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TRIVARIATE RESEARCH

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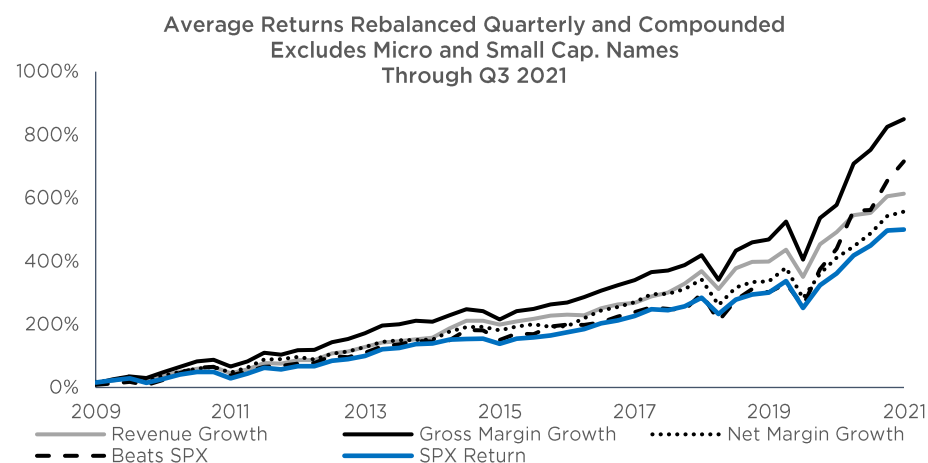
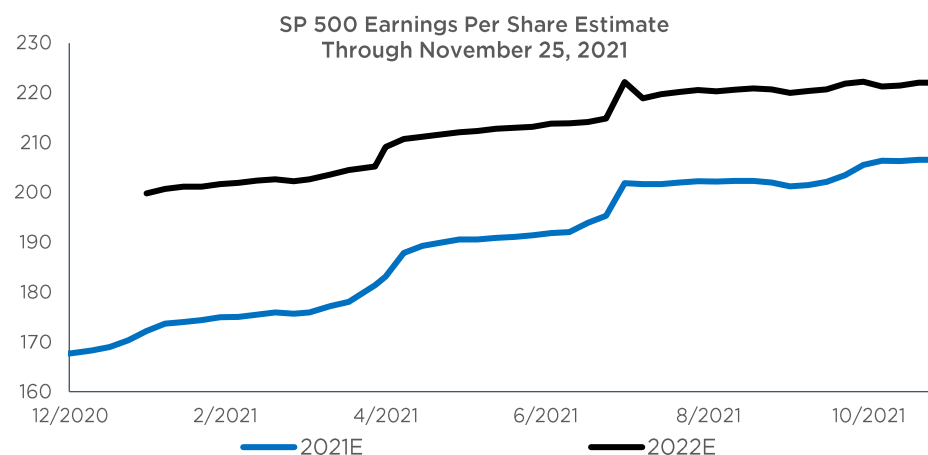
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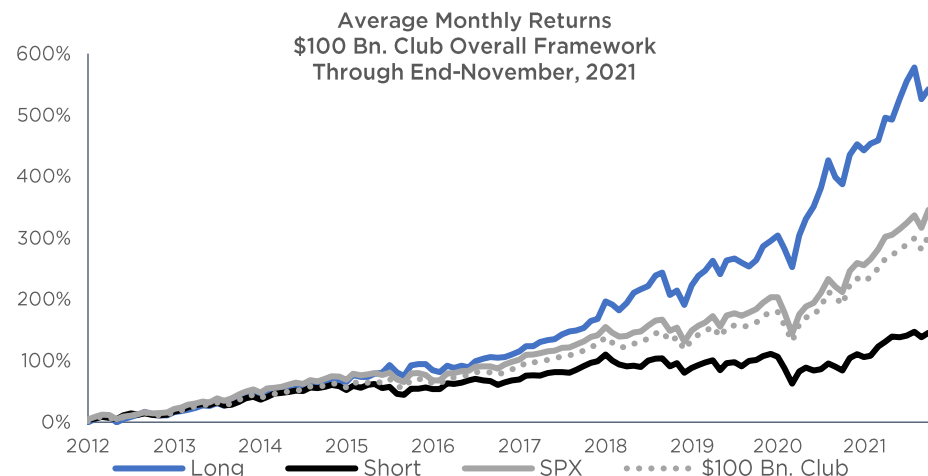
For further information on our Quantitative Framework, or our notes on the challenges of alpha generation, FAANGM, BATJ (Baidu, Alibaba, Tencent, JD.com) or ESG ETFs please contact us or log into our website www.trivariateresearch.com for access.

FOUR CHARTS YOU SHOULD NOT MISS

Earnings expectations have continued to rise all year (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	Trivariate Recommendation	Comments
Materials	Max Overweight	Prefer copper long-term, steel near-to-medium term
Energy	Max Overweight	Oil is rising, and M&A is likely
Health Care	Overweight	Healthcare services are rate-sensitive, and demand trends are above GDP
Consumer Discretionary	Overweight	Retailing, reopening, and services better than durables
Utilities	Equal-Weight	Some idiosyncratic bets probably sensible
Communication Services	Equal-Weight	Makes sense to keep market-weight FAANGM
Financials	Equal-Weight	Large cap banks better than regionals
Real Estate	Under-Weight	Commercial real-estate is challenged
Information Technology	Under-Weight	Semis are over-earning, focus on margin expansion / cash flow generation
Consumer Staples	Under-Weight	Plenty of short ideas in idiosyncratic staples
Industrials	Max Underweight	Industrial activity is rolling over, but earnings expectation are very high



INVESTMENT CONCLUSIONS

- **We remain bullish on the US stock market.** We see earnings growth and a solid US economy, accompanied by accommodative monetary policy and a sustained fiscal stimulus. While the market is expensive relative to its own history 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 current profitability is not as important as sustained growth. 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 inflation and supply chain disruption will cause broad based margin contraction, hampering 2022 earnings. Low real yields keep equity market multiples elevated. We do not believe the Fed will raise rates in 2022.
- **We think a growth – value barbell is appropriate.** Following the last ten large drawdowns in growth stocks, margin expanders with positive free cash flow subsequently outperformed. There is a non-linear relationship between revenue growth and valuation, revealing several opportunities. The key to identifying compounders is gross margin growth, and our judgment is investors should be spending a disproportionate amount of time on margin expectations at this point in the cycle.
- **Sector recommendations.** We like energy / materials over industrials, discretionary over staples, healthcare over technology, and utilities over REITs. We like large banks over small. Within semis, focus on margin expansion, within software, avoid low margins and focus on revenue growth among the high margin companies.

INVESTMENT CONCLUSIONS

- **Gross exposure advice:** We ingest over 100 macro variables and conclude that investors consumer discretionary, and lower quality stocks that are not fast growing (i.e., gross up high yield junk and other junk) and de-gross durables and lower quality stocks that do not pay a dividend. Last month the flattening of our economic activity gauged caused us to recommend de-grossing TMT from our high gross recommendation the previous several months. For banks, financial conditions had been tight, and are now neutral, meaning we can gross up banks closer to average, from our low gross recommendation prior. High gross exposure in energy, materials, and industrials is sensible.
- **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. Canvassing multiple metrics, industrials and REITs have outsized risks today.
- **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 really important, as acquirers buying something 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.

WE ARE OPTIMISTIC ABOUT US EQUITIES

- **Our conclusion: We remain bullish on US equities.** When investors look back several years from now what will they observe? A solid economy with sustained profit growth, accommodative monetary policy and big fiscal stimulus. Earnings will be higher in 2022 than 2021 and as long as people believe that can continue, US equities should perform well.
- **Does it matter that the market is expensive?** While there is no question that the US stock market is expensive on forward earnings vs. its own history at just less than 21x forward earnings, we do not think history is a fully relevant determinative of subsequent return as market constitution, profit margins, and low interest rates are so different than much of history. We generally do not see signs of management hubris, with capital spending unlikely to impede margin progress and inventory levels for a decreasingly relevant set of companies relatively tame. **Hence, we remain optimistic about the sustainability of earnings growth and the maintenance of elevated multiples.**
- The key to security selection is gross margin expansion, and hence the main “macro” investment controversy is whether rising input costs (labor, materials, transportation) can be passed on to end-customers, or whether margins will contract next year
- **IN SUMMARY: We have a healthy US economy, growing earnings, impediments to margin expansion that include labor, raw goods and transportation logistics, offset by fiscal stimulus and an accommodative monetary policy. The biggest risks in our mind is input costs rising faster than revenue for select companies, the Fed materially tightening, though a material reset due to policy related to the COVID Omicron variant, or increased China tension could also unnerve the market at these levels.**

EARNINGS EXPECTATIONS PEAKED IN Q2 AND DECELERATE UNTIL Q1

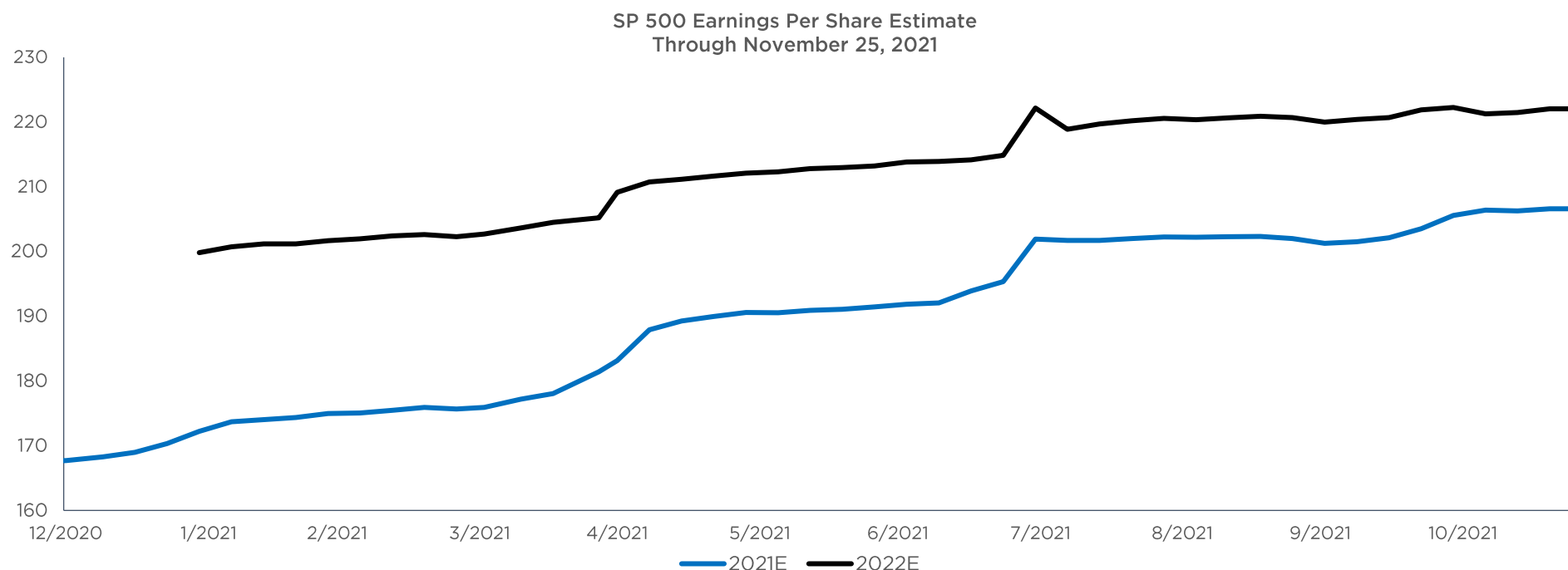
The bottom-up analyst earnings growth expectations are for 39.6% YoY earnings growth for Q3, down from the 91.8% growth in Q2 (a function of the COVID trough) but up from where expectations were at the end of Q2. Earnings are expected to decelerate but remain in the mid-twenties through Q4, trough in Q2 2022, 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 think create poor relative estimate achievability.

**Bottom-Up Analyst Earnings Growth Expectations
November 25, 2021**

Sector	1Q21	2Q21	3Q21E	4Q21E	1Q22E	2Q22E	3Q22E	4Q22E
S&P 500	49.7%	91.8%	39.6%	21.7%	6.7%	4.5%	6.6%	12.9%
S&P ex-Financials	36.0%	76.8%	40.8%	26.8%	14.1%	10.3%	9.4%	14.2%
Consumer Discretionary	231.0%	266.1%	13.7%	0.0%	1.2%	23.8%	38.4%	53.8%
Consumer Staples	10.6%	19.0%	(0.1%)	0.3%	5.0%	5.2%	13.8%	10.8%
Energy	18.4%	N/A	N/A	N/A	179.1%	61.9%	6.9%	(12.2%)
Financials	135.7%	191.7%	34.0%	1.0%	(20.1%)	(18.7%)	(6.6%)	6.6%
Health Care	24.3%	22.8%	28.4%	15.4%	6.0%	3.8%	(3.7%)	6.2%
Industrials	(2.6%)	394.9%	71.2%	108.3%	51.5%	30.4%	35.7%	36.7%
Info Tech	40.5%	45.1%	37.0%	14.5%	7.2%	5.7%	6.4%	12.7%
Materials	56.9%	133.4%	86.5%	60.6%	38.8%	3.9%	(2.8%)	(12.1%)
Communication Services	52.8%	72.0%	39.8%	9.1%	(0.1%)	0.3%	5.8%	18.3%
Utilities	1.0%	16.2%	8.4%	2.3%	12.0%	(9.7%)	1.8%	15.2%
REITS	5.6%	30.3%	25.7%	17.3%	9.4%	4.2%	7.0%	10.3%

EARNINGS EXPECTATIONS HAVE RISEN 23% THIS YEAR

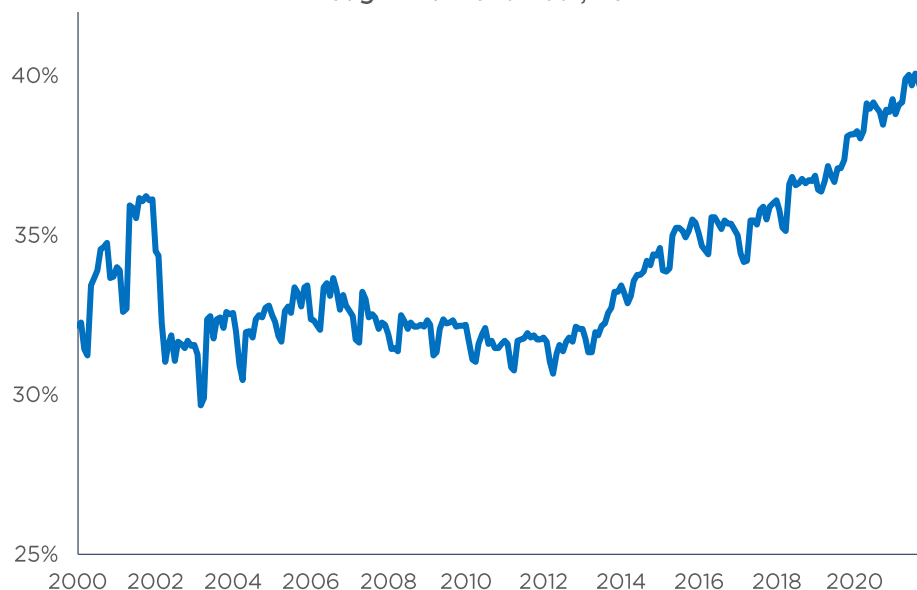
The bottom-up median analyst earnings expectations have sharply risen all year. Since the end of 2020, 2021 estimated EPS is up 23.2% (from \$167.68 to \$206.58) and 2022 estimated EPS is up 11.1% (from \$199.80 to \$222.03). It is unusual for actual earnings estimates at the end of year to exceed the 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



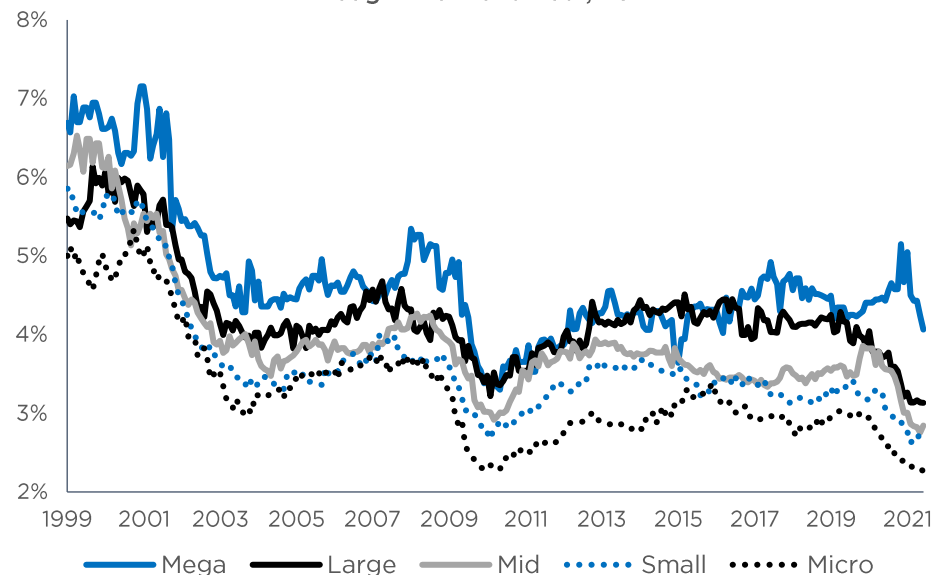
INVENTORY AND CAPITAL SPENDING ARE NOT BURDENS TO PROFITS

We are not believers that margins for US companies will mean-revert to some long-term average. Overall inventory is less of a risk than it was in the past, because now approximately 40% of the top 3000 US equities do not even have inventory as part of their business model. 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 area of manufacturing today. Therefore, an inventory burn off or backlog cancellation seems highly unlikely to impede margin expectations for the coming couple of quarters. 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. In the end, management hubris that caused cycle tops previously seems less likely when inventory and capital spending are under control.

% of Top 3000 US Companies
That Have Zero Inventory Dollars
Through End-November, 2021

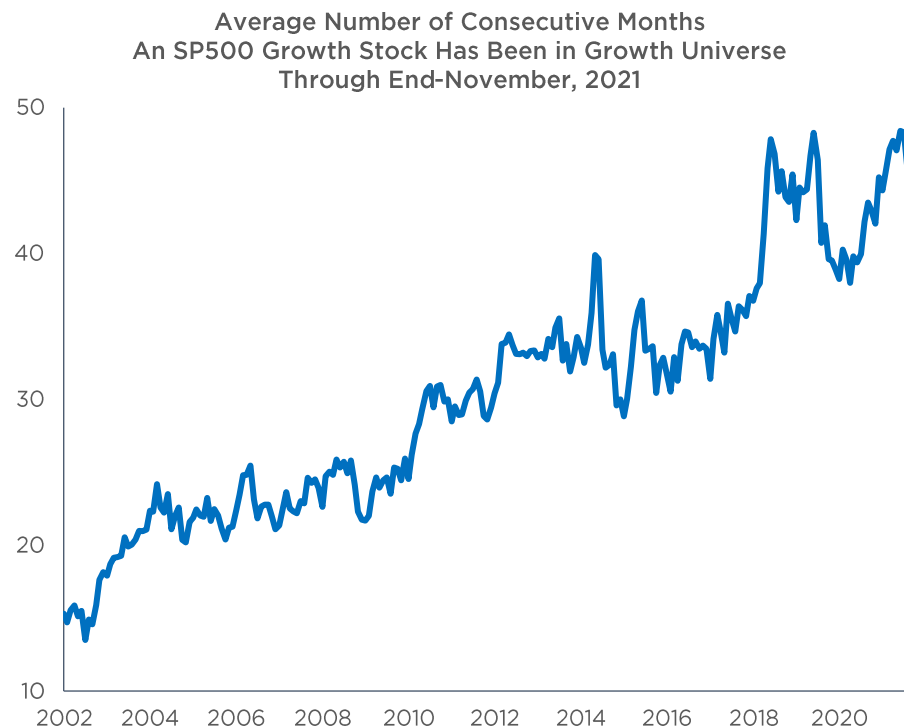
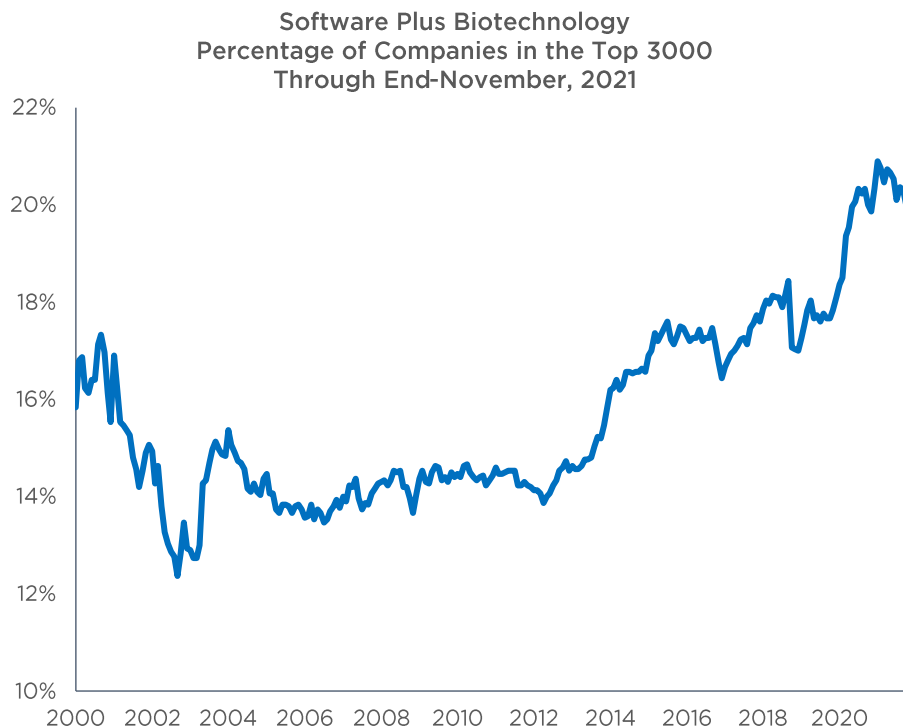


Capital Spending to Sales
By Market Cap Group
Through End-November, 2021



IS VALUATION DEFENSIBLE? CONSTITUENTS HAVE SHIFTED

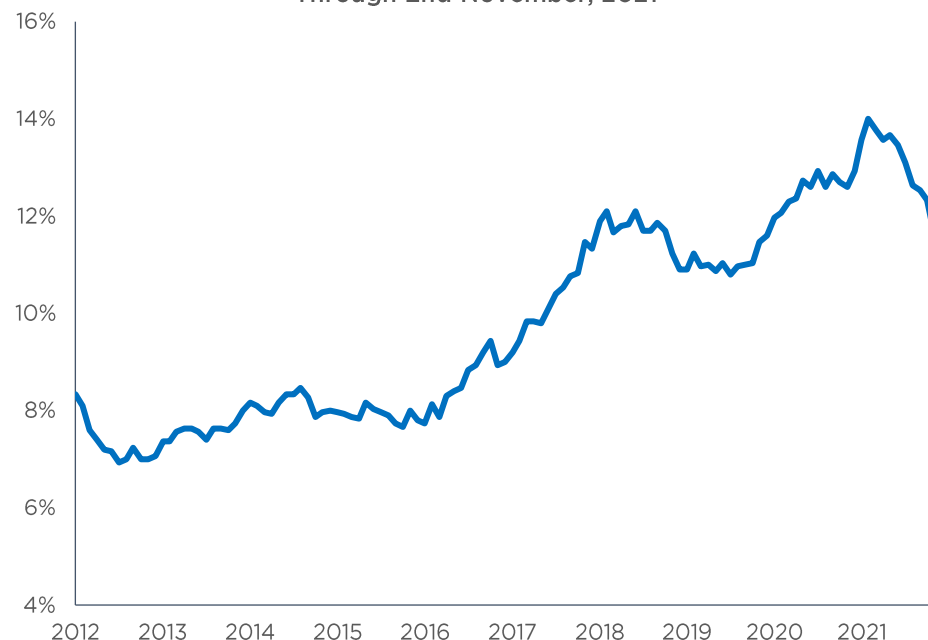
Roughly twenty percent, or 600 of the biggest 3000 public US equities are currently in the Software & Services or Pharmaceuticals, Biotechnology, and Life Sciences industries. That is nearly twice the number we had 20 years ago! Investors are buying long-dated potential growth, not current profitability (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.



CURRENT PROFITS DO NOT MATTER FOR GROWTH INDUSTRIES

Investors in hyper growth stocks do not seem to care that much about current profitability, because more than 12% of the largest 3000 companies by market capitalization have lost money on an annual basis every quarter for the past two years (left chart). In industries like software, over 40% of the companies that have more than \$500 million in annual trailing revenue still lose money (right chart). Investors clearly are not concerned focused on current profitability and will pay in an increasingly anticipatory fashion for growth if they believe it will be sustained or recurring for longer in the future.

Percentage of Top 3000 Companies
That Have Lost Money Annually For 24 Consecutive Months
Through End-November, 2021

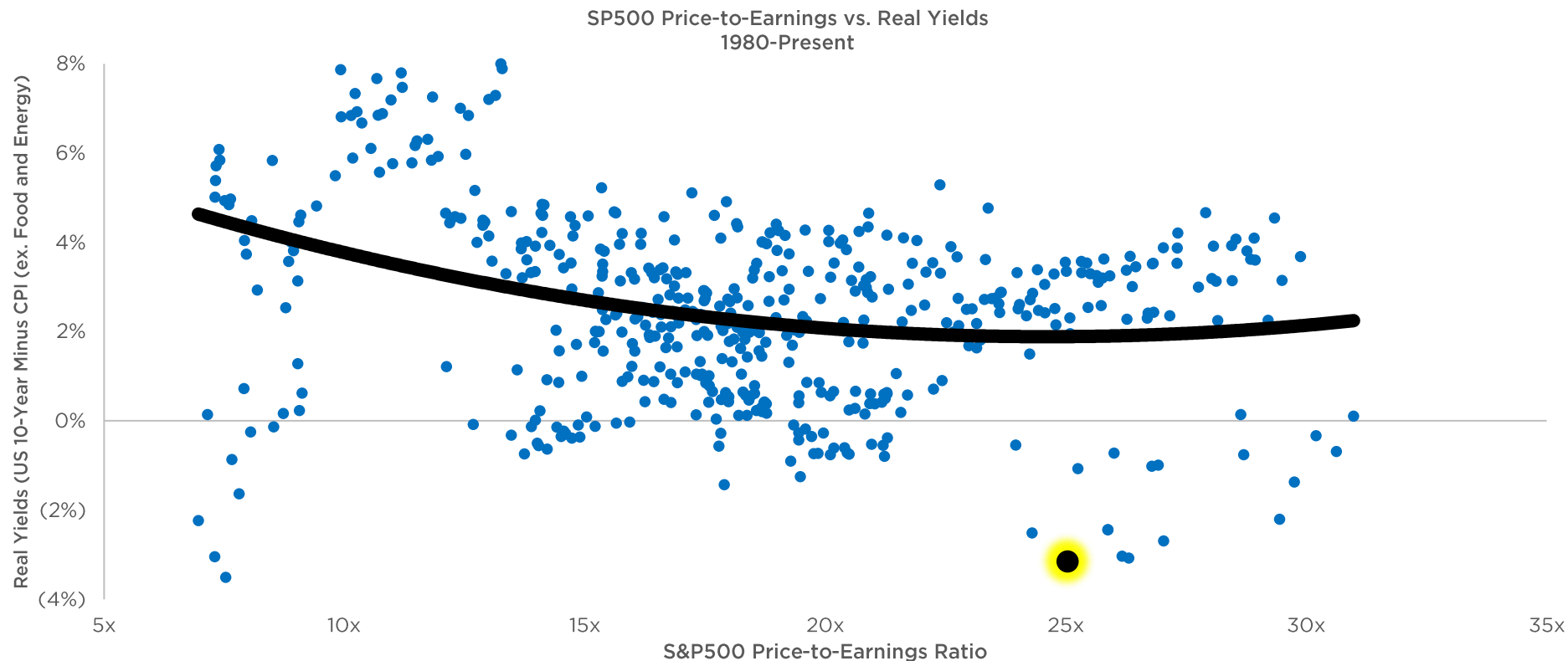


Percentage of Software Companies with Greater than
\$500m in Revenue that Lose Money
Through End-November, 2021



THE PRIMARY REASON FOR HIGHER MULTIPLES IS LOW REAL YIELDS

The interest rate environment is an important metric for assessing an appropriate price-to-earnings ratio. Historically extreme real yields were accompanied by lower multiples because they were considered risk regimes. Today (highlighted below), the nominal level of yields seems to matter –i.e. our long-term assumptions of 3% total yield (dividend plus repurchase) and ‘call option’ on earnings growth make the market look much more attractive than the yield of government bonds.



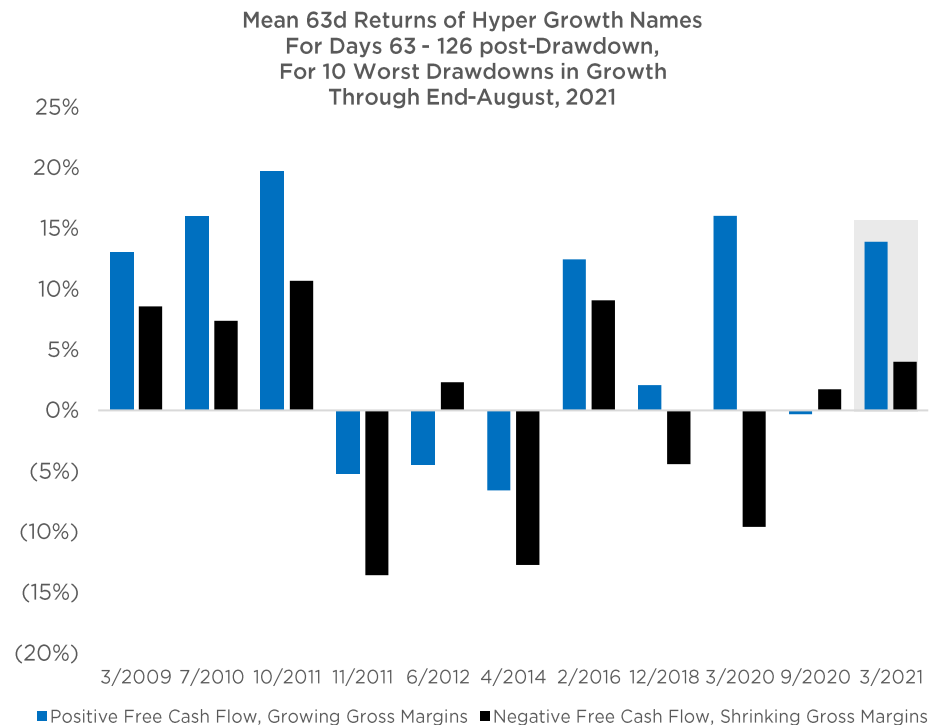
SUMMARY OF VIEWS ON GROWTH STOCKS

- 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.
- 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 nearly 25% faster than its average over the next year, but its sales multiple is nearly half its long-term average, as oil prices recover. Software is expected to grow 4% faster than average but is nearly 32% 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. Stock ideas are shown on page 17.
- Attributes associated with identifying “melting ice cubes” are different – what matters is accruals and prior weak stock performance relative to peers. Stocks to avoid are shown.
- New CEOs for expensive growth stocks can underperform.

AFTER THE GROWTH SELL OFF USE MARGINS AND POSITIVE FCF

The sharp growth stock sell-off starting in mid-February may be over, but clearly is still the source of apprehension, particularly given the starting valuation levels prior to the sell-off were the most extreme since the financial crisis. On an absolute basis it was only the 11th worst drawdown (left chart), but relative to the SP500 the drawdown lasted until May 13th and was the WORST index-relative growth-stock drawdown since the financial crisis. So far this year those stocks with positive free cash flow and growing margins have beat the opposite by nearly 10%, showing the historical trend continued (right chart).

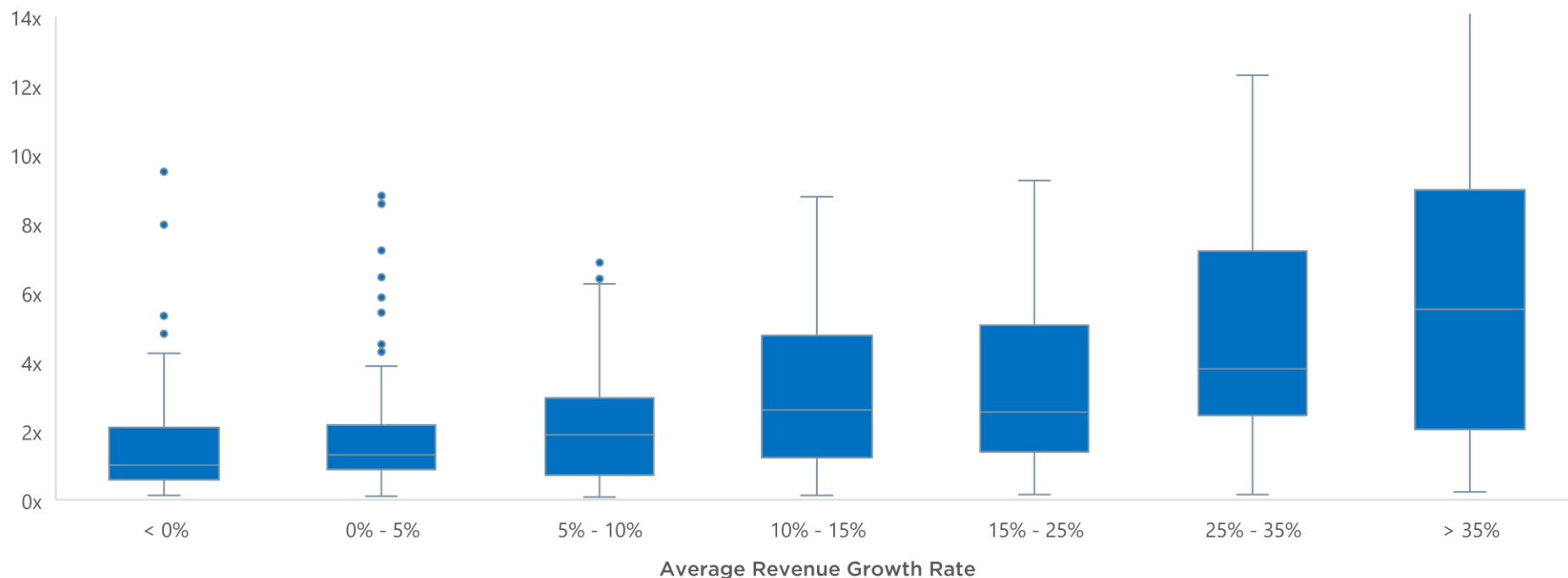
Date		Days of Drawdown	Drawdown		Prior 12-Month Momentum	Growth : Market Price-to-Sales Multiple
Starting	Ending		Absolute	Relative		
2/20/2020	3/23/2020	23	(30.4%)	3.4%	(8.1%)	1.7x
10/14/2008	3/9/2009	100	(30.2%)	1.5%	(30.2%)	1.7x
10/2/2018	12/24/2018	58	(24.2%)	(5.0%)	(0.5%)	1.8x
7/25/2011	10/3/2011	50	(21.4%)	(3.5%)	2.5%	2.1x
7/21/2015	2/8/2016	140	(17.9%)	(6.0%)	(2.7%)	1.7x
4/26/2010	7/2/2010	49	(17.3%)	(1.7%)	20.7%	1.7x
4/4/2012	6/1/2012	41	(12.4%)	(3.2%)	(3.8%)	1.9x
9/3/2020	9/23/2020	14	(11.5%)	(1.9%)	39.1%	2.3x
3/6/2014	4/11/2014	27	(11.0%)	(8.1%)	21.7%	1.8x
11/9/2011	11/25/2011	12	(10.6%)	(1.5%)	(5.2%)	2.1x
2/16/2021	3/8/2021	15	(10.4%)	(2.8%)	35.5%	2.1x



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-November, 2021



LONG / SHORT GROWTH STOCK IDEAS

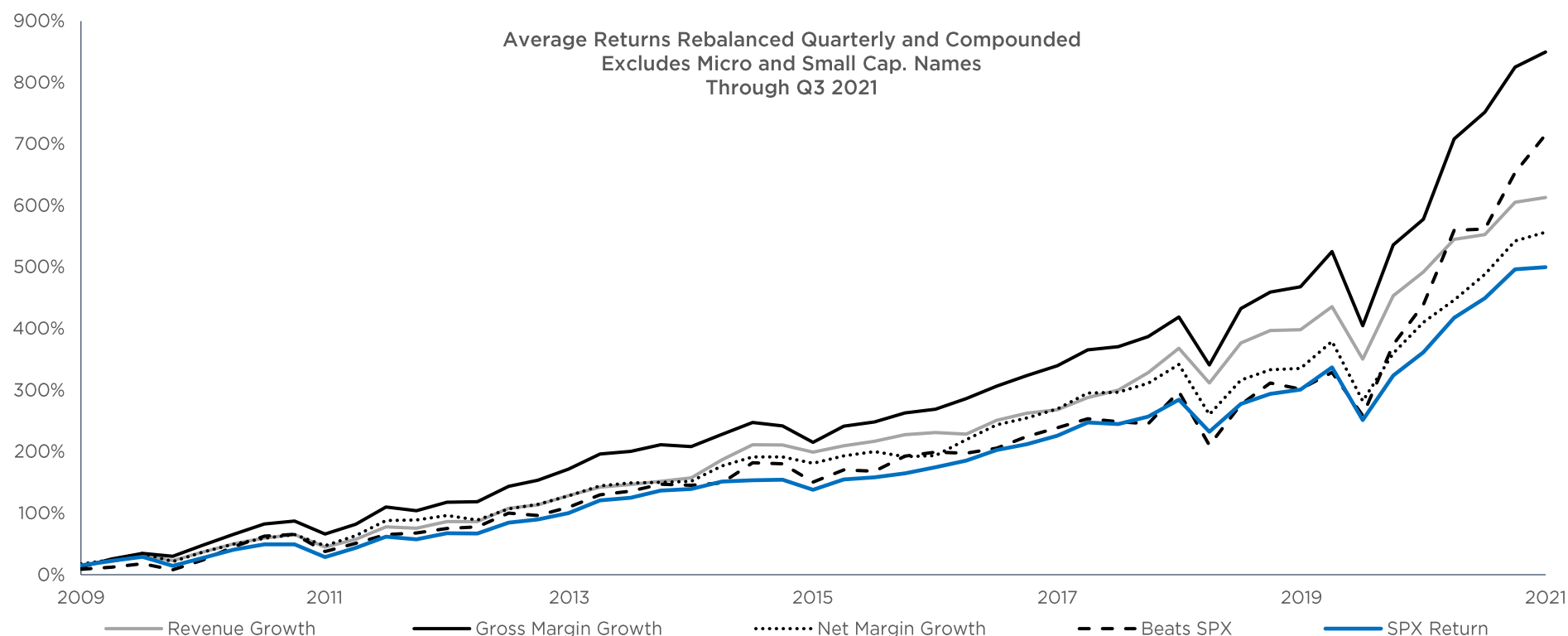
Current ideas where revenue growth is forecasted to accelerate but relative multiples are low (left) and where growth is forecasted to slow but multiples are high (right).

Buy Cheap Relative to Bucket or Moving to Higher Revenue Bucket, Short Expensive Relative to Bucket or Moving to Lower Revenue Bucket
End-November, 2021

Long				Short			
Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)	Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
COST	Costco Wholesale Corporation	Food & Staples Retailing	238.31	NVDA	NVIDIA Corporation	Semis & Semi Equipment	816.90
TGT	Target Corporation	Retailing	116.83	MA	Mastercard Incorporated	Software & Services	309.43
ANTM	Anthem, Inc.	Health Care Equip. & Serv.	98.60	ABT	Abbott Laboratories	Health Care Equip. & Serv.	222.40
HUM	Humana Inc.	Health Care Equip. & Serv.	53.95	TGT	Target Corporation	Retailing	116.83
MAR	Marriott International, Inc.	Consumer Services	48.06	ISRG	Intuitive Surgical, Inc.	Health Care Equip. & Serv.	115.87
PXD	Pioneer Natural Resources Company	Energy	43.53	BDX	Becton, Dickinson and Company	Health Care Equip. & Serv.	67.35
CNC	Centene Corporation	Health Care Equip. & Serv.	41.67	NET	Cloudflare, Inc.	Software & Services	60.57
MCK	McKesson Corporation	Health Care Equip. & Serv.	33.10	PSA	Public Storage	Real Estate	57.41
BBY	Best Buy Co., Inc.	Retailing	26.28	XLNX	Xilinx, Inc.	Semis & Semi Equipment	56.63
LUV	Southwest Airlines Co.	Transportation	26.28	ZS	Zscaler, Inc.	Software & Services	48.14
W	Wayfair Inc.	Retailing	25.91	NEM	Newmont Corporation	Materials	43.88
DAL	Delta Air Lines, Inc.	Transportation	23.09	HUBS	HubSpot, Inc.	Software & Services	38.13
CCL	Carnival Corporation & plc	Consumer Services	19.65	AVB	AvalonBay Communities, Inc.	Real Estate	33.32
AMC	AMC Entertainment Holdings, Inc.	Media & Entertainment	17.44	VRSN	VeriSign, Inc.	Software & Services	26.65
MOH	Molina Healthcare, Inc.	Health Care Equip. & Serv.	16.65	BBY	Best Buy Co., Inc.	Retailing	26.28
WAB	Westinghouse Air Brake Technologies Corporation	Capital Goods	16.58	IR	Ingersoll Rand Inc.	Capital Goods	23.78
CTRA	Coterra Energy Inc.	Energy	16.34	MAA	Mid-America Apartment Communities, Inc.	Real Estate	23.75
UAL	United Airlines Holdings, Inc.	Transportation	13.68	CLX	The Clorox Company	House. & Personal Products	20.01
CAH	Cardinal Health, Inc.	Health Care Equip. & Serv.	13.03	PODD	Insulet Corporation	Health Care Equip. & Serv.	19.89
JLL	Jones Lang LaSalle Incorporated	Real Estate	11.86	BBWI	Bath & Body Works, Inc.	Retailing	19.86
TRGP	Targa Resources Corp.	Energy	11.82	SSNC	SS&C Technologies Holdings, Inc.	Software & Services	19.41
AAL	American Airlines Group Inc.	Transportation	11.45	HOLX	Hologic, Inc.	Health Care Equip. & Serv.	18.79
HST	Host Hotels & Resorts, Inc.	Real Estate	11.21	CPT	Camden Property Trust	Real Estate	16.88

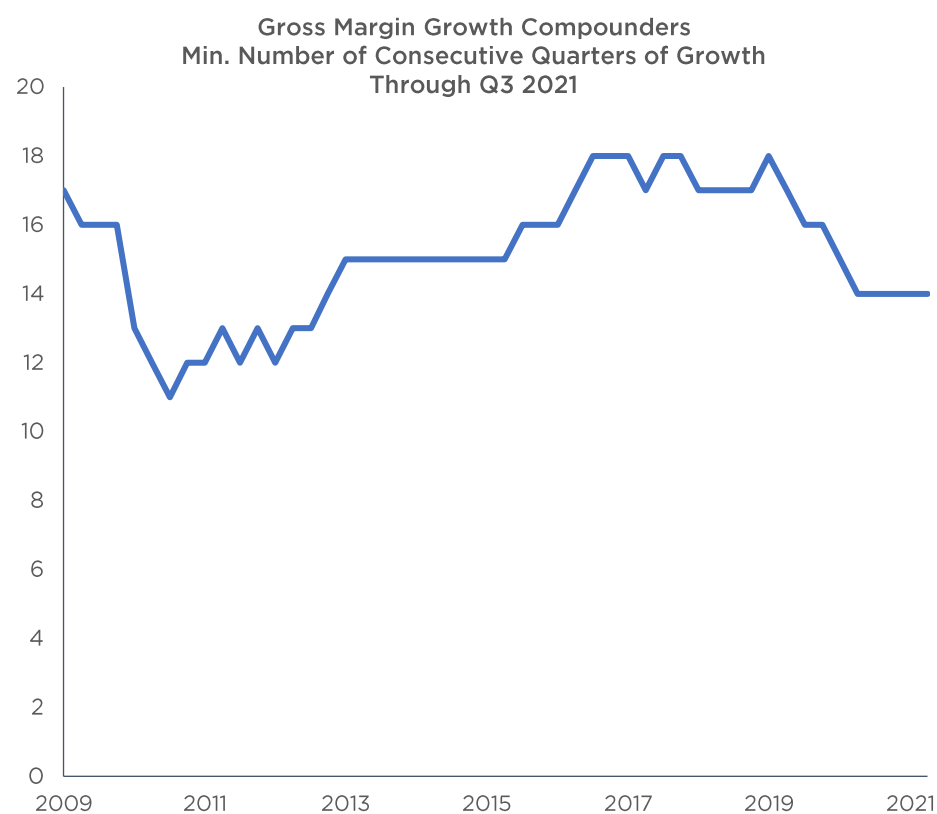
BUY CONSISTENT GROSS MARGIN EXPANDERS

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 14 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 NFLX, AVGO, and AMD (right chart) among others.



Gross Margin Growth Compounds
And Forecasted Gross Margin Growth Q3 2021

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
NFLX	Netflix, Inc.	Entertainment	270.13
AVGO	Broadcom Inc.	Semis & Semi. Equip.	199.61
AMD	Advanced Micro Devices, Inc.	Semis & Semi. Equip.	124.81
MO	Altria Group, Inc.	Tobacco	83.94
ADSK	Autodesk, Inc.	Software	62.69
ATVI	Activision Blizzard, Inc.	Entertainment	60.19
MSCI	MSCI Inc.	Capital Markets	50.15
FTNT	Fortinet, Inc.	Software	47.70
CVNA	Carvana Co.	Specialty Retail	25.48
STE	STERIS plc	Health Care Equip. & Supplies	20.38
QRVO	Qorvo, Inc.	Semis & Semi. Equip.	18.58
GPC	Genuine Parts Company	Distributors	17.36
RH	RH	Specialty Retail	14.03
NTRA	Natera, Inc.	Biotechnology	10.45
HRC	Hill-Rom Holdings, Inc.	Health Care Equip. & Supplies	9.87
RL	Ralph Lauren Corporation	Textiles, Apparel & Luxury Goods	8.16
NTNX	Nutanix, Inc.	Software	8.08
BRKS	Brooks Automation, Inc.	Semis & Semi. Equip.	7.49

WHAT IS A MELTING ICE CUBE?

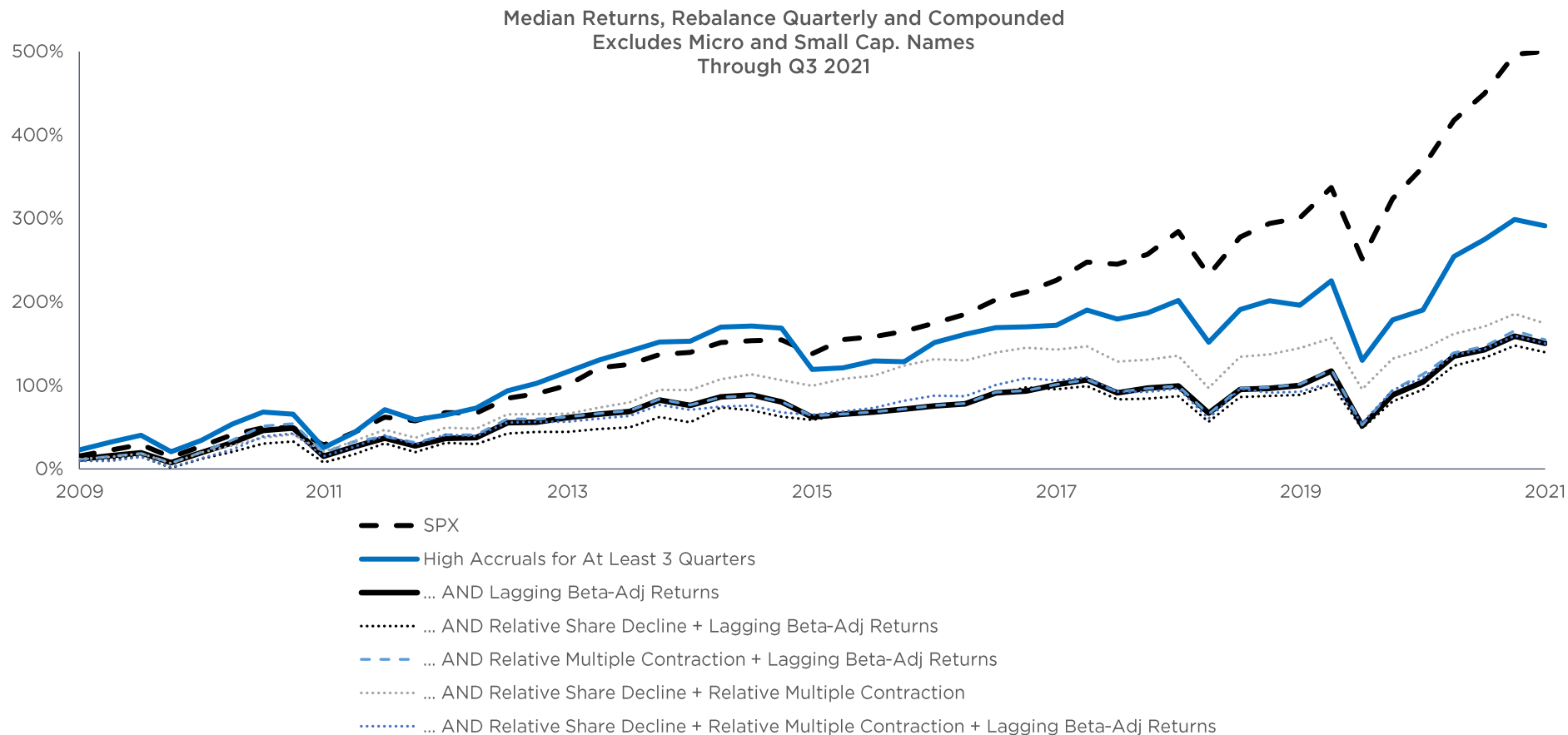
Accruals and price momentum are best: Our analysis clearly shows that these two variables identify relative underperformers far better than the others. This works confirms some work we had done years ago on short-selling, and while the result is not surprising to us, we found many in the past who were 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 11/30

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
PLD	Prologis, Inc.	Real Estate	106.45
MU	Micron Technology, Inc.	Semis & Semi Equipment	75.52
WBA	Walgreens Boots Alliance, Inc.	Food & Staples Retailing	42.42
COO	The Cooper Companies, Inc.	Health Care Equip. & Services	20.56
LII	Lennox International Inc.	Capital Goods	11.60
FIVE	Five Below, Inc.	Retailing	10.80
REXR	Rexford Industrial Realty, Inc.	Real Estate	9.90
FR	First Industrial Realty Trust, Inc.	Real Estate	7.53
CASY	Casey's General Stores, Inc.	Food & Staples Retailing	7.12
THO	Thor Industries, Inc.	Automobiles & Components	5.76

NOT ALL NEW CEOS ARE GOOD

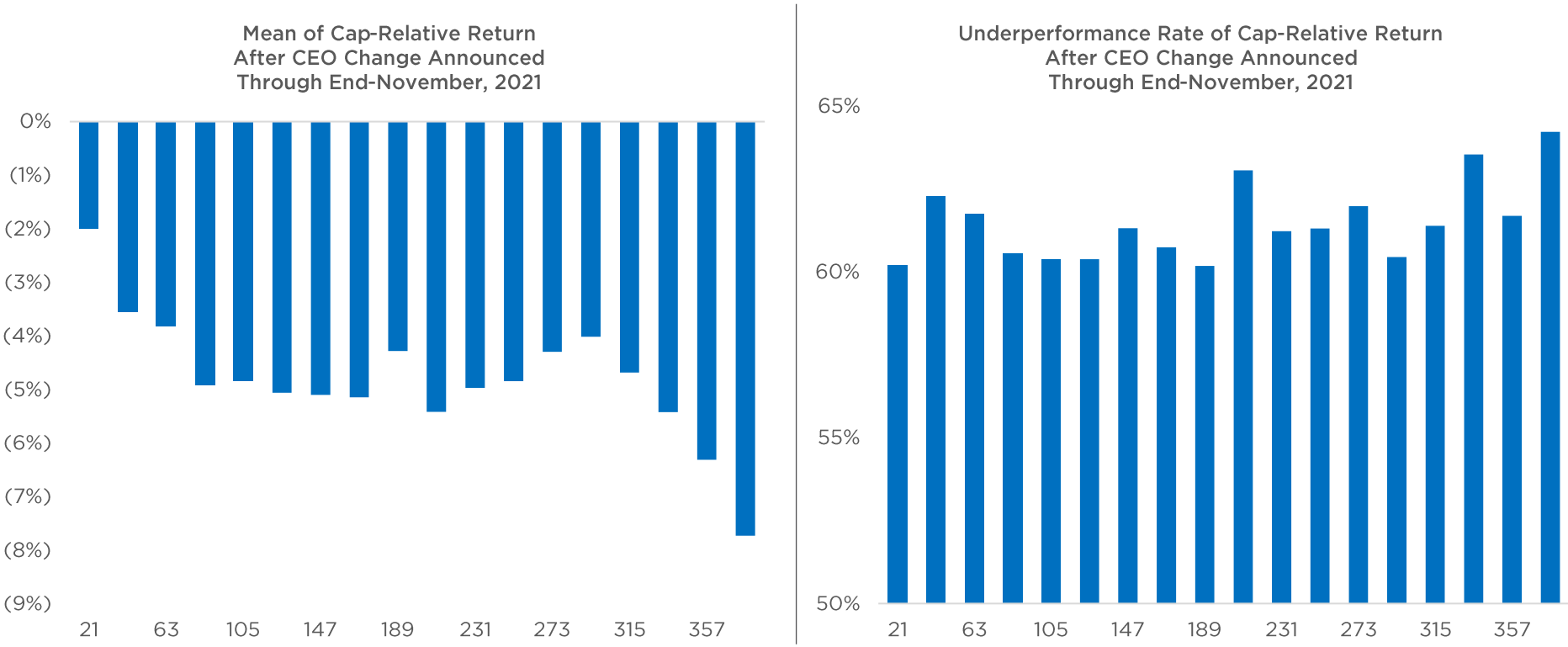
We analyzed stock behavior following the announcements of new CEOs. Stocks making new CEO announcements underperform on a volatility-adjusted basis, meaning short of some deep understanding of the new CEO's strategy, exiting / shorting stocks with a new CEO is on average prudent. The cumulative performance 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 THIS 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. HUBS, CNK, and PUMP are notable exceptions, but 20 of 27 have lagged their peer group since the announcement, with 16 stocks down double-digits.

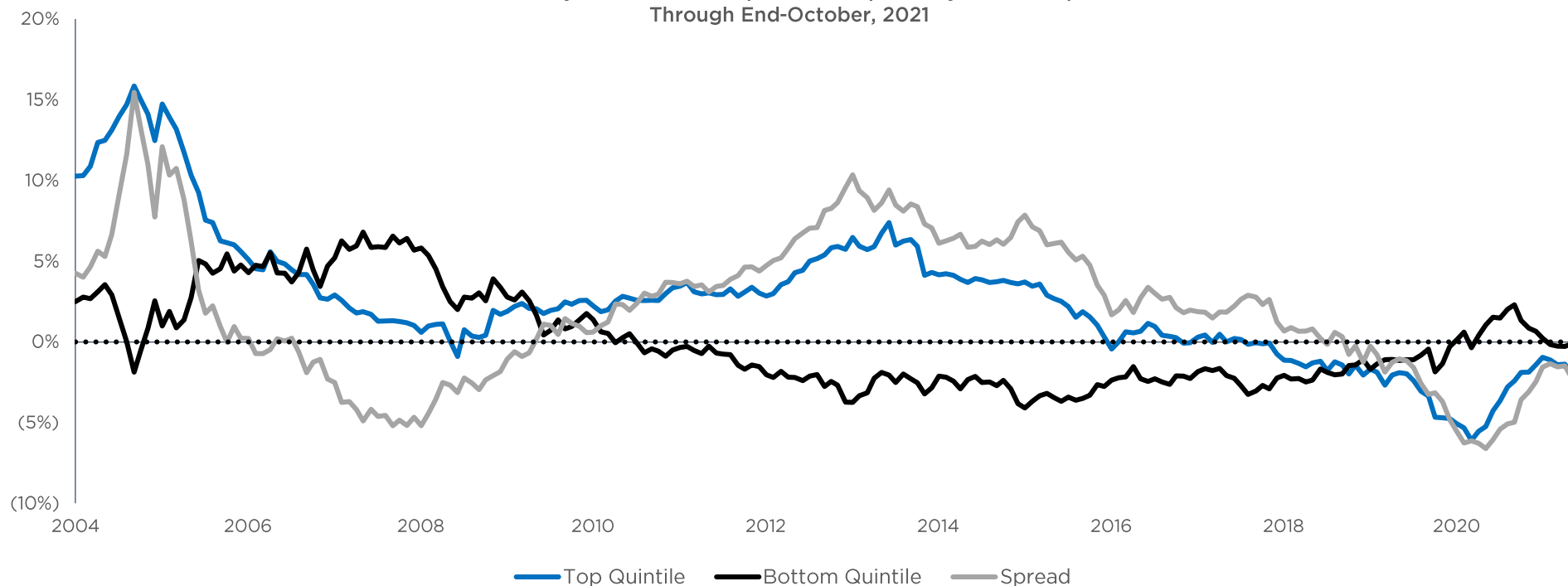
Performance After CEO Change Announced
Expensive Growth Stocks
Through End-November, 2021

Ticker	Company Name	Industry	Date Announced	Return	Cap-Relative Return	Market Cap (\$ US. Bil)
AMZN	Amazon.com, Inc.	Internet & Direct Marketing Retail	2/3/2021	4.1%	(13.2%)	1608.71
SNPS	Synopsys, Inc.	Software	9/14/2021	(7.6%)	(9.5%)	50.67
MAR	Marriott International, Inc.	Hotels, Restaurants & Leisure	2/23/2021	6.5%	(6.2%)	37.72
LUV	Southwest Airlines Co.	Airlines	6/25/2021	(8.8%)	(11.9%)	36.35
HUBS	HubSpot, Inc.	Software	3/1/2021	52.5%	43.4%	23.86
GH	Guardant Health, Inc.	Health Care Providers & Services	8/6/2021	(12.8%)	(15.5%)	11.10
ANGI	Angi Inc.	Interactive Media & Services	2/25/2021	(17.4%)	(28.3%)	6.99
LMND	Lemonade, Inc.	Insurance	7/26/2021	(23.8%)	(27.0%)	6.72
NEO	NeoGenomics, Inc.	Life Sciences Tools & Services	3/2/2021	(15.4%)	(25.6%)	5.96
SFIX	Stitch Fix, Inc.	Internet & Direct Marketing Retail	4/14/2021	(29.0%)	(31.9%)	5.27
SEAS	SeaWorld Entertainment, Inc.	Hotels, Restaurants & Leisure	5/6/2021	12.4%	9.6%	4.33
NEWR	New Relic, Inc.	Software	5/14/2021	23.5%	19.9%	4.06
JJSF	J & J Snack Foods Corp.	Food Products	5/14/2021	(13.1%)	(16.7%)	3.13
CNK	Cinemark Holdings, Inc.	Entertainment	7/29/2021	30.9%	29.3%	2.57
IRTC	iRhythm Technologies, Inc.	Health Care Equipment & Supplies	6/2/2021	11.8%	11.8%	2.21
WKHS	Workhorse Group Inc.	Automobiles	7/29/2021	(45.7%)	(47.3%)	2.04
VLDR	Velodyne Lidar, Inc.	Electronic Equipment, Instruments & Components	7/19/2021	(29.3%)	(36.4%)	2.02
KIDS	OrthoPediatics Corp.	Health Care Equipment & Supplies	5/6/2021	(0.6%)	(1.4%)	1.15
BJRI	BJ's Restaurants, Inc.	Hotels, Restaurants & Leisure	7/7/2021	(19.8%)	(19.3%)	1.14
RIDE	Lordstown Motors Corp.	Automobiles	8/26/2021	(24.3%)	(26.7%)	1.10
LIND	Lindblad Expeditions Holdings, Inc.	Hotels, Restaurants & Leisure	3/30/2021	(22.6%)	(25.4%)	1.04
OTRK	Ontrak, Inc.	Health Care Providers & Services	3/16/2021	(75.4%)	(71.7%)	1.03
INGN	Inogen, Inc.	Health Care Equipment & Supplies	1/27/2021	(15.9%)	(30.3%)	0.99
SIBN	SI-BONE, Inc.	Health Care Equipment & Supplies	1/7/2021	(25.2%)	(39.7%)	0.97
PUMP	ProPetro Holding Corp.	Energy Equipment & Services	7/29/2021	30.8%	30.0%	0.94
OSPN	OneSpan Inc.	Software	9/2/2021	7.4%	9.3%	0.77
LLNW	Limelight Networks, Inc.	IT Services	1/21/2021	(40.3%)	(58.2%)	0.49

DO STOCK BUYBACKS DRIVE SHAREHOLDER VALUE? ANSWER: NO

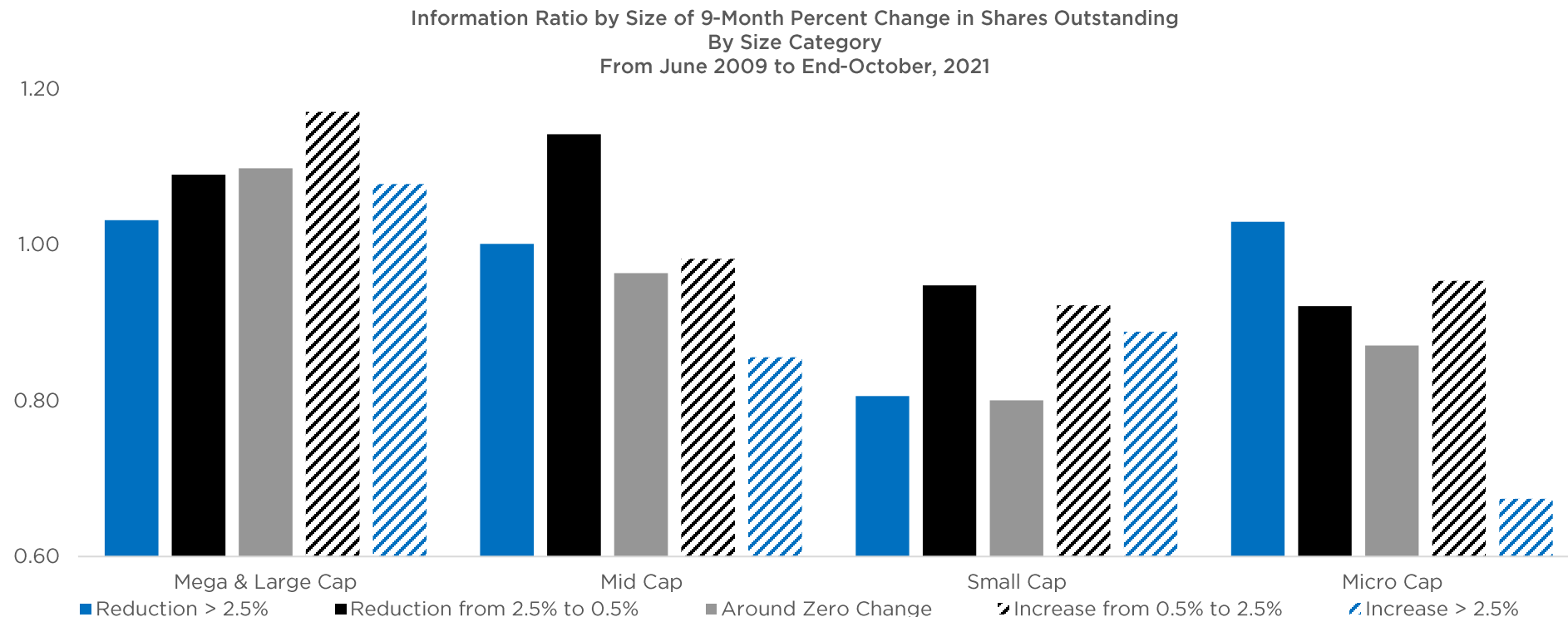
We evaluated the relative performance of SP500 companies in the top quintile of buyback yield (blue line) and bottom quintile of buyback yield (net diluters, black line) over the past 20 years. Buybacks had been an effective use of capital prior the Financial Crisis. However, since then, the performance 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.

Rolling 5-Year CAGR of Monthly Beta-Adjusted Returns
Net Buyback Yield for Top 500 US Equities by Market Cap.
Through End-October, 2021



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 inferior 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, NRG, and ATUS. 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 JPM, MDLZ, COF, and AZO

**Names that Bought Back 10% or More of Shares & Underperformed
2019 to End-November, 2021**

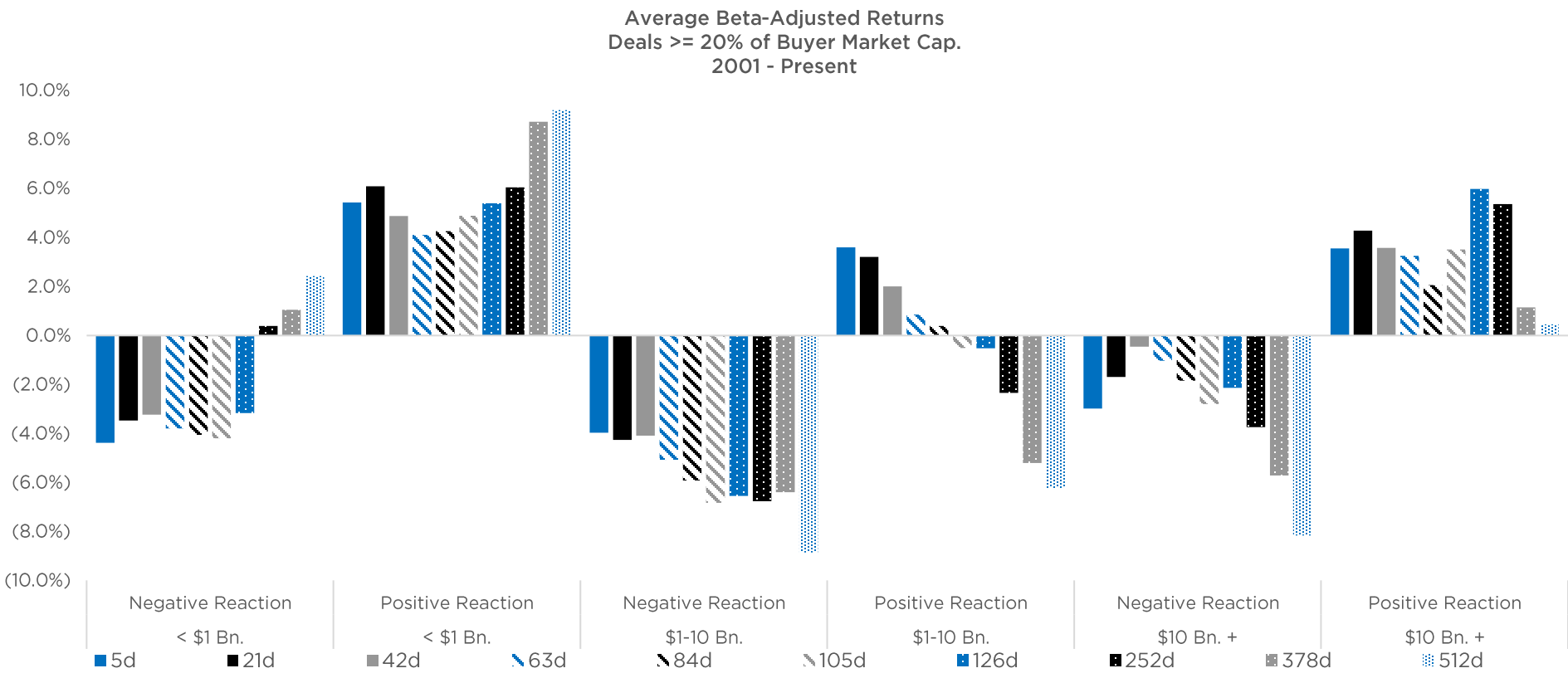
Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
BIIB	Biogen Inc.	Pharma Biotech	34.63
NRG	NRG Energy, Inc.	Utilities	8.82
ATUS	Altice USA, Inc.	Media & Entertainment	7.20
HLF	Herbalife Nutrition Ltd.	Household & Personal Prod.	3.82
ALSN	Allison Transmission Holdings	Capital Goods	3.61
LOPE	Grand Canyon Education, Inc.	Consumer Services	2.87
YELP	Yelp Inc.	Media & Entertainment	2.50
SATS	EchoStar Corporation	Telecommunication Services	2.37
MOG.A	Moog Inc.	Capital Goods	2.23
NUS	Nu Skin Enterprises, Inc.	Household & Personal Prod.	2.19
CMPR	Cimpress plc	Commercial & Prof. Services	2.03
USNA	USANA Health Sciences, Inc.	Household & Personal Prod.	1.94
SBGI	Sinclair Broadcast Group, Inc.	Media & Entertainment	1.76
AMCX	AMC Networks Inc.	Media & Entertainment	1.63
ARCH	Arch Resources, Inc.	Energy	1.19
INVA	Innoviva, Inc.	Pharma Biotech	1.16
EIG	Employers Holdings, Inc.	Insurance	1.08
DBI	Designer Brands Inc.	Retailing	1.00

**Mega or Large Cap High Quality Value Names
That Bought Back 1% or More Shares
End-November, 2021**

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
JPM	JPMorgan Chase & Co.	Banks	469.38
MDLZ	Mondelez International, Inc.	Food, Beverage & Tobacco	82.22
COF	Capital One Financial Corporation	Diversified Financials	59.81
AZO	AutoZone, Inc.	Retailing	38.10
TRV	The Travelers Companies, Inc.	Insurance	36.15
YUM	Yum! Brands, Inc.	Consumer Services	36.01
OTIS	Otis Worldwide Corporation	Capital Goods	34.15

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. >= \$500 mm.
November 16, 2021

Ticker	Company	Industry Group	Target Company	Announcement Date	Beta-Adjusted Return	Market Cap. (US\$ Bil.)
DVN	Devon Energy Corporation	Energy	WPX Energy, Inc.	9/28/2020	317.6%	28.90
APO	Apollo Global Management, Inc.	Diversified Financials	Great Canadian Gaming Corporation	11/10/2020	39.5%	17.69
ALLY	Ally Financial Inc.	Diversified Financials	CardWorks, Inc.	2/18/2020	18.0%	16.76
KIM	Kimco Realty Corporation	Real Estate	Weingarten Realty Investors	4/15/2021	7.3%	14.33
CIVI	Civitas Resources, Inc.	Energy	Extraction Oil & Gas, Inc.	5/10/2021	18.3%	4.29
CYRX	Cryoport, Inc.	Pharma Biotech	MVE Biological Solutions	8/25/2020	29.4%	3.29
ARCB	ArcBest Corporation	Transportation	MoLo Solutions, LLC	9/29/2021	32.1%	2.70
CODI	Compass Diversified	Diversified Financials	Marucci Sports	3/9/2020	42.6%	1.99
MGPI	MGP Ingredients, Inc.	Food, Beverage & Tobacco	Luxco, Inc.	1/25/2021	15.1%	1.61

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)
November 16, 2021

Ticker	Company	Industry Group	Target Company	Announcement Date	Beta-Adjusted Return	Market Cap. (US\$ Bil.)
SNX	TD SYNEX Corporation	Tech. Hardware & Equip.	Tech Data Corporation from Apollo Global Management, Inc.	3/22/2021	(19.1%)	10.34
PFGC	Performance Food Group Company	Food & Staples Retailing	Core-Mark Holding Company, Inc.	5/18/2021	(24.8%)	6.54
NFE	New Fortress Energy Inc.	Energy	Hygo Energy Transition Ltd	1/13/2021	(77.2%)	5.20
SAIC	Science Applications International Corporation	Software & Services	Unisys Federal from Unisys Corporation	2/6/2020	(47.8%)	5.01
ETRN	Equitrans Midstream Corporation	Energy	EQM Midstream Partners, LP	2/27/2020	(0.9%)	4.45
AHCO	AdaptHealth Corp.	Health Care Equip. & Serv.	AeroCare Holdings, Inc.	12/1/2020	(66.3%)	2.86
INDB	Independent Bank Corp.	Banks	Meridian Bancorp, Inc.	4/22/2021	(7.4%)	2.70
FTAI	Fortress Transportation and Infrastructure Investors LLC	Capital Goods	Transtar LLC	6/8/2021	(30.8%)	2.32
MSGE	Madison Square Garden Entertainment Corp.	Media & Entertainment	MSG Networks Inc.	3/26/2021	(37.5%)	2.29
DM	Desktop Metal, Inc.	Capital Goods	The ExOne Company	8/11/2021	(30.1%)	2.04
GTN	Gray Television, Inc.	Media & Entertainment	Quincy Media, Inc.	2/1/2021	(5.7%)	1.99
TWOU	2U, Inc.	Consumer Services	edX Inc.	6/29/2021	(48.9%)	1.86
BLFS	BioLife Solutions, Inc.	Health Care Equip. & Serv.	Global Cooling, Inc.	3/22/2021	(11.0%)	1.71
ATGE	Adtalem Global Education Inc.	Consumer Services	Walden e-Learning, Inc.	9/11/2020	(34.4%)	1.53
KALU	Kaiser Aluminum Corporation	Materials	Alcoa Warrick LLC	11/30/2020	(2.8%)	1.51
PRIM	Primoris Services Corporation	Capital Goods	Future Infrastructure Holdings, LLC	12/14/2020	(38.2%)	1.29
PRA	ProAssurance Corporation	Insurance	NORCAL Mutual Insurance Company	2/20/2020	(64.7%)	1.29
NCBS	Nicolet Bankshares, Inc.	Banks	Mackinac Financial Corporation	4/12/2021	(28.2%)	0.85
GLT	Glatfelter Corporation	Materials	Georgia-Pacific Mt. Holly LLC	1/6/2021	(28.8%)	0.77
SPNE	SeaSpine Holdings Corporation	Health Care Equip. & Serv.	7D Surgical, Inc.	3/22/2021	(44.1%)	0.49

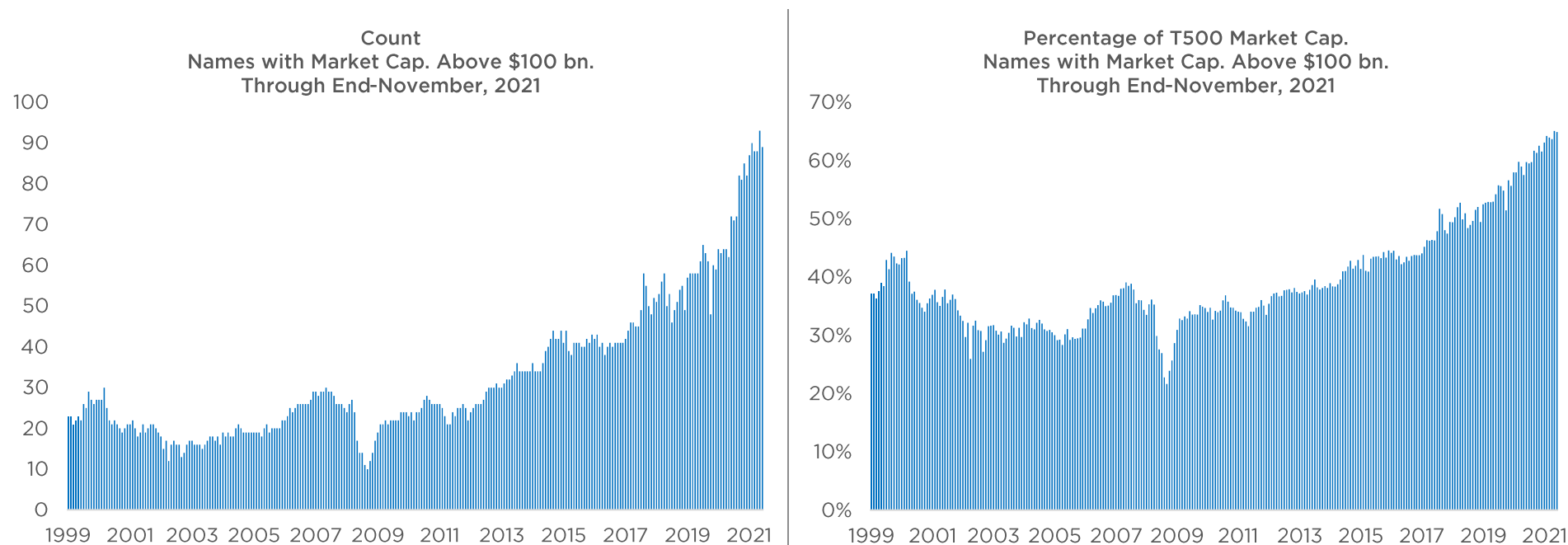
THE \$100 BILLION MARKET CAPITALIZATION CLUB – THE NIFTY NINETY

There are now 93 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. Stocks are shown here.

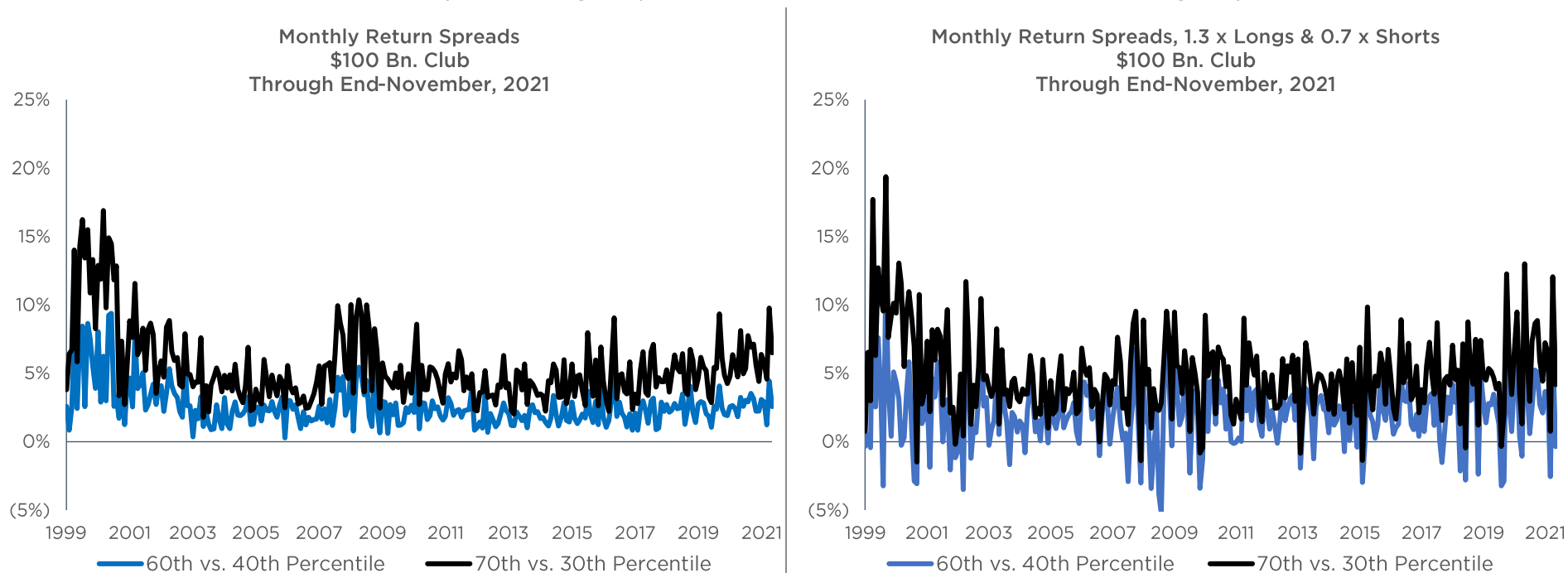
THE NUMBER OF STOCKS THAT ARE \$100 BILLION CAP. HAS GROWN

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 about 90 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

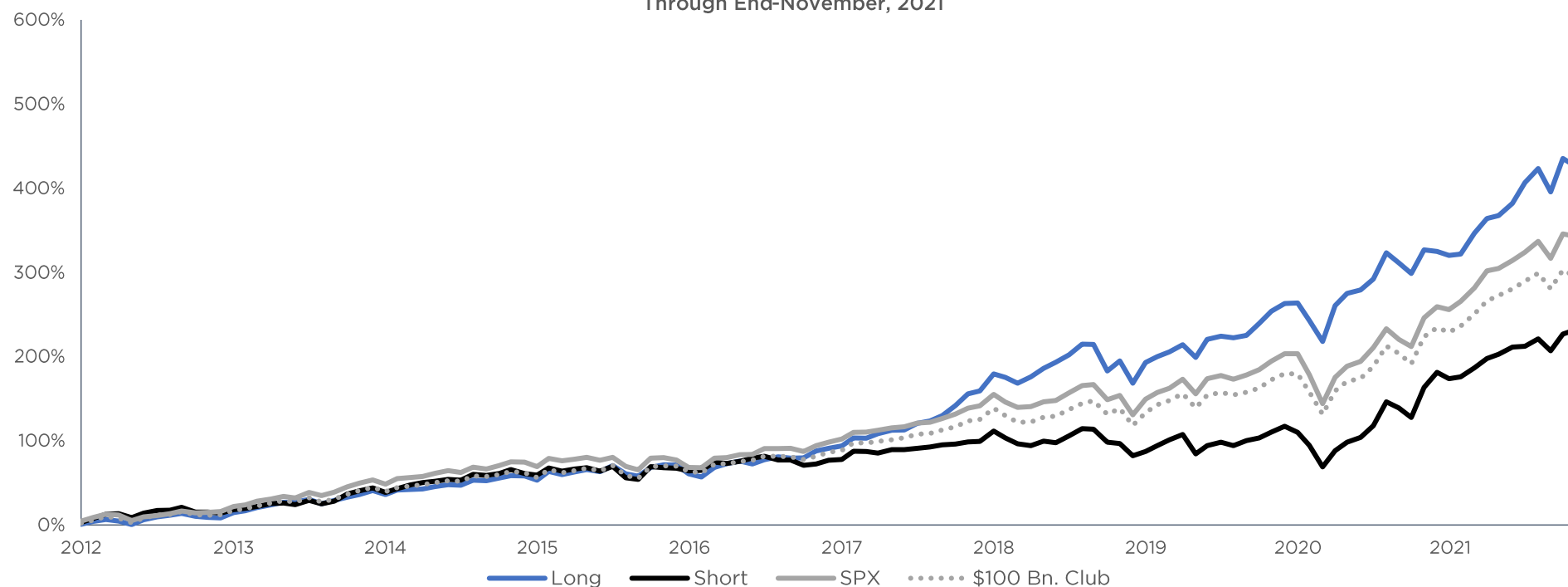
While conventional wisdom might say it is very difficult to generate alpha for mega cap stocks because they are well understood and covered, we wanted to dimension the potential alpha for this group before providing a time-saving, and alpha-generative framework for them. Below we show the annual performance 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 5.4% 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

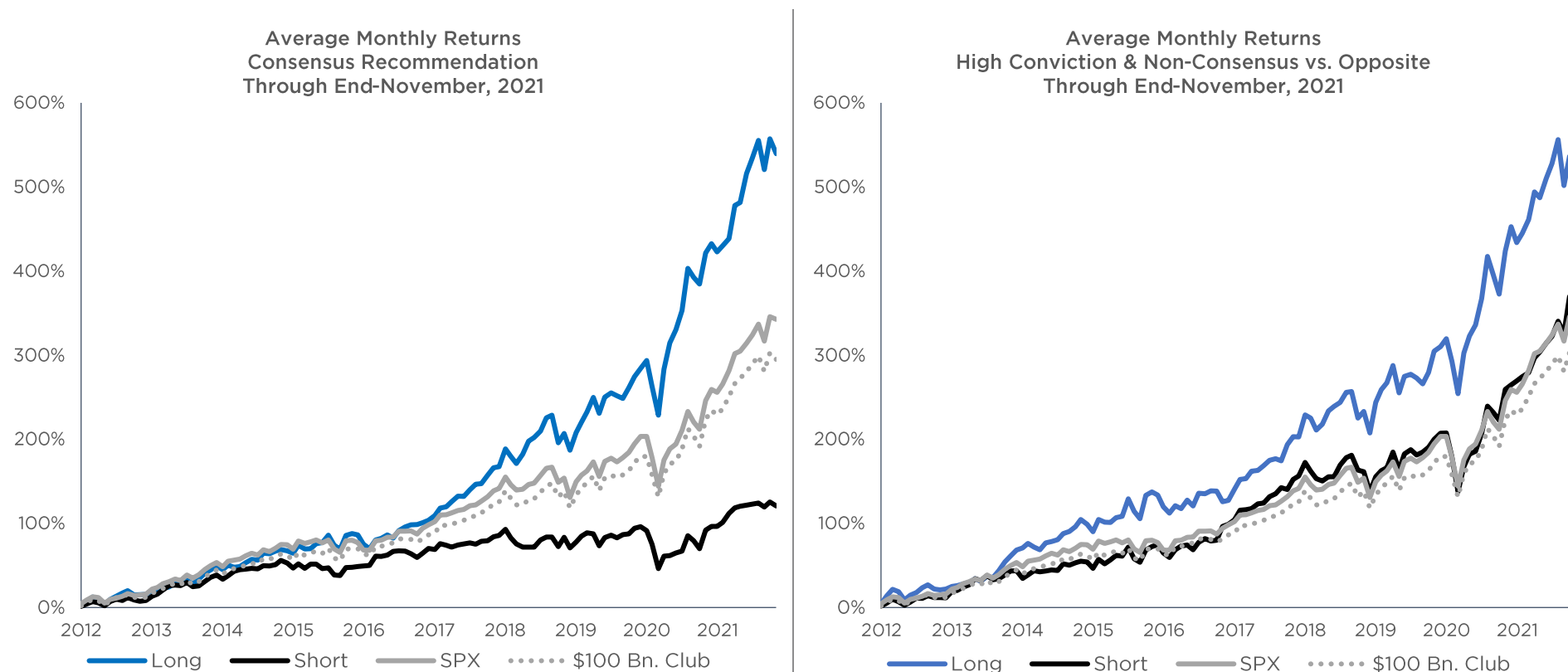
Given there is a huge group of stocks with some potential alpha, we wanted to provide ways for investors pick winners from losers. Our first approach is to evaluate the efficacy of our quantitative models, which we used to run live money at our prior venture, Trivariate Capital. Our approach is to forecast 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-November, 2021



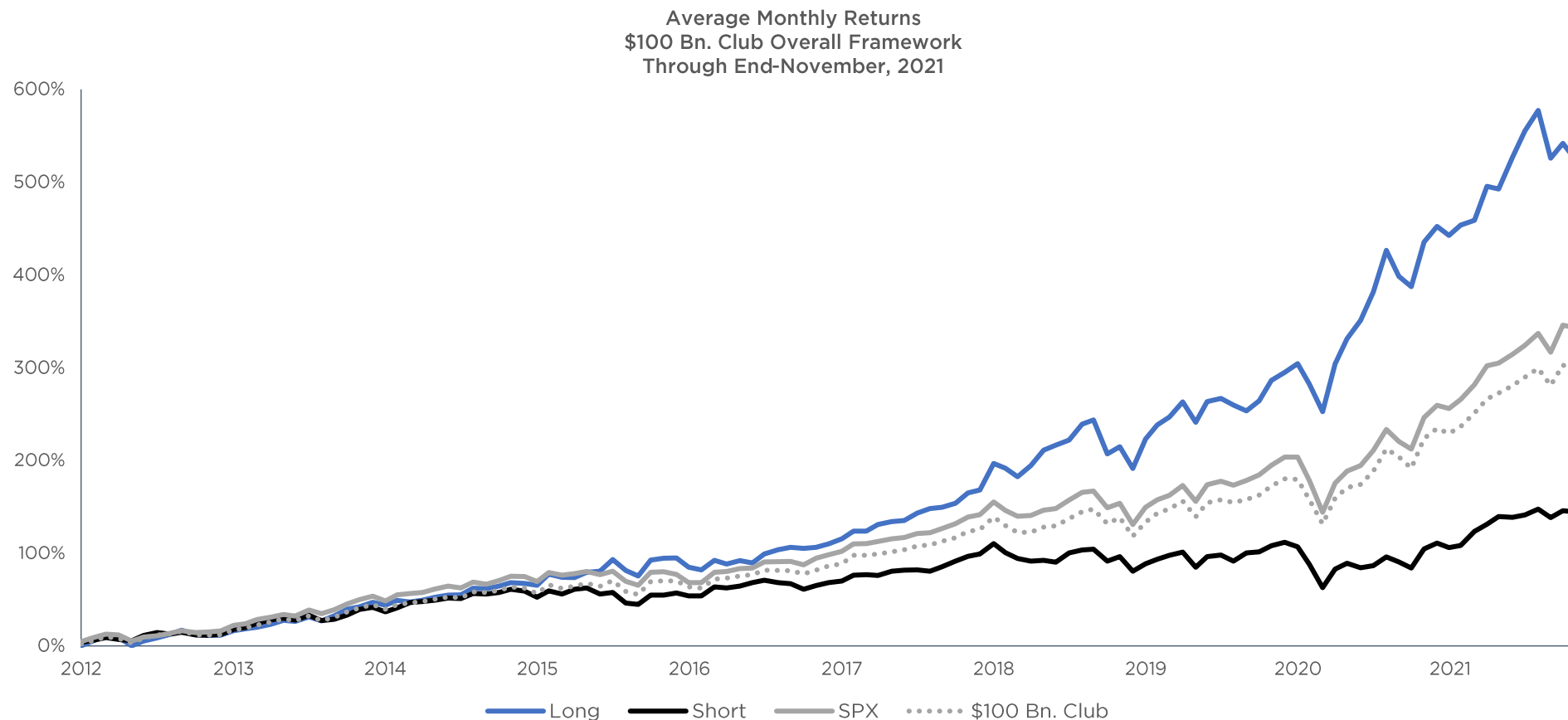
SELL-SIDE AND BUY-SIDE CONSENSUS CAN BE INFORMATIVE

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 software and payments today.

Ideas in Top Third of \$100 Bn. Club Framework, End-November 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
AMZN	Amazon.com, Inc.	Retailing	45	1	12	12	4	1
NOW	ServiceNow, Inc.	Software & Services	30	5	9	9	19	2
GOOGL	Alphabet Inc.	Media & Entertainment	16	3	17	17	6	3
UNH	UnitedHealth Group Incorporated	Health Care Equip. & Serv.	1	7	48	48	2	4
FB	Meta Platforms, Inc.	Media & Entertainment	19	12	15	15	3	5
PYPL	PayPal Holdings, Inc.	Software & Services	24	15	23	23		6
CRM	salesforce.com, inc.	Software & Services	70	6	7	7	14	7
MA	Mastercard Incorporated	Software & Services	10	8	14	14	21	8
SNOW	Snowflake Inc.	Software & Services	57		1	1	15.5	9
ADBE	Adobe Inc.	Software & Services	34	14	29	29	9	10
BLK	BlackRock, Inc.	Diversified Financials	12	26	20	20		11
BA	The Boeing Company	Capital Goods		62	4	4		12
MRK	Merck & Co., Inc.	Pharma Biotech	13	38	18	18		13
RTX	Raytheon Technologies Corp.	Capital Goods	69	29	34	34		14
DIS	The Walt Disney Company	Media & Entertainment	40	31.5	16	16	20	15
PM	Philip Morris International Inc.	Food, Bev. & Tobacco	23	42	37	37		16
INTU	Intuit Inc.	Software & Services	59	17	38	38	8	17
MSFT	Microsoft Corporation	Software & Services	36	2	66	66	5	18
NEE	NextEra Energy, Inc.	Utilities		50.5	5	5		19
AXP	American Express Company	Diversified Financials	26.5	76	13	13		20
SHOP	Shopify Inc.	Software & Services	15	56	6	6	12	21
ABBV	AbbVie Inc.	Pharma Biotech	68	20.5	52	52		22
AMD	Advanced Micro Devices, Inc.	Semis & Semi Equipment		67	11	11	15.5	23
CAT	Caterpillar Inc.	Capital Goods	48	75	21	21		24
NFLX	Netflix, Inc.	Media & Entertainment	42	46	31	31	11	25
EL	The Estée Lauder Companies Inc.	House. & Personal Prod.	66	39	19	19		26
DHR	Danaher Corporation	Pharma Biotech	51	10	47	47	7	27
UNP	Union Pacific Corporation	Transportation		28	68	68	1	28
MDT	Medtronic plc	Health Care Equip. & Serv.	22	11	75	75		29
LOW	Lowe's Companies, Inc.	Retailing	2	30	65	65	27	30
ISRG	Intuitive Surgical, Inc.	Health Care Equip. & Serv.	25	73	24	24		31

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-November 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
GE	General Electric Company	Capital Goods	43	50.5	54	54		32
NVDA	NVIDIA Corporation	Semis & Semi Equipment	84	13	10	10		33
HON	Honeywell International Inc.	Capital Goods	9	72	51	51		34
CHTR	Charter Communications, Inc.	Media & Entertainment	37	63	78	78	13	35
HD	The Home Depot, Inc.	Retailing	3	49	60	60	24.5	36
JNJ	Johnson & Johnson	Pharma Biotech	38	57	57	57		37
ABNB	Airbnb, Inc.	Consumer Services	83		8	8	24.5	38
NKE	NIKE, Inc.	Consumer Durable & App.	56	19	79	79		39
PEP	PepsiCo, Inc.	Food, Bev. & Tobacco	32	70	39	39		40
V	Visa Inc.	Software & Services	39	4	45	45	40	41
TGT	Target Corporation	Retailing	6	36	53	53		42
AMT	American Tower Corporation	Real Estate	8	45	35	35	29.5	43
MRNA	Moderna, Inc.	Pharma Biotech	65	85	2	2	29.5	44
XOM	Exxon Mobil Corporation	Energy	21	82	28	28		45
CSCO	Cisco Systems, Inc.	Tech Hardware & Equip.	7	69	56	56		46
TSLA	Tesla, Inc.	Autos & Components	62	81	3	3	34	47
ACN	Accenture plc	Software & Services	4	47	58	58		48
WMT	Walmart Inc.	Food & Staples Retailing	33	25	62	62		49
SBUX	Starbucks Corporation	Consumer Services	53	61	73	73		50
TMUS	T-Mobile US, Inc.	Telecom Services	72	18	46	46	10	51
AMGN	Amgen Inc.	Pharma Biotech	31	79	67	67		52
ZTS	Zoetis Inc.	Pharma Biotech	64	22	43	43		53
CVX	Chevron Corporation	Energy	26.5	52	26	26		54
ABT	Abbott Laboratories	Health Care Equip. & Serv.	20	35	85	85		55
KO	The Coca-Cola Company	Food, Bev. & Tobacco	73	48	40	40		56
C	Citigroup Inc.	Banks	14	41	49	49	34	57
SPGI	S&P Global Inc.	Diversified Financials	71	23	27	27	37.5	58
BRK.B	Berkshire Hathaway Inc.	Diversified Financials	50	74	32	32		59
VZ	Verizon Communications Inc.	Telecom Services	11	83	63	63		60
LLY	Eli Lilly and Company	Pharma Biotech	52	43.5	81	81		61
LIN	Linde plc	Materials	67	24	41	41		62
MS	Morgan Stanley	Diversified Financials	17	54	61	61	29.5	63

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-November 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
SCHW	The Charles Schwab Corporation	Diversified Financials	49	54	25	25	18	64
PFE	Pfizer Inc.	Pharma Biotech	28	80	22	22		65
AAPL	Apple Inc.	Tech Hardware & Equip.	81	20.5	55	55		66
PG	The Procter & Gamble Company	House & Personal Prod.	41	66	44	44		67
PLD	Prologis, Inc.	Real Estate	46	40	84	84		68
BX	Blackstone Inc.	Diversified Financials	18	58	89	89		69
AMAT	Applied Materials, Inc.	Semis & Semi Equipment	79	33	42	42	17	70
CVS	CVS Health Corporation	Health Care Equip. & Serv.	74	34	71	71		71
QCOM	QUALCOMM Incorporated	Semis & Semi Equipment	80	37	33	33		72
CMCSA	Comcast Corporation	Media & Entertainment	61	16	76	76	34	73
COST	Costco Wholesale Corporation	Food & Staples Retailing	29	54	36	36	29.5	74
T	AT&T Inc.	Telecom Services	44	84	82	82		75
DE	Deere & Company	Capital Goods	54	64	50	50		76
GS	The Goldman Sachs Group, Inc.	Diversified Financials	47	59	87	87		77
TMO	Thermo Fisher Scientific Inc.	Pharma Biotech	60	9	70	70	32	78
BAC	Bank of America Corporation	Banks	58	71	30	30	36	79
IBM	International Business Machines	Software & Services	75	77	88	88		80
AVGO	Broadcom Inc.	Semis & Semi Equipment	82	31.5	59	59	24.5	81
MCD	McDonald's Corporation	Consumer Services	55	27	80	80	24.5	82
TXN	Texas Instruments Incorporated	Semis & Semi Equipment	35	78	74	74		83
BMJ	Bristol-Myers Squibb Company	Pharma Biotech	77	43.5	64	64		84
INTC	Intel Corporation	Semis & Semi Equipment	5	87	86	86	22	85
JPM	JPMorgan Chase & Co.	Banks	63	65	69	69	37.5	86
UPS	United Parcel Service, Inc.	Transportation		68	77	77		87
WFC	Wells Fargo & Company	Banks	76	60	72	72	39	88
ORCL	Oracle Corporation	Software & Services	78	86	83	83		89

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

ALL GOOD EXCEPT FINANCIAL CONDITIONS, CHINA, AND CURRENCY?

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. Economic activity has plateaued this month after rising the previous year. As we suggested in late September, industrial activity has now moderated. The 6-month curve is bull flattening while the 12-month one is bear steepening. Financial conditions were tightening in September but are neutral now. China has rolled over. The dollar is strengthening

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	Increasing	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	Increasing (More Idiosyncratic, Less Macro)	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	None	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	None	US 2-Year Yield, US 10-Year Yield
Yield Curve 252d	Bear Steepening	US 2-Year Yield, US 10-Year Yield

WHAT SHOULD WE DO ABOUT IT?

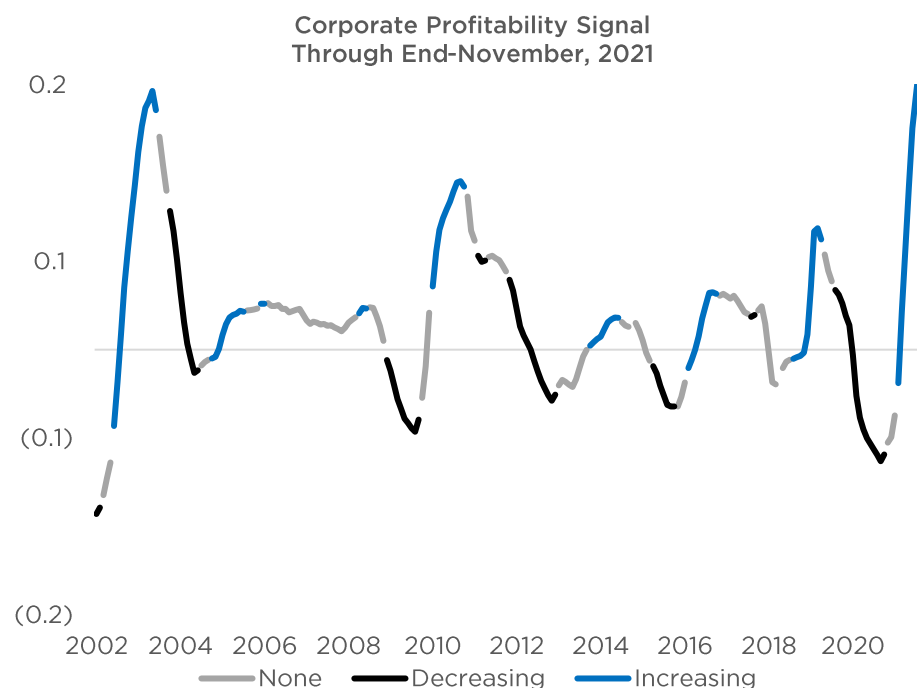
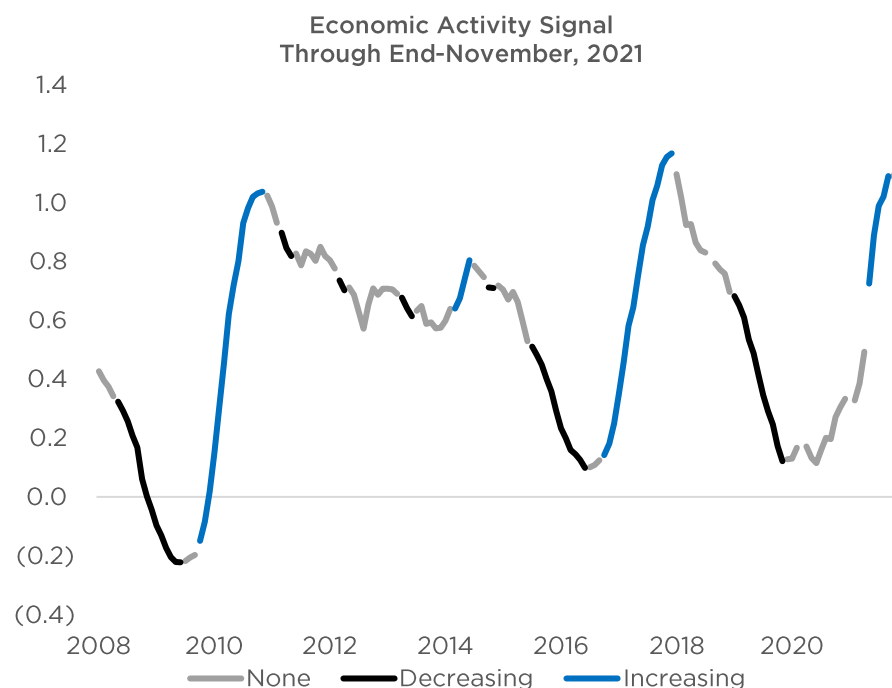
1. We recommend that investors **gross down their durables exposure**. We struggle to separate winners from losers in durables like homebuilders, air conditioners, and select durable apparel when corporate profitability is positive and increasing
2. We recommend that investors **gross up their consumer 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 and materials, industrials, and non-growth “junk” stocks**

Recent changes:

1. Economic activity has stopped increasing and begun to plateau. This means we no longer recommend investors gross up their TMT exposure
2. Financial conditions had been tightening in September and are now neutral.
3. Industrial activity has also plateaued after increasing over the previous several months
4. Corporate profitability will likely peak soon

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. Currently, 1-year forward earning expectations are at close to an all-time high, 2-year earnings expectations are in the 80th percentile vs. history, and current operating margins are in the 84th percentile, rebounding off COVID bottoms



OTHER PROCESS FOR GROSS EXPOSURE RECOMMENDATIONS

Our durables model performance 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 1.5% on average when corporate profitability is increasing but outperforms the bottom quintile by 8.6% 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-July, 2021				TMT Model Performance Through End-November, 2021			
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%	7.8%	8.6%
Weighted Median	(2.6%)	10.6%	(13.1%)	Weighted Median	16.8%	6.1%	10.7%
Weighted Information Ratio	(0.20)	0.71	(0.91)	Weighted Information Ratio	1.87	0.85	1.03
Hit Rate	42.6%	63.1%	(20.6%)	Hit Rate	67.6%	56.0%	11.6%

IF RISKS DID NOT CHANGE, ANYONE COULD DO RISK MANAGEMENT

Six key risks worth monitoring:

1. **High signal correlation:** Variables both fundamental managers and quants use to pick winners from losers are highly correlated in both REITS and industrials.
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.
5. **Inflation:** We recommend looking at the correlation of every stock in your portfolio to an inflation basket (contact us if you want access to our inflation basket) to monitor exposure.
6. **Crypto:** With crypto now being updated on networks as much as the SP500 we wrote a note assessing it as a risk. With high idiosyncratic risk, it is tough to replicate or hedge. We did observe however that there was a statistically significant relationship between our crypto basket’s performance and our beta-adjusted inflation basket and our hyper growth junk universe meaning that crypto is part speculation, part hedge on the potential long-term devaluation of fiat currencies driving inflation. It is a risk worth monitoring.

RISK ONE: HIGHLY CORRELATED SIGNALS – REITS AND 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. This has begun to moderate recently for REITS. However, high signal correlation in the industrials model have continued to persist.

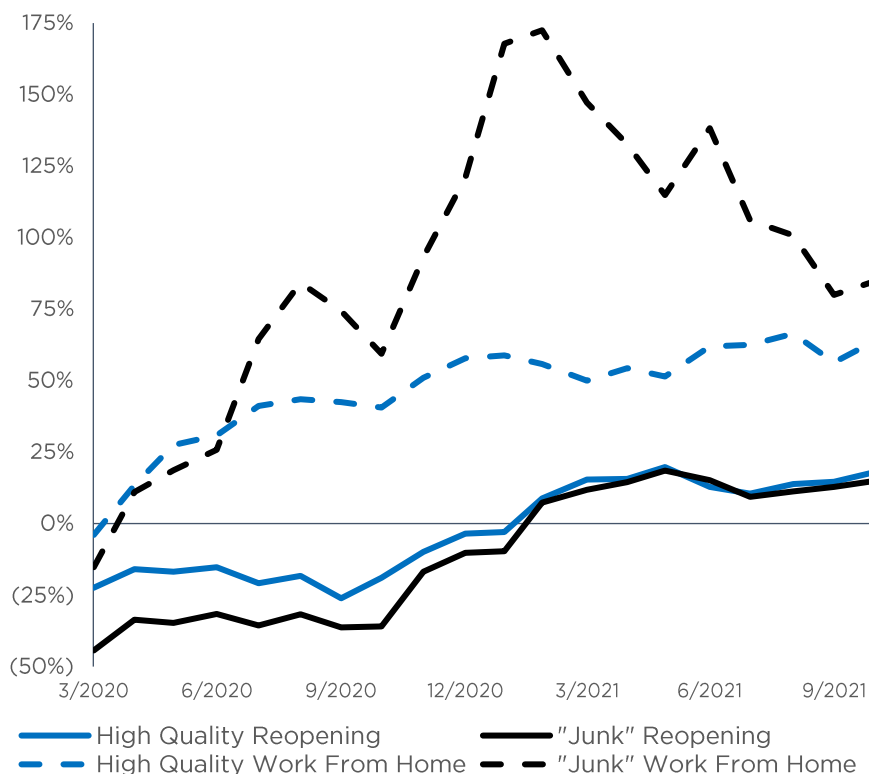
REITS and Industrials Cohort Model
Average 21-Day Pairwise Correlation
Through End-October, 2021



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-November, 2021



Buy High Quality Reopening, Sell “Junk” Work-from-Home
Names in Top/Bottom Model Quartile with Market Cap. of at least \$1 Bil.
End-November, 2021

Long

Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
HIG	The Hartford Financial Services Group, Inc.	Insurance	22.50
LEVI	Levi Strauss & Co.	Text., App. & Luxury Good	10.28
UGI	UGI Corporation	Gas Utilities	8.63
ATKR	Atkore Inc.	Electrical Equipment	4.90
IBOC	International Bancshares Corporation	Banks	2.66
OFG	OFG Bancorp	Banks	1.20
FFWM	First Foundation Inc.	Banks	1.15

Short

Ticker	Company Name	Industry Group	Market Cap (\$ US. Bil)
PTON	Peloton Interactive, Inc.	Leisure Products	14.53
COR	CoreSite Realty Corporation	REITs	7.56
SAM	The Boston Beer Company, Inc.	Beverages	5.50
MARA	Marathon Digital Holdings, Inc.	Software	5.24
BYND	Beyond Meat, Inc.	Food Products	4.45
FOUR	Shift4 Payments, Inc.	IT Services	2.95
ARRY	Array Technologies, Inc.	Electrical Equipment	2.43
GENI	Genius Sports Limited	Interactive Media & Services	1.90
VRM	Vroom, Inc.	Specialty Retail	1.89
BLFS	BioLife Solutions, Inc.	Health Care Equipment & Supplies	1.59
HYFM	Hydrofarm Holdings Group, Inc.	Machinery	1.47
CDE	Coeur Mining, Inc.	Metals & Mining	1.44
VLDR	Velodyne Lidar, Inc.	Electr Equip., Instruments & Comp.	1.08

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-November, 2021

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
WMT	Walmart Inc.	Food & Staples Retailing	392.15
PFE	Pfizer Inc.	Pharmaceuticals	301.58
ORCL	Oracle Corporation	Software	248.05
COST	Costco Wholesale Corporation	Food & Staples Retailing	238.31
VZ	Verizon Communications Inc.	Diversified Telecommunication Services	211.02
TGT	Target Corporation	Multiline Retail	116.83
EW	Edwards Lifesciences Corporation	Health Care Equipment & Supplies	67.00
PSA	Public Storage	Equity Real Estate Investment Trusts (REITs)	57.41
DLR	Digital Realty Trust, Inc.	Equity Real Estate Investment Trusts (REITs)	47.60
ORLY	O'Reilly Automotive, Inc.	Specialty Retail	43.00
CTSH	Cognizant Technology Solutions Corporation	IT Services	40.96
WBA	Walgreens Boots Alliance, Inc.	Food & Staples Retailing	38.78
AZO	AutoZone, Inc.	Specialty Retail	38.10
EFX	Equifax Inc.	Professional Services	34.00
AVB	AvalonBay Communities, Inc.	Equity Real Estate Investment Trusts (REITs)	33.32
EQR	Equity Residential	Equity Real Estate Investment Trusts (REITs)	31.99
PCG	PG&E Corporation	Electric Utilities	23.59
K	Kellogg Company	Food Products	20.87
CLX	The Clorox Company	Household Products	20.01
FDS	FactSet Research Systems Inc.	Capital Markets	17.64
CPT	Camden Property Trust	Equity Real Estate Investment Trusts (REITs)	16.88
CTRA	Coterra Energy Inc.	Oil, Gas & Consumable Fuels	16.34

RISK FOUR: NEGATIVE ASYMMETRIC BETA

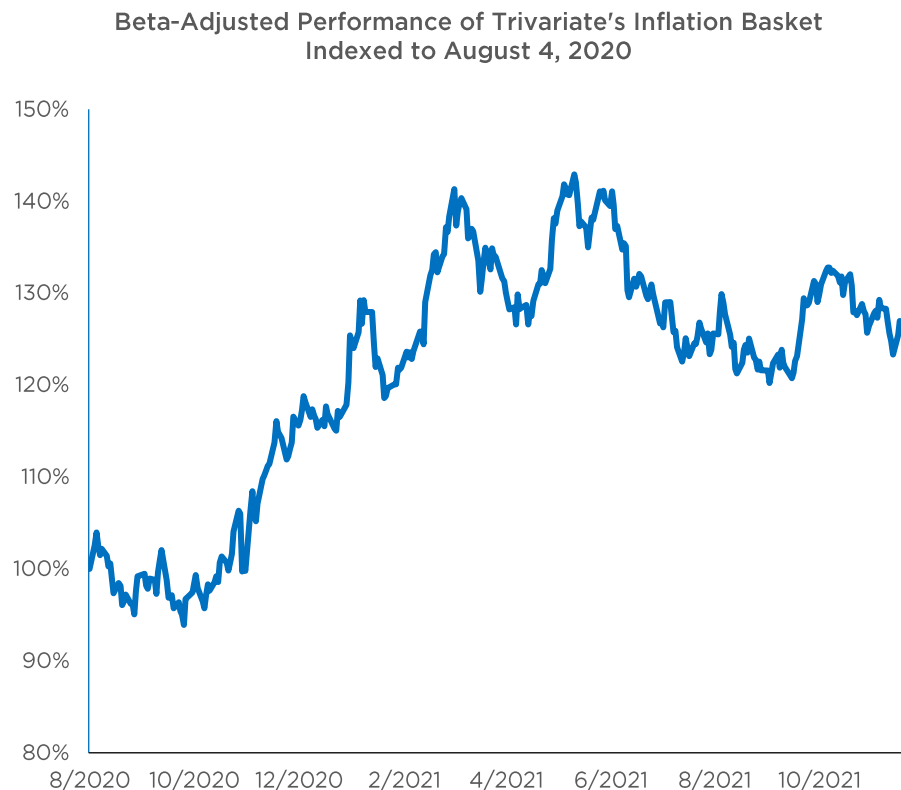
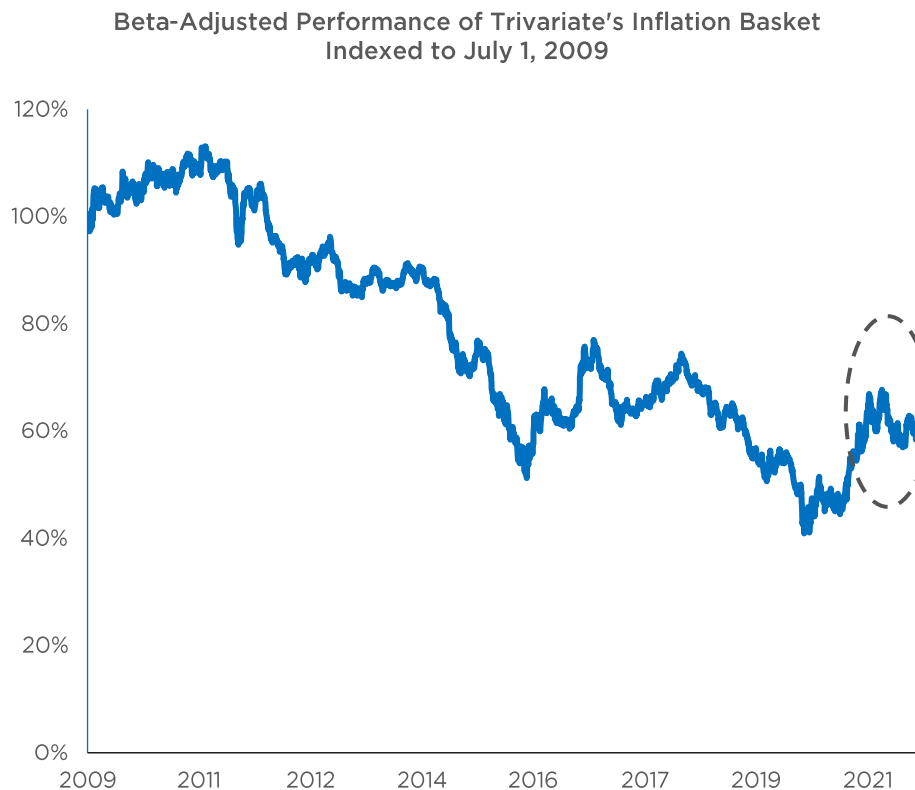
We analyzed the beta of stocks during periods where the market is down 10% or more. 41% of stocks with the highest negative asymmetric betas are REITS (left side). Non-REITs are shown on the right. This list represents names where we expect high underperformance in a market drawdown.

Names with Higher 252d Betas During SPX Drawdowns of at Least 10%
End-November, 2021

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	57.41	SQ	Square, Inc.	IT Services	96.10
SPG	Simon Property Group, Inc.	REITs	50.23	CME	CME Group Inc.	Capital Markets	79.25
DLR	Digital Realty Trust, Inc.	REITs	47.60	ICE	Intercontinental Exchange, Inc.	Capital Markets	73.65
O	Realty Income Corporation	REITs	38.43	TWLO	Twilio Inc.	IT Services	51.03
SBAC	SBA Communications Corporation	REITs	37.40	NDAQ	Nasdaq, Inc.	Capital Markets	33.98
AVB	AvalonBay Communities, Inc.	REITs	33.32	LEN	Lennar Corporation	Household Durables	31.79
EQR	Equity Residential	REITs	31.99	LYV	Live Nation Entertainment, Inc.	Entertainment	23.49
EXR	Extra Space Storage Inc.	REITs	26.78	YUMC	Yum China Holdings, Inc.	Hotels, Restaurants & Leisure	21.45
MAA	Mid-America Apartment Communities, Inc.	REITs	23.75	TDOC	Teladoc Health, Inc.	Health Care Technology	16.21
ESS	Essex Property Trust, Inc.	REITs	22.09	MKTX	MarketAxess Holdings Inc.	Capital Markets	13.41
UDR	UDR, Inc.	REITs	17.54	NLY	Annaly Capital Management, Inc.	Mortgage Real Estate Investment Trusts (REITs)	11.75
CPT	Camden Property Trust	REITs	16.88	DECK	Deckers Outdoor Corporation	Textiles, Apparel & Luxury Goods	11.13
BXP	Boston Properties, Inc.	REITs	16.85	GPK	Graphic Packaging Holding Company	Containers & Packaging	6.06
ELS	Equity LifeStyle Properties, Inc.	REITs	14.95	QLYS	Qualys, Inc.	Software	5.06
KIM	Kimco Realty Corporation	REITs	13.82	BXMT	Blackstone Mortgage Trust, Inc.	Mortgage Real Estate Investment Trusts (REITs)	5.06
LSI	Life Storage, Inc.	REITs	10.82	AYX	Alteryx, Inc.	Software	4.48
NNN	National Retail Properties, Inc.	REITs	7.74	SNDR	Schneider National, Inc.	Road & Rail	4.37
CUZ	Cousins Properties Incorporated	REITs	5.61	EXLS	ExlService Holdings, Inc.	IT Services	4.33
ADC	Agree Realty Corporation	REITs	4.70	CIVI	Civitas Resources, Inc.	Oil, Gas & Consumable Fuels	4.32

RISK FIVE: INFLATION EXPOSURE MATTERS

The consensus view on inflation has totally changed over the last few months. When we initiated our product in May, the overwhelming consensus was that the 10-year yield would rise. After it “surprisingly” fell the consensus completely reversed, right around the time the 10-year yield bottomed. Our general sense is that most investors think the 10-year yield will back up in the next six months, but that it will be constrained on the upside after that – we think monitoring inflation exposure is important.



RISK SIX: CRYPTO SOMETHING TO START MONITORING

The tighter association of our crypto basket's returns to the SP500 since COVID motivated us to analyze whether there was any statistically significant relationship between its performance and our beta-adjusted inflation basket (in blue) and our hyper growth junk universe (in black) below. Both had virtually zero relationship until COVID, and both now have some statistical significance, above and beyond other factors. In our judgment, a logical conclusion is that crypto is part speculation, part hedge on the potential long-term devaluation of fiat currencies driving inflation. We think it will be interesting to monitor this trend going forward, as the massive government stimulus following COVID certainly renewed fears that ultimate rampant inflation is a possibility.



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

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	950.96	2.2%	6.0%	3.8%	Maximum Overweight	Buy the cheap stocks with upward revisions
Energy	1,068.48	2.4%	6.0%	3.6%	Maximum Overweight	Oil is rising, and M&A is likely
Health Care	5,195.55	11.9%	15.0%	3.1%	Overweight	Healthcare services are rate-sensitive, and demand trends are above GDP
Consumer Discretionary	5,976.24	13.7%	15.0%	2.3%	Overweight	Retailing, reopening, and services better than durables
Utilities	882.61	2.0%	3.0%	1.0%	Equal-Weight	Some idiosyncratic bets probably sensible
Communication Services	4,781.24	11.0%	12.0%	1.0%	Equal-Weight	Makes sense to keep market-weight FAANGM
Financials	4,666.87	10.7%	10.0%	(0.7%)	Equal-Weight	Large cap banks better than regionals
Real Estate	1,050.61	2.4%	1.0%	(1.4%)	Under-Weight	Commercial real-estate is challenged
Information Technology	13,370.11	30.6%	27.0%	(3.6%)	Under-Weight	Semis are over-earning, focus on margin expansion / cash flow generation
Consumer Staples	2,525.31	5.8%	2.0%	(3.8%)	Under-Weight	Plenty of short ideas in idiosyncratic staples
Industrials	3,182.99	7.3%	3.0%	(4.3%)	Maximum Underweight	Industrial activity is rolling over, but earnings expectation are very high

CAN YOU STILL OWN ENERGY & MATERIALS?

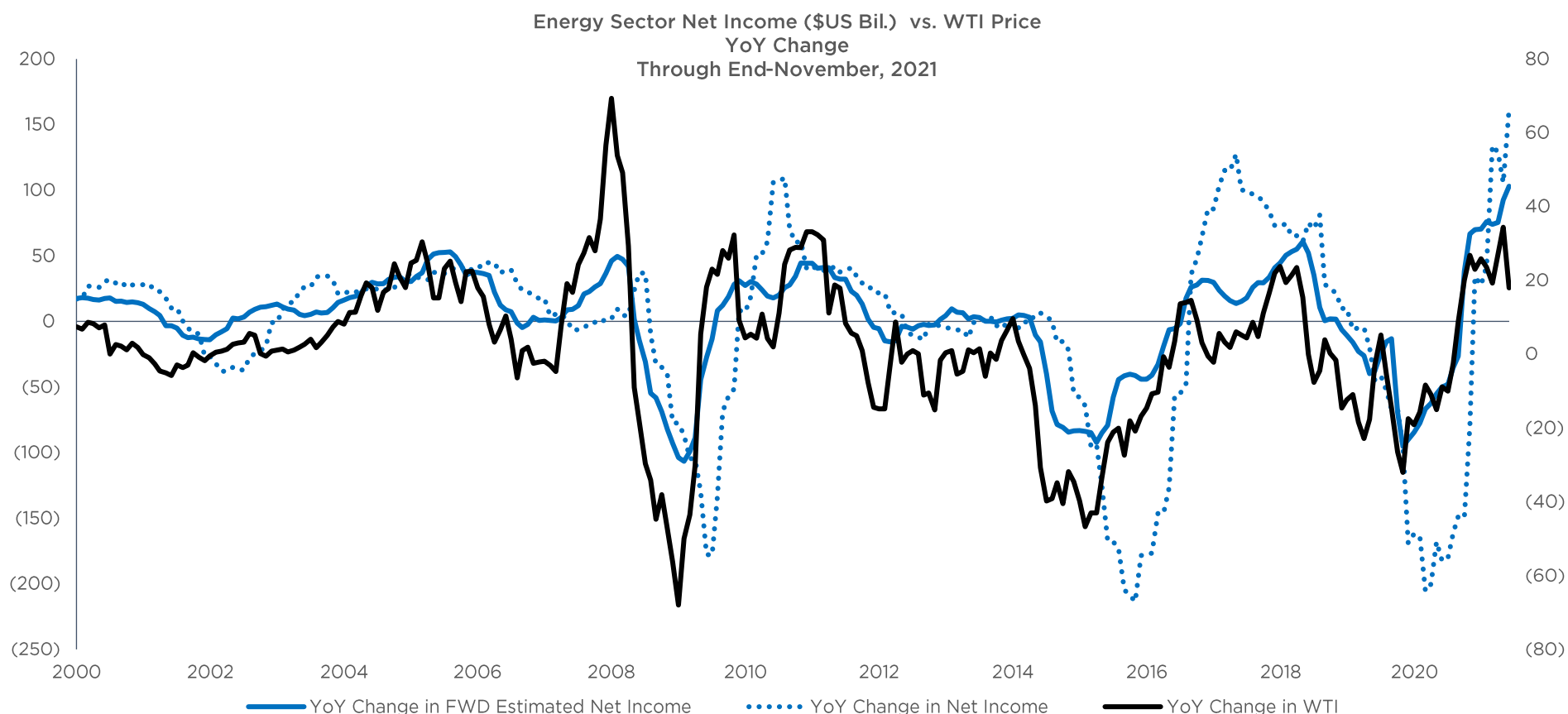
Oil fell 16% in November after rising 7.5% in both October and September. We view the fall as a risk-off reaction, and not a change in the supply /demand dynamic.

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, the sector is quite cheap versus history 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 obvious 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 energy is a contrarian investment idea.

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.

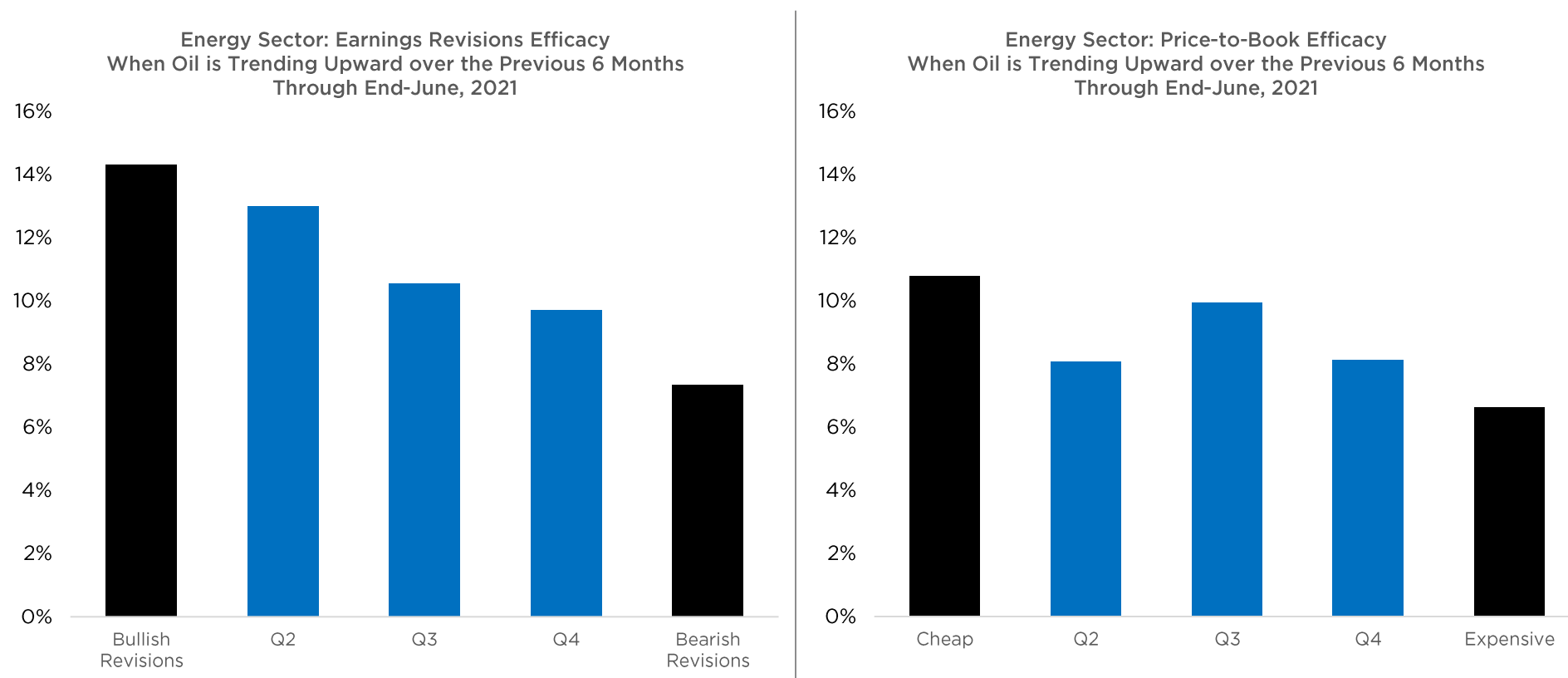
THERE IS A LAG BETWEEN OIL PRICES, ESTIMATES, AND REPORTS

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.



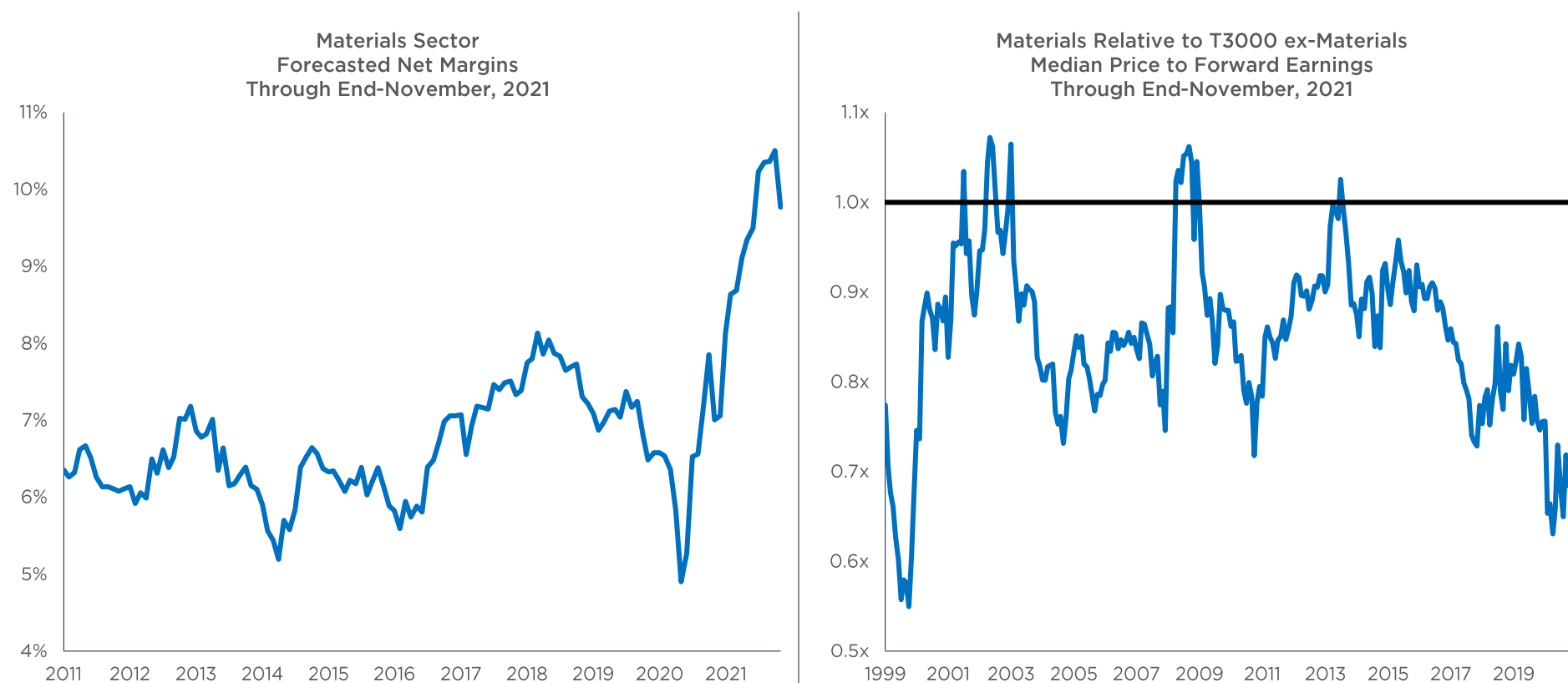
USE ENERGY EARNINGS REVISIONS & VALUATION WHEN OIL IS RISING

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%.



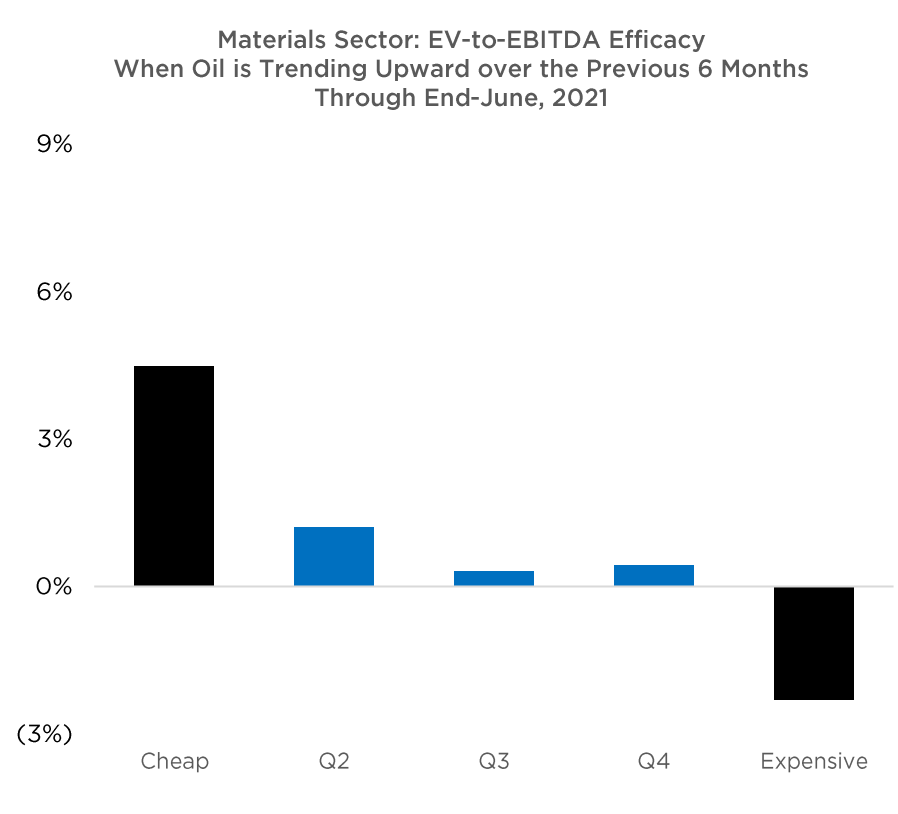
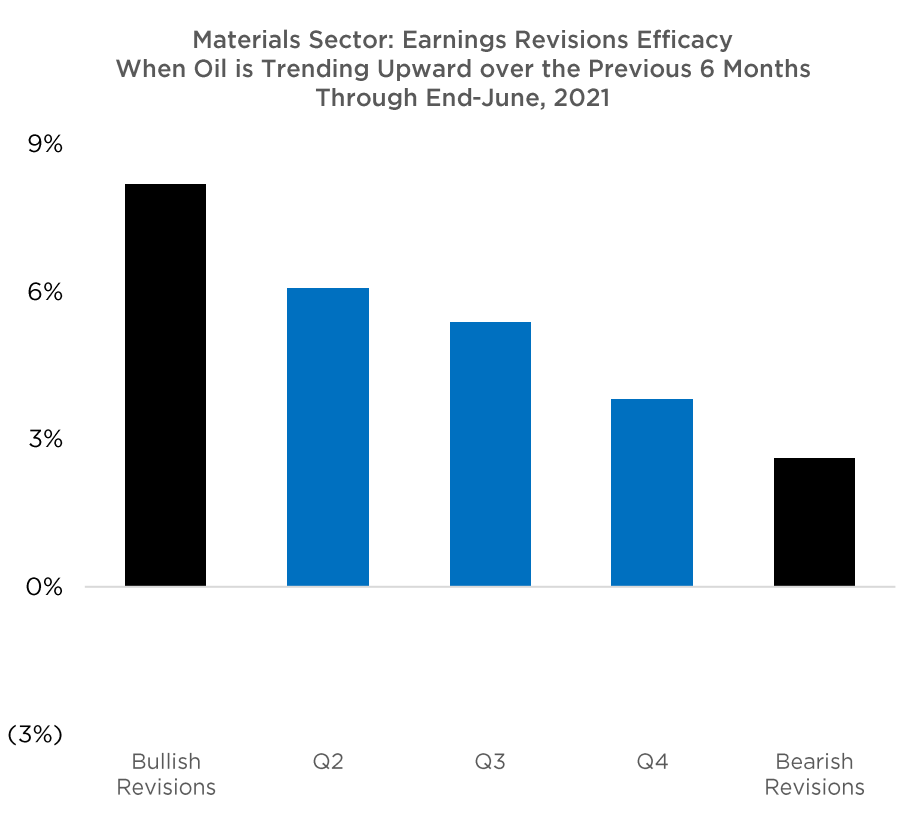
THE MARKET IS SKEPTICAL OF RECORD MATERIALS PROFIT ESTIMATES

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 STOCK SCREEN

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-November, 2021

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
DOW	Dow Inc.	Chemicals	40.63
NUE	Nucor Corporation	Metals & Mining	30.37
LYB	LyondellBasell Industries N.V.	Chemicals	29.00
MOS	The Mosaic Company	Chemicals	12.97
MRO	Marathon Oil Corporation	Oil, Gas & Consumable Fuels	12.06
WLK	Westlake Chemical Corporation	Chemicals	11.88
STLD	Steel Dynamics, Inc.	Metals & Mining	11.87
CLF	Cleveland-Cliffs Inc.	Metals & Mining	10.18
RS	Reliance Steel & Aluminum Co.	Metals & Mining	9.31
AA	Alcoa Corporation	Metals & Mining	8.71
OLN	Olin Corporation	Chemicals	8.66
EQT	EQT Corporation	Oil, Gas & Consumable Fuels	7.34
X	United States Steel Corporation	Metals & Mining	6.11
LPX	Louisiana-Pacific Corporation	Paper & Forest Products	5.75
NOV	NOV Inc.	Energy Equipment & Services	4.66
MUR	Murphy Oil Corporation	Oil, Gas & Consumable Fuels	4.11
CMC	Commercial Metals Company	Metals & Mining	3.76
TROX	Tronox Holdings plc	Chemicals	3.38
CBT	Cabot Corporation	Chemicals	2.98
CNX	CNX Resources Corporation	Oil, Gas & Consumable Fuels	2.88
UFS	Domtar Corporation	Paper & Forest Products	2.80
TSE	Trinseo PLC	Chemicals	1.83

THE US CONSUMER – GROSS UP AND NET UP

Our consumer activity gauge leads us to believe the US consumer remains in solid shape. However, investors have been concerned about a modest softening in retail sales and jobs data over the last two months.

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

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

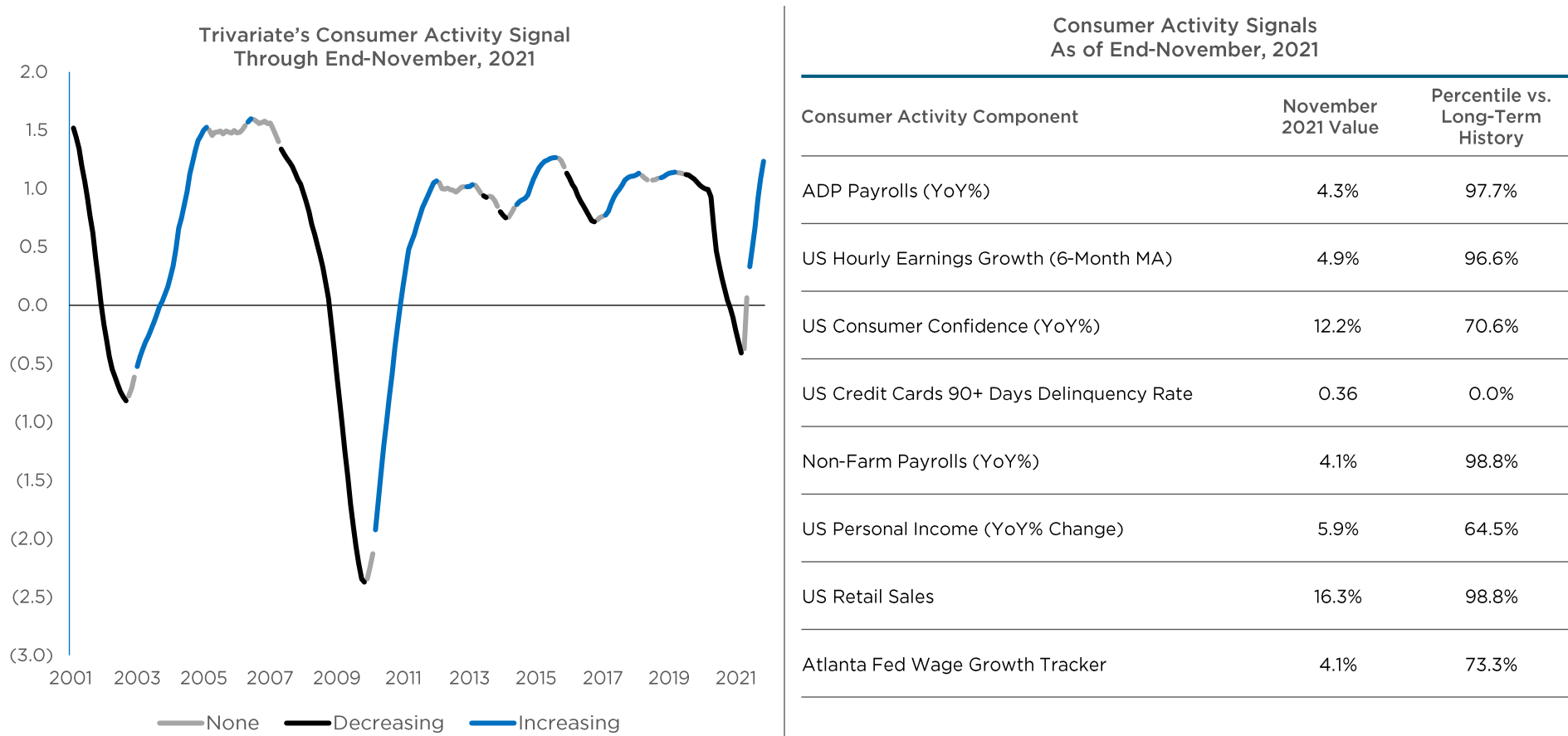
- **Long:** Quality stocks with high correlation to our “reopening” basket
- **Short:** “Junk” stocks with high correlation to our “work from home” basket

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)

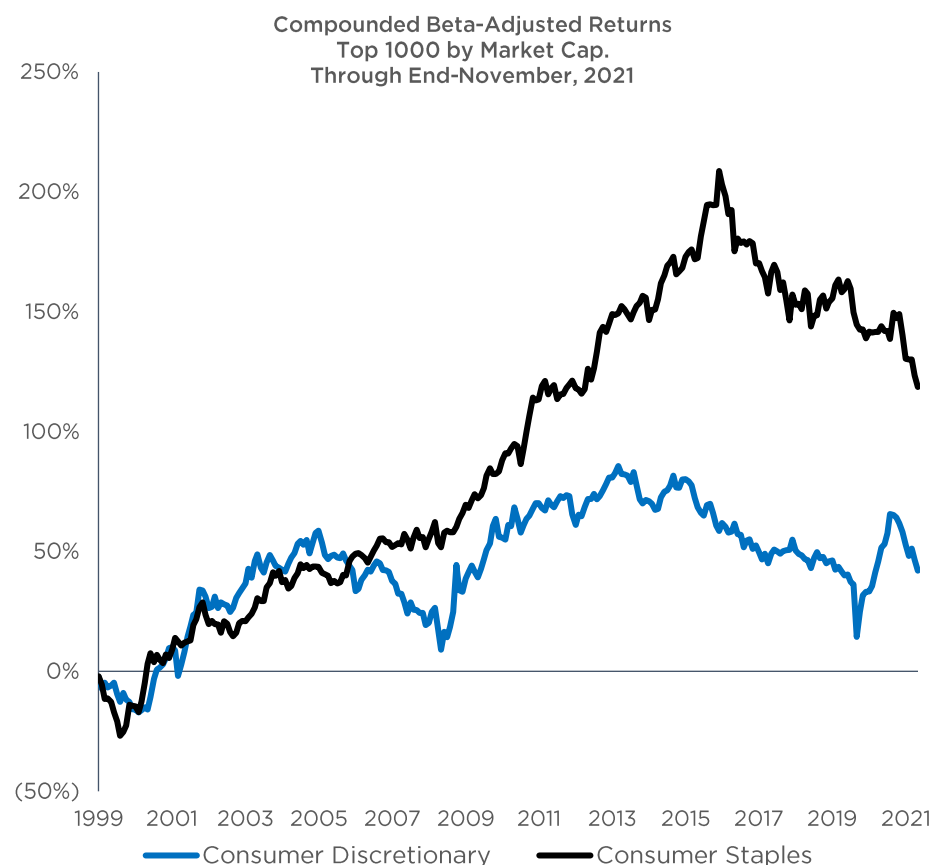
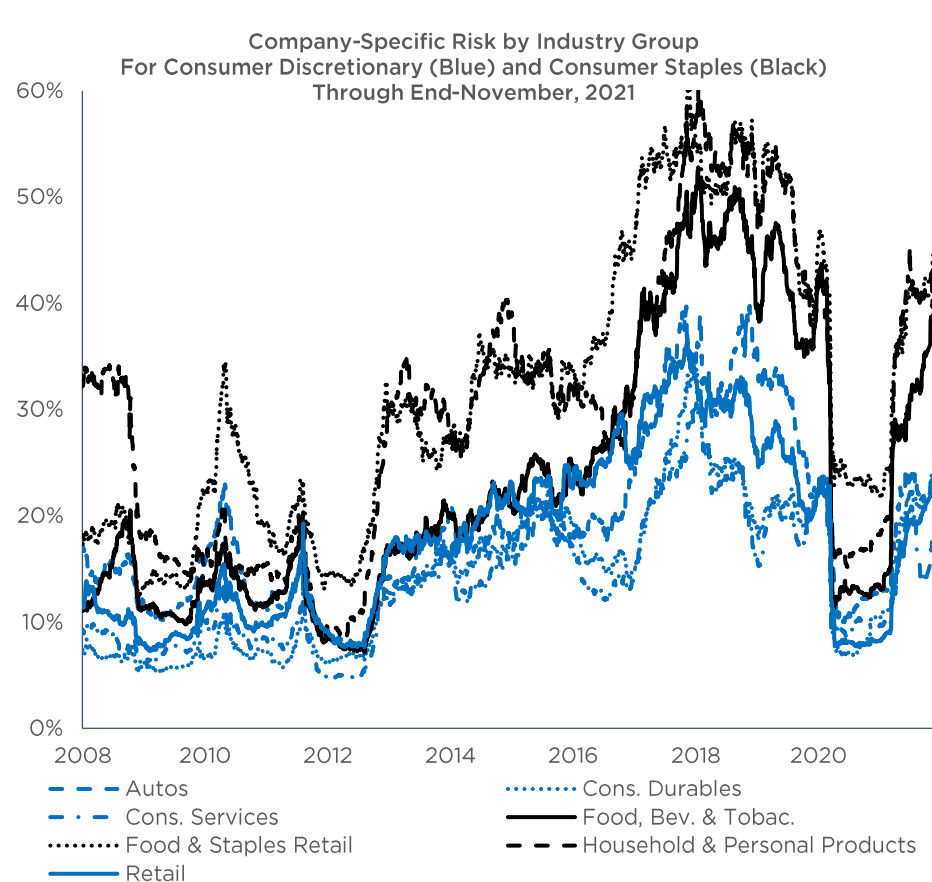
OUR CONSUMER ACTIVITY GAUGE IS INCREASING

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...

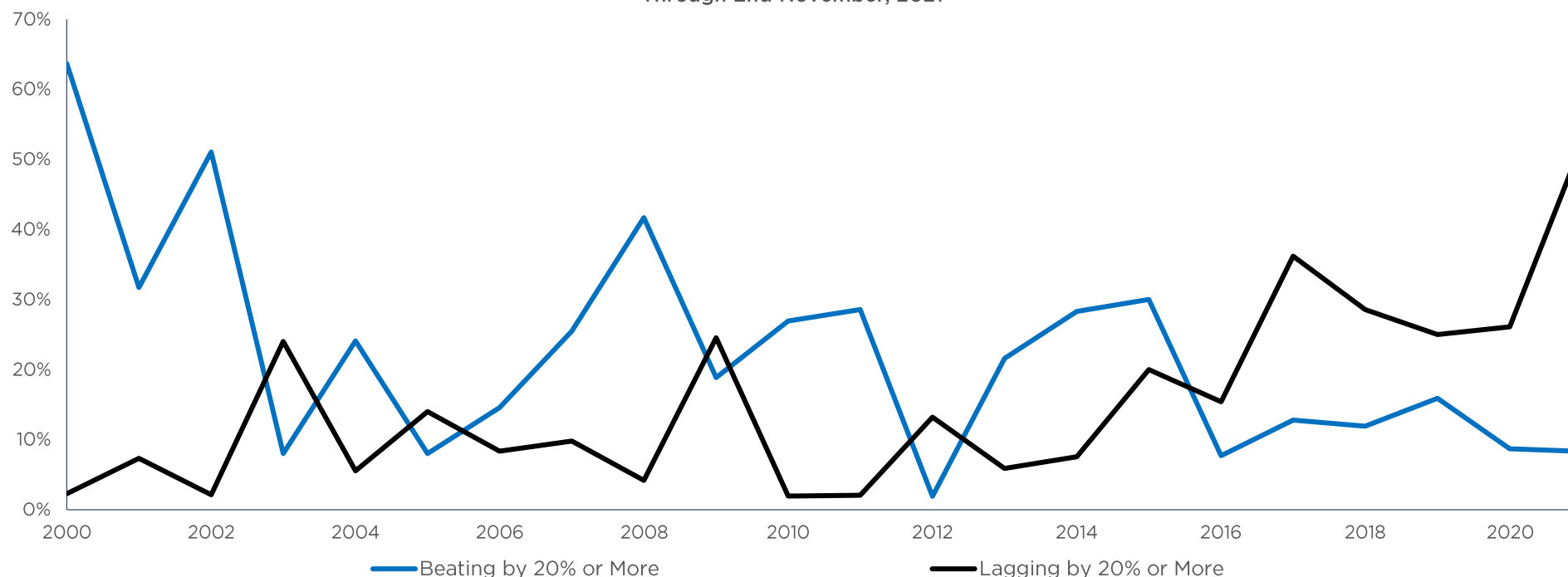
Conventional wisdom is that staples are more macro and discretionary stocks are more idiosyncratic among consumer analysts. However, (left chart) food, beverage & tobacco, and household and personal products tend to have more company-specific risk than retail, durables and consumer services. Since the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



...BUT THERE ARE MORE LARGE LAGGARDS IN STAPLES

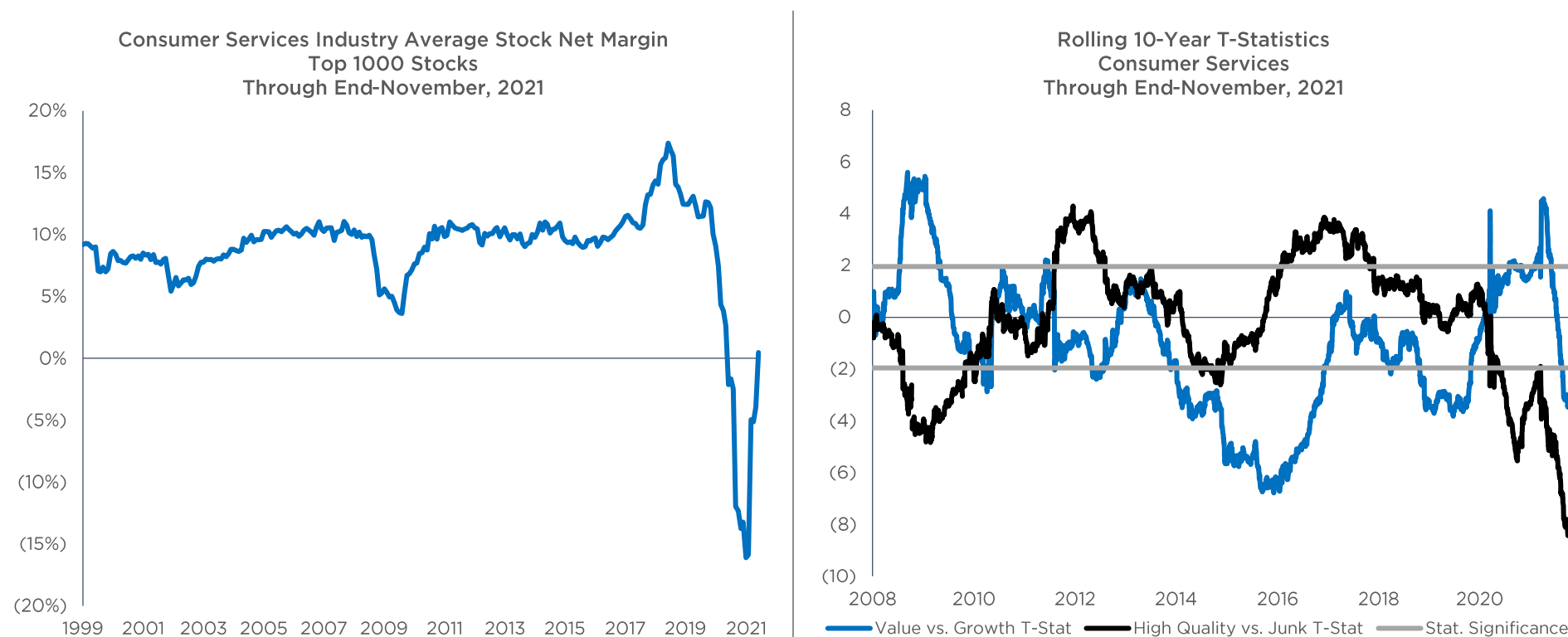
Identifying strong long ideas in staples is particularly challenging today. The fewest number of staples in nine years are beating the market by 20% or more but the largest number of staples stocks in 21 years are lagging the market by 20% or more. Given there is higher company-specific risk in staples 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-November, 2021



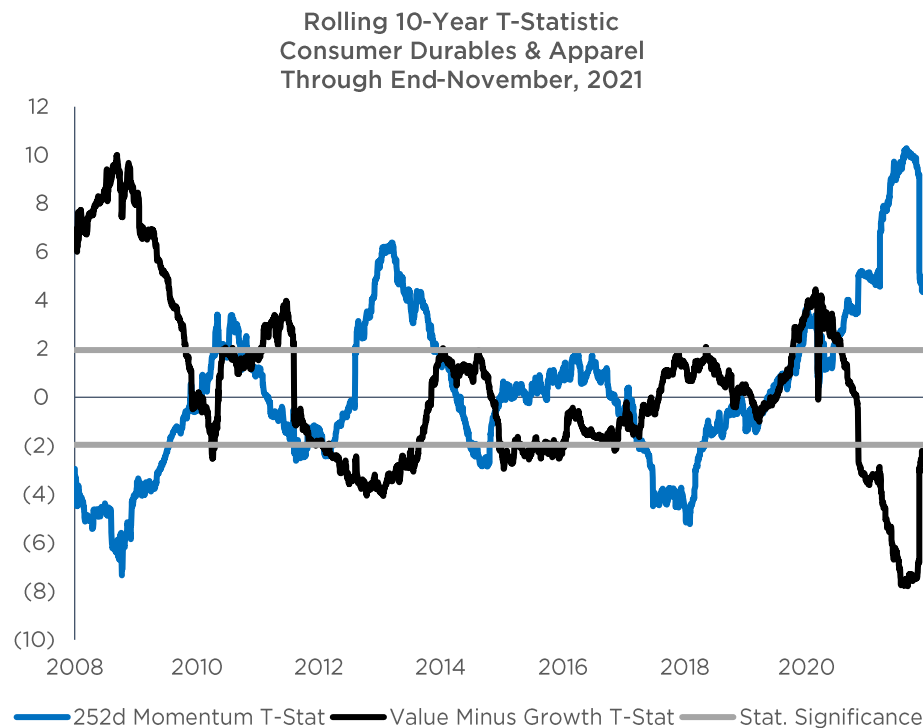
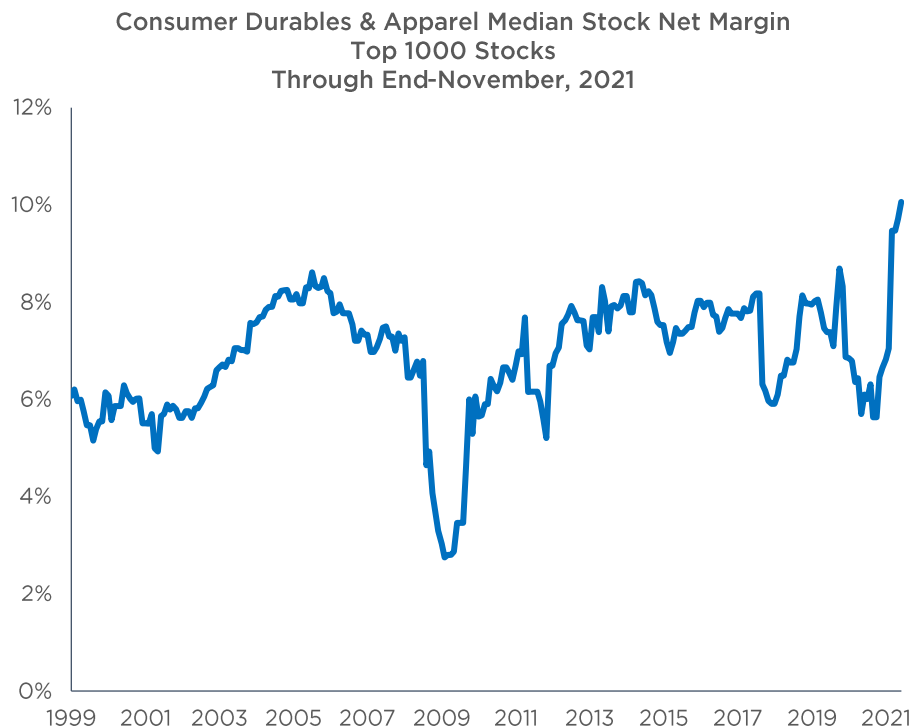
THE CONSUMER SERVICES INDUSTRY IS UNDER-EARNING THE MOST

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).



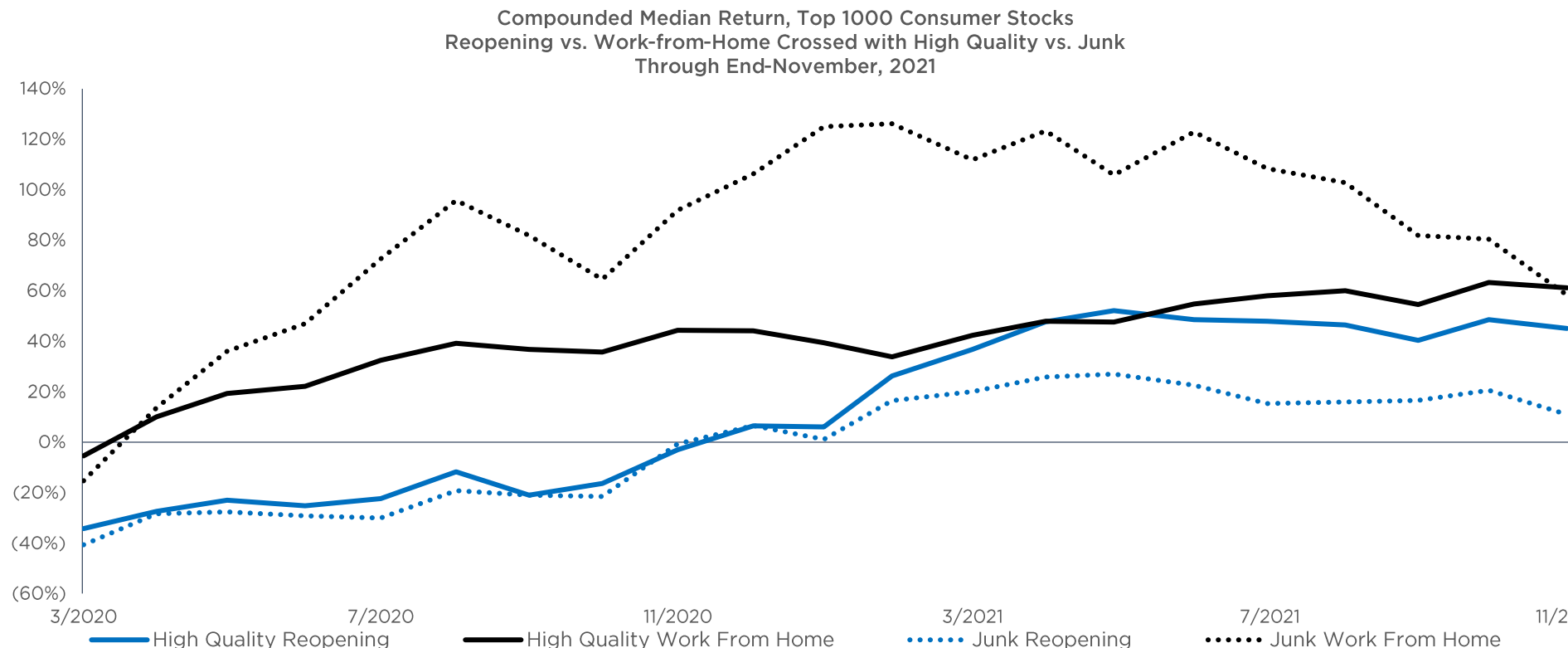
WHEREAS DURABLES MARGINS ARE AT ALL-TIME HIGHS

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.



JUNK WORK FROM HOME WILL EVENTUALLY LAG QUALITY REOPENING

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 ultimately 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-November, 2021

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	37.65	AMZN	Amazon.com, Inc.	Retailing	1778.60
EXPE	Expedia Group, Inc.	Consumer Services	24.41	MELI	MercadoLibre, Inc.	Retailing	59.97
ULTA	Ulta Beauty, Inc.	Retailing	20.87	ETSY	Etsy, Inc.	Retailing	34.81
GPC	Genuine Parts Company	Retailing	18.19	CHWY	Chewy, Inc.	Retailing	28.52
LKQ	LKQ Corporation	Retailing	16.29	W	Wayfair Inc.	Retailing	25.91
MHK	Mohawk Industries, Inc.	Consumer Durables & App.	11.37	CVNA	Carvana Co.	Retailing	24.00
TPR	Tapestry, Inc.	Consumer Durables & App.	11.04	PTON	Peloton Interactive, Inc.	Consumer Durables & App.	14.53
LEVI	Levi Strauss & Co.	Consumer Durables & App.	10.28	DKNG	DraftKings Inc.	Consumer Services	14.04
CPRI	Capri Holdings Limited	Consumer Durables & App.	8.91	FTCH	Farfetch Limited	Retailing	12.77
H	Hyatt Hotels Corporation	Consumer Services	8.66	GLBE	Global-e Online Ltd.	Retailing	9.68
RL	Ralph Lauren Corporation	Consumer Durables & App.	8.54	LAZR	Luminar Technologies, Inc.	Automobiles & Components	5.89
CHH	Choice Hotels International, Inc.	Consumer Services	7.95	SAM	The Boston Beer Company, Inc.	Food, Beverage & Tobacco	5.50
PVH	PVH Corp.	Consumer Durables & App.	7.59				

STRATEGY 2: A BARBELL

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.

Long Retailers and Services that Favored by Our Model, Short Highly Idiosyncratic Staples and Durables Our Model Disfavors, As of End-November, 2021

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	418.33	GRMN	Garmin Ltd.	Consumer Durables & Apparel	25.68
LOW	Lowe's Companies, Inc.	Retailing	164.79	CAG	Conagra Brands, Inc.	Food, Beverage & Tobacco	14.65
TGT	Target Corporation	Retailing	116.83	PTON	Peloton Interactive, Inc.	Consumer Durables & Apparel	14.53
BKNG	Booking Holdings Inc.	Consumer Services	86.31	HAS	Hasbro, Inc.	Consumer Durables & Apparel	13.37
MAR	Marriott International, Inc.	Consumer Services	48.06	DECK	Deckers Outdoor Corporation	Consumer Durables & Apparel	11.13
CMG	Chipotle Mexican Grill, Inc.	Consumer Services	46.24	NWL	Newell Brands Inc.	Consumer Durables & Apparel	9.13
ORLY	O'Reilly Automotive, Inc.	Retailing	43.00	YETI	YETI Holdings, Inc.	Consumer Durables & Apparel	8.08
ROST	Ross Stores, Inc.	Retailing	38.77	TOL	Toll Brothers, Inc.	Consumer Durables & Apparel	7.73
AZO	AutoZone, Inc.	Retailing	38.1	CASY	Casey's General Stores, Inc.	Food & Staples Retailing	7.21
YUM	Yum! Brands, Inc.	Consumer Services	36.01	FLO	Flowers Foods, Inc.	Food, Beverage & Tobacco	5.46
ETSY	Etsy, Inc.	Retailing	34.81	ELY	Callaway Golf Company	Consumer Durables & Apparel	5.01
DLTR	Dollar Tree, Inc.	Retailing	30.11	CRI	Carter's, Inc.	Consumer Durables & Apparel	4.27
BBY	Best Buy Co., Inc.	Retailing	26.28	LANC	Lancaster Colony Corporation	Food, Beverage & Tobacco	4.02
W	Wayfair Inc.	Retailing	25.91	SONO	Sonos, Inc.	Consumer Durables & Apparel	4.02
TSCO	Tractor Supply Company	Retailing	25.65	GOLF	Acushnet Holdings Corp.	Consumer Durables & Apparel	4.00
MGM	MGM Resorts International	Consumer Services	18.56	MED	Medifast, Inc.	Household & Personal Products	2.38
DRI	Darden Restaurants, Inc.	Consumer Services	17.90	TR	Tootsie Roll Industries, Inc.	Food, Beverage & Tobacco	2.11
LKQ	LKQ Corporation	Retailing	16.29	THS	TreeHouse Foods, Inc.	Food, Beverage & Tobacco	2.05
WSM	Williams-Sonoma, Inc.	Retailing	14.29				
AAP	Advance Auto Parts, Inc.	Retailing	13.64				
RH	RH	Retailing	12.26				

CONTROVERSIES AND VARIABLES TO MONITOR FOR BANKS

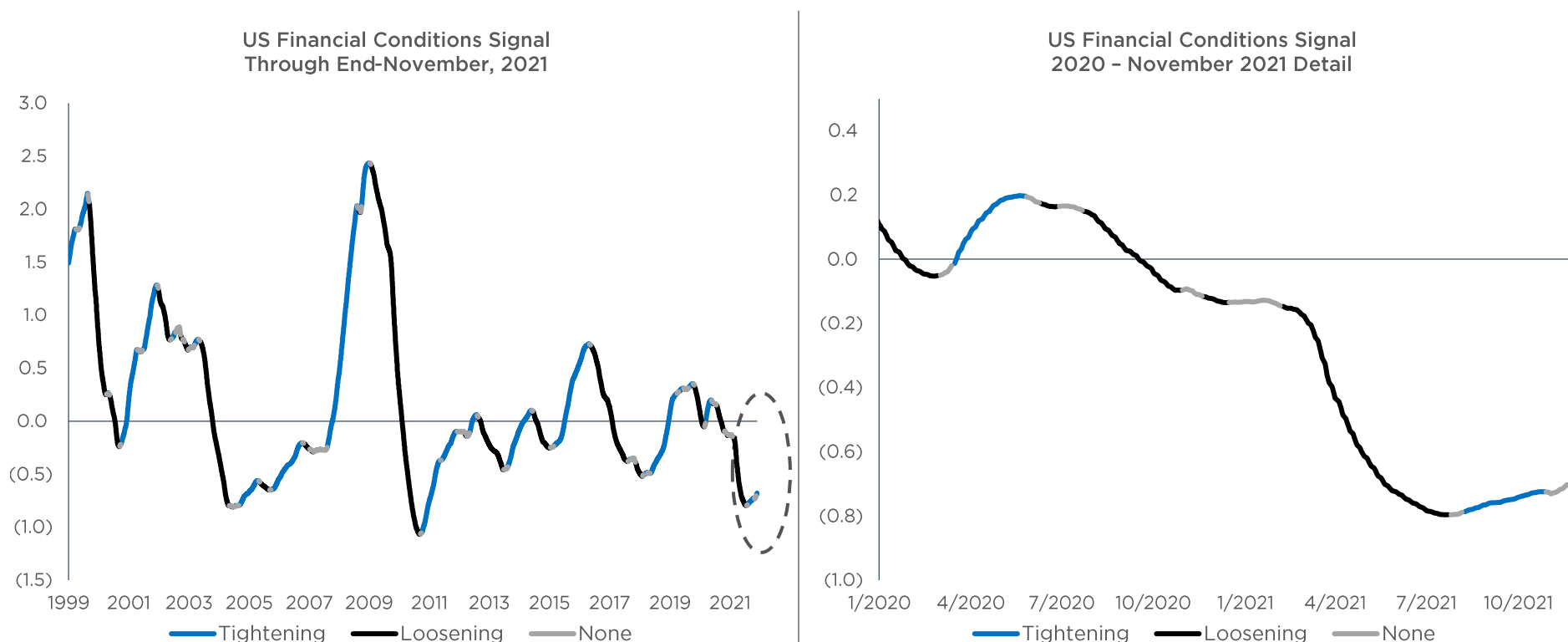
We took a detailed look at the banks sector and research key investment controversies facing bank stock investors and three data points to monitor. We think these concepts apply broadly to investors in other industries as well. The controversies are:

1. **Gross Exposure:** Our quantitative models work better at discriminating banks stocks when financial conditions are loosening, something we capitalized on earlier in the year by recommending high gross exposure in banks. However, financial conditions have tightened over the past couple of months and are neutral now. 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.
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 rise and this will help the net interest margins of banks
3. **Large banks look more attractive than small,** with balance sheets that have improved more without a commensurate improvement in relative valuation. Micro cap. quality banks were cheaper than micro cap. junk banks, but that has now corrected.

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.

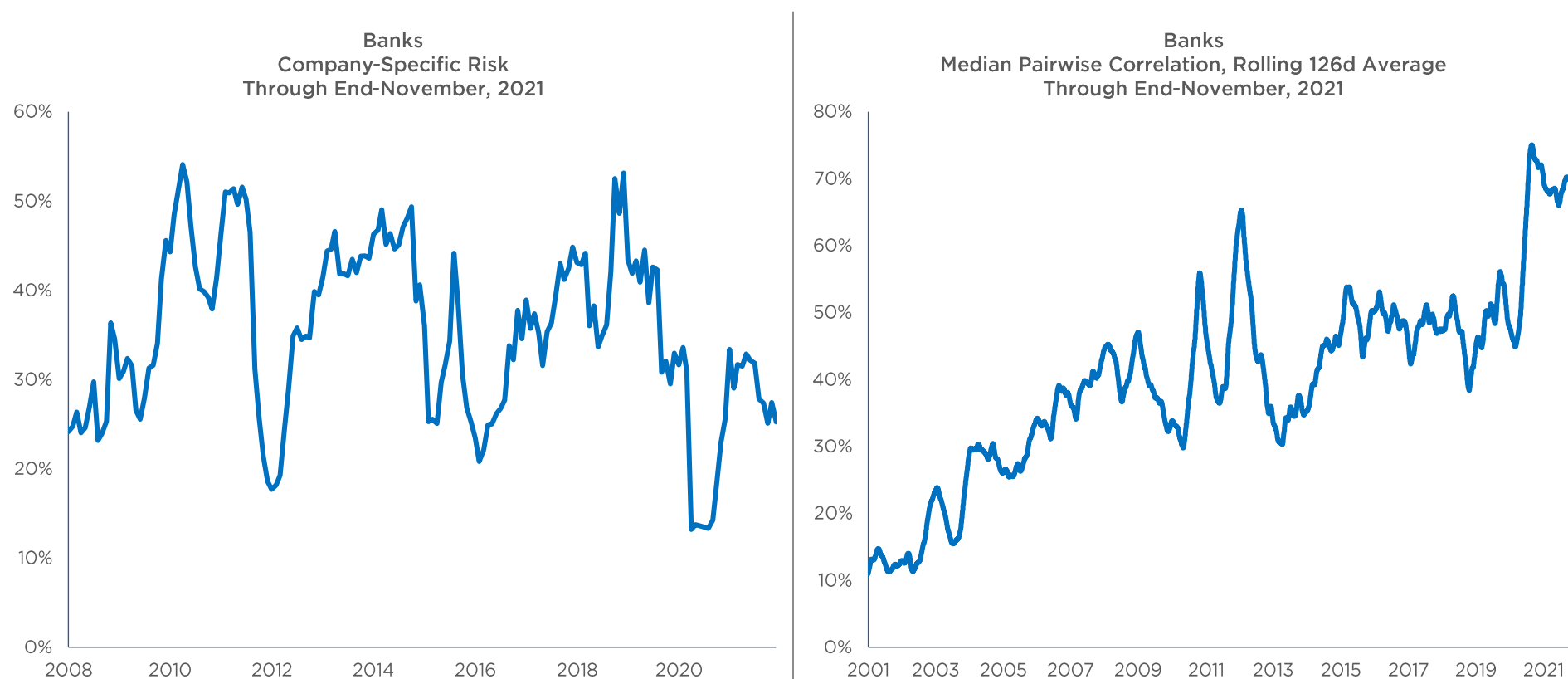
FINANCIAL CONDITIONS ARE NOW NEUTRAL

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



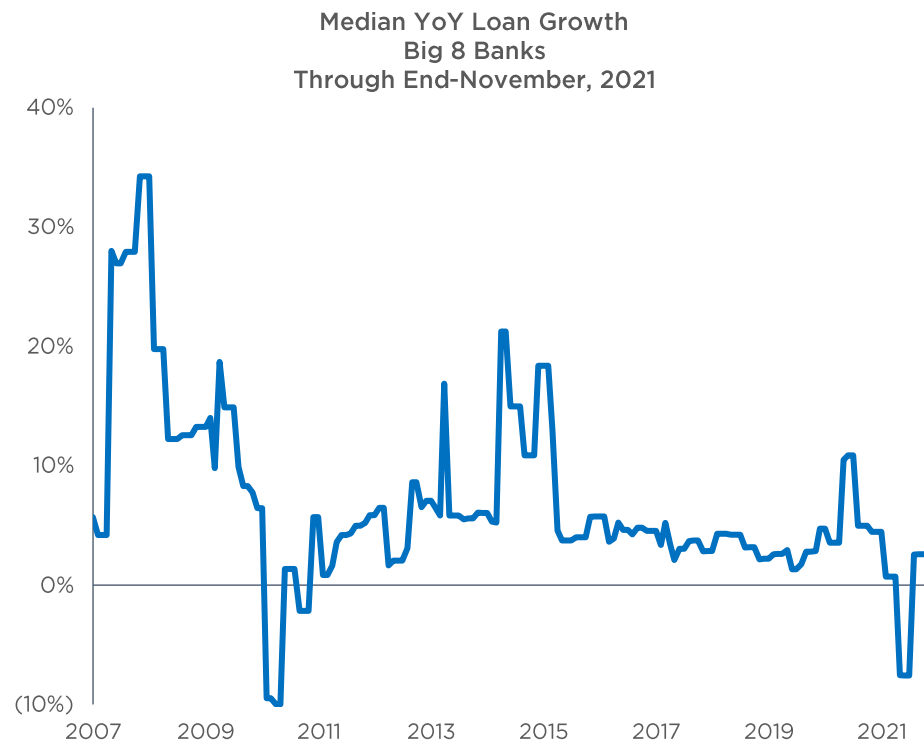
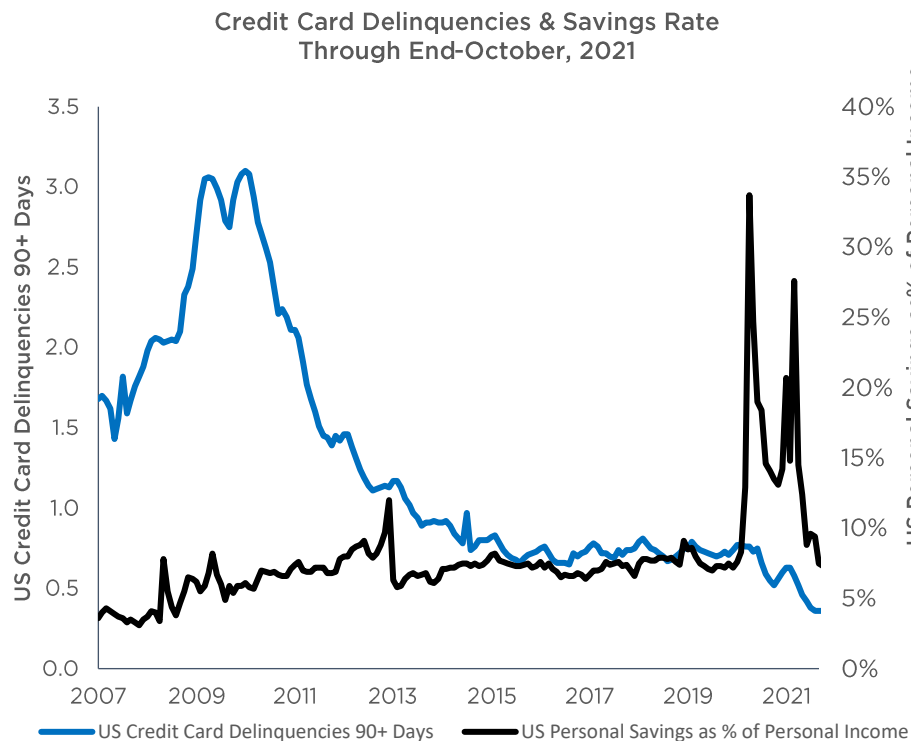
OTHER DATA SUGGEST STOCK SELECTION IN BANKS IS TOUGH TODAY

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)



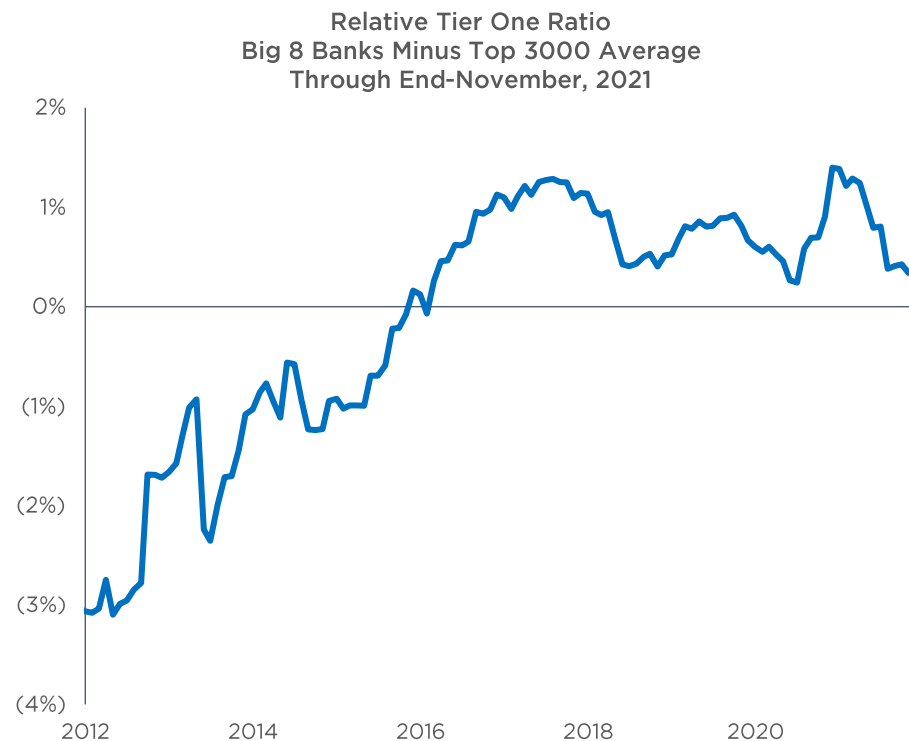
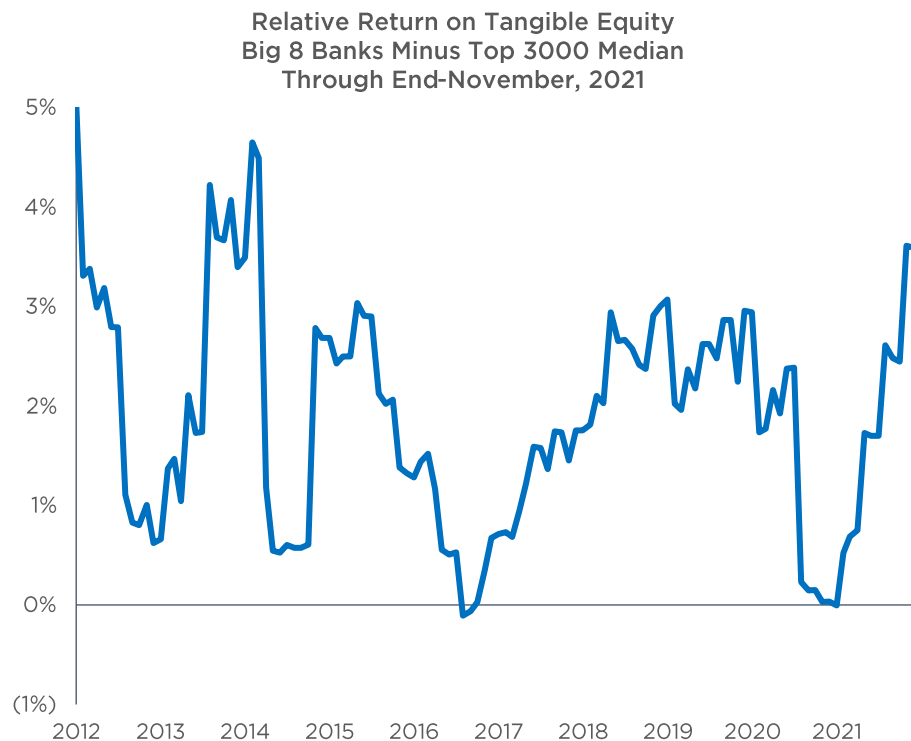
WATCH THE SAVINGS RATE AND LOAN GROWTH TO GAUGE REVISIONS

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-November, 2021

Ticker	Company Name	Market Cap (\$ US. Bil)	Price to Tangible Book	Percentile vs. History
JPM	JPMorgan Chase & Co.	469.38	2.30x	71.4%
MS	Morgan Stanley	170.15	2.34x	70.6%
BAC	Bank of America Corporation	363.95	2.02x	58.0%
PNC	The PNC Financial Services Group, Inc.	83.26	2.06x	50.6%
GS	The Goldman Sachs Group, Inc.	127.09	1.39x	49.8%
C	Citigroup Inc.	126.40	0.80x	16.7%
WFC	Wells Fargo & Company	190.51	1.33x	6.7%
USB	U.S. Bancorp	82.06	2.21x	5.9%

Banks Stocks with Relatively Weak Tangible Book Growth
That Have Also Seen Material Price-to-Tangible Book Multiple Expansion
August 4th, 2020 Through End-November, 2021

Ticker	Company Name	Market Cap (\$ US. Bil)	Book Value Growth	Price to Tangible Book Growth
PNC	The PNC Financial Services Group, Inc.	89.27	3.9%	92%
FITB	Fifth Third Bancorp	30.03	(2.5%)	122%
RF	Regions Financial Corporation	22.60	9.9%	100%
WAL	Western Alliance Bancorporation	11.99	28.7%	164%
CMA	Comerica Incorporated	11.15	(0.1%)	112%
FCNCA	First Citizens BancShares, Inc.	7.91	(3.6%)	99%
PNFP	Pinnacle Financial Partners, Inc.	7.31	19.5%	104%
SNV	Synovus Financial Corp.	6.78	6.5%	118%
BPOP	Popular, Inc.	6.57	0.8%	113%
PACW	PacWest Bancorp	5.57	15.2%	127%
STL	Sterling Bancorp	4.95	13.1%	101%
CIT	CIT Group Inc.	4.91	14.9%	133%
HWC	Hancock Whitney Corporation	4.30	14.2%	134%
LOB	Live Oak Bancshares, Inc.	3.87	25.7%	364%
CBU	Community Bank System, Inc.	3.86	(2.2%)	37%
TBK	Triumph Bancorp, Inc.	2.91	16.4%	298%
FBP	First BanCorp.	2.80	(4.0%)	146%
VBTX	Veritex Holdings, Inc.	2.02	18.2%	100%
GWB	Great Western Bancorp, Inc.	1.88	3.5%	155%
TBBK	The Bancorp, Inc.	1.75	16.2%	185%
NTB	The Bank of N.T. Butterfield & Son Limited	1.75	(1.6%)	41%
FBNC	First Bancorp	1.38	11.1%	110%
CNOB	ConnectOne Bancorp, Inc.	1.33	18.9%	103%

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.

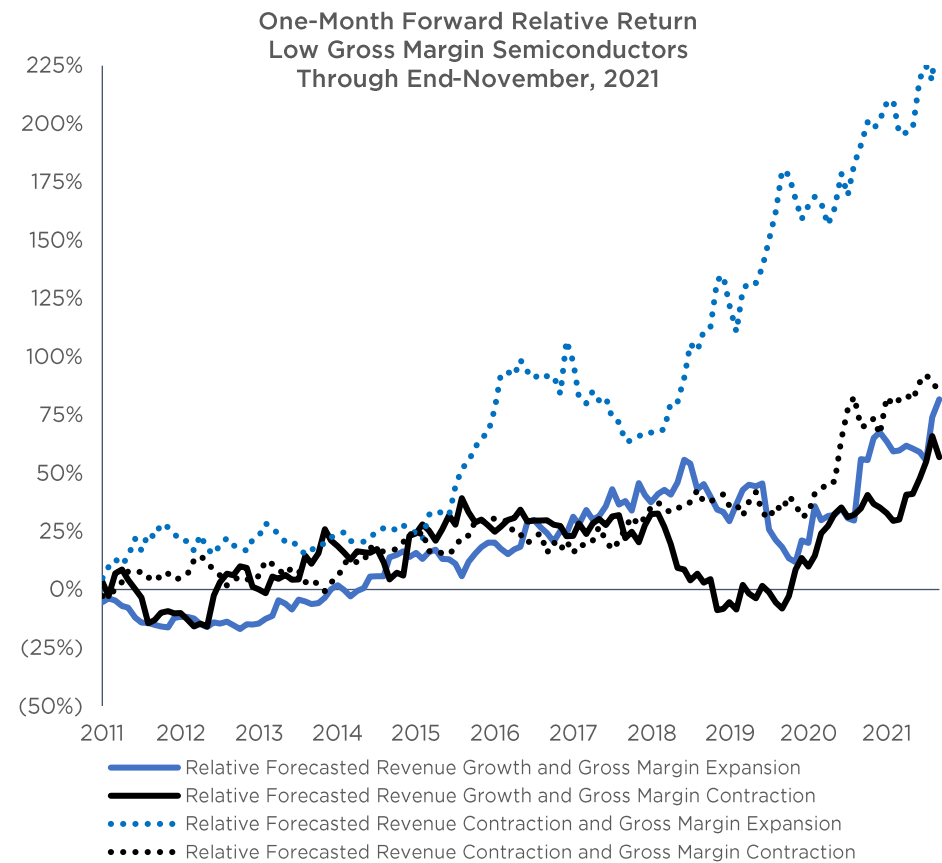
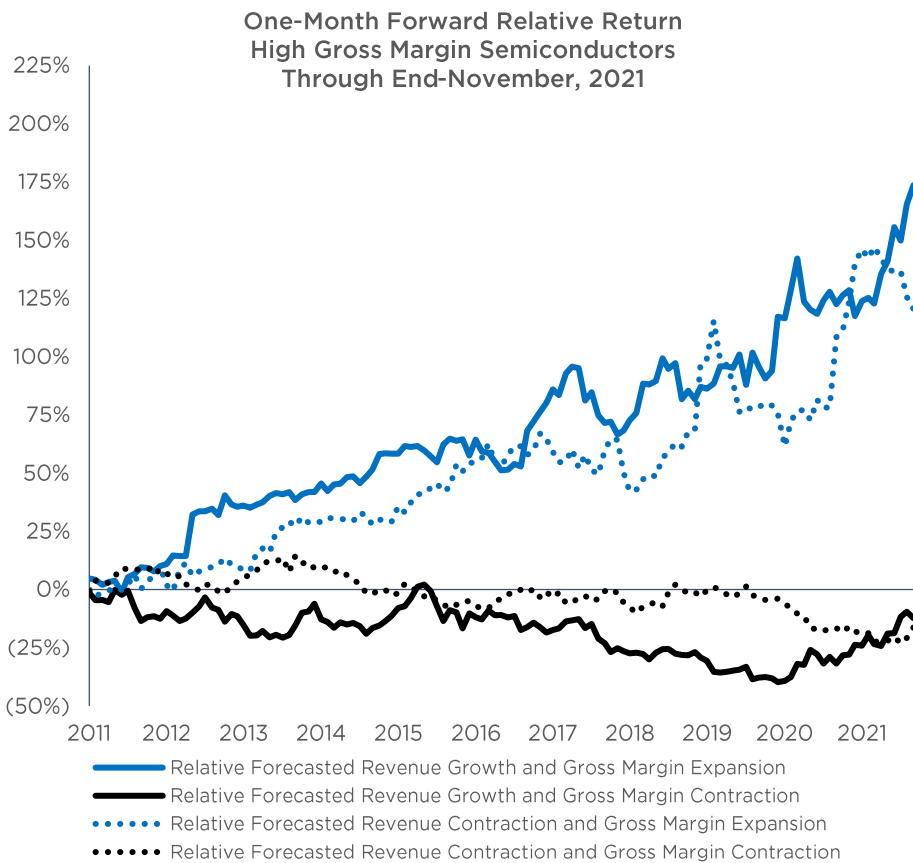
Semiconductors: Gross margin expansion is more important than share gain for both high and low gross margin chip makers. Multiple expansion / contraction and price momentum help us further refine the stock ideas.

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.

Check out our framework tear sheet on page 79!

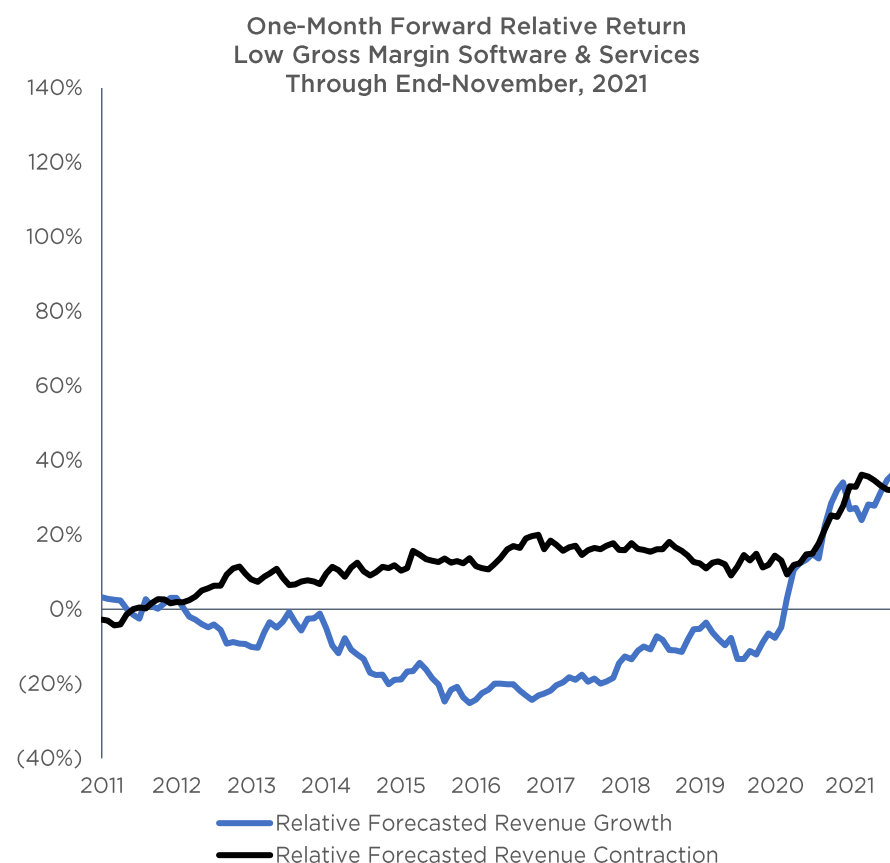
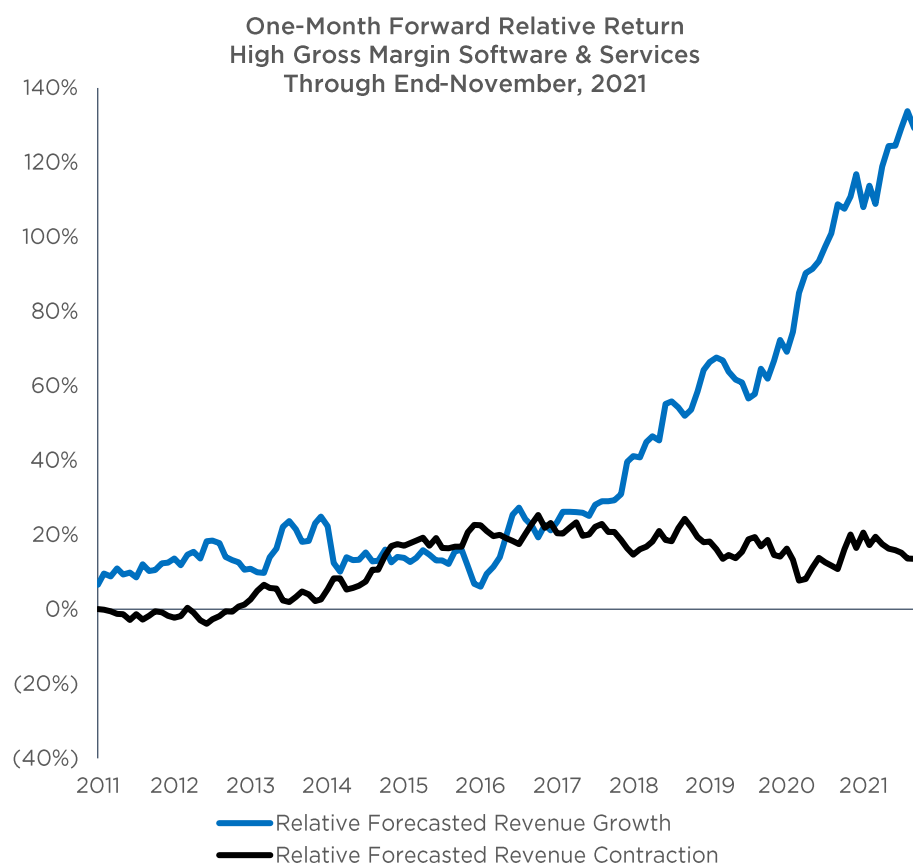
MARGIN EXPANSION MORE IMPORTANT THAN SHARE GAIN FOR CHIPS

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. 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-November, 2021

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
NXPI	NXP Semiconductors N.V.	59.40
SWKS	Skyworks Solutions, Inc.	25.08
QRVO	Qorvo, Inc.	16.12
ALGM	Allegro MicroSystems, Inc.	5.92
Short		
AVGO	Broadcom Inc.	227.90
INTC	Intel Corporation	200.10
TXN	Texas Instruments Incorporated	177.66
MCHP	Microchip Technology Incorporated	46.29
MPWR	Monolithic Power Systems, Inc.	25.51
OLED	Universal Display Corporation	6.74
POWI	Power Integrations, Inc.	6.03
CRUS	Cirrus Logic, Inc.	4.58
RMBS	Rambus Inc.	2.94

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-November, 2021

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
MU	Micron Technology, Inc.	93.96
ON	ON Semiconductor Corporation	26.47
BRKS	Azenta, Inc.	8.29
TSEM	Tower Semiconductor Ltd.	3.84
AOSL	Alpha and Omega Semiconductor Limited	1.30
Short		
ACMR	ACM Research, Inc.	1.71
AXTI	AXT, Inc.	0.34

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-November, 2021

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
DT	Dynatrace, Inc.	17.92
SPT	Sprout Social, Inc.	6.03
JAMF	Jamf Holding Corp.	3.84
MSP	Datto Holding Corp.	3.83
RAMP	LiveRamp Holdings, Inc.	3.20
Short		
ORCL	Oracle Corporation	248.05
TEAM	Atlassian Corporation Plc	95.12
SNPS	Synopsys, Inc.	52.00
CDNS	Cadence Design Systems, Inc.	49.18
ANSS	ANSYS, Inc.	34.16
NLOK	NortonLifeLock Inc.	14.46

Low Gross Margin Software

Buy Relative Gross Margin Growers, Multiple Expansion, and High Momentum
Sell Relative Gross Margin Shrinkers, High Momentum
End-November, 2021

Long		
Ticker	Company Name	Market Cap (\$ US. Bil)
PANW	Palo Alto Networks, Inc.	53.96
MDB	MongoDB, Inc.	32.96
TYL	Tyler Technologies, Inc.	21.27
SSNC	SS&C Technologies Holdings, Inc.	19.41
AKAM	Akamai Technologies, Inc.	18.31
PCTY	Paylocity Holding Corporation	13.89
GWRE	Guidewire Software, Inc.	9.69
NEWR	New Relic, Inc.	7.25
RPD	Rapid7, Inc.	7.09
Short		
MSFT	Microsoft Corporation	2482.06
ACN	Accenture plc	225.75
SHOP	Shopify Inc.	191.14
ADP	Automatic Data Processing, Inc.	97.29
PAYX	Paychex, Inc.	42.98
CTSH	Cognizant Technology Solutions Corporation	40.96
EPAM	EPAM Systems, Inc.	34.52
IT	Gartner, Inc.	25.68
BR	Broadridge Financial Solutions, Inc.	20.16
CDAY	Ceridian HCM Holding Inc.	16.56

SUMMARY AND CONCLUSIONS FOR INDUSTRIALS

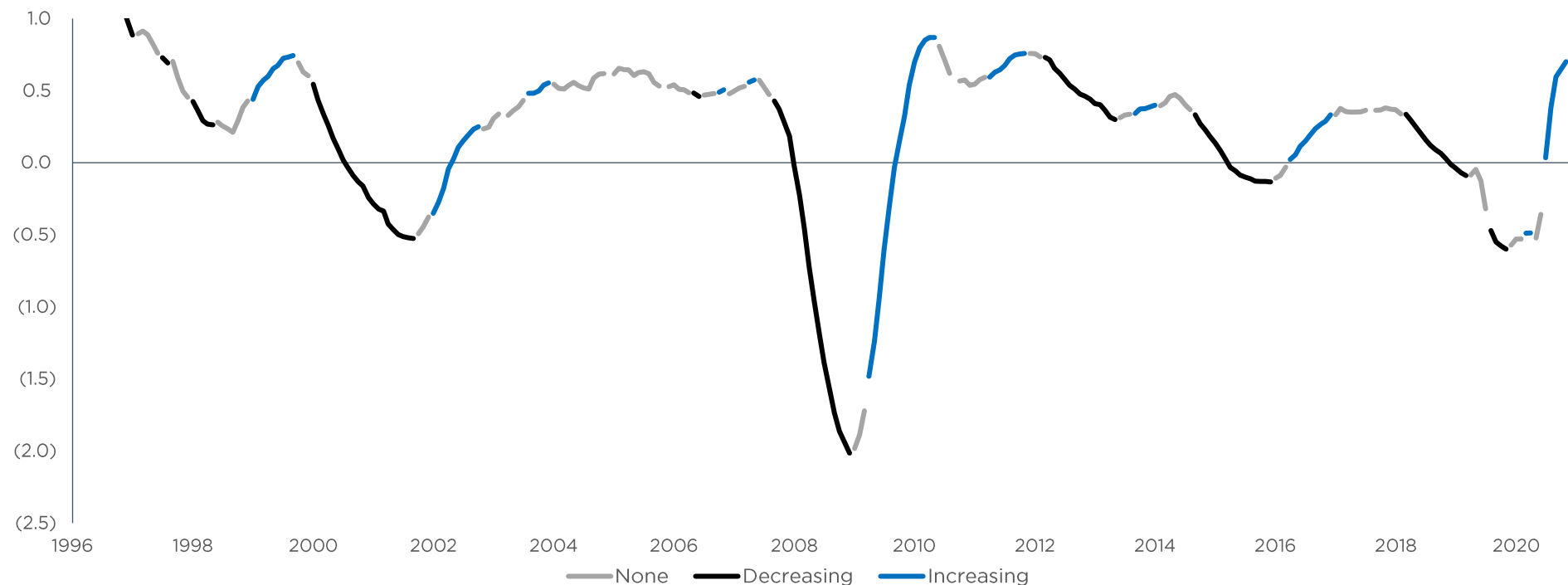
We are negative on the industrials sector relative to the market and would initiate new shorts, or sell down large long positions now

- 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

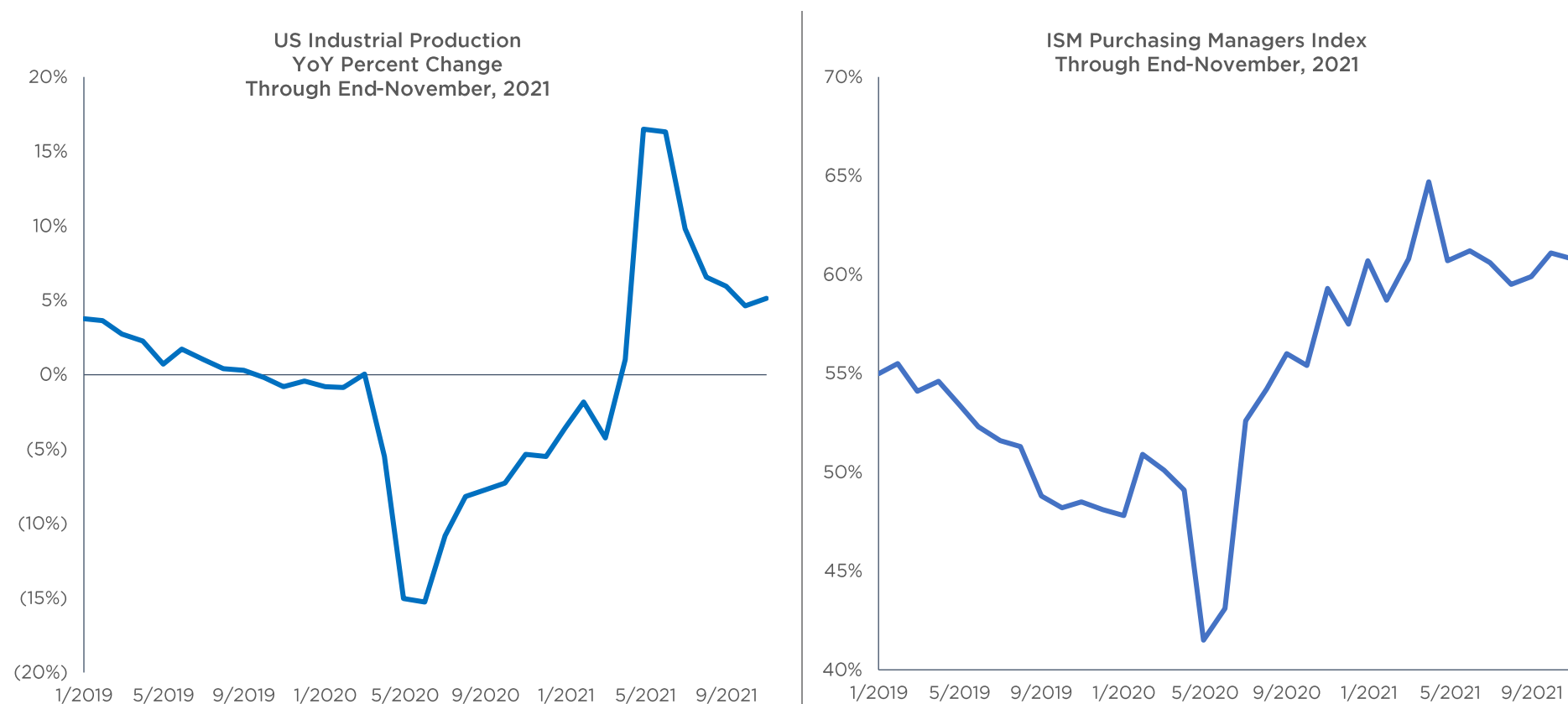
Our industrial activity gauge, which is a broad-based combination of several metrics like C&I loans, Baker Hughes rig count, private nonresidential construction, capacity utilization, new orders of durable goods, PMI, industrial production, and several others show that industrial activity rebounded sharply 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-November, 2021



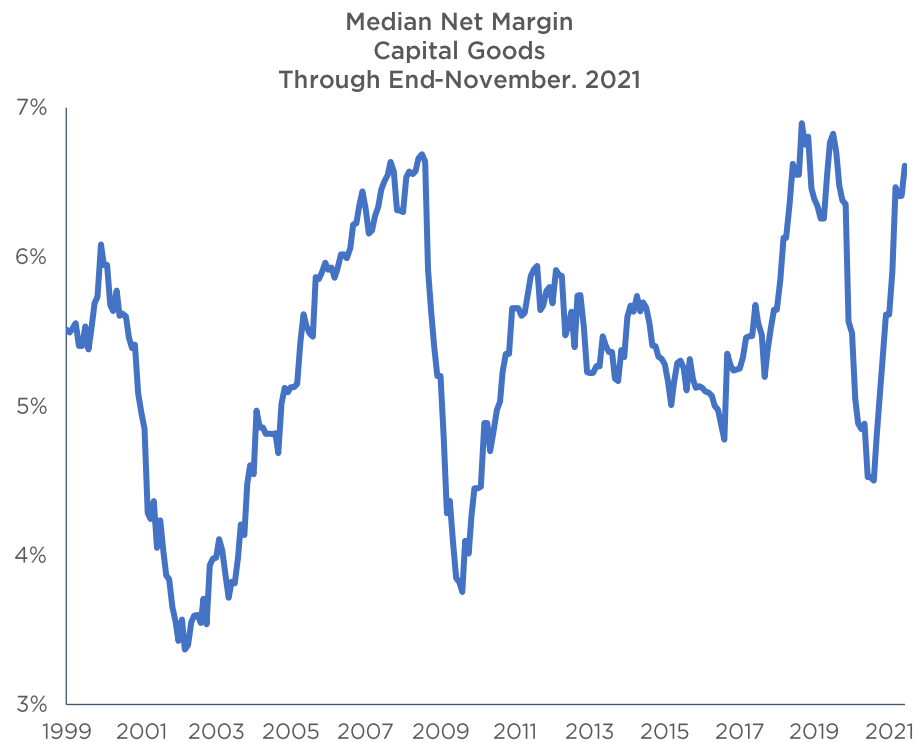
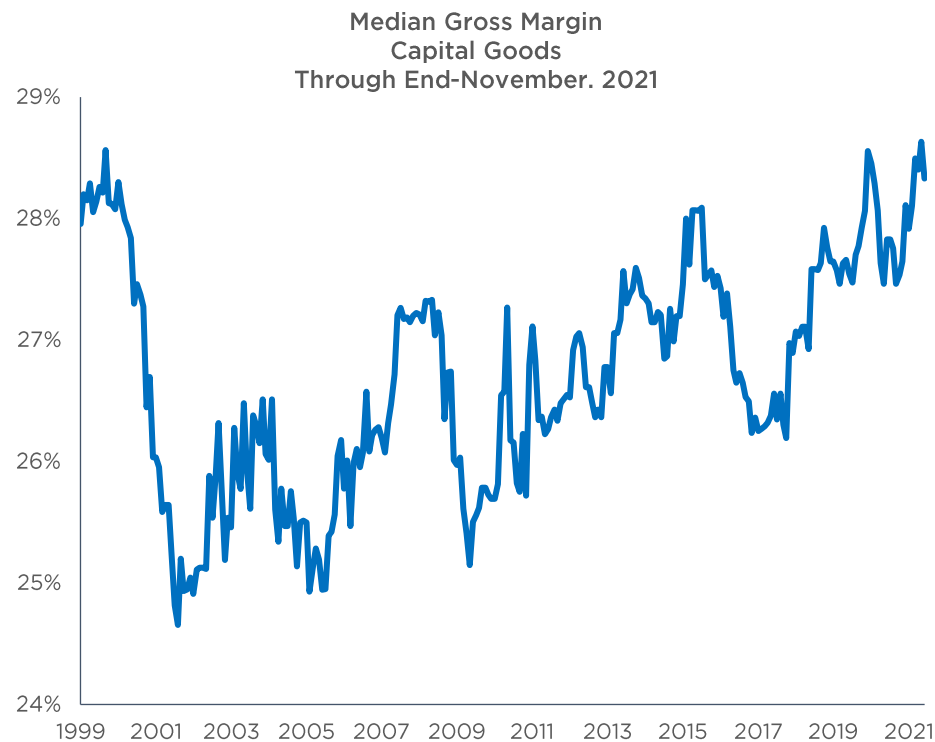
INDUSTRIAL PRODUCTION AND PMI IN PARTICULAR HAVE SOFTENED

Among the inputs we track, industrial production (left chart) appears to be more sharply rolling over, although ISM purchasing managers index is off of highs (right chart). While both remain high in absolute terms, indicating we are far from a recession, the decline from the peak in May of 2021 is a driver of our judgment that corporate fundamentals likely will not achieve forecasted heights.



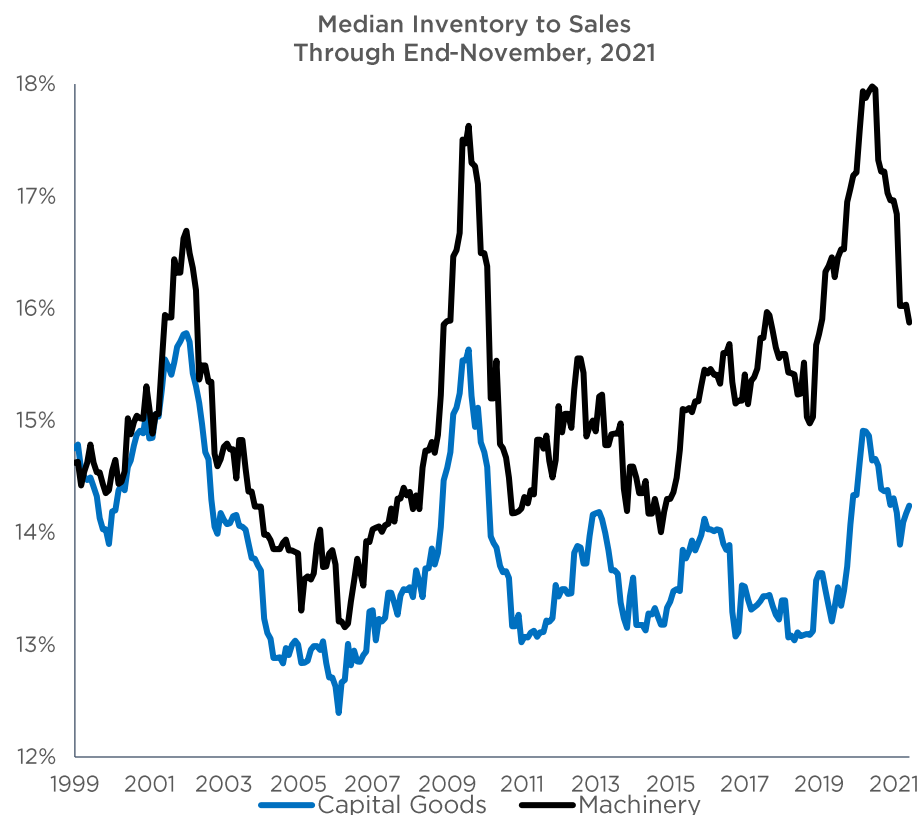
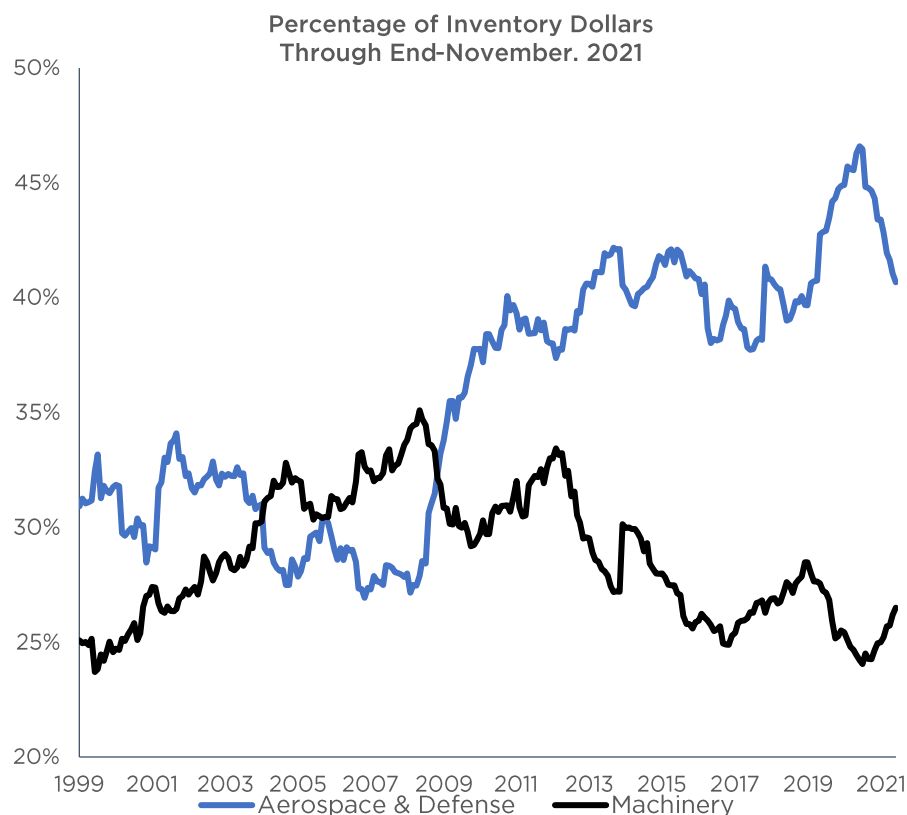
CAPITAL GOODS PROFITABILITY HAS RECOVERED

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.



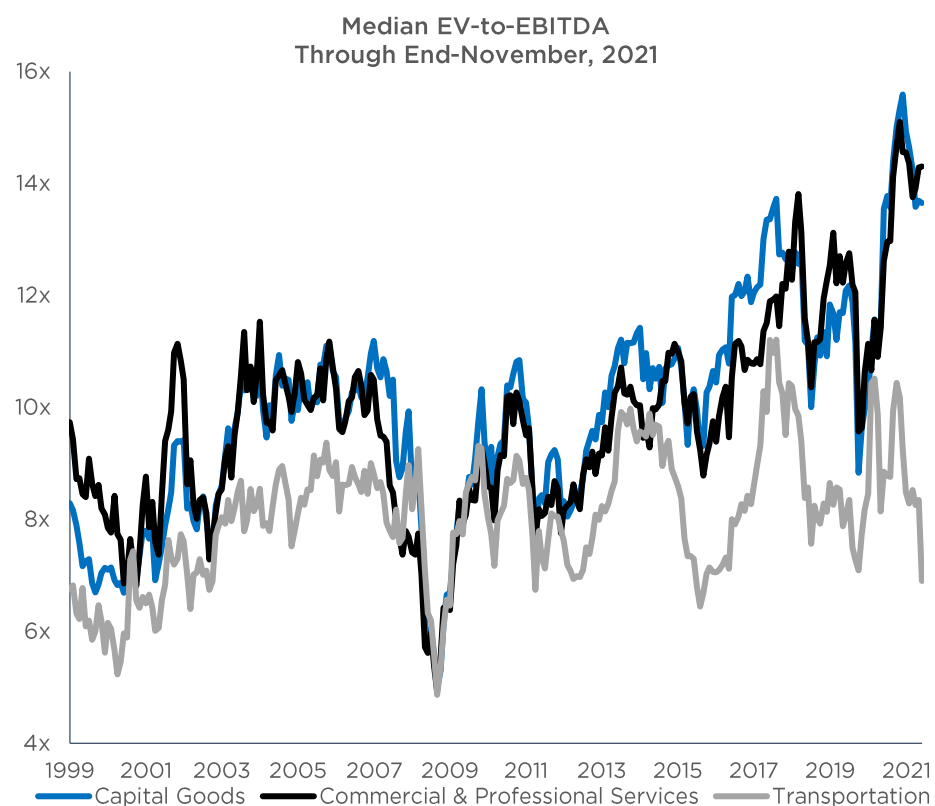
MACHINERY AND CAPITAL GOODS INVENTORY IS NOT LEAN

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

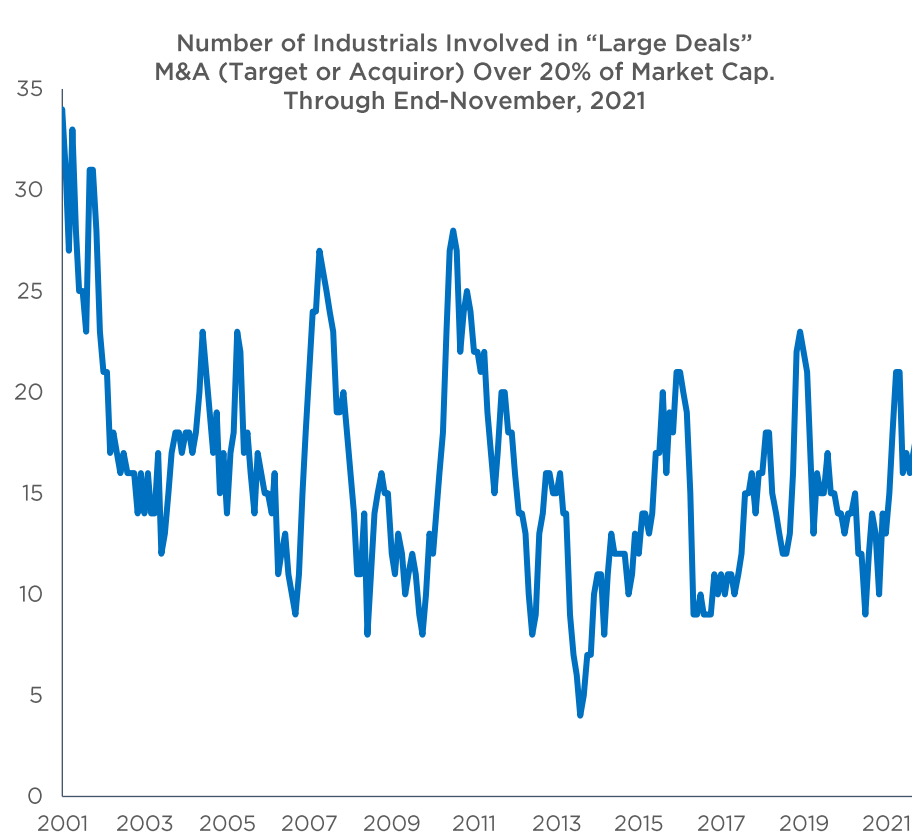
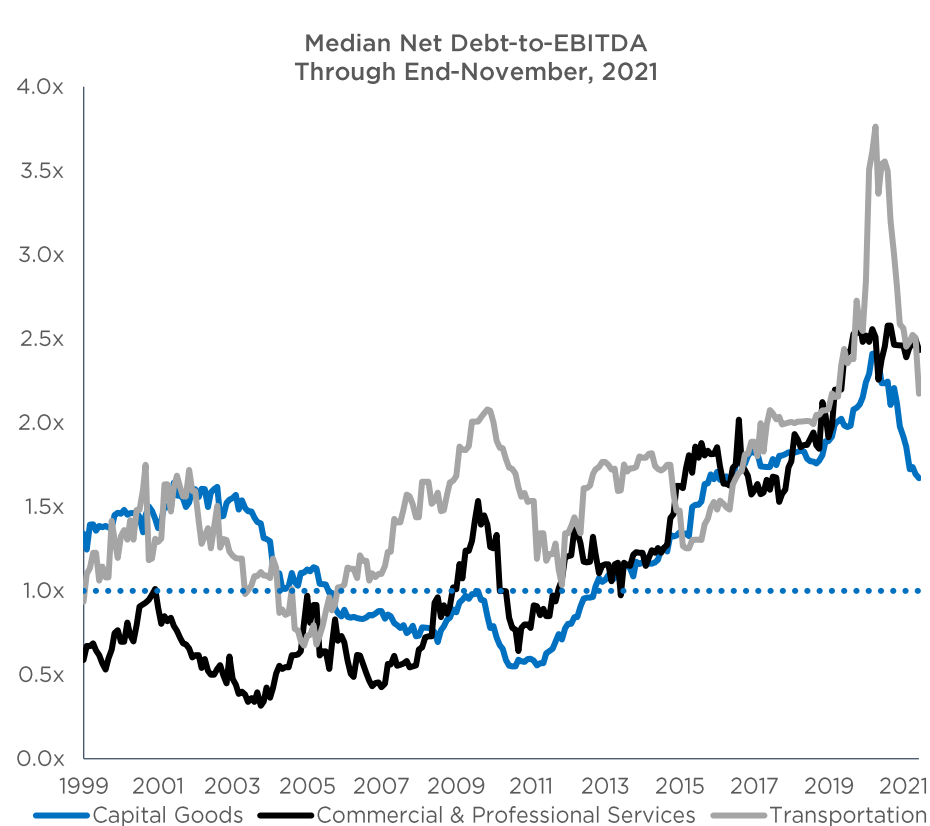
While other cyclicals like materials and energy have seen sharp multiple contraction as there is a view that they are over-earning, that is not the case for industrials, with elevated EV-to-EBITDA (left chart) multiples across capital goods and professional services. Conglomerates, commercial and professional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



Median EV-to-EBITDA Percentile Rank vs. History End-November, 2021	
Industrials GICS Industry	Rank
Trading Companies & Distributors	100.0%
Industrial Conglomerates	97.8%
Professional Services	97.5%
Commercial Services & Supplies	96.3%
Electrical Equipment	96.3%
Machinery	95.5%
Building Products	90.3%
Construction & Engineering	89.6%
Transportation Infrastructure	86.2%
Aerospace & Defense	81.8%
Road & Rail	71.7%
Air Freight & Logistics	32.3%
Marine	7.4%
Airlines	1.1%

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-November, 2021**

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
HON	Honeywell International Inc.	Industrial Conglomerates	139.23
CAT	Caterpillar Inc.	Machinery	104.59
CTAS	Cintas Corporation	Commercial Services & Supplies	43.66
PH	Parker-Hannifin Corporation	Machinery	38.82
ROL	Rollins, Inc.	Commercial Services & Supplies	16.38
PNR	Pentair plc	Machinery	12.19
AGCO	AGCO Corporation	Machinery	8.25
CFX	Colfax Corporation	Machinery	7.19
WTS	Watts Water Technologies, Inc.	Machinery	6.34
CR	Crane Co.	Machinery	5.67
AIMC	Altra Industrial Motion Corp.	Machinery	3.42

**High Forecasted Incremental Margins vs. Current Gross Margins
Bottom Half of Trivariate Quantitative Model
End-November, 2021**

Ticker	Company	Industry Group	Market Cap. (US\$ Bil.)
TT	Trane Technologies plc	Building Products	44.34
PCAR	PACCAR Inc	Machinery	28.96
SWK	Stanley Black & Decker, Inc.	Machinery	28.49
IR	Ingersoll Rand Inc.	Machinery	23.78
CNHI	CNH Industrial N.V.	Machinery	22.16
MAS	Masco Corporation	Building Products	16.09
FBHS	Fortune Brands Home & Security, Inc.	Building Products	13.65
GGG	Graco Inc.	Machinery	12.39
PNR	Pentair plc	Machinery	12.19
CSL	Carlisle Companies Incorporated	Building Products	11.74
LII	Lennox International Inc.	Building Products	11.31
ALLE	Allegion plc	Building Products	11.09
TTC	The Toro Company	Machinery	10.70

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