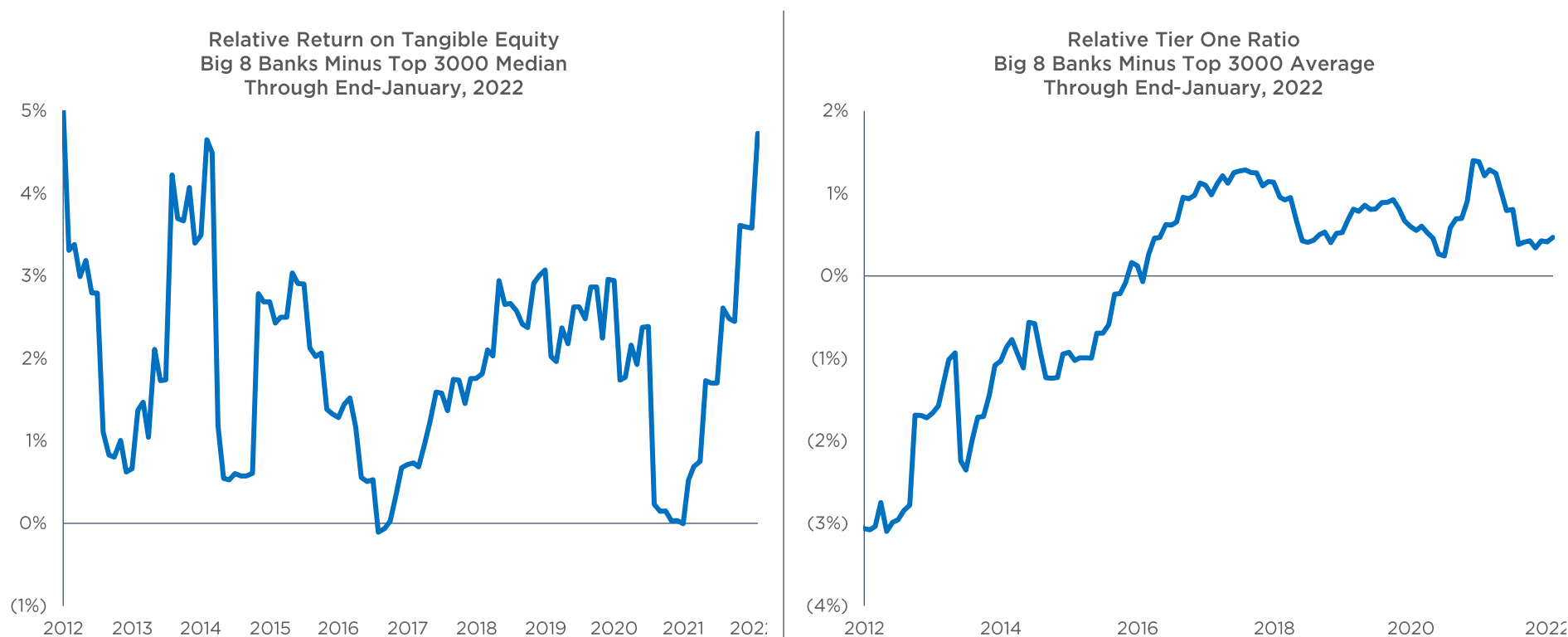
WATCH THE SAVINGS RATE AND LOAN GROWTH TO GAUGE REVISIONS

As generalists, our observation is that bank-stock investors excessively focusing on net interest margins, trying to gauge a few bps up or down. The bigger issue in our judgment is loan growth, and what could drive that as the cycle expands. The consumer is in great shape, with 90-day credit card delinquencies at a cycle low and the savings rate quite elevated (left chart). Loan growth has started to pickup for the biggest banks (right chart) but likely requires more dis-savings and a more demanding consumer before growing to levels seen in 2014-2015



THE BIG 8: INCOME STATEMENT AND BALANCE SHEET IMPROVEMENT

The largest 8 banks (JPM, WFC, C, BAC, USB, PNC, GS, and MS) have markedly improved both their profitability and balance sheets over the last several years, on average better than the broader bank universe on both metrics. Return on tangible equity (left chart) now shows the large banks are at cycle highs on return on tangible book relative to the rest of banks (median ROTE of the Big 8 is now 18.4% vs 14.8% for the larger universe). This is the highest level of excess ROTE since 2014. The Big 8 have also improved their balance sheets over time, with what appears to be a sustainably higher Tier 1 Ratio than the broader group of banks (right chart).



DESPITE THIS RELATIVE STRENGTH – VALUATION PREMIA ARE MODEST

Despite the relatively higher profitability and improved balance sheets, the large cap. banks barely trade at a premium to the broader group of banks. If longer-term history is a guide, the large cap. banks relative valuation could still substantially expand, even as the broader universe in-part have premia related to M&A potential. Our judgment is to prefer the Big 8 banks to the broader universe of banks, as their improved income statements and balance sheets should cost more relative to regionals



STOCK IDEAS BASED ON VALUATION AND GROWTH

Among the large banks (left), WFC, USB, and C are cheap relative to their own history. Stocks with substantial multiple expansion relative to book growth are show on the right.

**Big 8 Banks
Price to Tangible Book Percentile vs. History
Through End-January, 2022**

Ticker	Company Name	Market Cap (\$ US. Bil)	Price to Tangible Book	Percentile vs. History
MS	Morgan Stanley	181.70	2.50x	78.2%
JPM	JPMorgan Chase & Co.	437.49	2.10x	60.5%
BAC	Bank of America Corporation	372.71	2.11x	58.7%
PNC	The PNC Financial Services Group, Inc.	86.52	1.93x	46.1%
GS	The Goldman Sachs Group, Inc.	118.31	1.19x	33.0%
C	Citigroup Inc.	129.22	0.82x	18.5%
WFC	Wells Fargo & Company	209.06	1.49x	13.7%
USB	U.S. Bancorp	86.35	2.30x	10.0%

**Banks Stocks with Relatively Weak Tangible Book Growth
That Have Also Seen Material Price-to-Tangible Book Multiple Expansion
August 4th, 2020 Through End-January, 2022**

Ticker	Company Name	Market Cap (\$ US. Bil)	Book Value Growth	Price to Tangible Book Growth
PNC	The PNC Financial Services Group, Inc.	86.52	2.5%	88.9%
TFC	Truist Financial Corporation	83.41	(4.7%)	74.8%
FITB	Fifth Third Bancorp	30.47	(4.4%)	129.6%
KEY	KeyCorp	23.28	(0.5%)	98.4%
RF	Regions Financial Corporation	21.61	0.0%	110.4%
FCNCA	First Citizens BancShares, Inc.	12.36	0.4%	210.0%
CMA	Comerica Incorporated	12.13	1.3%	127.3%
ZION	Zions Bancorporation, National Assoc.	10.28	0.2%	94.2%
CFR	Cullen/Frost Bankers, Inc.	9.02	6.5%	88.6%
BPOP	Popular, Inc.	7.12	3.1%	125.5%
FHB	First Hawaiian, Inc.	3.61	(2.6%)	70.4%
FBP	First BanCorp.	2.92	(6.7%)	163.2%
FFBC	First Financial Bancorp.	2.37	(3.6%)	86.0%
WSBC	WesBanco, Inc.	2.21	(0.4%)	66.5%
HOPE	Hope Bancorp, Inc.	2.01	5.1%	84.1%
CASH	Meta Financial Group, Inc.	1.79	2.5%	174.2%
NTB	The Bank of N.T. Butterfield & Son Ltd.	1.79	(1.6%)	44.3%
GWB	Great Western Bancorp, Inc.	1.70	5.4%	127.4%
FCF	First Commonwealth Financial Corp	1.56	4.9%	91.9%
BHLB	Berkshire Hills Bancorp, Inc.	1.42	4.7%	190.8%
AMTB	Amerant Bancorp Inc.	1.22	0.5%	207.0%
CHCO	City Holding Company	1.21	(1.8%)	23.0%

RESEARCH SUMMARY FOR SEMICONDUCTORS AND SOFTWARE

Most of our recent research has led us to believe that gross margin expansion above consensus expectations is crucial for success at this point in the cycle and has been important for identifying compounders over the last decade. Back on October 1, 2002, we initiated as the US Semiconductor analyst at Sanford C. Bernstein & Co, with a note title “Share Gainers and Margin Expanders Are Multiple Expanders”. Nineteen years later we wanted to research the relevance of share gain and margin expansion in software and semis to identify dislocated stocks that may signal an investment opportunity.

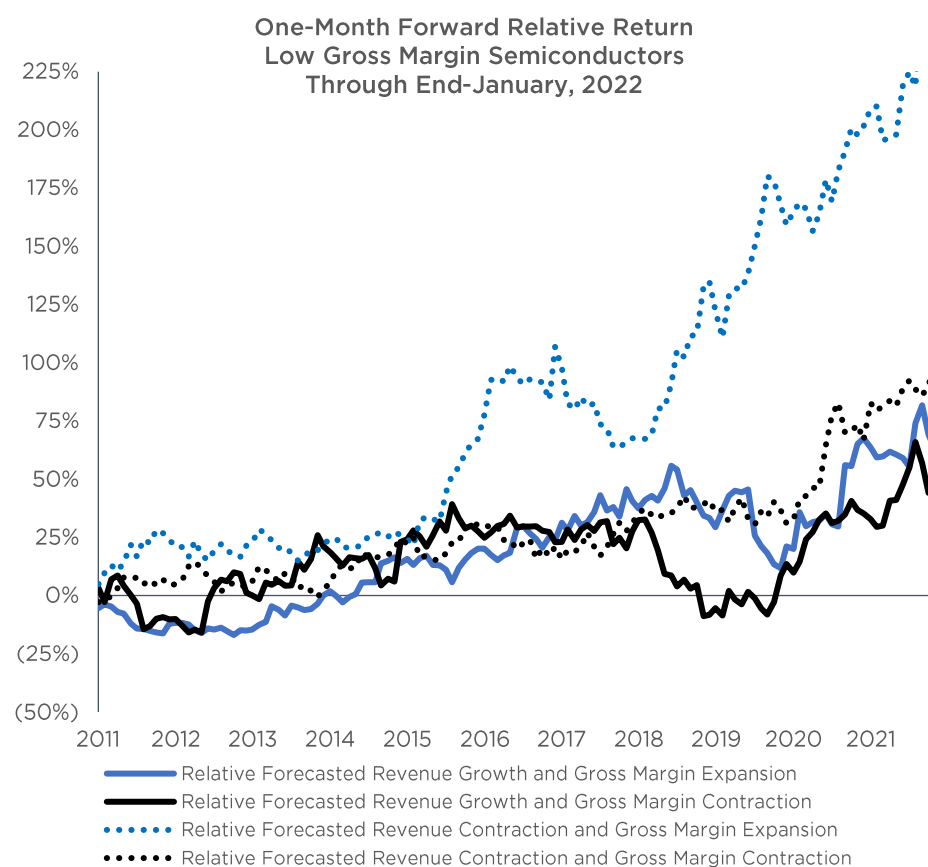
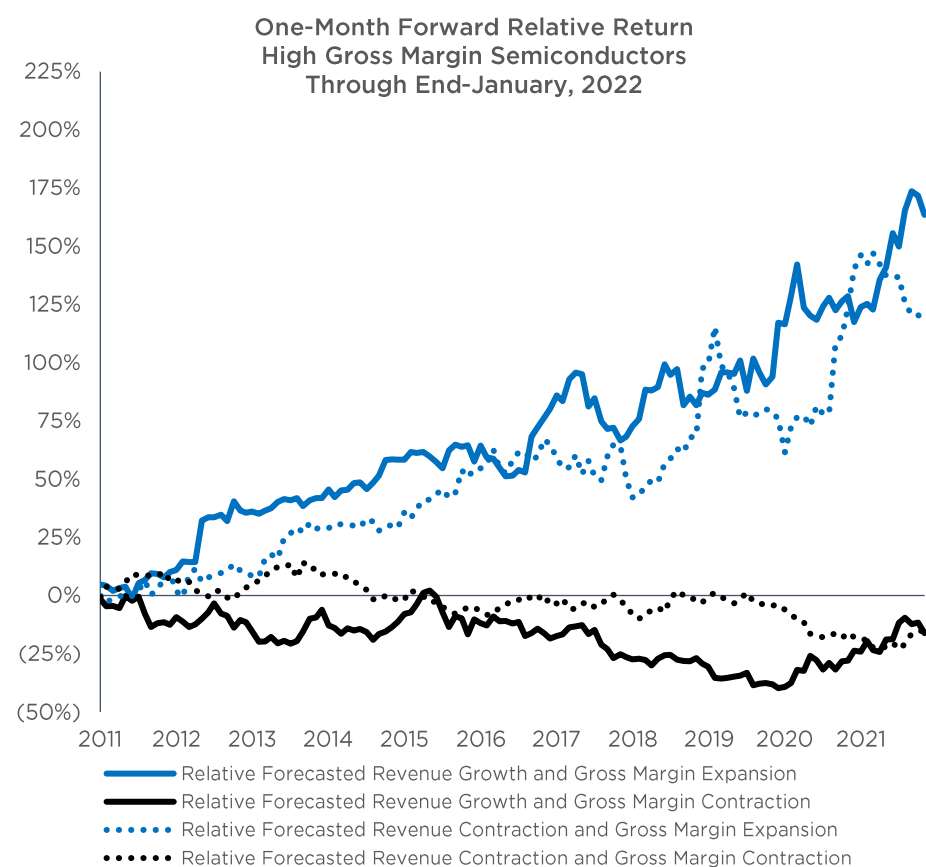
There is clearly some tension in the market on these key areas of technology, with high options activity and recent volatility reflecting supply chain concerns, etc. Going “back to the basics” of revenue growth vs. peers and margin expansion seems timely today. As such, we split each sector into high and low gross margin peer groups to account for substantial business model differences and searched for investment opportunities.

Semiconductors: Gross margin expansion is more important than share gain for both high and low gross margin chip makers. Multiple expansion / contraction and price momentum help us further refine the stock ideas.

Software: Revenue growth matters more than gross margin expansion among high gross margin companies. The only thing that matters for low gross margin software companies is improving gross margins.

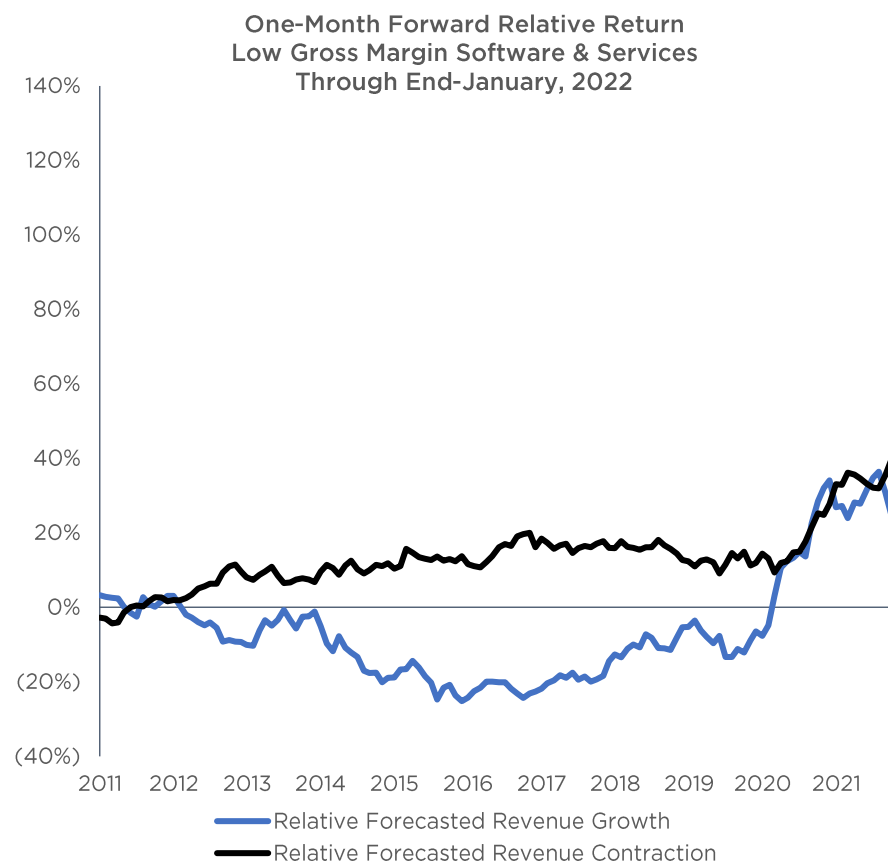
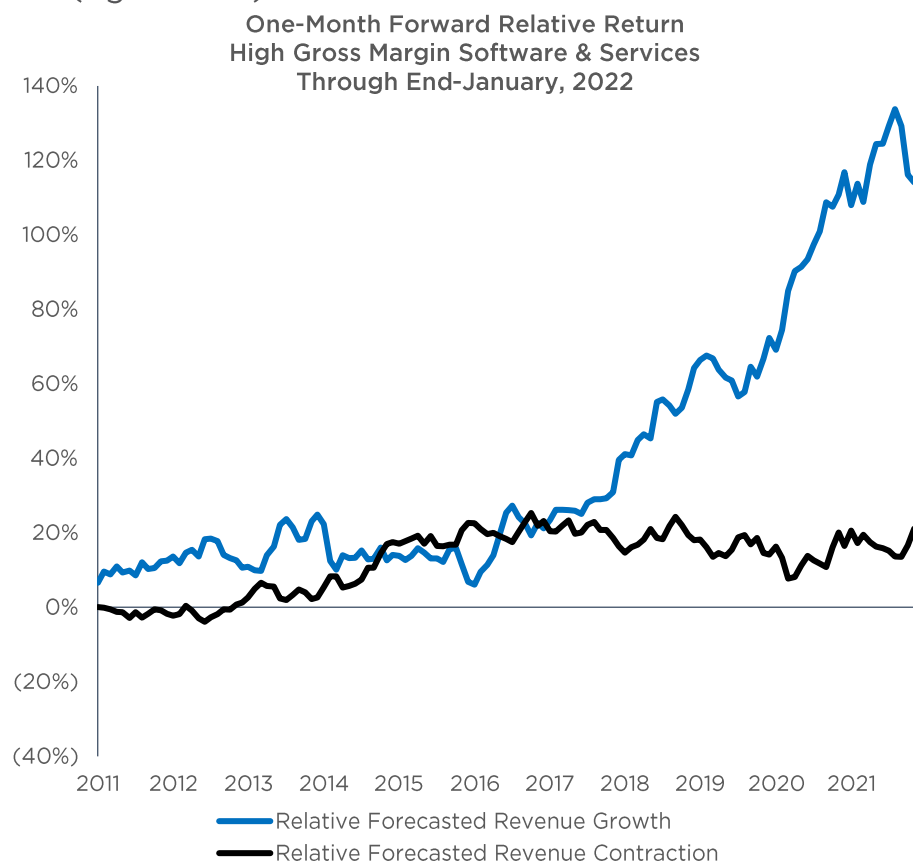
MARGIN EXPANSION MORE IMPORTANT THAN SHARE GAIN FOR CHIPS

Combining share gain / loss and margin expansion / contraction, we notice that among high margin semis (left chart) margin contraction is punished, independent of the forecasted revenue outlook, and margin expansion is rewarded. For low margin chip makers (right chart), forecasted share loss and gross margin expansion yields by far the best return – meaning the market wants low margin companies to chase higher margin revenue and improve their mix



SHARE GAIN IS IMPORTANT FOR HIGH MARGIN SOFTWARE

For high gross margin software companies, it is extremely important for forecasted revenue growth to be faster than average (left chart), with strong outperformance for share gainers among the high margin software companies relative to those high margin software companies forecasted to be share losers. The recent growth scare caused a correction. Low gross margin software companies are generally weak stocks, whether forecasted revenue is high or low (right chart)



SEMIS AND SOFTWARE: THE REVENUE AND MARGIN PLAYBOOK

Semiconductors Playbook

High Current Goss Margins				Low Current Goss Margins			
Relative Forecast Gross Margin	Relative Forecast Revenue	Relative 3-Month Price-to-Forecast-Sales	Relative 3-Month Price Momentum	Relative Forecast Gross Margin	Relative Forecast Revenue	Relative 3-Month Price-to-Forecast-Sales	Relative 3-Month Price Momentum
Expansion	Share Gain	Expansion	Positive	Expansion	Share Gain	Expansion	Positive
Expansion	Share Gain	Expansion	Negative	Expansion	Share Gain	Expansion	Negative
Expansion	Share Gain	Contraction	Positive	Expansion	Share Gain	Contraction	Positive
Expansion	Share Gain	Contraction	Negative	Expansion	Share Gain	Contraction	Negative
Expansion	Share Loss	Expansion	Positive	Expansion	Share Loss	Expansion	Positive
Expansion	Share Loss	Expansion	Negative	Expansion	Share Loss	Expansion	Negative
Expansion	Share Loss	Contraction	Positive	Expansion	Share Loss	Contraction	Positive
Expansion	Share Loss	Contraction	Negative	Expansion	Share Loss	Contraction	Negative
Contraction	Share Gain	Expansion	Positive	Contraction	Share Gain	Expansion	Positive
Contraction	Share Gain	Expansion	Negative	Contraction	Share Gain	Expansion	Negative
Contraction	Share Gain	Contraction	Positive	Contraction	Share Gain	Contraction	Positive
Contraction	Share Gain	Contraction	Negative	Contraction	Share Gain	Contraction	Negative
Contraction	Share Loss	Expansion	Positive	Contraction	Share Loss	Expansion	Positive
Contraction	Share Loss	Expansion	Negative	Contraction	Share Loss	Expansion	Negative
Contraction	Share Loss	Contraction	Positive	Contraction	Share Loss	Contraction	Positive
Contraction	Share Loss	Contraction	Negative	Contraction	Share Loss	Contraction	Negative

Software Playbook

High Current Goss Margins				Low Current Goss Margins			
Relative Forecast Gross Margin	Relative Forecast Revenue	Relative 3-Month Price-to-Forecast-Sales	Relative 3-Month Price Momentum	Relative Forecast Gross Margin	Relative Forecast Revenue	Relative 3-Month Price-to-Forecast-Sales	Relative 3-Month Price Momentum
Expansion	Share Gain	Expansion	Positive	Expansion	Share Gain	Expansion	Positive
Expansion	Share Gain	Expansion	Negative	Expansion	Share Gain	Expansion	Negative
Expansion	Share Gain	Contraction	Positive	Expansion	Share Gain	Contraction	Positive
Expansion	Share Gain	Contraction	Negative	Expansion	Share Gain	Contraction	Negative
Expansion	Share Loss	Expansion	Positive	Expansion	Share Loss	Expansion	Positive
Expansion	Share Loss	Expansion	Negative	Expansion	Share Loss	Expansion	Negative
Expansion	Share Loss	Contraction	Positive	Expansion	Share Loss	Contraction	Positive
Expansion	Share Loss	Contraction	Negative	Expansion	Share Loss	Contraction	Negative
Contraction	Share Gain	Expansion	Positive	Contraction	Share Gain	Expansion	Positive
Contraction	Share Gain	Expansion	Negative	Contraction	Share Gain	Expansion	Negative
Contraction	Share Gain	Contraction	Positive	Contraction	Share Gain	Contraction	Positive
Contraction	Share Gain	Contraction	Negative	Contraction	Share Gain	Contraction	Negative
Contraction	Share Loss	Expansion	Positive	Contraction	Share Loss	Expansion	Positive
Contraction	Share Loss	Expansion	Negative	Contraction	Share Loss	Expansion	Negative
Contraction	Share Loss	Contraction	Positive	Contraction	Share Loss	Contraction	Positive
Contraction	Share Loss	Contraction	Negative	Contraction	Share Loss	Contraction	Negative

SEMICONDUCTOR STOCK IDEAS

High margin semis that are forecasted to have continued margin expansion and have recently lagged and seen multiple contraction subsequently perform best (stocks buy, top of left table). High margin semi short ideas with poor momentum continue to be weak (bottom left table). For low gross margin semis, buying stocks with good recent price momentum and forecasted margin expansion is best (top of right table). Low margin semis with poor momentum continue to lag (bottom right)

High Gross Margin Semiconductors

Buy Relative Gross Margin Growers, Multiple Contraction, and Low Momentum
Sell Relative Gross Margin Shrinkers, and Low Momentum
End-January, 2022

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
NVDA	NVIDIA Corporation	612.15
SWKS	Skyworks Solutions, Inc.	24.23
QRVO	Qorvo, Inc.	15.13
LSCC	Lattice Semiconductor Corporation	7.56
ALGM	Allegro MicroSystems, Inc.	5.38
SITM	SiTime Corporation	4.72
MXL	MaxLinear, Inc.	4.61
MTSI	MACOM Technology Solutions Holdings, Inc.	4.27
Short		
TER	Teradyne, Inc.	19.14
MPWR	Monolithic Power Systems, Inc.	18.57
OLED	Universal Display Corporation	7.23
SLAB	Silicon Laboratories Inc.	6.64
AMBA	Ambarella, Inc.	5.19
POWI	Power Integrations, Inc.	4.87
SMTC	Semtech Corporation	4.58
CAMT	Camtek Ltd.	1.63
CEVA	CEVA, Inc.	0.87

Low Gross Margin Semiconductors

Buy Relative Gross Margin Growers with Lower Revenue Growth Expectations, Multiple Expansion, and High Momentum
Sell Relative Gross Margin Shrinkers with Higher Revenue Growth Expectations, and Low Momentum
End-January, 2022

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
MU	Micron Technology, Inc.	92.12
ON	ON Semiconductor Corporation	25.42
AZTA	Azenta, Inc.	6.23
DIOD	Diodes Incorporated	4.18
TSEM	Tower Semiconductor Ltd.	3.72
FORM	FormFactor, Inc.	3.34
COHU	Cohu, Inc.	1.61
AOSL	Alpha and Omega Semiconductor Limited	1.19
PLAB	Photronics, Inc.	1.09
SGH	SMART Global Holdings, Inc.	0.71
Short		
ENPH	Enphase Energy, Inc.	18.95
SEDG	SolarEdge Technologies, Inc.	12.51
ACMR	ACM Research, Inc.	1.55
AXTI	AXT, Inc.	0.31

SOFTWARE STOCK IDEAS

For high gross margin software, stocks that have strong price momentum, but multiple contraction are buys (top left). Shorts are high margin software with strong momentum that are also seeing multiple expansion, as the sales growth is not offsetting the change in valuation (bottom left). Among low gross margin software, buys have good momentum and multiple expansion, the opposite of high margin (top right), and sells have high momentum

High Gross Margin Software

Buy Relative Share Gainers, Multiple Contraction, and High Momentum
Sell Relative Share Losers, Multiple Expansion, and High Momentum
End-January, 2022

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
OKTA	Okta, Inc.	30.78
RAMP	LiveRamp Holdings, Inc.	3.04
Short		
ORCL	Oracle Corporation	216.73
INTU	Intuit Inc.	157.22
PAYX	Paychex, Inc.	42.49
CDNS	Cadence Design Systems, Inc.	42.16
ANSS	ANSYS, Inc.	29.67
CHKP	Check Point Software Technologies Ltd.	16.07
PTC	PTC Inc.	13.70
OTEX	Open Text Corporation	13.00
DLB	Dolby Laboratories, Inc.	8.88
WEX	WEX Inc.	7.21
QLYS	Qualys, Inc.	4.97
ALTR	Altair Engineering Inc.	4.96
MSP	Datto Holding Corp.	4.06
BOX	Box, Inc.	3.88
CVLT	Commvault Systems, Inc.	3.01
SWI	SolarWinds Corporation	2.16
PRGS	Progress Software Corporation	2.01

Low Gross Margin Software

Buy Relative Gross Margin Growers, Multiple Expansion, and High Momentum
Sell Relative Gross Margin Shrinkers, High Momentum
End-January, 2022

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
FISV	Fiserv, Inc.	69.79
PANW	Palo Alto Networks, Inc.	51.05
GPN	Global Payments Inc.	43.49
TYL	Tyler Technologies, Inc.	19.41
AKAM	Akamai Technologies, Inc.	18.61
JKHY	Jack Henry & Associates, Inc.	12.42
GWRE	Guidewire Software, Inc.	8.40
DXC	DXC Technology Company	7.59
NEWR	New Relic, Inc.	6.88
SPSC	SPS Commerce, Inc.	4.45
ENV	Envestnet, Inc.	4.04
QTWO	Q2 Holdings, Inc.	3.71
Short		
ACN	Accenture plc	223.46
ADP	Automatic Data Processing, Inc.	86.60
CTSH	Cognizant Technology Solutions Corporation	44.87
IT	Gartner, Inc.	24.17
BR	Broadridge Financial Solutions, Inc.	19.04
GDDY	GoDaddy Inc.	12.58
DOX	Amdocs Limited	9.46
WU	The Western Union Company	7.60
VG	Vonage Holdings Corp.	5.29
EXLS	ExlService Holdings, Inc.	4.01
APPF	AppFolio, Inc.	4.00
TTEC	TTEC Holdings, Inc.	3.76

SUMMARY AND CONCLUSIONS FOR INDUSTRIALS

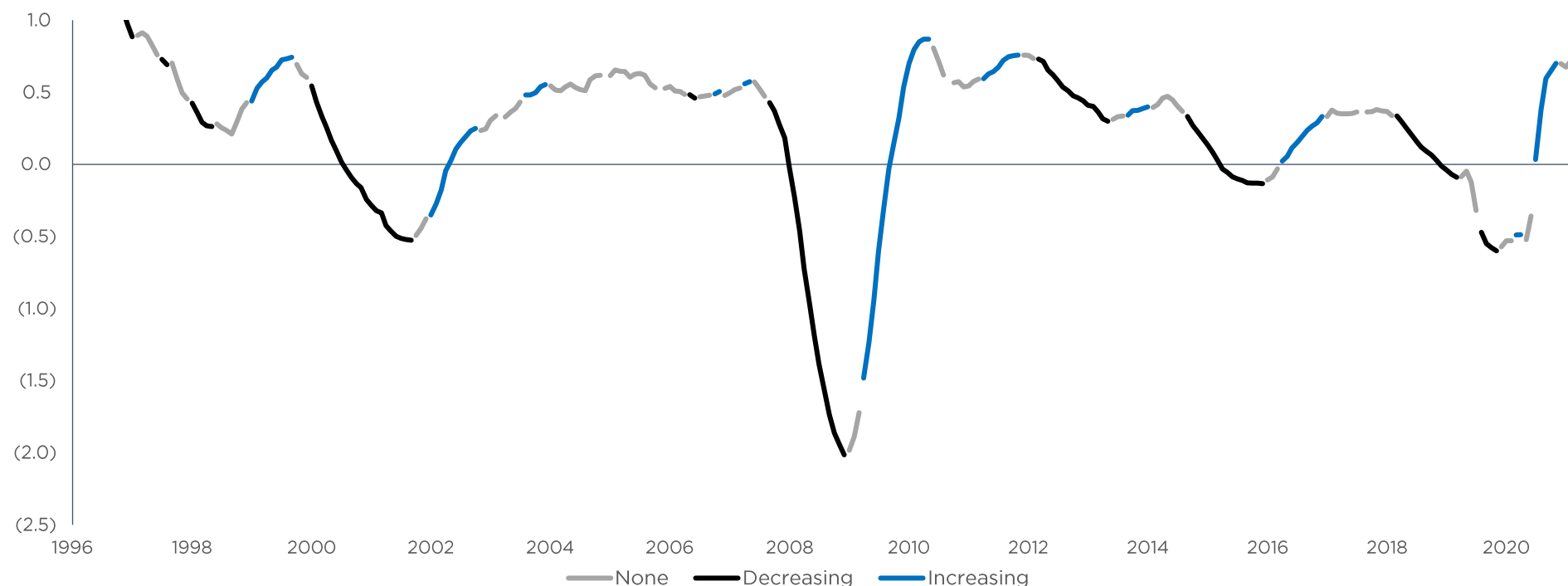
We are negative on the industrials sector relative to the market and would initiate new shorts, or sell down large long positions now

- 1. Macro softening:** Our proprietary gauge of macro indicators of industrial activity shows a softening of late after a huge recovery since March of 2020. In particular, C&I loans, manufacturing capacity utilization, durable goods orders, industrial production, PMI, and North American carloads have all rolled over. Moreover, rising oil has historically improved our stock selection in industrials, driving our confidence in our underweight call.
- 2. Earnings expectations are high:** Despite the softening of macro data, bottom-up analyst earnings estimates for the GICS industrial sector appear to embed sustained economic strength, with above 20% YoY earnings growth forecasted each quarter through 2022, among the highest of any sector.
- 3. Inventory not lean:** While there have been ample supply-chain shortages and logistics problems for many manufacturers, our judgment is that inventory levels for the industrials companies themselves are average.
- 4. Group is expensive:** Valuations have become elevated, so unlike materials and energy which are cheap on peak earnings, many / most of the industrials' industries are in the 95th percentile or higher vs. their own history on EV-to-EBITDA.
- 5. Use margin expectations to find short ideas:** Therefore, it appears that the key to investing today will be further margin expansion. Our judgment is to short stocks where incremental margin expectations are high.

OUR INDUSTRIAL ACTIVITY GAUGE IS NO LONGER INCREASING

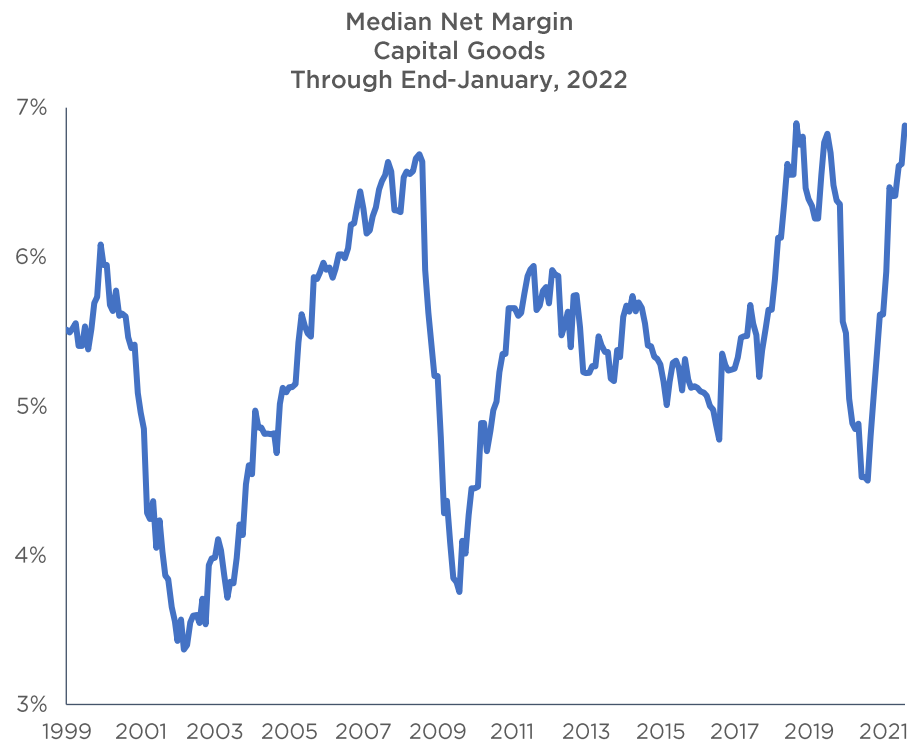
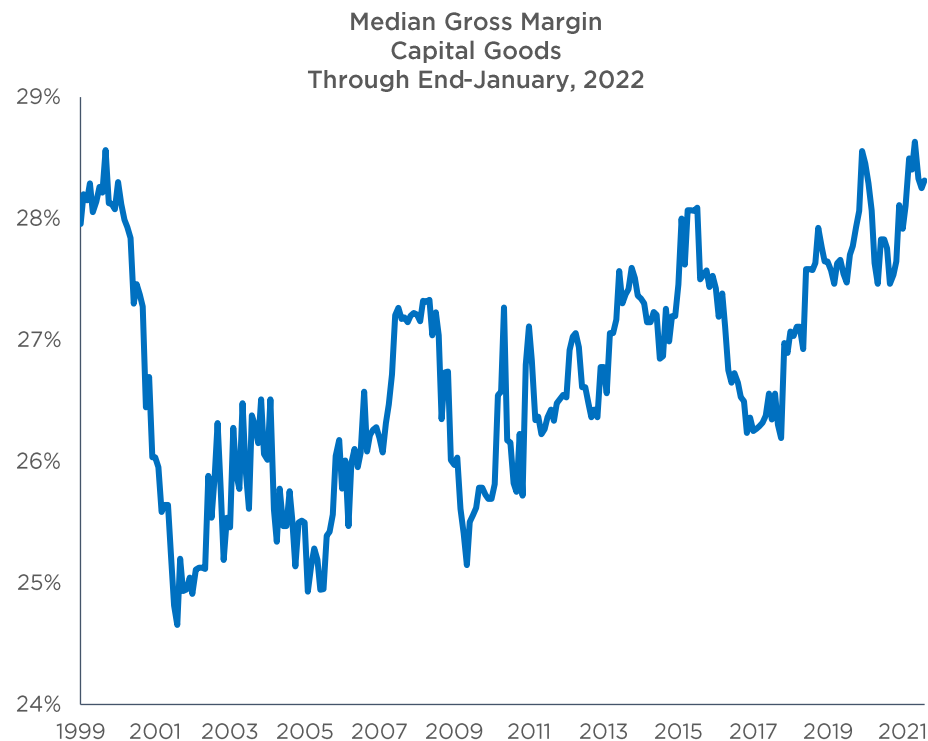
Our industrial activity gauge, which is a broad-based combination of several metrics like C&I loans, Baker Hughes rig count, private nonresidential construction, capacity utilization, new orders of durable goods, PMI, industrial production, and several others show that industrial activity rebounded sharply off the lows of March 2020. However, several signals have begun to roll-over. As of this month, we are no longer in a regime of increasing industrial activity – it seems to have peaked, something we highlighted as a potential outcome in our early September cautious note on machinery and capital goods.

Trivariate's Industrial Activity Signal
Through End-January, 2022



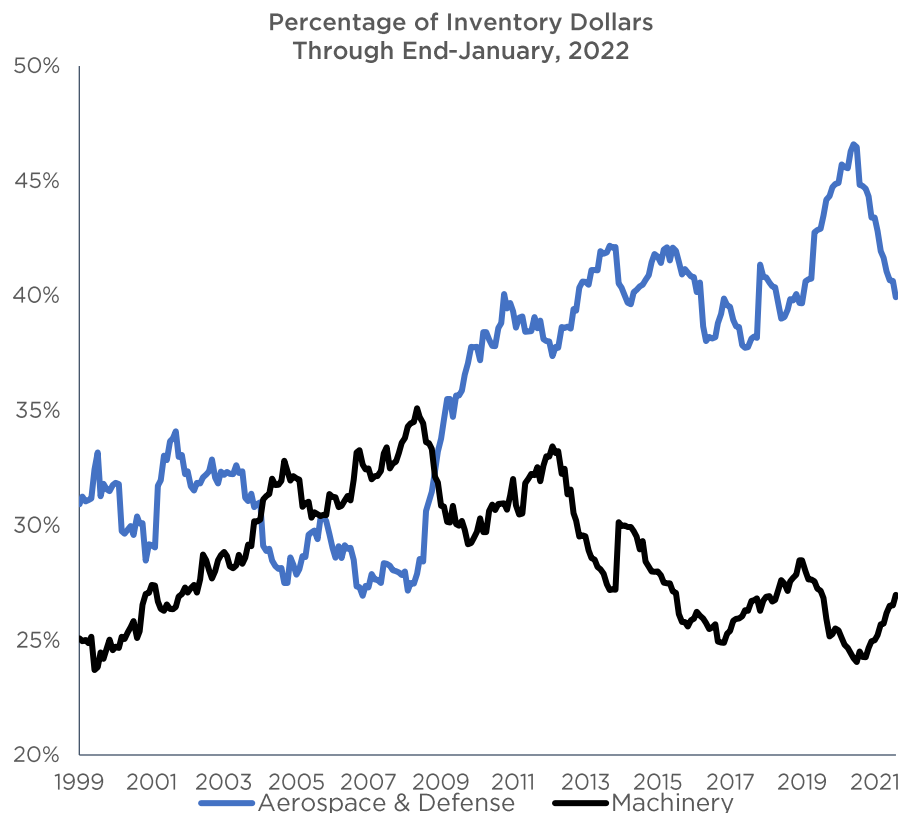
CAPITAL GOODS PROFITABILITY HAS RECOVERED

Within industrials, profitability (gross margin) has reached 20-year highs for the Capital Goods industry group, which makes up over 65% of industrials names with market capitalization over \$1 billion (left chart). Net margins are also nearing peaks (right chart). With forward estimates for earnings growth strong even from these peak levels, it seems clear to us that stronger industrial activity and limited headwinds to future profitability will need to emerge for these forecast to be realized – and that does not seem likely to us.



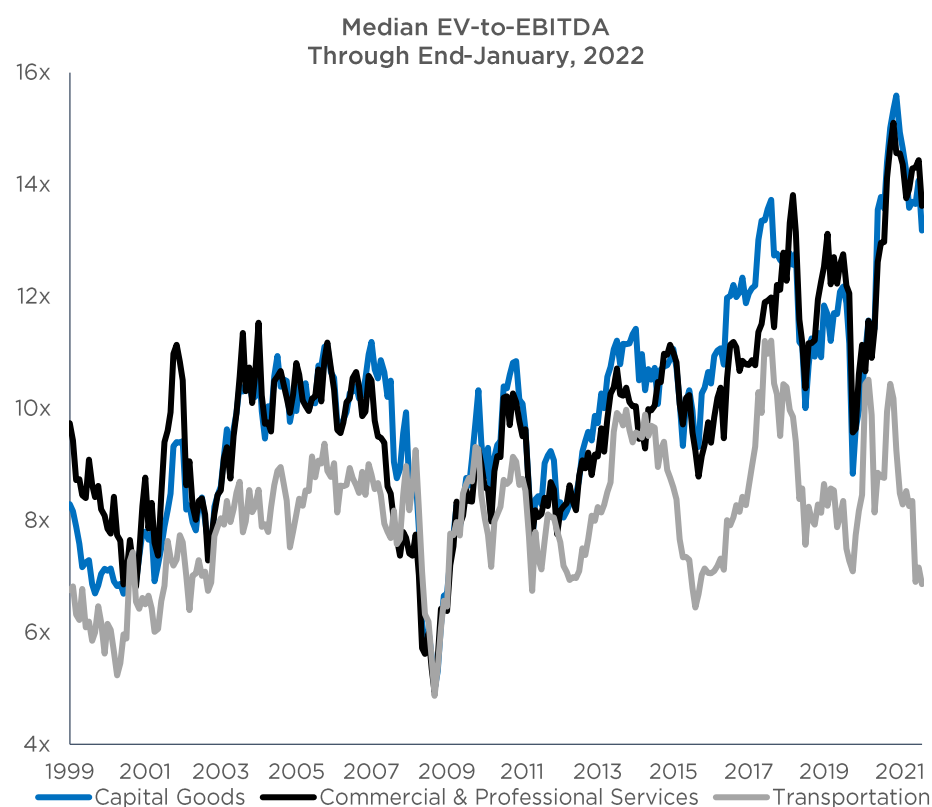
MACHINERY AND CAPITAL GOODS INVENTORY IS NOT LEAN

Margin expansion can be helped if inventory levels are low. However, it is not obvious to us that rising factory utilization will drive better cost absorption from here. Aerospace and defense alone make up over 40% of the industrials sector inventory dollars (left chart), making sector-level aggregation of inventory dollars misleading. Capital goods and machinery inventory levels are above pre-COVID levels, even if they've declined recently (right).



VALUATIONS HAVE EXPANDED FOR INDUSTRIALS

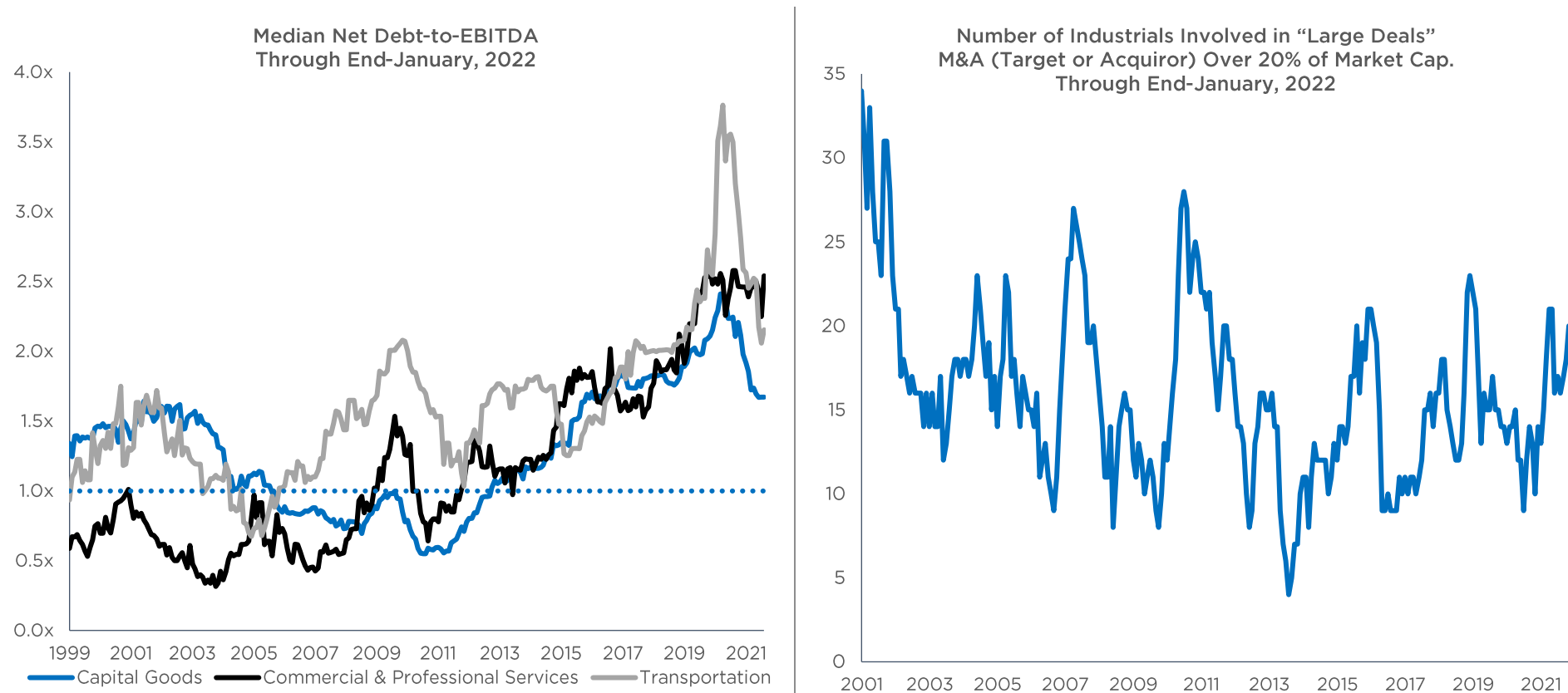
While other cyclicals like materials and energy have seen sharp multiple contraction as there is a view that they are over-earning, that is not the case for industrials, with elevated EV-to-EBITDA (left chart) multiples across capital goods and professional services. Conglomerates, commercial and professional services, machinery, and electrical equipment have rarely, if ever, been more expensive (right chart). Airlines and marine are exceptions.



Median EV-to-EBITDA Percentile Rank vs. History End-January, 2022	
Industrials GICS Industry	Rank
Commercial Services & Supplies	96.7%
Trading Companies & Distributors	96.3%
Electrical Equipment	95.2%
Industrial Conglomerates	93.4%
Machinery	93.4%
Professional Services	91.3%
Building Products	85.6%
Transportation Infrastructure	85.2%
Aerospace & Defense	82.3%
Construction & Engineering	81.5%
Air Freight & Logistics	49.4%
Road & Rail	19.9%
Marine	10.3%
Airlines	2.2%

LEVERAGE HAS MODESTLY PICKED UP, M&A NOT PARTICULARLY ACTIVE

Elevated valuations can be at least partially justified if balance sheets have massively improved, or if there has been an outsized amount of M&A in a sector. But that is not the case. Companies on average have higher leverage than they did in previous cycles (left chart) and the current number of industrial-sector deals is roughly at a 20-year average (right chart), meaning there is not sector-related euphoria about a rash of imminent deals



SHORT IDEAS: IT ALL COMES DOWN TO MARGIN EXPECTATIONS

Our conclusion therefore is to short non-growth industrials with near-record profit margins that are forecasted to have improved profitability next year despite the industrial activity roll-over (left chart), or those with high incremental gross margin expectations that screen badly in our quantitative models (right chart). We think these are good places to search for short ideas

**High 2022 Incremental Margin Forecasts and
Already At / Near Record Profitability
End-January, 2022**

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
HON	Honeywell International Inc.	Industrial Conglomerates	140.77
DE	Deere & Company	Machinery	116.01
CTAS	Cintas Corporation	Commercial Serv & Supplies	40.61
RSG	Republic Services, Inc.	Commercial Serv & Supplies	40.48
PH	Parker-Hannifin Corporation	Machinery	39.84
VRSK	Verisk Analytics, Inc.	Professional Services	31.61
J	Jacobs Engineering Group Inc.	Professional Services	16.85
BLDR	Builders FirstSource, Inc.	Building Products	13.02
PNR	Pentair plc	Machinery	10.54
WSO	Watsco, Inc.	Trading Companies & Dist.	9.99
AGCO	AGCO Corporation	Machinery	8.77
SITE	SiteOne Landscape Supply, Inc.	Trading Companies & Dist.	8.05
CFX	Colfax Corporation	Machinery	6.43
EME	EMCOR Group, Inc.	Construction & Engineering	6.36
KBR	KBR, Inc.	Professional Services	6.09
CR	Crane Co.	Machinery	6.08
WTS	Watts Water Technologies, Inc.	Machinery	5.15
SSD	Simpson Manufacturing Co., Inc.	Building Products	4.90
FELE	Franklin Electric Co., Inc.	Machinery	4.03
BECN	Beacon Roofing Supply, Inc.	Trading Companies & Dist.	3.86
AIT	Applied Industrial Technologies	Trading Companies & Dist.	3.77
AIMC	Altra Industrial Motion Corp.	Machinery	3.13
HCSG	Healthcare Services Group, Inc.	Commercial Serv & Supplies	1.36
CMCO	Columbus McKinnon Corporation	Machinery	1.23

**High Forecasted Incremental Margins vs. Current Gross Margins
Bottom Half of Trivariate Quantitative Model
End-January, 2022**

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
CAT	Caterpillar Inc.	Machinery	109.03
SWK	Stanley Black & Decker, Inc.	Machinery	28.47
IR	Ingersoll Rand Inc.	Machinery	22.91
WAB	Westinghouse Air Brake Technologies Corporation	Machinery	16.61
MAS	Masco Corporation	Building Products	15.46
FBHS	Fortune Brands Home & Security	Building Products	12.78
AOS	A. O. Smith Corporation	Building Products	12.16
CSL	Carlisle Companies Incorporated	Building Products	11.65
ALLE	Allegion plc	Building Products	11.01
PNR	Pentair plc	Machinery	10.54
MIDD	The Middleby Corporation	Machinery	10.30

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