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Cross Asset Strategy, US Equity Strategy & US Economics | North America

The Recession Playbook

While a US recession over the next 12 months is not our base case, our economists see it is a credible bear case, especially if trade tensions escalate. We challenge some conventional wisdom on recessions and discuss what investors' playbooks should look like.



Ellen Zentner is an economist and is not opining on any securities. Her views are clearly delineated.

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Executive Summary

Recession risks are rising. Our economists recently downgraded growth forecasts across the board. Despite the relatively benign outcome out of the G20, they see uncertainty from trade tensions as *already* having done significant damage to the cycle, with whatever policy easing may come likely insufficient to revive growth; if trade tensions escalate, the global economy and the US may fall into a recession; see [Global Economics: Uncertainty Still Prevails \(30 Jun 2019\)](#).

For now, the path to the bear case of a US recession is still narrow, but not unrealistic. While our US Economics team's own [recession probability indicator](#) points to only a 13% chance of a recession in the next 12 months, they have also highlighted a significant loss of momentum in business activity over recent months, even as the services sector and consumers appear to be in good health. Hence, their subjective probability stands at 20%. If trade tensions escalate further, our economists see the direct impact of tariffs interacting with the indirect effects of tighter financial conditions and other spillovers, potentially leading consumers to retrench. Corporates may start laying off workers and cutting capex as margins are hit further and uncertainty rises. The large negative demand shock that ensues could drive the US economy into a recession, with GDP growth falling from 2.2%Y in 2019 to -0.1%Y in 2020.

Rising risks and our review of historical market performance around prior recessions support our more cautious view on risk assets — we remain underweight equities and, within equities, prefer more defensive sectors; see [Cross-Asset Dispatches: Downgrading Global Equities to Underweight \(7 Jul 2019\)](#). As growth slows, markets tend to be forward looking — treasury yields tend to have *already* fallen by about 50 bps by the time the economy peaks, equities and credit tend to start lagging typical returns during the 12 months *before* a recession starts, and equity returns generally shift outright negative shortly before and into the first few months of recessions.

Watching the Economic Data

Above all, we're watching the US consumer and employment data. A review of 100+ data series helped us establish some of the more reliable signals where decelerations could mean recession is ahead and the most consistent of these center around employment and US consumer confidence, income, and spending.

- **Employment:** Survey data around the availability of jobs can confirm turns in the unemployment rate and slowing job creation (and eventually job loss). Once job growth goes negative and the unemployment rate rises, a recession is hard to avoid.
- **Consumers:** Stagnating consumer earnings growth, declines in consumer confidence by more than 15% y/y, and growth in real personal consumption expenditures falling below 2.5% y/y are all warning signs of a potential recession.
- **Corporates:** Falling durable goods orders and ISM manufacturing PMIs sustainably below 50 tend to line up with recessions.
- **Aggregate Indicators:** Sustained y/y growth in the Conference Board Coincident Indicators Index below 2% and its Leading Indicators Index going below 0% y/y both tend to reliably lead recessions.

Current trends are just outside the danger zone, but could be heading there (Exhibit 1). Comparing the recession signals above with current trends shows that many data points are still outside of the danger zone, but history tells us that these series can deteriorate rapidly and current deceleration trends continuing would materially increase the risk of recession.

Exhibit 1:

Economic Data Series with a Consistent Historical Record of Turning Before Recessions and Current Trends

	Avg. Series Values Before/After Start of Prior 5* Recessions									Trailing 12 Months				
	T-12	T-6	T-3	T-1	T-0	T+1	T+3	T+6	T+12	T-12	T-6	T-3	T-1	Current
Consumer														
Avg. Hourly Earnings Growth (Prod, Non-Supervisory) - 1 Yr. Chg. (bps)	63	-10	-23	-10	-35	-30	5	-18	3	60	100	70	50	50
Consumer Confidence	106.5	102.0	101.8	94.6	95.7	90.6	76.7	66.7	72.9	127.1	126.6	124.2	131.3	121.5
Consumer Confidence Y/Y (%)	1.7%	-6.2%	-9.6%	-15.8%	-15.4%	-20.9%	-34.1%	-37.9%	-24.9%	8.4%	2.8%	-2.2%	1.9%	-4.4%
Real PCE Y/Y (%)	4.2%	3.1%	2.6%	2.2%	2.1%	1.5%	0.9%	-0.1%	0.1%	2.6%	2.8%	2.6%	2.8%	2.7%
Employment														
Init. Jobless Claims, 4W MA, Y/Y (%)	-0.6%	9.7%	15.9%	15.1%	18.9%	21.4%	25.3%	34.6%	21.0%	-8.1%	-8.5%	-3.9%	-2.2%	0.0%
Jobs Plentiful - Hard to Get (Conf. Board, %)	5.9%	4.6%	4.1%	0.6%	0.6%	-2.0%	-8.1%	-20.1%	-28.9%	25.3%	33.3%	28.7%	33.5%	27.6%
NFP Payrolls, 3 MMA	90	175	93	89	74	23	-80	-216	-156	243	233	174	147	171
U-3 Unemployment 1 Yr. Chg. (bps)	-35	-20	13	5	40	48	73	130	155	-30	-20	-20	-20	-30
Corporate														
Credit Spreads (Baa OAS, bps)	141.7	165.8	174.4	196.9	194.5	190.5	219.2	236.3	286.1	157.0	197.0	157.0	166.0	151.0
Durable Goods Orders ex-Transport. Y/Y (%)	8.8%	3.3%	1.7%	1.7%	3.2%	2.1%	-2.3%	-3.7%	-7.8%	8.4%	4.8%	2.3%	-0.1%	0.3%
ISM Manufacturing	49.1	50.3	49.7	47.7	46.5	47.6	42.7	41.7	45.0	60.0	54.3	55.3	52.1	51.7
Aggregate														
Conf. Board Coincident Indicators Y/Y (%)	3.4%	2.3%	1.8%	1.5%	1.4%	0.9%	0.0%	-1.2%	-1.9%	2.3%	2.3%	1.9%	1.8%	1.6%
Conf. Board Leading Indicators Y/Y (%)	1.6%	-0.8%	-3.0%	-3.9%	-4.7%	-5.7%	-7.8%	-9.3%	-7.9%	5.8%	4.1%	2.9%	2.5%	1.6%

Source: Bloomberg, Morgan Stanley Research.

Note: Due to distortions from base effects in the double dip recession of the 1980s, variables involving year on year changes omit data points around the second of the 80s recessions.

Some investors may believe Fed action will be enough to support growth and the equity market, but the history is mixed. Mid-cycle Fed cuts are supportive of growth and risk assets, but with a lot of tightening in the system already due to recent hikes and quantitative tightening, manifest decelerations, and lingering uncertainty over trade policy, we think the "mid-cycle" argument is not a sure thing. If cuts are not enough to stave off recession, risk assets will not work — for example, US equities have been down between roughly 15% and 50% from their pre-recession peaks at the end of prior cycles, notwithstanding a Fed that is cutting.

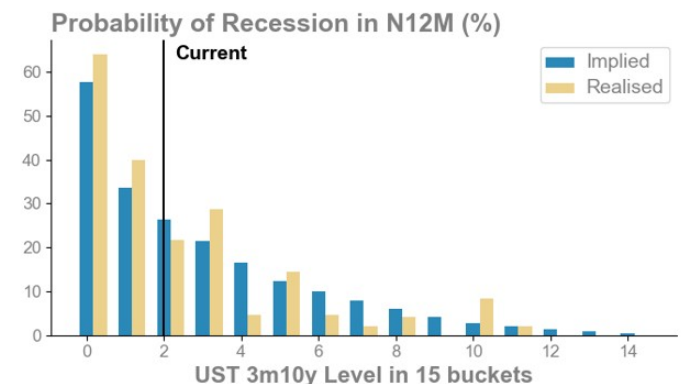
Where Markets Could Be Surprised

With recession risks rising, it is important to understand which asset classes are most likely to be caught off guard, or which are pricing in the lowest probability of recession. Using probit models (as the Fed does with its own recession probability model) across various asset classes, we find that US equities, particularly large caps, and US BBB credit spreads are pricing in fairly low probabilities of a recession. This contrasts with the relatively higher recession risk priced in the 3m10y yield curve which has been inverted now for nearly 2 months (**Exhibit 2**). On the other hand, the lack of any inversion to date and recent (modest) steepening in the 2s10s curve imply a lower risk of a recession. In commodities, gold and copper are pricing in a relatively higher risk of recession compared to Brent, which paints a more sanguine picture.

This systematic approach has the advantage of being consistent across markets, allowing for an apples-to-apples way of comparing how different assets are pricing a recession risk. But is not without its

Exhibit 2:

The Flatter the UST Curve, the Higher the Probability of a Recession



Source: Morgan Stanley Research; Note: Implied probability is computed based on a univariate probit model. We compute the average implied probability in each bucket. Black line shows the current valuation bucket.

limitations given that dynamics across recessions vary considerably. To that end, we also took a more qualitative look at how various asset classes and equity industry groups have traded across the last 5 cycles.

Asset Class Returns Around Recessions

History doesn't repeat, but it often rhymes. Mark Twain was not an economist or market strategist (at least not to our knowledge), but his often attributed observation applies to economic recessions and market reactions. Given the varied causes, durations, and magnitudes of prior recessions, the trading history of most asset classes around these events has varied considerably. In our analysis, we focus only on the five episodes from 1980 onwards, given the Fed's implementation of monetary policy over this period is more analogous to what we have today. A sample size of 5 and wide variations make extrapolating patterns difficult, but in a few cases, patterns that look to be fairly consistent over time do emerge.

A Cross-Asset Perspective

Since recessions do not announce themselves when they arrive and markets are forward-looking, history suggests that investors should not wait for confirmation of a recession before getting more defensive in their asset allocation. Global equities and credit tend to start lagging typical returns during the 12 months before a recession starts, while Treasury yields tend to have already fallen by about 50bps by the time the economy peaks. Patience does not pay when it comes to recessions — an investor who rotates to

bonds from equities only after a recession is confirmed by the NBER would have both felt the worst of equity underperformance and missed out on substantial positive bond returns leading up to the announcement date. Here are a few observations across asset classes that stood out to us from our review of the last five US recessions ([Exhibit 3](#)).

- **There is a large overlap between recessions and equity bear markets.** Four out of the last five US recessions were associated with a bear market, all of which started either before or at the same time as the macro peak; the lone recession that did not see a 20% drawdown still saw a 17% sell-off.
- **Equities and credit are most vulnerable, while bonds outperform during a recession.**
- **Ex-US risk assets tend to see bigger drawdowns than US markets during US recessions,** largely because these periods coincide with global slowdowns. We think shallower foreign markets may be another reason — low liquidity for EU HY contributed to the asset's underperformance versus the US, in our view.
- **Credit spreads have reliably widened and the yield curve dependably steepened going into and out of the start of the last five recessions.** Large variations exist across the past episodes in terms of magnitude and timing, but these two assets have displayed similar behavior in all of them.

Exhibit 3:

Average Monthly Return During US Recessions

Average Monthly Return During US Recessions										
	Y1980	Y1981	Y1990	Y2001	Y2007	Entire Period	Pre NBER Announce	Post NBER Announce	Improves Post Announce?	Number of Obs.
EQUITIES										
MSCI ACWI			-0.1%	-0.6%	-2.3%	-1.4%	-2.5%	2.3%	✓	36
S&P 500	1.9%	0.5%	0.6%	-0.1%	-2.2%	-0.3%	-1.3%	1.8%	✓	60
MSCI Europe Local	1.4%	0.6%	-0.6%	-1.1%	-2.6%	-0.7%	-1.7%	1.3%	✓	60
TOPIX	0.4%	0.0%	-1.2%	-2.3%	-2.3%	-1.2%	-2.2%	0.7%	✓	60
MSCI EM			0.6%	-0.5%	-1.9%	-1.0%	-3.0%	6.4%	✓	36
RATES										
UST 10yr	0.7%	2.2%	1.0%	0.6%	0.6%	1.1%	1.1%	1.3%	✓	60
Bunds 10Y	0.8%	1.6%	0.9%	0.6%	0.7%	1.0%	0.7%	1.6%	✓	60
JGB 10Y			0.6%	0.1%	0.3%	0.3%	0.4%	0.2%		36
CREDIT										
US IG XS			0.0%	0.1%	-0.3%	-0.1%	-0.8%	1.9%	✓	36
US HY XS			0.5%	-0.7%	-0.5%	-0.3%	-1.8%	4.6%	✓	36
EU IG XS				0.0%	-0.4%	-0.3%	-0.7%	0.6%	✓	27
EU HY XS				-2.2%	-0.8%	-1.2%	-3.8%	5.2%	✓	27
EM \$ Sov XS					-0.2%	-0.2%	-2.4%	3.5%	✓	19
FX										
DX	0.1%	0.7%	0.2%	-0.1%	0.3%	0.3%	0.3%	0.3%	✓	60
EURUSD	-0.4%	-0.7%	-0.2%	0.3%	-0.1%	-0.3%	-0.3%	-0.1%	✓	60
GBPUSD	0.8%	-1.0%	0.1%	0.1%	-1.1%	-0.5%	-0.5%	-0.5%	✓	60
JPYUSD	0.9%	-0.4%	1.0%	0.3%	0.8%	0.4%	1.0%	-0.6%		60
BRLUSD				-1.7%	-0.3%	-0.7%	-2.3%	2.7%	✓	27
RUBUSD				-0.5%	-1.1%	-0.9%	-0.8%	-1.1%		27
KRWUSD				0.6%	-1.4%	-0.8%	-2.2%	2.2%	✓	27
COMMODITIES										
Brent			8.2%	-2.4%	-2.1%	0.4%	0.5%	-1.1%		36
Gold	-1.0%	0.3%	-0.2%	0.7%	1.1%	0.4%	-0.4%	1.8%	✓	59

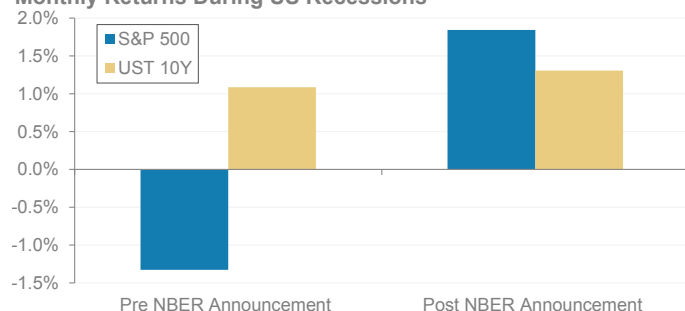
Source: Bloomberg, Morgan Stanley Research; Note: equity sectors data start from 1995, and EM FX starts from 1999. Price returns used for equities, FX, and commodities, total returns for rates and excess returns for credit. Pre NBER announcement period is between the date when recession begins and the announcement date, while post NBER announcement period is between the announcement date and the end of the recession.

- **NBER recession declaration is a good buy signal.** Given the considerable identification and confirmation lag inherent in the NBER's recession calls, by the time a macro peak is officially confirmed, risk markets tend to already be looking ahead to the subsequent recovery (on average, since 1980, by the time a recession is officially confirmed, the slowdown is already roughly 70% passed). Paradoxically, the NBER's confirmation of a recession tends to be a good signal to get more constructive on equities, credit, and commodities ([Exhibit 4](#) and [Exhibit 5](#)).

Exhibit 4:

Equity Underperformance vs. Bonds Occurs Mainly Before a Recession Is Officially 'Called' by the NBER – Waiting for Confirmation Means Investors Miss Out

Monthly Returns During US Recessions

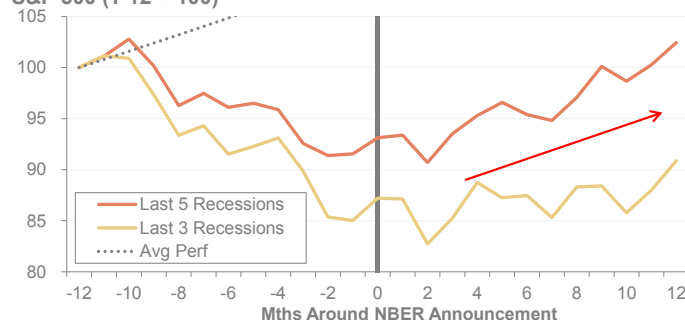


Source: Bloomberg, Morgan Stanley Research; Note: Shows averages for last five US recessions, where data exist. Price returns for equities, total returns for bonds. Pre NBER announcement period is between the date when recession begins and the announcement date, while post NBER announcement period is between the announcement date and the end of the recession.

Exhibit 5:

US Equities Tend to Reclaim Losses After the NBER Declares a Recession Has Begun

S&P 500 (T-12 = 100)



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

A Closer Look at Equity Returns Across Recessions

The worst performance for most industry groups has tended to come in the ~3-month period after the start of recession, with widening dispersion of returns thereafter. For the GICS industry groups and various size/style cohorts, [Exhibit 6](#) shows the average relative returns (vs the broader market for the industry groups and vs the opposite end of size/style cohorts in the case of the factors) of buy and hold strategies over various time horizons surrounding the last 5 recessions. A few of the more reliable trends:

- **Persistent outperformance — Health Care & Staples.** Food/Beverage/Tobacco, Health Care Equipment and Services, and Pharmaceuticals/Biotech/Life Sciences tend to perform on an absolute and relative basis. To a lesser extent, Household and Personal Products, Software, and Utilities, show relative outperformance, but with much wider variance.
- **Persistent underperformance — Autos & Tech Hardware.** Autos and Tech Hardware have a strong tendency to continue weakening through recessions. Though the trend is not as clearly persistent, the same is also true of Capital Goods, Materials, Media/Entertainment, & Telco. Semis also show a trend toward weakening, but their volatility really stands out.
- **Watching for a rebound — Consumer Discretionary.** Consumer Durables/Apparel, Consumer Services (restaurants/leisure), and Retailing all have a tendency to show solid rebounds in relative performance starting a few months after recessions begin. Commercial Services (a mix including waste management firms, data providers, pest control, auction services, and professional staffing) and Transportation also show similar patterns, though with generally stronger performance through the entire recession.
- **Sizes & Styles — Avoid Junk & Lean Defensive.** Junk displays consistently poor performance after the start of recessions. Defensives tend to outperform Cyclical, though we were a bit surprised that Telecom and Utilities, two of the more traditional defensives, did not display as strong a tendency to outperform.

Exhibit 6:

Average Relative Industry Group and Size/Style Returns Around the Prior Five Recessions

Sector / Industry Group	Relative Returns: Industry Group - Top 1500							
	Returns Before US Recession Begins				Returns After US Recession Begins			
	12M	6M	3M	1M	1M	3M	6M	12M
Communication Services								
Media & Entertainment	-6.8%	-3.1%	0.0%	-3.7%	-1.3%	0.0%	-1.3%	-3.7%
Telecommunication Services	-11.0%	-5.8%	-2.6%	-2.0%	-0.6%	4.2%	2.3%	-4.4%
Consumer Discretionary								
Automobiles & Components	-6.4%	-2.9%	-1.5%	-0.8%	-1.5%	-7.5%	-12.7%	-11.8%
Consumer Durables & Apparel	-3.4%	-0.5%	-1.2%	0.5%	2.8%	6.2%	5.0%	4.9%
Consumer Services	-1.9%	1.4%	-2.9%	-4.6%	-3.2%	-1.6%	-3.8%	4.1%
Retailing	-5.0%	4.0%	-0.7%	-2.4%	-1.0%	-0.4%	2.9%	11.7%
Consumer Staples								
Food & Staples Retailing	8.4%	7.3%	-1.2%	-0.5%	-2.0%	-7.0%	-3.2%	2.4%
Food, Beverage & Tobacco	13.3%	10.6%	3.0%	-0.1%	-1.8%	4.4%	8.8%	16.0%
Household & Personal Products	6.7%	11.2%	0.3%	-2.1%	-3.2%	3.4%	7.0%	10.2%
Energy	26.1%	10.6%	7.3%	7.7%	3.3%	1.0%	1.4%	-3.2%
Financials								
Banks	-5.2%	-4.7%	-4.5%	-3.4%	-0.9%	-1.7%	-2.3%	5.9%
Diversified Financials	1.1%	-2.4%	-2.4%	-3.1%	-1.1%	-0.9%	-1.1%	4.2%
Insurance	8.0%	3.3%	-0.2%	-0.5%	-2.3%	-1.1%	0.9%	-1.9%
Health Care								
Health Care Equipment & Services	15.6%	7.9%	2.2%	-0.6%	-2.3%	2.4%	9.4%	13.8%
Pharmaceuticals, Biotechnology & Life Sciences	9.5%	4.3%	-0.7%	-3.0%	-0.7%	2.8%	8.2%	15.3%
Industrials								
Capital Goods	7.8%	3.3%	0.2%	-0.2%	-0.9%	-1.9%	-2.2%	-4.0%
Commercial & Professional Services	12.1%	8.2%	3.5%	0.0%	-0.5%	0.0%	3.5%	6.7%
Transportation	10.3%	3.3%	1.3%	1.2%	0.6%	-1.3%	2.1%	10.0%
Information Technology								
Semiconductors & Semiconductor Equipment	0.5%	-1.2%	-4.0%	-1.0%	-1.7%	-5.3%	-4.5%	-1.3%
Software & Services	-9.0%	-4.6%	-0.8%	-3.6%	1.8%	1.3%	6.4%	9.5%
Technology Hardware & Equipment	-5.0%	-4.6%	-6.3%	-3.5%	-0.5%	-2.4%	-2.5%	-9.8%
Materials	10.9%	10.7%	3.0%	1.7%	-0.1%	-2.0%	1.1%	-2.5%
Real Estate	1.4%	2.0%	-1.8%	-0.2%	1.0%	-0.2%	2.3%	1.6%
Utilities	7.9%	0.4%	2.2%	1.1%	1.3%	4.8%	4.1%	1.9%

Styles	Relative Returns: Size / Style Pairs							
	Returns Before US Recession Begins				Returns After US Recession Begins			
	12M	6M	3M	1M	1M	3M	6M	12M
Cyclical - Defensive	2.8%	-1.1%	0.4%	2.3%	0.8%	-5.0%	-6.7%	-8.2%
Growth - Value	-1.2%	-1.1%	1.1%	-0.4%	0.6%	0.4%	0.9%	1.4%
Large - Small	-3.0%	-1.0%	-1.3%	0.6%	1.9%	3.6%	3.3%	-1.4%
Leverage: High - Low	-3.0%	-3.1%	-1.3%	0.2%	0.9%	-1.7%	-2.5%	3.5%
Quality - Junk	11.5%	11.0%	5.4%	3.8%	-0.1%	3.7%	9.5%	13.8%

Source: Bloomberg, ClariFi, Morgan Stanley Research.

Note: Table above shows the average absolute returns of buy-and-hold strategies over various time horizons surrounding the last 5 recessions. For example, the leftmost column shows the returns from buying 12 months before the start of recession and holding through the month before recession began; the rightmost column shows the returns of buying at the start of the month where recession began and holding for 12 months.

Current trailing returns indicate the market is pricing in some recession risk. Defensive leadership over the last 12 months shows the equity markets have been positioning for slowing growth, but this is more true in some industry groups than in others:

- **Weak relative performance perhaps already priced.** Autos, Capital Goods, Energy, Materials, and Transportation are all currently near or below the average trailing 12-month returns seen before prior recessions. This is not to say that further downside cannot follow, but it does indicate that a lot of bad news is already in the price. Given the tendency of Autos to continue weakening in recession, we would avoid this sector if economic data worsen, but think that the other groups, particularly Transportation, may bottom sooner than the market expects.

- **Strong relative performance perhaps already priced.** Household & Personal Products, Software, Telecom, Utilities, and large caps over small are all currently near/above the trailing 12-month relative outperformance seen before prior recessions, perhaps limiting further relative outperformance typically seen in recessions.
- **Strong relative performance not priced.** Despite general Defensive leadership in the market, Food/Bev/Tobacco and Health Care, Equipment & Services are both lagging average return patterns before prior recessions. We think this can be explained by structural changes and political risk, but in an environment where the economy contracts, we think these industry groups can still offer relative outperformance.

How Could a Recession Happen?

Ellen Zentner

Since 2015 our US economists have included a recession in the bear case for the US economic outlook. With each iteration of the outlook, the narrative in the bear case may change somewhat to reflect risks of the day. In today's case, it is trade uncertainty that leads to additional cost pressures that pile onto rising labor costs. This ultimately leads to cost-cutting, which tends to fall heavily on capex and labor.

Powered by their pocketbooks — to get to recession you have to disrupt the activities of America's households. In late 2015/early 2016, the industrial side — representing about 10% of the US economy — was in recession, but the consumer was unstoppable, so the economy continued to motor along in expansion. The US consumer is roughly 70% of the economy, and the US cannot be in a recession without its participation. The fastest way to stunt consumer behavior is to hit them in their pocketbooks, and that comes through the labor market. More than 80% of American households rely on labor market income.

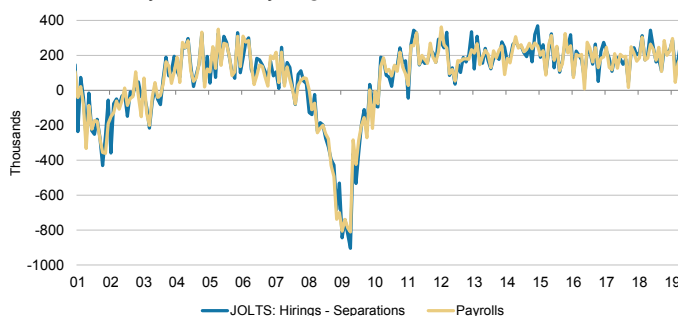
Watch nonfarm payrolls. Each month, when the Bureau of Labor Statistics releases the Employment Situation report, the single most important data point is nonfarm payroll employment. This figure represents the net gain in payroll jobs, which consists of the pace of hiring less the amount of layoffs over the month. These underlying flows — layoffs and hiring — are detailed in the Job Openings and Labor Turnover Survey (JOLTS), which is released with a one-month lag. As can be seen in [Exhibit 7](#), the difference between hirings and separations in the JOLTS closely tracks net payroll gains reported in the Employment Situation report.

Slower hiring has been driving slower job growth. Details in the underlying flows are important as they can provide insight into the predominant cause of changes in payroll employment. For example, growth in monthly private nonfarm payrolls has slowed from a 6-month moving average pace of 227,000 in January 2019 to 161,000 in June. Evidence from the JOLTS suggests that the slowdown has been driven primarily by a slower pace of hiring as opposed to an increase in separations. The relatively mild slowing in job growth owes to the fact that only the net job gains is moving.

Separations have not picked up, which is what would really be needed to move net job creation lower. What if the denominator, separations, is also moving? If companies were to begin laying off while at the same time slowing hiring, then net job gains would deteriorate very quickly. This makes weekly initial jobless claims one of the most important high-frequency leading indicators to follow. Today, initial jobless claims continue to run at levels not matched since the 1960s, indicating an extraordinarily low level of layoffs. All good things must come to an end, however, and when the business backdrop reaches a turning point, claims begin trending sharply higher ([Exhibit 8](#)), making this an important indicator to watch.

Exhibit 7:

JOLTS and Payrolls Closely Align



Source: BLS, Morgan Stanley Research

Exhibit 8:

Jobless Claims Rise Sharply into Recession



Note: Gray shading denotes periods of recession as determined by the National Bureau of Economic Analysis.

Source: BLS, NBER, Morgan Stanley Research

'It Can't Happen Here' — Series We Are Watching to Assess Risk

Adam Virgadamo, Mike Wilson, Andrew Pauker, and Michelle Weaver

Anticipating a recession with certainty is not possible, but a review of 100+ data series helped us identify some of the more reliable signals where deceleration could mean recession is ahead. Above all, the consumer and employment trends indicate whether or not the US is likely to enter a recession. We explore our findings in more detail below, but our key conclusions are as follows:

- **Employment:** Survey data around the availability of jobs can confirm turns in the unemployment rate and slowing job creation (and eventually job loss). Once job growth goes negative and the unemployment rate ticks up, a recession is hard to avoid.
- **Consumers:** Stagnating personal earnings growth, declines in consumer confidence by more than 15% y/y, and growth in real personal consumption expenditures falling below 2.5% y/y are all warning signals of an impending recession.
- **Corporates:** Reliable corporate data with enough history is difficult to come by, but falling durable goods orders and ISM manufacturing PMIs sustainably below 50 tend to line up with recessions.
- **Aggregate Indicators:** Y/Y growth in the Conference Board Coincident Indicators Index below 2% and in its Leading Indicators Index below 0% both tend to reliably lead recessions.

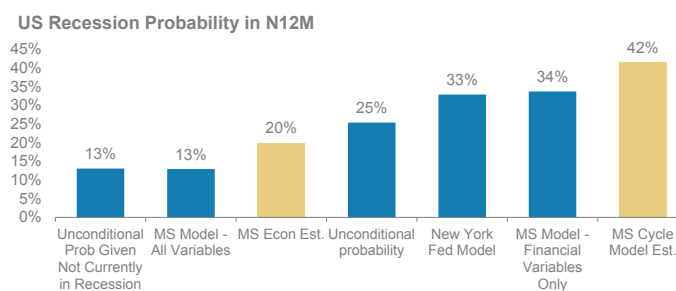
Comparing the recession signals above with current trends shows that many data points are still just outside of the danger zone. But history tells us that these series can deteriorate rapidly, and a continuation of current deceleration trends through the summer would materially increase the risk of recession. Some investors may believe that action by the Fed will be enough to support growth and the equity market, but the track record there is mixed at best.

Recession Probability Models - A Range of Opinions, But We Say Follow the Consumer & Employment

No two recessions are exactly alike, and economic data do not always give consistent signals or lead times necessary to predict them. Different models can give very different predictions of the likelihood of a recession in the near future (see [Exhibit 9](#)), and even the National Bureau of Economic Research (NBER) — the body that officially determines the dates that US recessions begin and end — waits between 6 and 21 months after the start of a recession to settle on its starting point. Investors do not have the luxury of recognizing a recession long after it starts, so understanding which fundamental data points give relatively reliable signals is critical. To that end, the NBER's framework is still useful in helping understand which data points are likely to lead to an official recession, defined as "a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales." We review the data below.

Exhibit 9:

What's the Current Probability of a US Recession? Estimates on Various Measures



Source: Bloomberg, Morgan Stanley Research; Note: Unconditional probabilities and cycle model estimates are computed using data since 1960..

If we could reduce a recession model to one variable, it would be employment — a large decline in job creation to the point of net job loss almost always coincides with/confirms a recession. In determining a recession, the NBER places particular importance on personal income and employment data, while also considering industrial production and sales volume in manufacturing, wholesale, and retail sales. While the NBER ranks personal income less transfer payments and employment as its two primary reference variables, we think these two variables are essentially one and the same as personal income declines as the economy sheds jobs. The loss of jobs and income also influences aggregate spending by the US consumer, adding further to demand side pressures to growth. **Exhibit 10** shows how well job creation/loss, as measured by nonfarm payrolls, tracks versus the year on year change in 1) personal income less transfer payments (one of the NBER's key variables) and 2) core personal consumption expenditures.

Employment is the key arbiter of recession, but other economic data — wage growth, consumer confidence, perceptions about the availability of jobs, credit spreads, manufacturing orders, and surveys — can be helpful in identifying when recession risks are rising. For a broader picture of variables that may signal recession risks, we reviewed over 100 different series of economic sur-

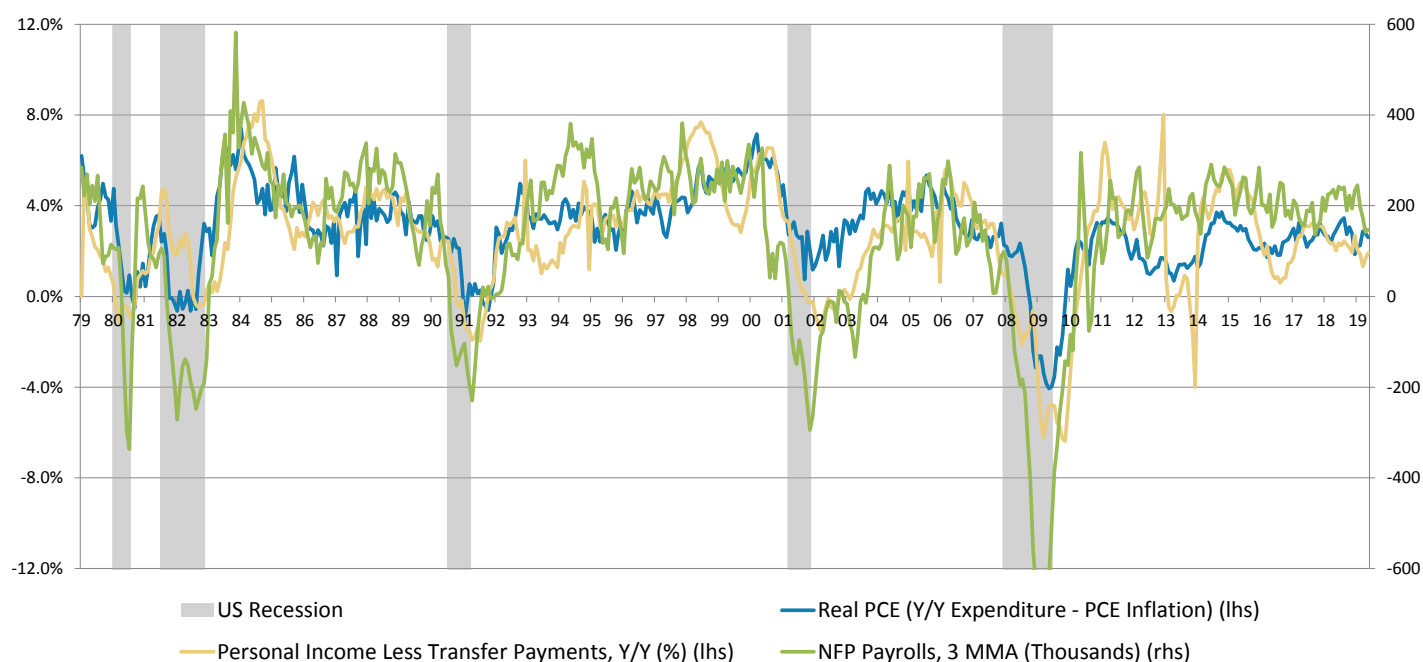
veys, hard data, and various transformations thereof to see if they displayed reasonably reliable patterns in advance of the previous 5 recessions. Extending our analysis back to the recessions of the early 1980s did limit the data sources that were available (many data series do not have almost 40 years of history), but we still managed to find a few well known data series related to the consumer, employment, and business/corporate health that are worth considering.

We are currently seeing deceleration among the data series that have historically shown accelerating deterioration into and through the start of recession; however, we would need to see this trend continue for another few months to indicate an obvious and imminent recession. **Exhibit 11** presents a summary table of the series that showed some of the more consistent trends headed into recession, the average value of those series from 12 months before to 12 months after the start of prior recessions, and how those same series have evolved over the last 12 months. On current trends, decelerations are evident, but the degree of deceleration is generally not yet consistent with the actual start of prior recessions. Continued deterioration in the data through the summer and into the fall would change this conclusion, though, and these changes have historically happened quickly. Following the summary exhibits below, we look at the history of each indicator in more detail.

Exhibit 10:

Job Growth Determines Personal Income and Personal Expenditure Growth

Payrolls vs Personal Income & Expenditures



Source: Bloomberg, Morgan Stanley Research.

Exhibit 11:

Economic Data Series with a Consistent Historical Record of Turning Before Recessions and Current Trends

	Avg. Series Values Before/After Start of Prior 5* Recessions									Trailing 12 Months				
	T-12	T-6	T-3	T-1	T-0	T+1	T+3	T+6	T+12	T-12	T-6	T-3	T-1	Current
Consumer														
Avg. Hourly Earnings Growth (Prod, Non-Supervisory) - 1 Yr. Chg. (bps)	63	-10	-23	-10	-35	-30	5	-18	3	60	100	70	50	50
Consumer Confidence	106.5	102.0	101.8	94.6	95.7	90.6	76.7	66.7	72.9	127.1	126.6	124.2	131.3	121.5
Consumer Confidence Y/Y (%)	1.7%	-6.2%	-9.6%	-15.8%	-15.4%	-20.9%	-34.1%	-37.9%	-24.9%	8.4%	2.8%	-2.2%	1.9%	-4.4%
Real PCE Y/Y (%)	4.2%	3.1%	2.6%	2.2%	2.1%	1.5%	0.9%	-0.1%	0.1%	2.6%	2.8%	2.6%	2.8%	2.7%
Employment														
Init. Jobless Claims, 4W MA, Y/Y (%)	-0.6%	9.7%	15.9%	15.1%	18.9%	21.4%	25.3%	34.6%	21.0%	-8.1%	-8.5%	-3.9%	-2.2%	0.0%
Jobs Plentiful - Hard to Get (Conf. Board, %)	5.9%	4.6%	4.1%	0.6%	0.6%	-2.0%	-8.1%	-20.1%	-28.9%	25.3%	33.3%	28.7%	33.5%	27.6%
NFP Payrolls, 3 MMA	90	175	93	89	74	23	-80	-216	-156	243	233	174	147	171
U-3 Unemployment 1 Yr. Chg. (bps)	-35	-20	13	5	40	48	73	130	155	-30	-20	-20	-20	-30
Corporate														
Credit Spreads (Baa OAS, bps)	141.7	165.8	174.4	196.9	194.5	190.5	219.2	236.3	286.1	157.0	197.0	157.0	166.0	151.0
Durable Goods Orders ex-Transport. Y/Y (%)	8.8%	3.3%	1.7%	1.7%	3.2%	2.1%	-2.3%	-3.7%	-7.8%	8.4%	4.8%	2.3%	-0.1%	0.3%
ISM Manufacturing	49.1	50.3	49.7	47.7	46.5	47.6	42.7	41.7	45.0	60.0	54.3	55.3	52.1	51.7
Aggregate														
Conf. Board Coincident Indicators Y/Y (%)	3.4%	2.3%	1.8%	1.5%	1.4%	0.9%	0.0%	-1.2%	-1.9%	2.3%	2.3%	1.9%	1.8%	1.6%
Conf. Board Leading Indicators Y/Y (%)	1.6%	-0.8%	-3.0%	-3.9%	-4.7%	-5.7%	-7.8%	-9.3%	-7.9%	5.8%	4.1%	2.9%	2.5%	1.6%

Source: Bloomberg, Morgan Stanley Research.

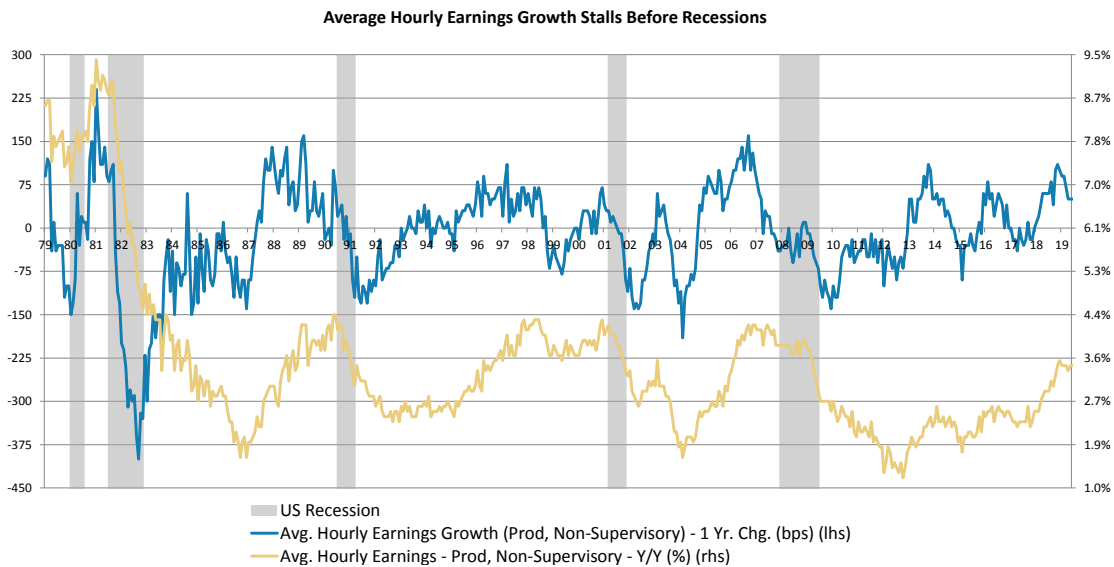
Note: Due to distortions from base effects in the double dip recession of the 1980s, variables involving year on year changes omit data points around the second of the 80s recessions.

Consumer-Focused Indicators

Average hourly earnings (AHE) continue to grow, but this growth typically decelerates headed into recessions. A slowing of economic growth affects the willingness and ability of businesses to hire and pay employees. Job loss marks the clearest sign of recessions, but before companies begin to fire, they typically slow hiring and freeze wages in an effort to mitigate the effects of slowing demand. For this reason, AHE growth tends to stagnate and fall before recessions. **Exhibit 12** shows AHE growth (yellow line) and the change in AHE growth from the prior year (blue line) over time. While profit cycles that occur during longer economic cycles can lead to peaking AHE growth that does not lead to a recession, AHE growth does slow materially within a year of all recession in the series. **Exhibit 13** plots the average deceleration in AHE growth before and after prior recessions, showing that the deceleration gains momentum after the recessions start. AHE growth has been slowing over the last 3 quarters but sits at the top end of the range established before prior recessions.

Exhibit 12:

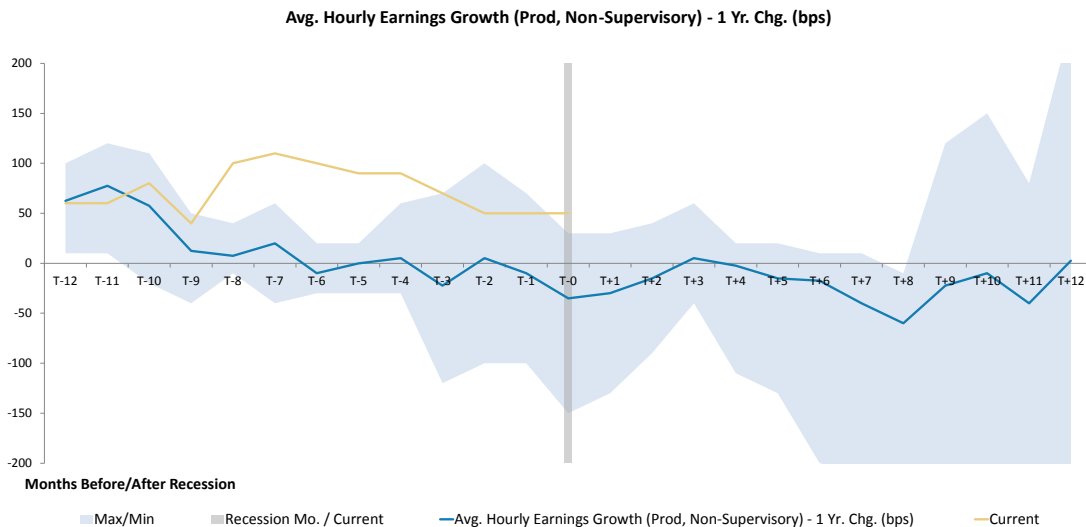
Avg. Hourly Earnings Growth Stagnates Before Recessions



Source: Bloomberg, Morgan Stanley Research.

Exhibit 13:

Current Slowing in AHE Growth Is at the High End of the Range for Prior Recessions



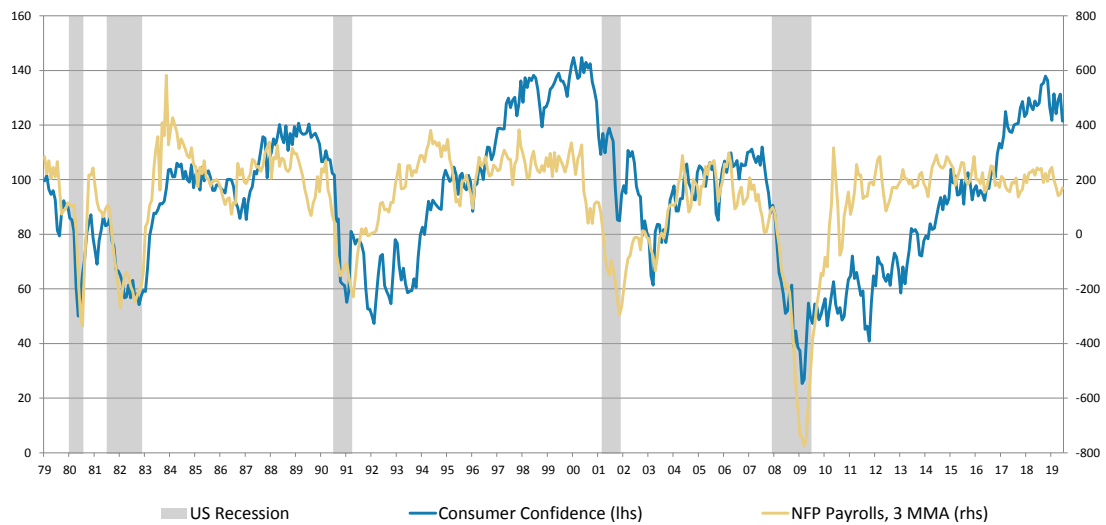
Source: Bloomberg, Morgan Stanley Research. Note, due to distortions from base effects in the double dip recession of the 1980s, data for this graph omits data points around the second of the 80s recessions.

Consumer confidence peaks before recessions, and a fall of 15% or more y/y tends to be a clear signal of an imminent recession. Consumer confidence remains at elevated levels, prompting many observers to claim that recession risk is low. The issue with this line of thinking, though, is that consumer confidence can turn lower very quickly and recessions can start when these measures remain at fairly elevated levels (**Exhibit 14**). **Exhibit 15** shows that the real signal for recession risk is not the level of consumer confidence but its rate of change on a y/y basis. The change series can be volatile, but as shown in the exhibit, toward the end of an economic cycle, a 15% y/y decline in consumer confidence is a consistent recession signal (with the exception of the second of the 80s double dip recessions where base effects distort this metric). Consumer confidence is currently down 4.4% y/y based on the latest reading but will be down about 10% y/y if the June reading holds into August. **Exhibit 16** and **Exhibit 17** show that current levels and y/y changes in consumer confidence are headed lower but remain above the average levels seen immediately preceding prior recessions.

Exhibit 14:

Changes In Hiring Can Shift Consumer Confidence Very Quickly

Non-Farm Payrolls vs Consumer Confidence

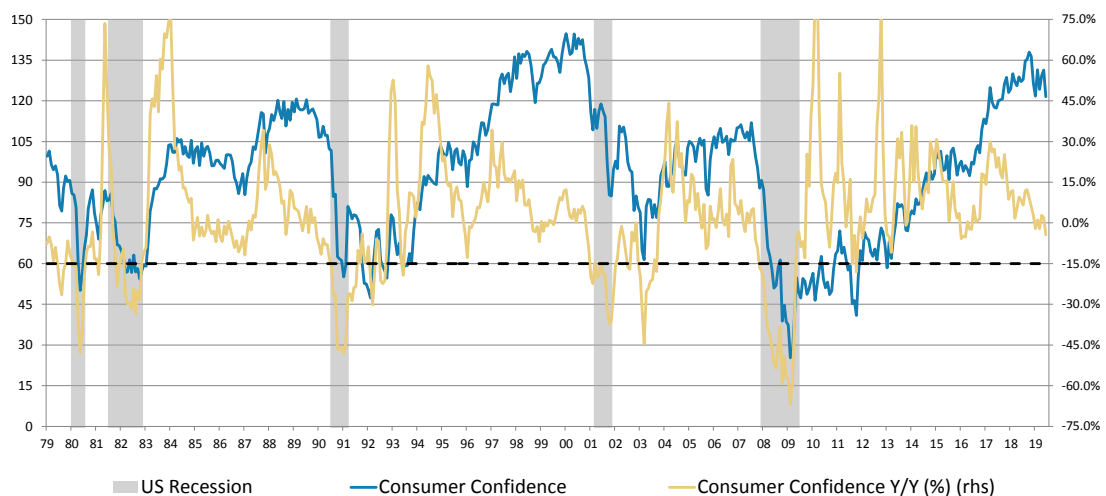


Source: Bloomberg, Morgan Stanley Research.

Exhibit 15:

Consumer Confidence Can Turn Quickly and Recessions Can Start When Consumer Confidence Is Elevated; Watch for a 15% Y/Y Decline

Consumer Confidence Peaks Before Recessions

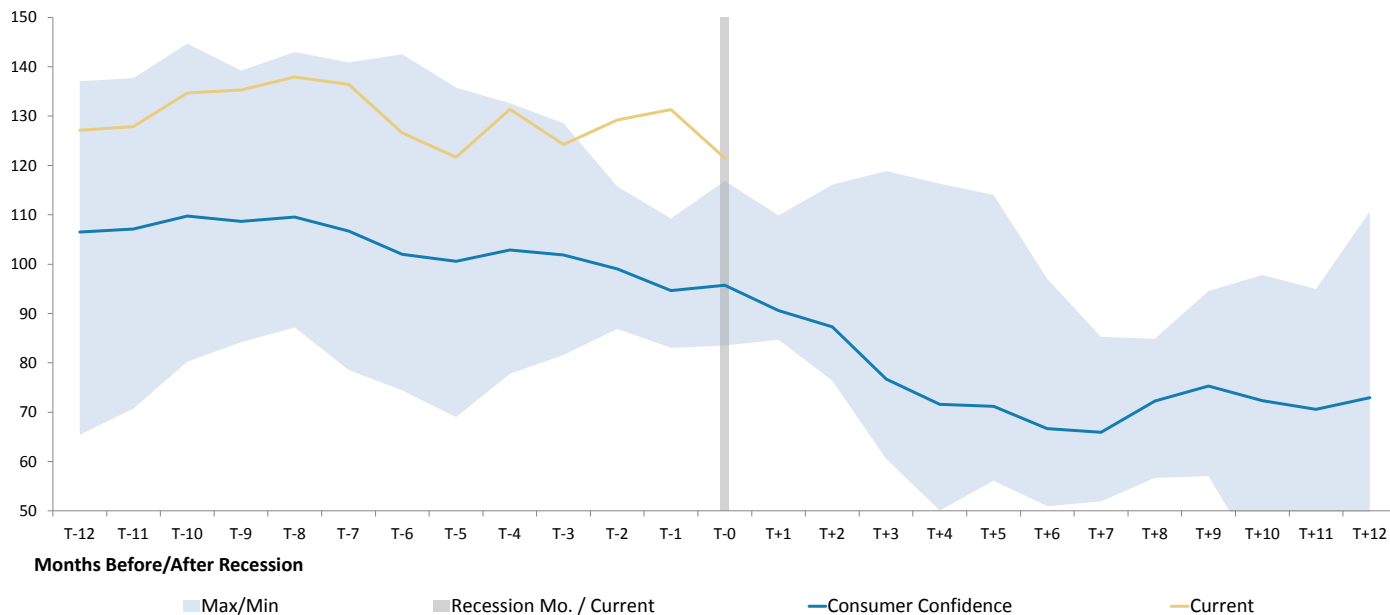


Source: Bloomberg, Morgan Stanley Research.

Exhibit 16:

Waning Consumer Confidence Falls Rapidly Once Recessions Start; Current Levels Remain High, but Have Recently Been Heading Lower

Consumer Confidence

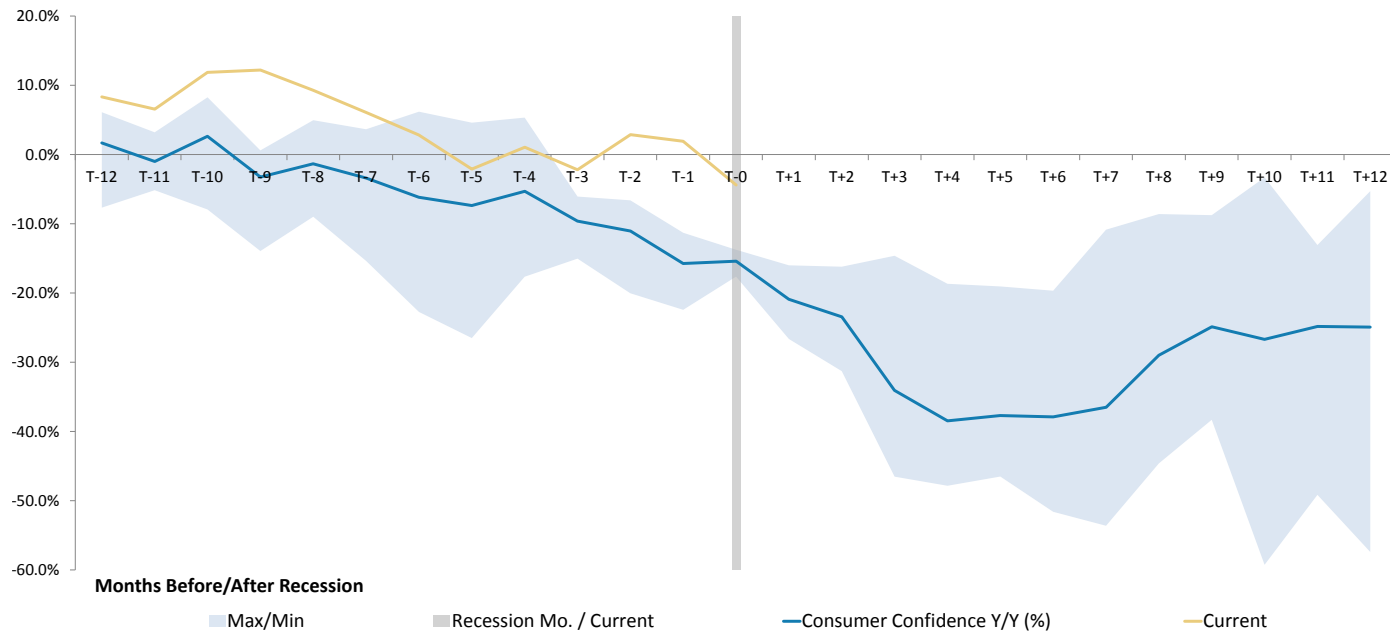


Source: Bloomberg, Morgan Stanley Research.

Exhibit 17:

At the End of a Cycle, a 15% Drop Y/Y in Consumer Confidence Generally Means Recession.

Consumer Confidence Y/Y (%)

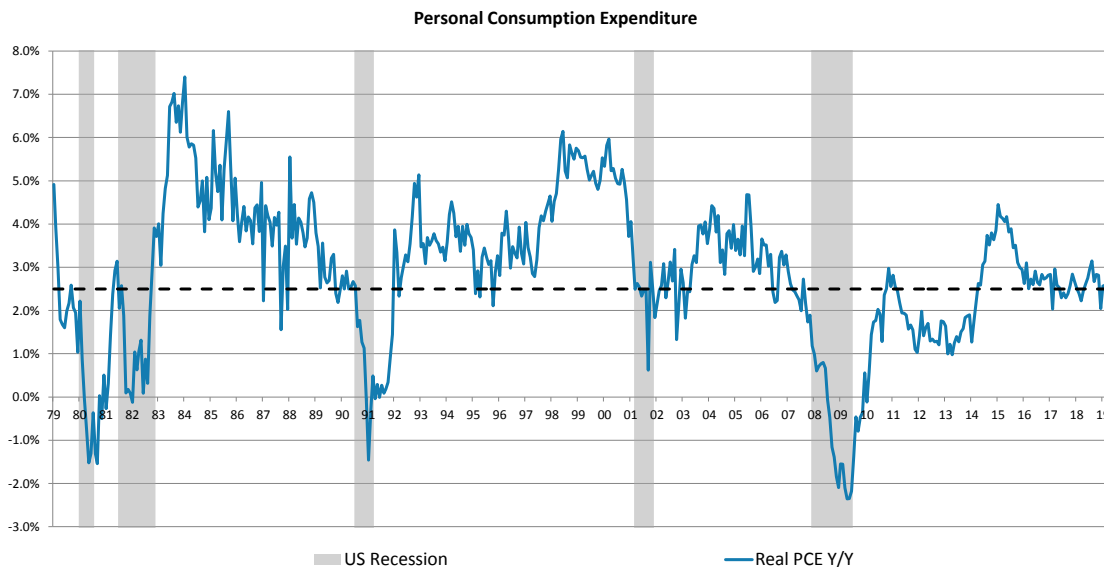


Source: Bloomberg, Morgan Stanley Research. Note, due to distortions from base effects in the double dip recession of the 1980s, data for this graph omits data points around the second of the 80s recessions.

As wage gains slow and confidence ebbs, consumers also temper their spending growth, with growth in real personal consumption expenditures (PCE) below 2.5% sending a reasonably consistent recession signal. Each of the last 5 recessions has seen real PCE actually shrink on a y/y basis by the end of the recession, but leading into the recessions a large decline in the growth of PCE is also very consistent. Given the heavy reliance of the US economy on the domestic consumer, slowing consumer spend is perhaps an obvious precondition for any recession. Based on **Exhibit 18**, it looks like a fall in real PCE growth below 2.5% is a necessary, but not sufficient, condition for the start of recession. That real PCE growth has not gone as high this cycle as in prior cycles is sometimes cited as a reason why the US economy cannot go into recession yet. Our view is that the lower baseline levels of spending just make tipping into recession easier, and that this is true whether or not past spending growth was higher. Slow growth off an easier base (i.e., off prior slow growth) is even more discouraging given the benefit of easier comps/base effects. **Exhibit 19** shows that current trailing 12-month trends show real PCE growth at the higher end of the range seen before the last 5 recessions.

Exhibit 18:

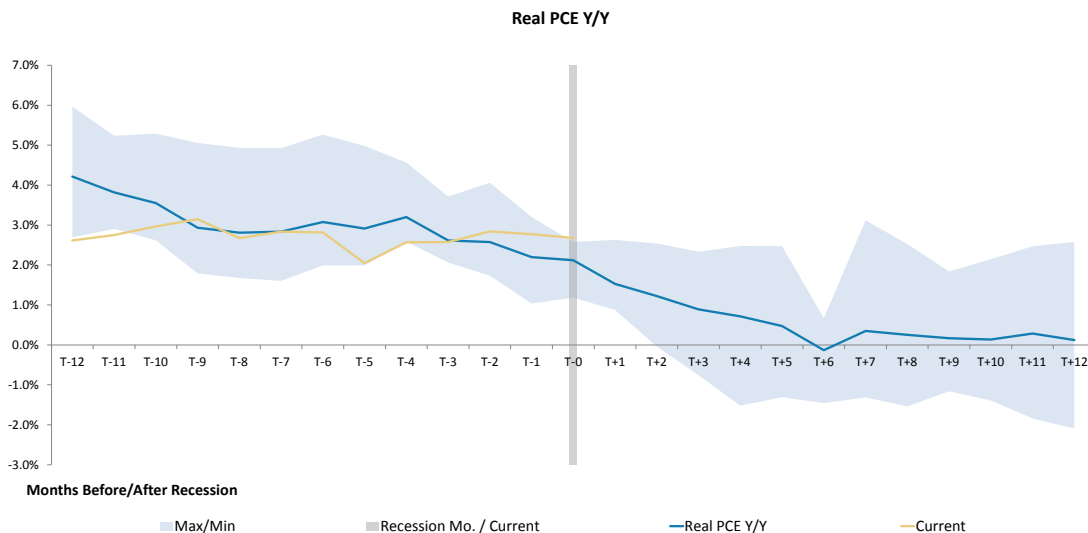
Real PCE Growth Falls Before Recessions; Watch the 2.5% Level



Source: Bloomberg, Morgan Stanley Research.

Exhibit 19:

Real PCE Growth Is Tracking Near the Lower End of Levels Before Prior Recessions and Is Decelerating Further



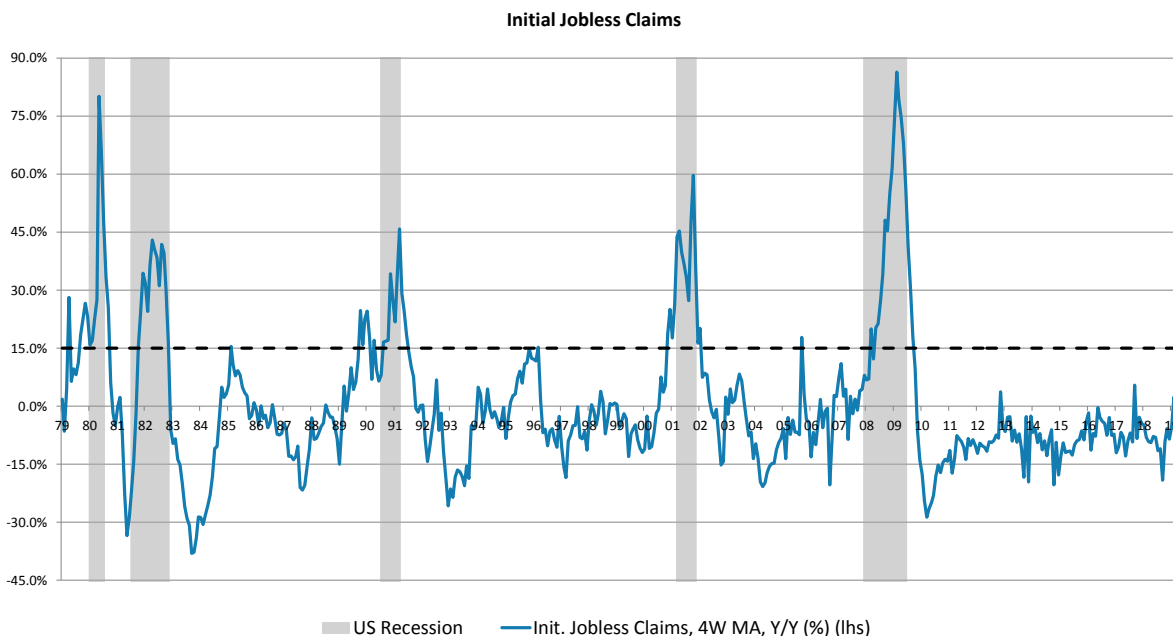
Source: Bloomberg, Morgan Stanley Research. Note, due to distortions from base effects in the double dip recession of the 1980s, data for this graph omits data points around the second of the 80s recessions.

Employment-Focused Indicators

The signal power of initial jobless claims is a bit mixed — claims sustainably rise off near cycle lows before recessions, but they can also show large increases without a recession. A sustained increase of 15% or more in initial jobless claims y/y is indicative of a recession, but sometimes this signal is not triggered until the recession has started ([Exhibit 20](#)). Claims have stopped falling, but are essentially flat over the last 12 months, which is below the average levels seen before prior recessions ([Exhibit 21](#)).

Exhibit 20:

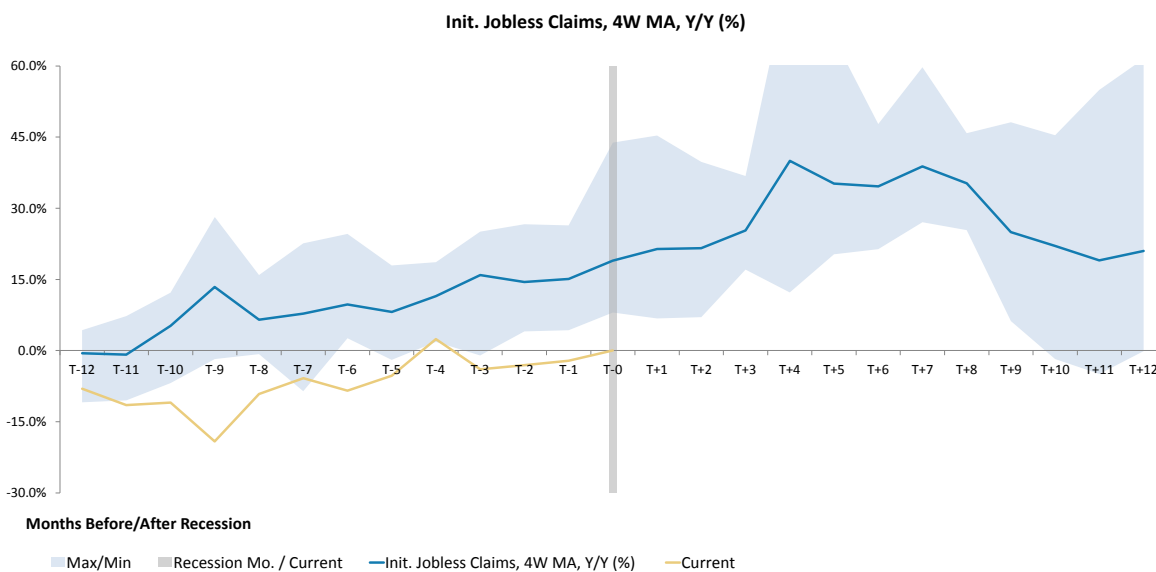
Initial Jobless Claims Tend to Grow Modestly Before Recessions but Spike Quickly Once the Recession Starts; Jobless Claims Are No Longer Falling



Source: Bloomberg, Morgan Stanley Research.

Exhibit 21:

Current Y/Y Growth in Jobless Claims Is Below Levels Preceding Prior Recessions

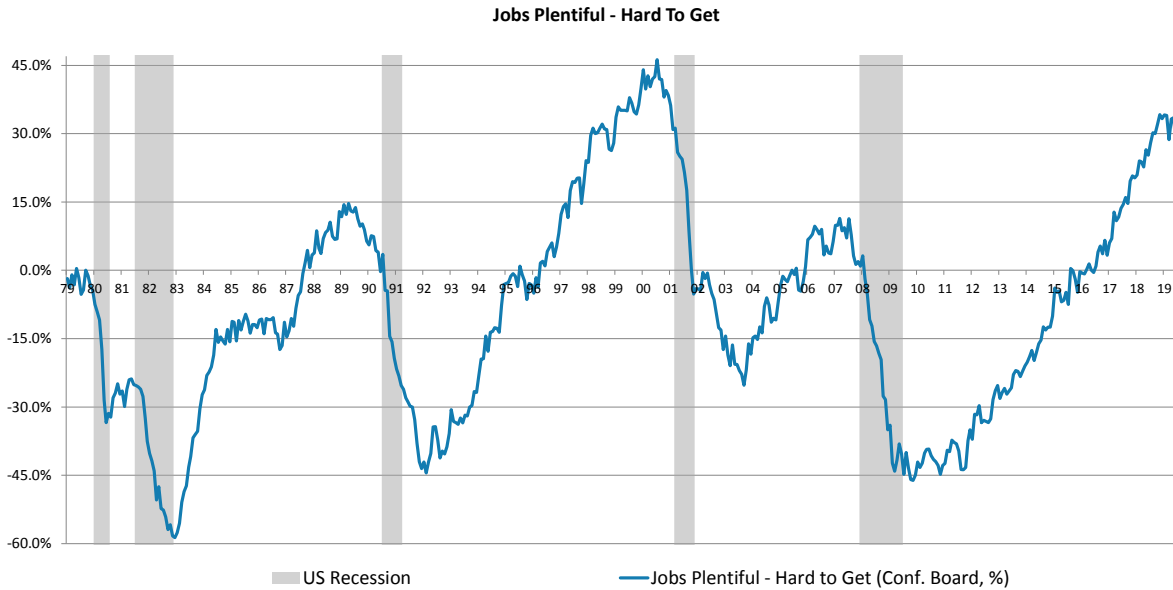


Source: Bloomberg, Morgan Stanley Research. Note, due to distortions from base effects in the double dip recession of the 1980s, data for this graph omits data points around the second of the 80s recessions.

Survey data on the availability of jobs is a consistent indicator of rising recession risk, and this series looks to have peaked for the cycle. When the Conference Board conducts its consumer sentiment surveys it includes questions on whether jobs are plentiful or hard to get. The spread between the percentage of respondents giving each answer has historically peaked for a given cycle about a year before the start of recession (**Exhibit 22**), and sustained moves lower have not produced false positives. In the last few months, the series looks to have had a cycle peak that was confirmed by an unsuccessful retest of its prior highs. The metric currently sits at the high end of the range seen before prior recessions, but it is clearly beginning to trend lower with a large move in just the last month (**Exhibit 23**).

Exhibit 22:

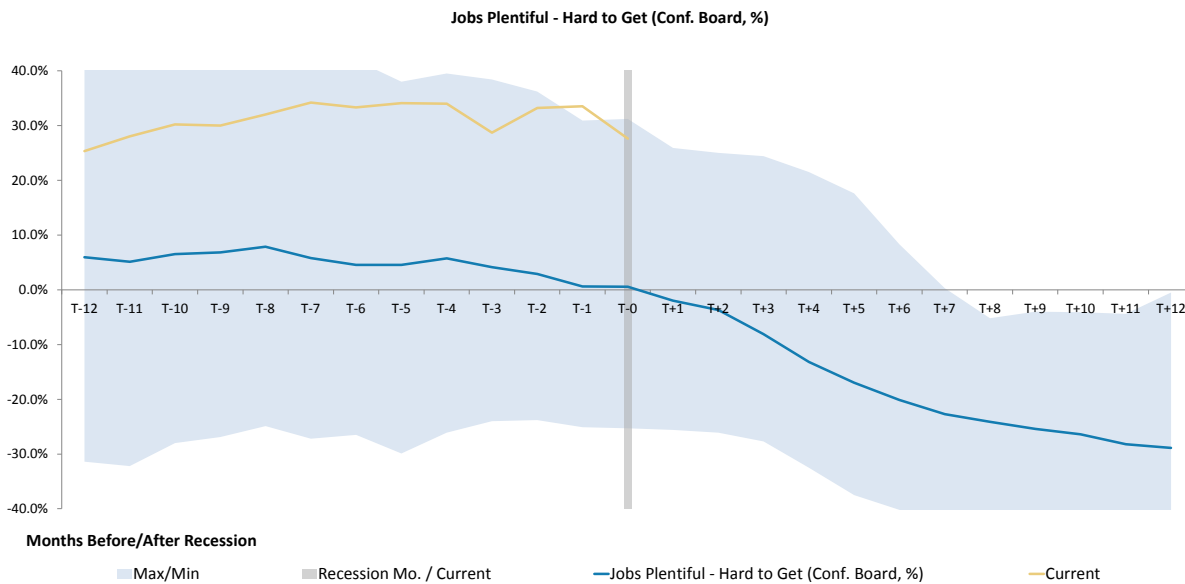
Perception of Jobs Being Plentiful vs. Hard to Get Declines Steadily into Recessions and Falls Quickly Once Recessions Start



Source: Bloomberg, Morgan Stanley Research.

Exhibit 23:

Current Perception on the High End of History Before Prior Recessions

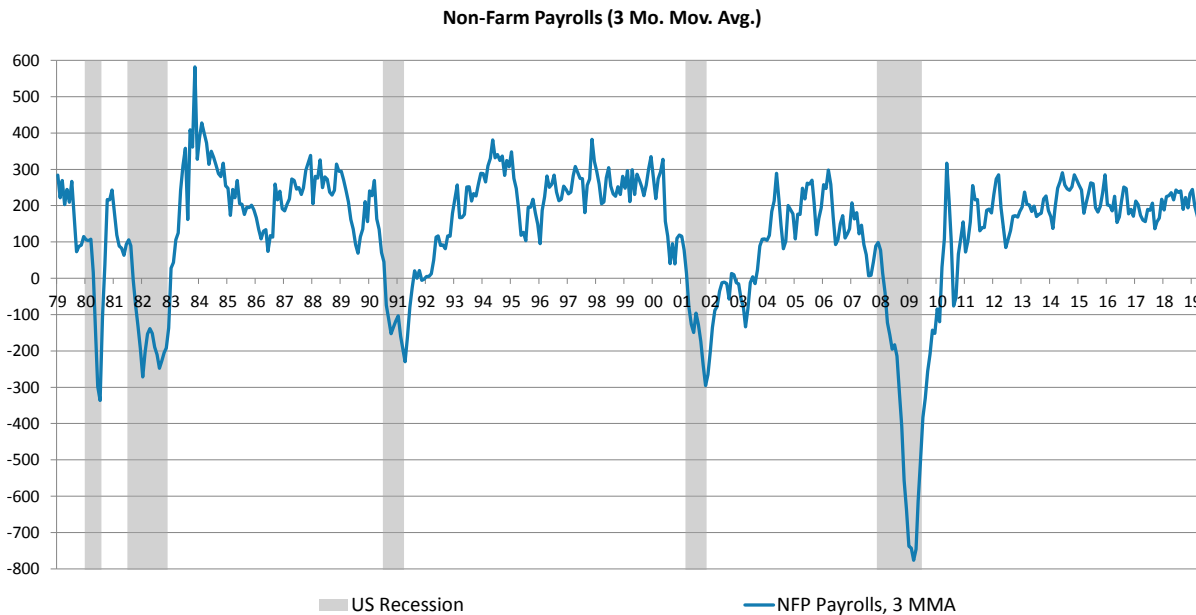


Source: Bloomberg, Morgan Stanley Research.

Negative nonfarm payroll numbers are a clear indication of recession. They happen suddenly and tend to follow periods of decelerating growth. As discussed earlier, job growth is the key data point defining recessions. The last 5 recessions have all exhibited negative growth in nonfarm payrolls, with payroll growth generally declining for a year or more before the recession started ([Exhibit 24](#)). While we have yet to see a negative nonfarm payroll number released in the current environment, the trend has unmistakably turned lower and actually looks to be right in line with average trends before prior recessions ([Exhibit 25](#)). This is an indicator that turns quickly, so a material sudden weakening would not surprise us given current trends.

Exhibit 24:

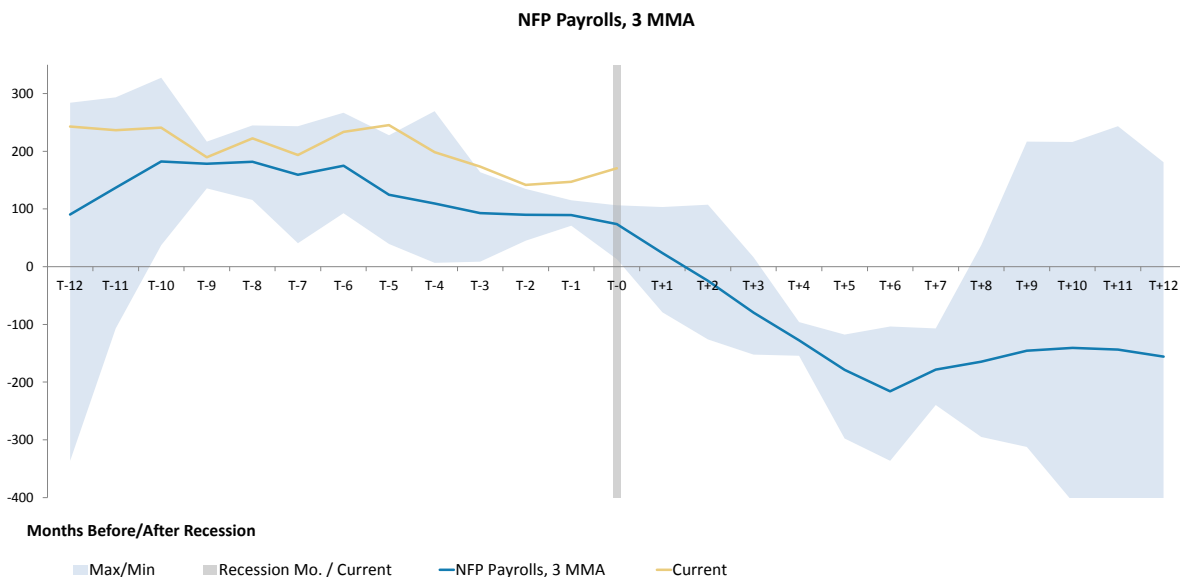
Non-Farm Payroll Growth Continually Slows into Recessions and Turns Negative Once Recessions Start



Source: Bloomberg, Morgan Stanley Research.

Exhibit 25:

Current Trends Shows Slowing Job Growth

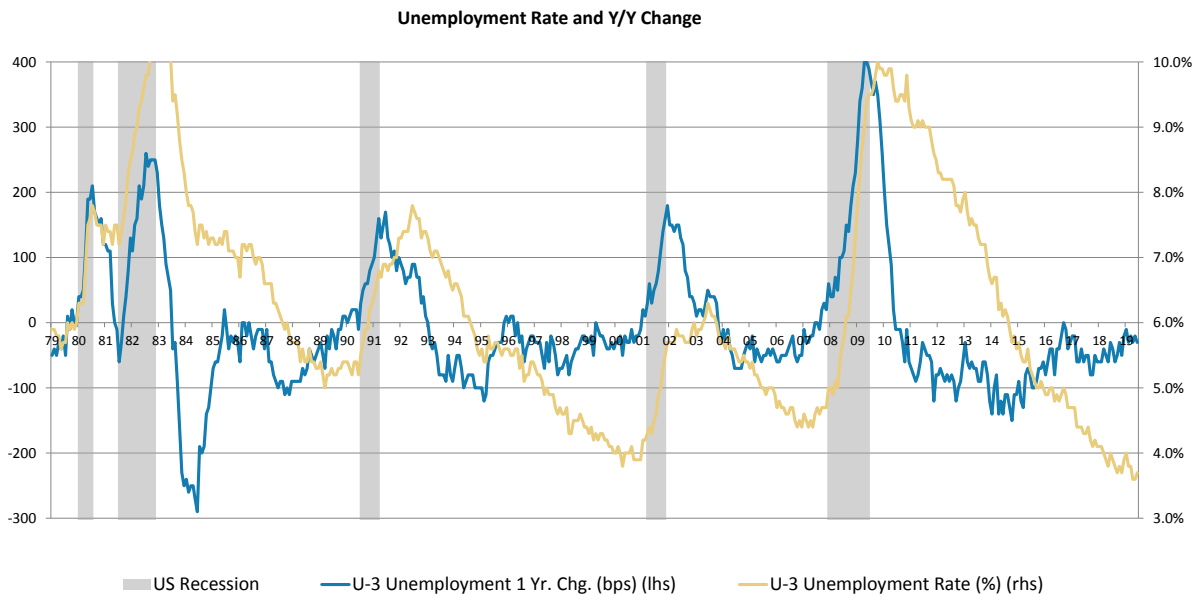


Source: Bloomberg, Morgan Stanley Research.

The unemployment rate rising on a y/y basis is another consistent pre-recession signal, with the current trend indicating a troughing in the near future. The unemployment rate has historically seen a cycle, or at least a local trough, before prior recessions, but with varying lead times. The unemployment rate is still down on a y/y basis, but the trend line indicates that the rate of decline bottomed in late 2017 and has been moving steadily higher such that the y/y unemployment rate should start to rise in a few months' time on current trends (**Exhibit 26**). The current trend in y/y change in the unemployment rate is on the low end of historical changes before prior recessions (excluding the second of the 80s double dip recessions where base effects distort this metric), but it could easily line up with prior trends in a few months' time (**Exhibit 27**). We also note that the unemployment rate tends to jump an average of 40 bps y/y in the month before recessions start — this would be consistent with an unemployment rate in the low 4% if it were to happen in the next few months.

Exhibit 26:

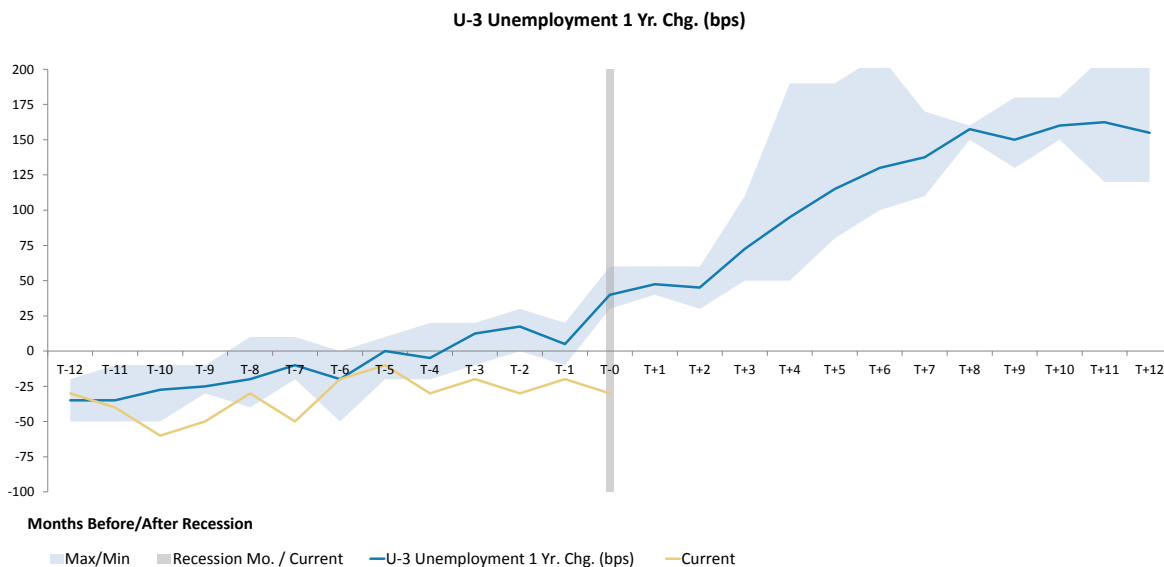
The Unemployment Rate Starts Rising Just Before Recessions Start and Keeps Going from There



Source: Bloomberg, Morgan Stanley Research.

Exhibit 27:

Unemployment Rate Changes Have Clearly Troughed, as Before Prior Recessions



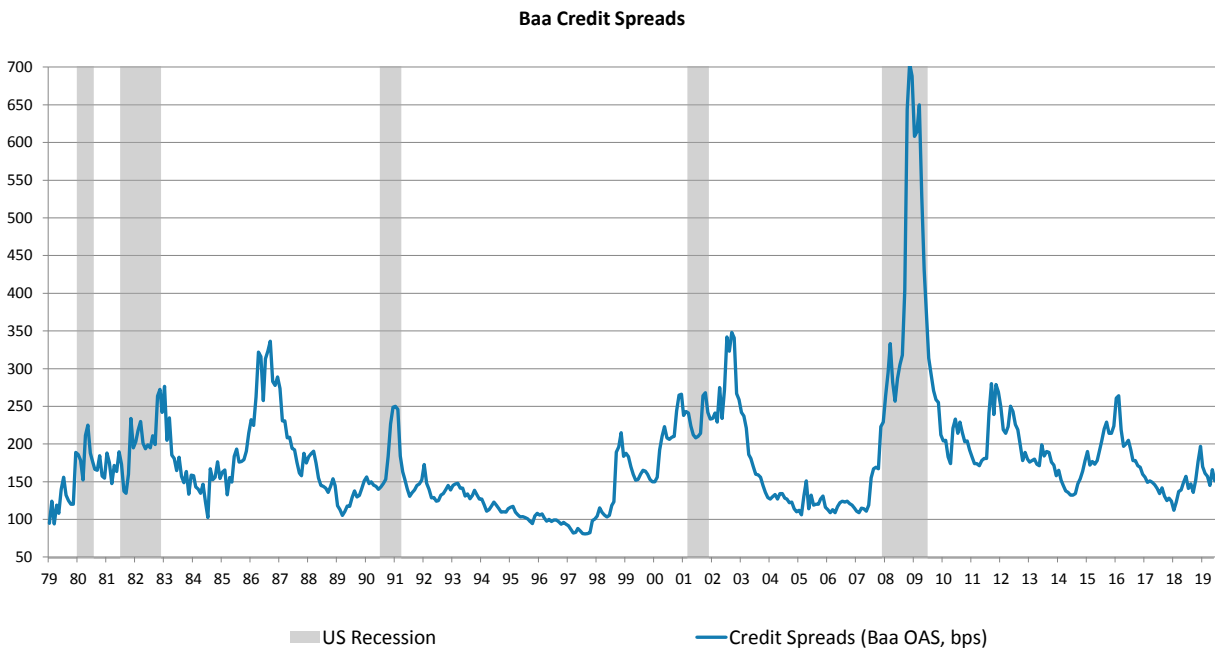
Source: Bloomberg, Morgan Stanley Research. Note, due to distortions from base effects in the double dip recession of the 1980s, data for this graph omits data points around the second of the 80s recessions.

Corporate-Focused Indicators

Credit spreads (at least for the lower end of investment grade) do rise before recessions, but the lead time and magnitude are so varied that it is hard to draw a strong recession signal from these increases. Exhibit 28 shows Baa corporate credit spreads over time and really enforces the idea that there is no real pattern in the timing and degree of spread increases headed into recession, though generally spreads do continue to widen into recessions. The current trend in Baa spreads is within the range preceding prior recessions, but given the variability in this signal, we have a hard time drawing a conclusion here (Exhibit 29).

Exhibit 28:

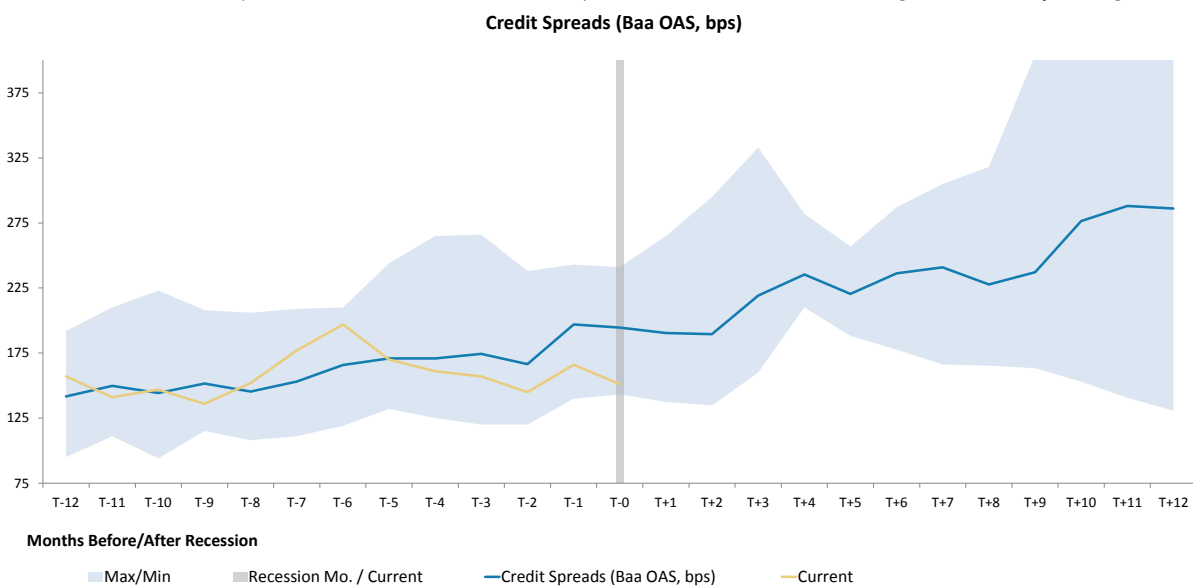
Credit Spreads Rise Modestly Before Recessions but Keep Moving Higher After Recessions Start



Source: Bloomberg, Morgan Stanley Research.

Exhibit 29:

Current Trends in Baa Spreads Are Consistent with Lead Up to Prior Recessions, but the Signal Is Not Very Strong

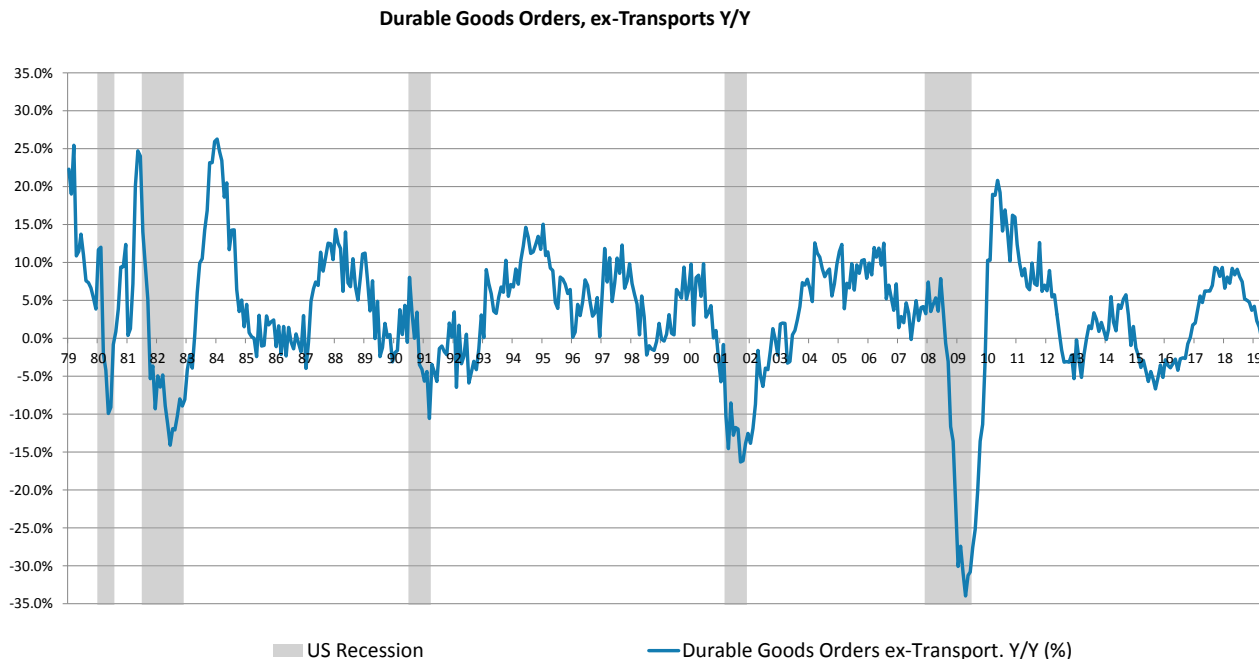


Source: Bloomberg, Morgan Stanley Research.

The signal power of durable goods orders is a bit mixed — their growth tends to slow before and into recessions, but growth can also fall absent a recession. Exhibit 30 plots the y/y growth in durables goods orders (ex-transport) to show that recessions see the biggest y/y declines in orders, but the drops that are consistent with recessions happen too late in the recession for this series to be a leading indicator. Current y/y growth in durable goods orders is flat, and the trend looks to be headed lower (Exhibit 31), but it is still too early to make a judgment with conviction on this metric.

Exhibit 30:

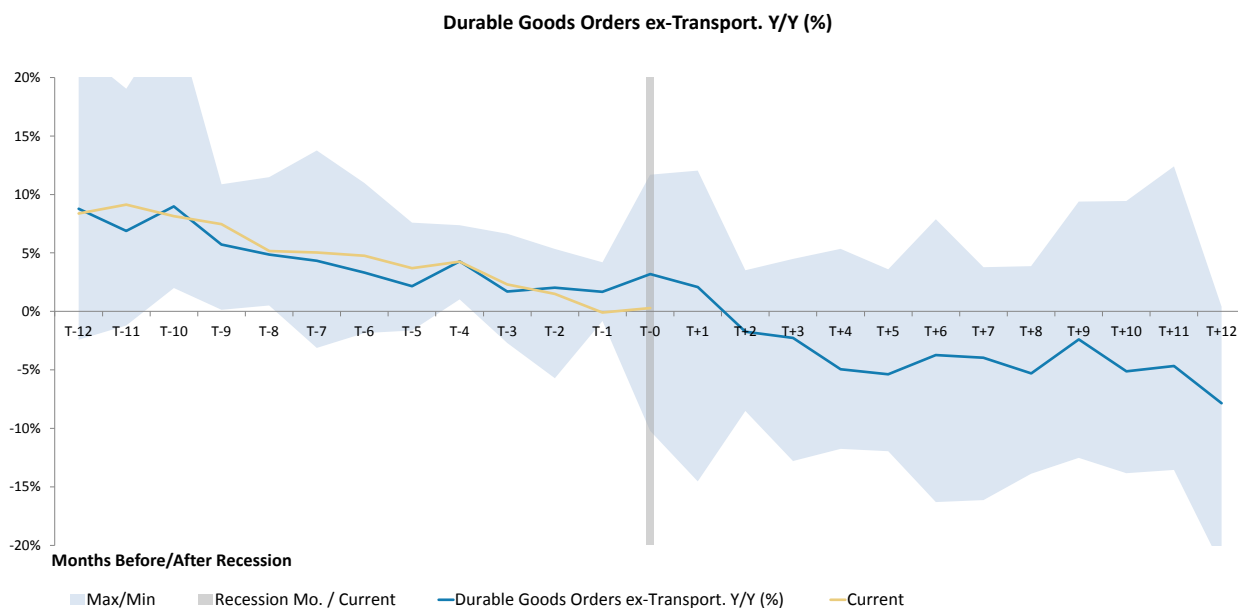
Growth in Durable Goods Orders Slows Up to Recessions and Generally Goes Negative Once Recessions Start, but This Can Also Happen Outside Recessions



Source: Bloomberg, Morgan Stanley Research.

Exhibit 31:

Y/Y Growth in Durable Goods Orders Is Near 0, but Further Deterioration Is Necessary to Make a Recession Look More Likely

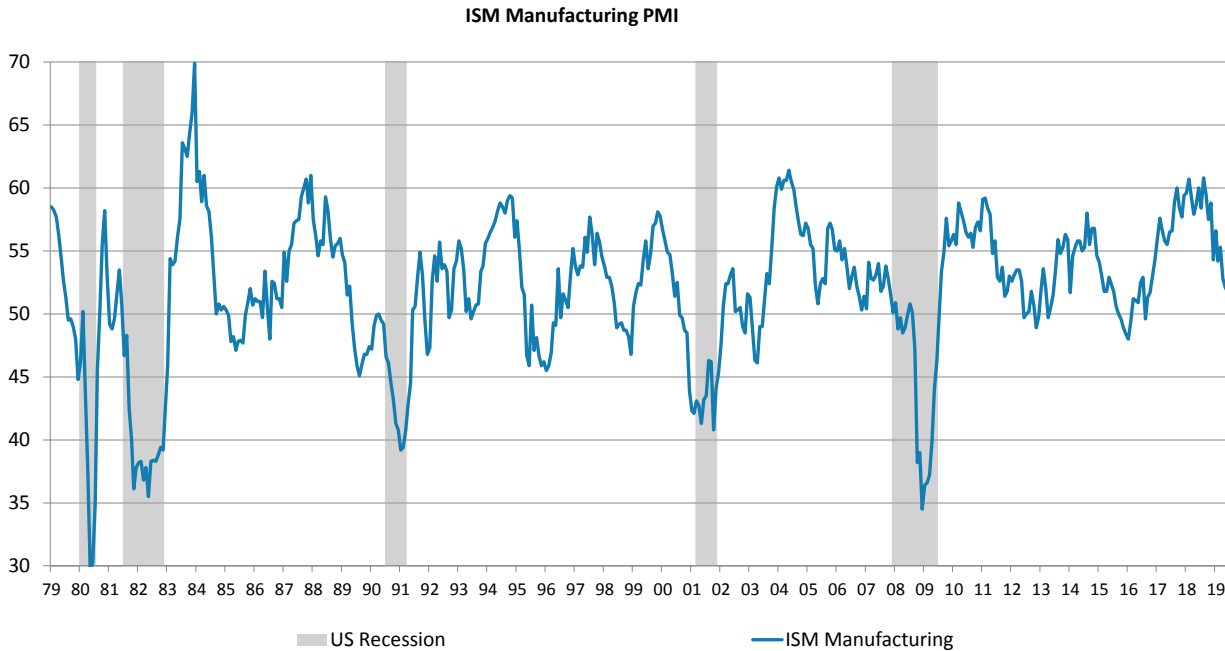


Source: Bloomberg, Morgan Stanley Research.

ISM Manufacturing PMIs tend to fall below 50 before or at the start of recessions, and to approach the low 40s in a recession, but the lead time is inconsistent. Among the most widely followed indicators of corporate activity is the ISM's manufacturing PMI. **Exhibit 32** shows that the metric does tend to fall below its neutral level of 50, indicating contraction, before recessions and to continue falling thereafter, but there are also multiple periods that see sub-50 levels on the metric without a recession. Current levels remain just above the 50 mark, but the trend is headed lower at a rate consistent with periods a few months before prior recessions (**Exhibit 33**), so the incoming releases of the ISM will be worth watching closely.

Exhibit 32:

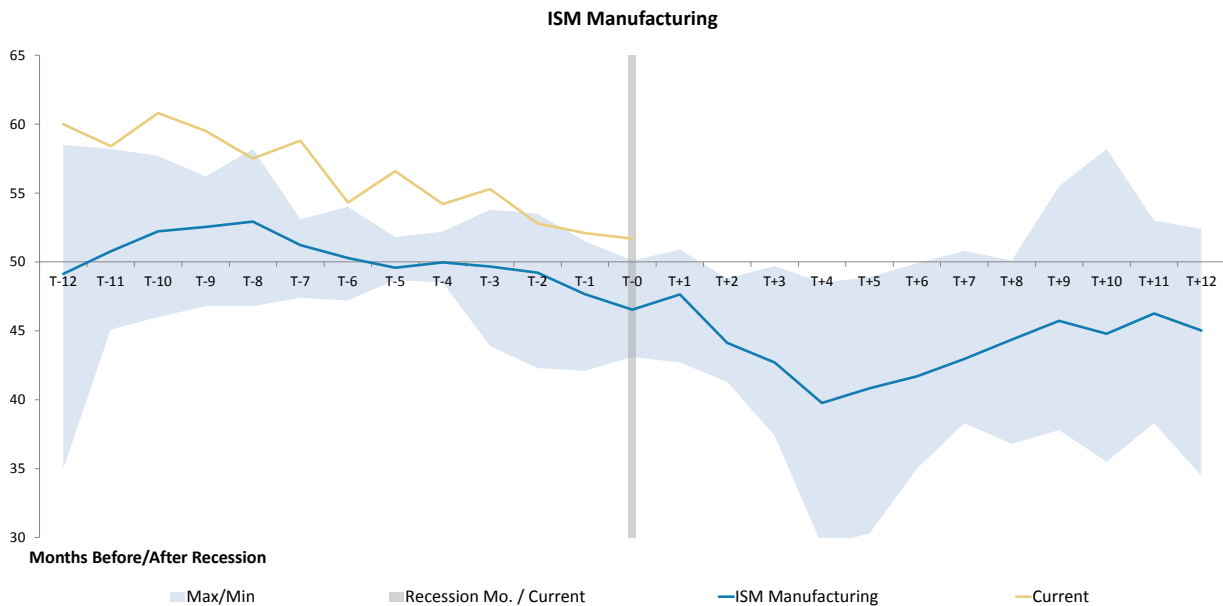
ISM Manufacturing PMIs Typically Hover Around 50 and Enter Contraction Territory Just Before Recessions Start



Source: Bloomberg, Morgan Stanley Research.

Exhibit 33:

ISMs Seems to Be Headed for 50 or Below



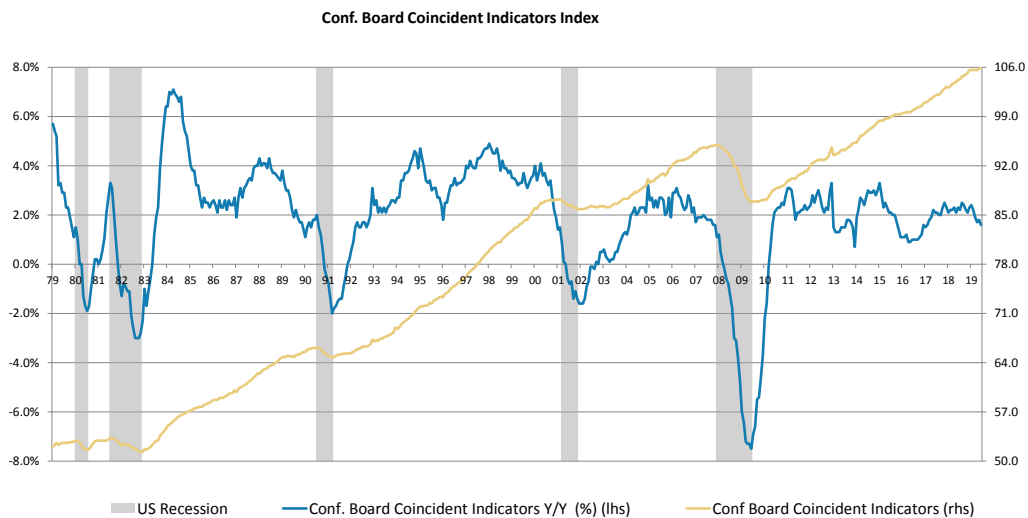
Source: Bloomberg, Morgan Stanley Research.

Aggregate Indicators

The Conference Board's Coincident (CEI) and Leading (LEI) Economic Cycle Indicators are broad metrics of economic activity where the y/y changes are also useful indicators of recession risks. The current growth trend on the CEI indicates some risk of recession. Trends on the LEI are more optimistic, but the trend here is also lower. Exhibit 34 and Exhibit 35 show the CEI and LEI, respectively, along with their y/y rates of change. The peaks in each series at (CEI) or before (LEI) prior recessions are clearly visible, but since the series trend over time, their y/y changes are more useful for establishing consistent signals that indicate rising recession risks — a CEI growth rate below 2% and a LEI growth rate below 0% both tend to indicate an impending recession. Exhibit 36 shows that the CEI has been below the 2% level for 4 months, while Exhibit 37 shows that the LEI is slightly elevated relative to the periods before prior recessions. We note, however, that the index remaining flat over the next 3 months would bring this y/y growth rate to 0% (the last reading was 111.5, as was the September 2018 reading).

Exhibit 34:

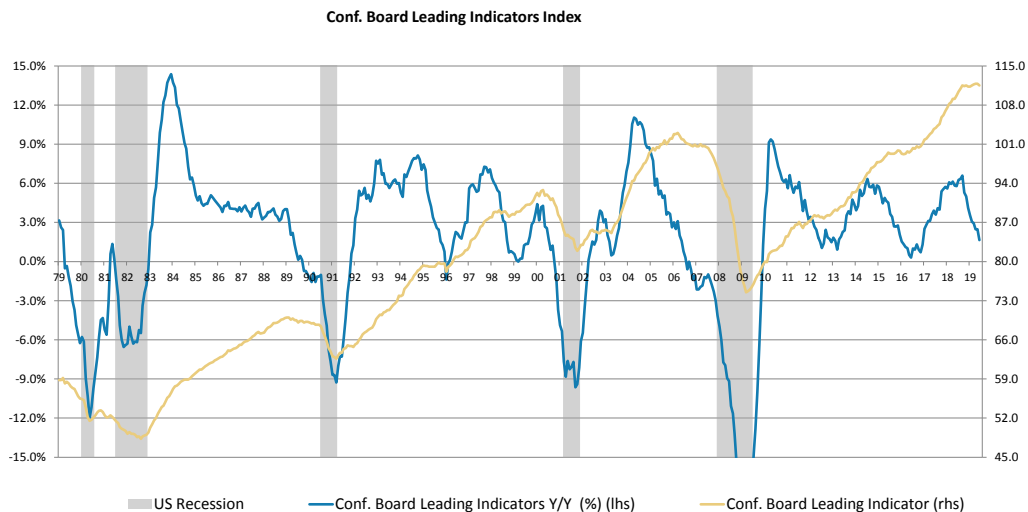
Growth in the Conference Board's Index of Coincident Indicators Tends to Fall Below 2% Y/Y Before Recessions



Source: Bloomberg, Morgan Stanley Research.

Exhibit 35:

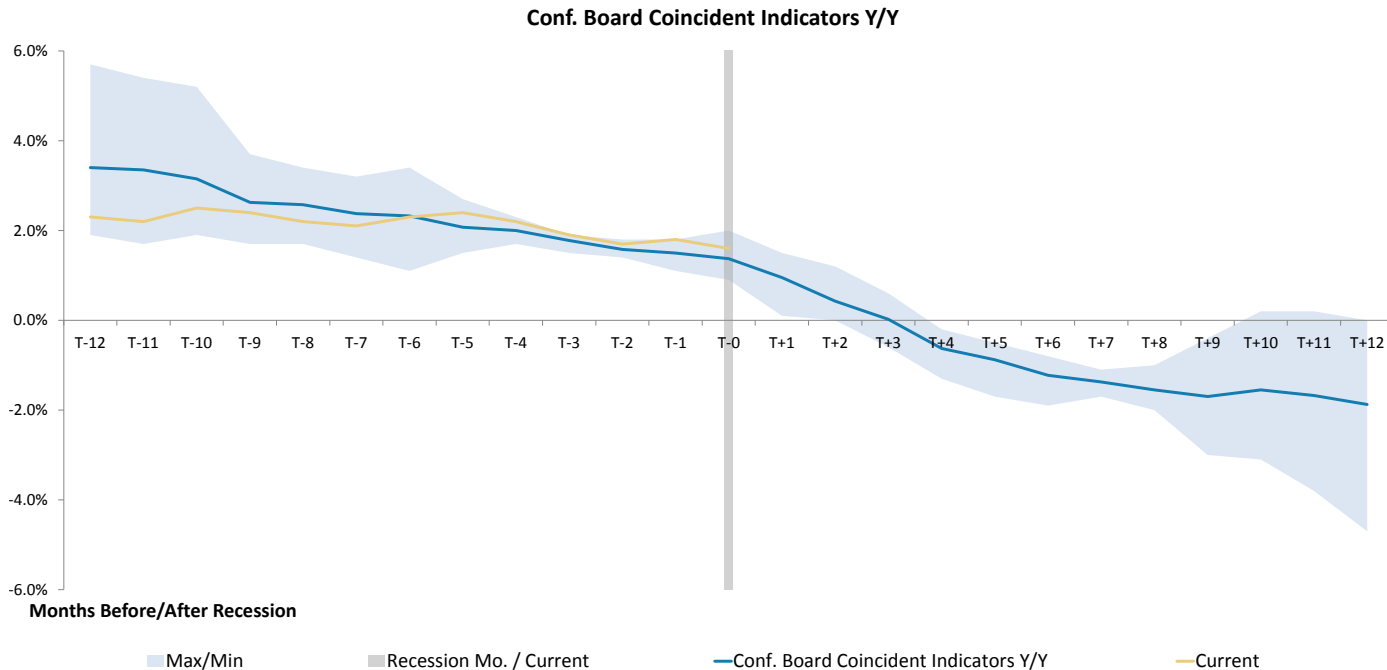
The Conference Board's Index of Leading Indicators Tends to Fall Below 0% Y/Y Before Recessions



Source: Bloomberg, Morgan Stanley Research.

Exhibit 36:

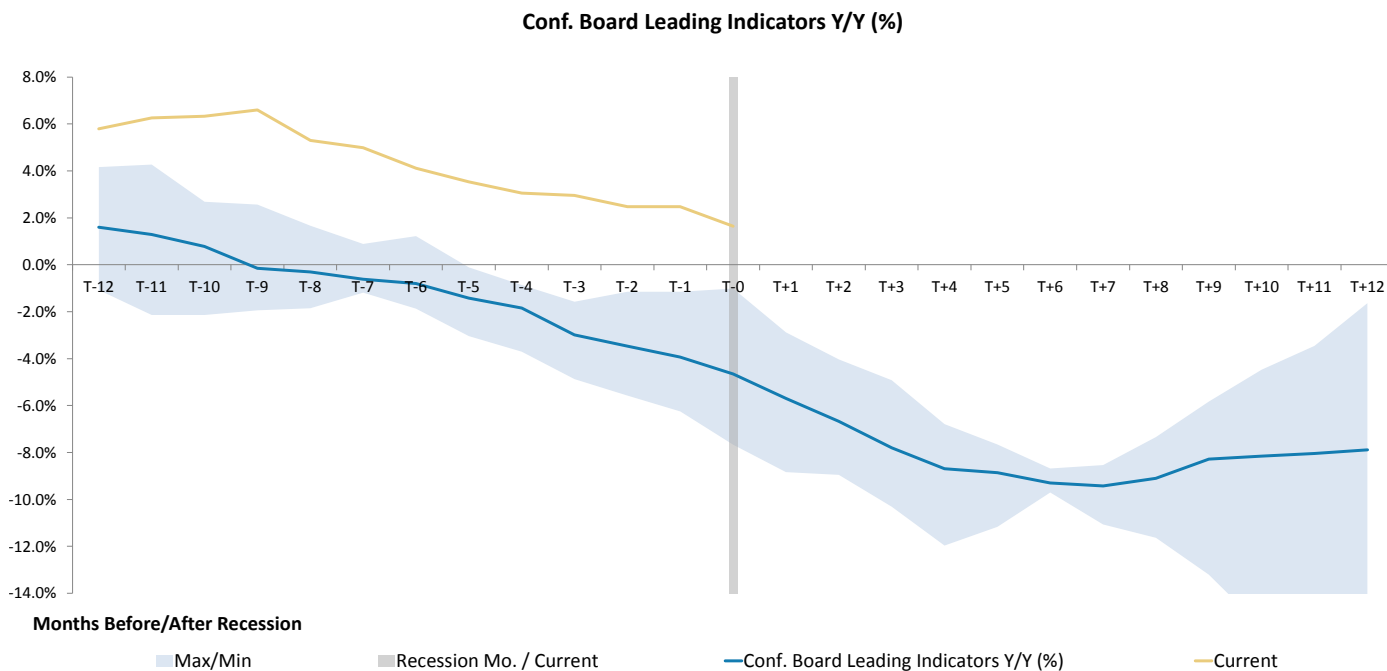
CEI Growth Is on Pace with Periods Leading into Prior Recessions



Source: Bloomberg, Morgan Stanley Research. Note, due to distortions from base effects in the double dip recession of the 1980s, data for this graph omits data points around the second of the 80s recessions.

Exhibit 37:

LEI Is Still Growing Above Trend for Pre-Recession Periods, but Deteriorating Data Make a Drop to Trend Very Plausible



Source: Note, due to distortions from base effects in the double dip recession of the 1980s, data for this graph omits data points around the second of the 80s recessions. Bloomberg, Morgan Stanley Research.

Financial Conditions and Fed Easing Are Not Great Predictors of Recession Likelihood

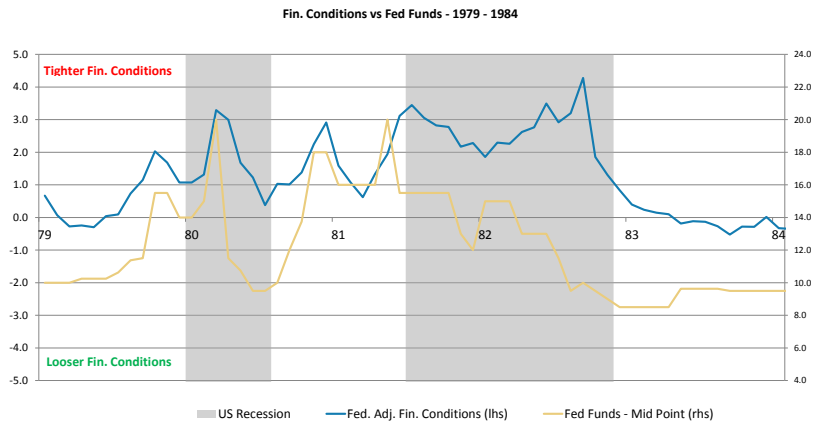
A dovish Fed and looser financial conditions are often cited as reasons why the economy will not see a recession near term, but a look at history says that the Fed's toolkit is far from 100% effective.

Financial conditions are not a useful harbinger of recessions. Financial conditions were among the economic series we examined in relation to recession timing, finding that tightening or loosening financial conditions, at least as measured by the Chicago Fed's Adjusted Financial Conditions Index (FCI), do not behave in a consistent way prior to recessions. Sometimes financial conditions appeared to be loosening (1980, 1990, 2001) and sometimes tightening (1981, 2008) before recessions. Given the relationship between Fed easing and financial conditions, the inconsistency of financial conditions pre-recessions led us to look at Fed policy and its ability to head off recession.

The Fed's ability to head off recessions is questionable, at best. We cannot say for certain if prior Fed easing cycles helped avoid any potential recessions in the past, but we do have examples where the Fed lowering rates was simply not enough to head off a recession or loosen financial conditions in a timely manner. **Exhibit 38** and **Exhibit 39** plot the Chicago Fed's FCI against the fed funds rate over time (given the difference in the level of fed funds from the early 1980s to today, we used two graphs to allow for different scaling) to show that the Fed's ability to loosen financial conditions occurs only gradually and typically requires sustained cuts. Perhaps more important is that before and through the last 4 recessions, the Fed was cutting rates and their "preemptive" action was not effective.

Exhibit 38:

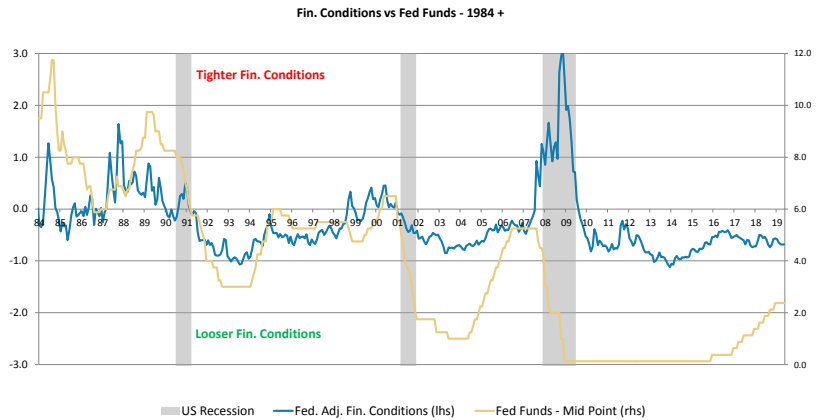
Fed Cuts Take Time to Change Financial Conditions and Do Not Effectively Prevent Recessions



Source: Bloomberg, Morgan Stanley Research.

Exhibit 39:

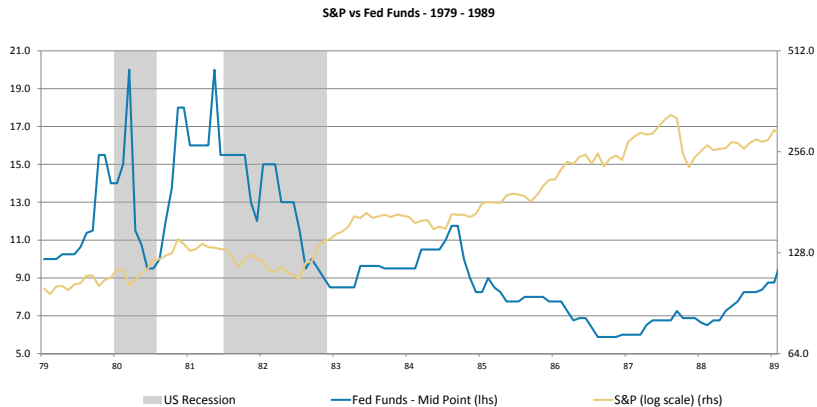
Fed Cuts Take Time to Change Financial Conditions and Do Not Effectively Prevent Recessions



Source: Bloomberg, Morgan Stanley Research.

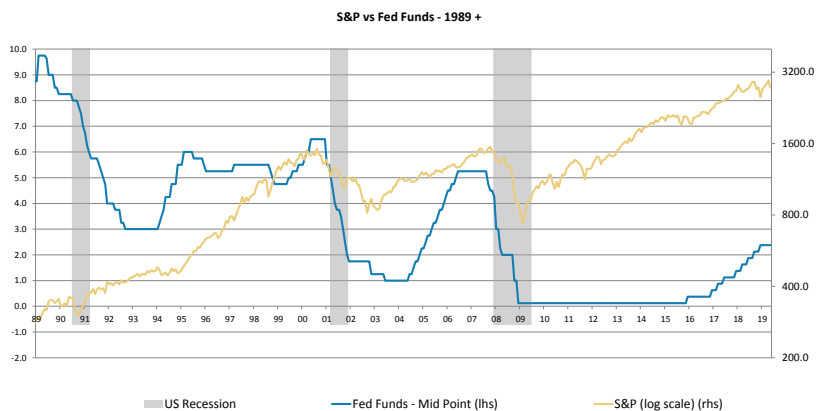
In cases where the Fed cuts are not enough to stop a recession, they are also not enough to support risk assets like equities. Almost any bull case we currently hear for US equities inevitably comes back to the Fed easing. Lower cost of capital, higher multiples, and easier financial conditions should help support demand for equities and their valuations, or so the story goes. The case is often supported by back tests showing that the equity market rises by some amount in periods following the start of Fed cutting cycles. For those who subscribe to this view, we would simply point to **Exhibit 40** and **Exhibit 41**, which show quite clearly that a Fed cutting rates into a recession is not enough to keep equity markets flat, let alone push them higher. Depending on the recession, equities have been down between roughly 15% and 50% from their pre-recession peaks in these instances, notwithstanding a Fed that was easing. Having already established that the Fed cannot, with certainty, avoid a recession, this "back tested" bull case really comes down to a bet that a rapidly decelerating economy avoids recession. Bulls point to 1995 and 1998 as periods when a cutting Fed and no recession led equities higher. In both instances, profit growth was much higher than it is today, allowing for sustained job creation well above current levels — and the Fed's recent tightening, which operates with a lag, had not been nearly as large as today.

Exhibit 40:
Fed Cutting Cycles Are Not Always Good for Equities



Source: Bloomberg, Morgan Stanley Research.

Exhibit 41:
Fed Cutting Cycles Are Not Always Good for Equities



Source: Bloomberg, Morgan Stanley Research.

What Recession Probabilities Are Different Markets Pricing in Now?

Wanting Low

In this section, we attempt to quantify recession risk by using a systematic way to extract the *implied* probability of recession embedded in different assets, based on where their valuations are today.

We emphasize that we are *not* trying to build a model to predict when the next recession will come (our US economists have a [Dual Mandate Model](#) that does just that). Instead, our goal is to find out *what various financial markets are currently pricing* in terms of recession risk, using a univariate probit model, the [same model the New York Fed uses](#) to calculate the implied risk of recession using the slope of the yield curve.

There are a few caveats to the approach. For one, for quite a few markets, the probit model is not significant (at a p-value of 5%); we still show the results, but acknowledge that they may have little informational value. For another, many academic papers have emphasized how *multivariate* probit models are more powerful at backing out recession probabilities (i.e., yield curve AND multiples produce better estimates than any one of these factors alone); our approach here focusing on what individual markets are saying about recession risk would not match those models in terms of sophistication. That said, we think our approach below provides a consistent, apples-to-apples way to look at the recession risks various assets are priced for.

We'd focus on the relative pricing of recession risk among assets rather than the absolute number.

Applying the same Fed model on other assets and based on current pricing, we find these notable:

- **Equities:** The S&P 500 is pricing in a relatively low probability of recession. Within equities, however, there are some distinctive patterns. Financials and Utilities are pricing in a relatively higher risk of recession than sectors like Staples and Materials. Small-cap stocks, given recent underperformance versus large-caps, are also pricing in a higher risk of a recession.
- **Rates:** Flatter curves are generally associated with a higher risk of recession, consistent with our finding that curves tend to be flat and steepen into the start of a recession. While the Fed's 3m10y measure of the curve flags a relatively higher risk of recession, recent steepening in the UST 2s10s curve has implied a fall in the risk of a recession.
- **Credit:** While US BBB credit is pricing in a similar risk of recession as the UST 2s10s curve, we note that the implied probability of a recession in BBB credit is still considered low versus its long-term average, likely a function of spreads remaining low right now, and credit tends to start widening well before the start of a recession.
- **Commodities:** Gold and copper are pricing in a relatively higher risk of recession compared to Brent, which paints a more sanguine picture.

Exhibit 42:

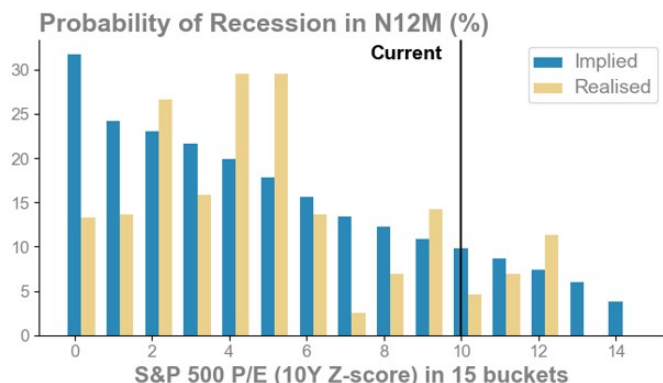
Implied probability of recession in the next 12 months by asset

Name	Valuation Metric	Implied Probability of Recession in the Next 12M				
		Current	3m Chg	12m Chg	LT Z-score	Data Since
EQUITIES						
S&P 500	P/E	11%	↓	↑	-0.54	1964
S&P 500 EQUITY SECTORS						
Cons Discretionary vs Mkt	P/E	12%	↓	↓	-1.09	1974
Cons Staples vs Mkt	P/E	10%	↑	↓	-0.76	1974
Energy vs Mkt	P/E	13%	↓	↑	-0.05	1974
Financial vs Mkt	P/E	14%	↑	↓	0.19	1974
Healthcare vs Mkt	P/E	12%	↑	↑	-1.00	1974
Industrials vs Mkt	P/E	15%	↑	↑	0.50	1974
IT vs Mkt	P/E	13%	↓	↑	-0.99	1974
Materials vs Mkt	P/E	8%	↓	↑	-0.44	1974
Real Estate vs Mkt	P/E	14%	↓	↓	0.50	1974
Telecom vs Mkt	P/E	12%	↑	↑	-0.60	1974
Utilities vs Mkt	P/E	18%	↑	↑	0.85	1974
Small vs Large Caps	P/E	18%	↓	↑	0.25	1979
RATES						
UST 10y	Real yields	15%	↑	↓	-0.13	1972
UST 3m10y	Level	33%	↑	↑	1.20	1959
UST 2s10s	Level	18%	↓	↑	0.51	1976
FX						
DXY	Price	11%	↑	↑	-0.66	1981
GBPUSD	Price	8%	↓	↓	-0.99	1981
JPYUSD	Price	15%	↓	↓	1.05	1981
AUDUSD	Price	9%	↓	↓	-0.72	1981
CREDIT						
US BBB	Spreads	18%	↓	↓	-0.27	1929
COMMODITIES						
Brent	Inflation-adj price	4%	↑	↓	-0.92	1998
Gold	Inflation-adj price	11%	↑	↑	-0.37	1990
Copper	Inflation-adj price	15%	↓	↓	-0.76	1999

Source: Morgan Stanley Research; Note: We use a univariate probit model, with the y-variable as whether there is recession in next 12 months and the x-variable as the valuation metric of the particular asset. We use a 10Y valuation Z-score for all assets except for rate curves and credit spreads, which is the outright level. Equity sector valuation data are based on top 500 stocks valuation and are adjusted for current sector classifications. We use bottom 1,000 stocks in our equity quant database of top 1,500 stocks in the US to represent small-cap stocks. We use monthly data up until 2010 to train the model. We grey out assets whose its probit model is not significant, at a p-value of 5%.

Exhibit 43:

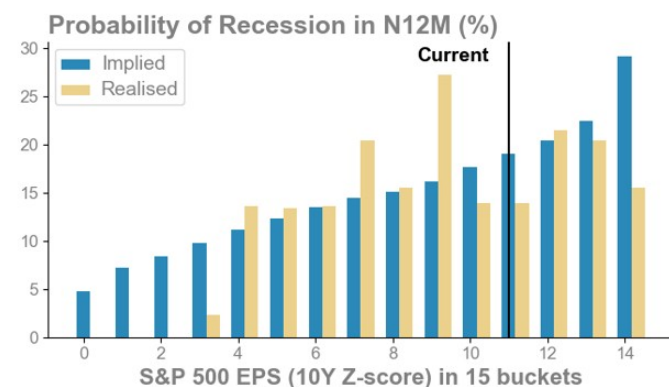
The lower S&P 500 P/E, the higher the probability of recession in the next 12 months



Source: Morgan Stanley Research; Note: Implied probability is computed based on a univariate probit model. We compute the average implied probability in each bucket. Black line shows the current valuation bucket.

Exhibit 44:

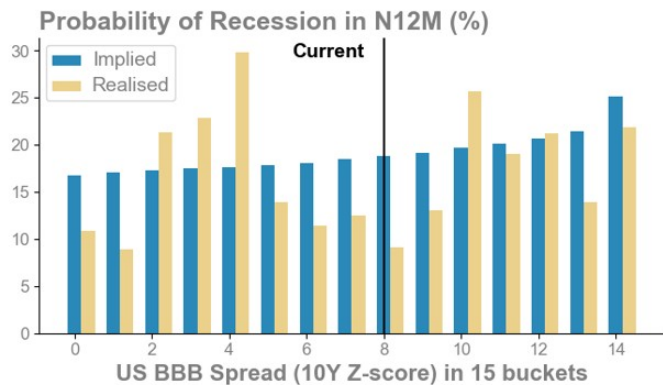
The higher S&P 500 trailing EPS, the higher the recession risk



Source: Morgan Stanley Research; Note: Implied probability is computed based on a univariate probit model. We compute the average implied probability in each bucket. Black line shows the current valuation bucket.

Exhibit 45:

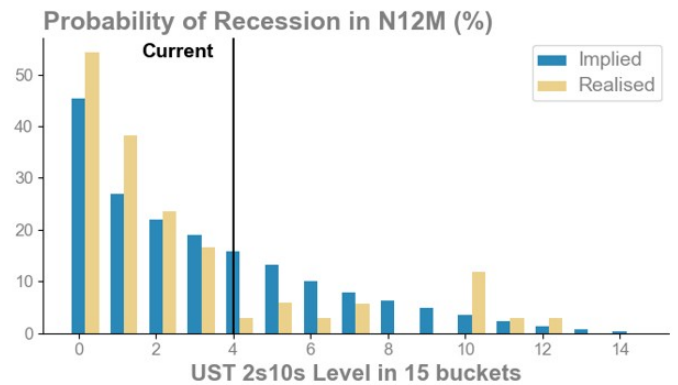
The wider the credit spread, the higher the probability of a recession



Source: Morgan Stanley Research; Note: Implied probability is computed based on a univariate probit model. We compute the average implied probability in each bucket. Black line shows the current valuation bucket.

Exhibit 46:

The flatter the UST curve, the higher the probability of a recession



Source: Morgan Stanley Research; Note: Implied probability is computed based on a univariate probit model. We compute the average implied probability in each bucket. Black line shows the current valuation bucket.

What is a probit model? A probit model is a type of regression model where the dependent variable (y-variable) takes on only two values. This model estimates, based on the characteristics, the probability that an observation falls into one of the categories. In our case, it estimates the probability of an observation falling into the 'recession category' in the following 12 months based on how it has usually performed 12 months before the recession.

What are the inputs? We use a 10-year Z-score of valuation data, specifically trailing P/E for equities, real yields for rates, price level for FX, and inflation-adjusted price for commodities. Using a 10-year Z-score allows us to remove long-term trends from valuation data and focus on the level of valuation relative to its long-term average, rather than just on the level itself.

What is the model specification? We use a univariate model, where Y-variable is whether the period is in a recession in the next 12 months or not (1 or 0) and X-variable is the valuation of the particular asset across time. We then apply a normal distribution function on this.

$$Y = \Phi(X\beta + \varepsilon)$$

To align with Fed's recession probability model, we employ the same training period, using monthly data up until 2010 to train the model.

What Happens in Recessions? Cross-Asset Implications

Serena Tang and Naomi Poole

If the risk of the US falling into a recession is elevated, what does that mean for risk assets? How – and *when* – should investors prepare for a slowdown? In our analysis of the last five NBER-defined US recessions since 1980, we find that there's broad dispersion across the different episodes, but common themes for an investor's playbook include:

- **There's a large overlap between recessions and bear markets.** Four out of the last five US recessions were associated with a bear market, all of which either started before or at the same time as the macro peak; the lone recession which didn't see a 20% drawdown still saw a 17% sell-off.
- **Equities and credit most vulnerable, while bonds outperform during a recession.**
- Ex-US risk assets tend to see bigger drawdowns than US markets during US recessions, largely because these periods coincide with global slowdowns.
- **Credit has reliably widened and the yield curve dependably steepened going into and out of the start of the last five recessions.** Large variations exist across the past episodes in terms of magnitude and timing, but these two assets have displayed similar behavior in all of them.
- **Risk asset underperformance starts way in advance of a macro peak.** Global equities and credit tend to start lagging typical returns during the 12 months before a recession starts, while Treasury yields tend to have already fallen by about 50bp by the time the economy peaks.
- **Investors should not wait for recession confirmation to get more defensive.** Since the 1980s, equity markets have sold off about 14 months before NBER confirmation of a cycle peak, often not 'calling' the peak until the economy has already reached or is close to reaching a trough. An investor who only rotates from equities to bonds after a recession is confirmed by the NBER would have both felt the worst of equity underperformance and missed out on substantial positive bond returns leading up to the announcement date. In fact, NBER confirmation of a recession start paradoxically tends to be a good signal to get more constructive.
- **Currently, bonds and gold are the markets which have tracked most closely the performance one would usually find going**

into a recession; equities, credit, and JPY on the other hand look too rich, while broader commodities look too cheap versus typical performance before recessions, suggesting low probability of slowdowns priced in, and also greater potential downside/upside.

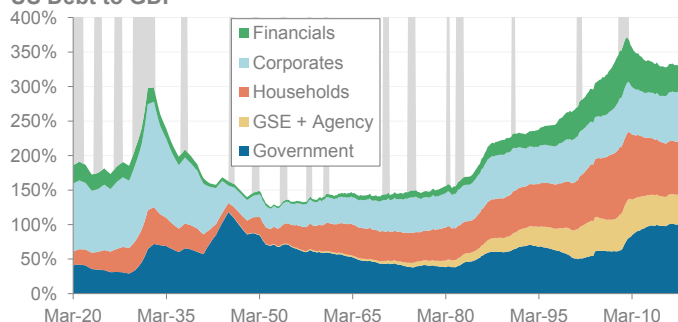
First thing first – not all recessions are equal

One pushback we often hear from investors on why they see a low risk of recession is because real estate markets are holding up, US corporate credit spreads are low, the securitized credit market looks calm, and overall leverage in the economy remains well below the heady heights of 2008. In short, the argument goes, **because all the elements of pain during the last recession seem to be doing fine, we can't possibly be due for another recession.**

Exhibit 47:

US debt to GDP lower since last recession...but recessions can still occur when leverage is lower

US Debt to GDP



Source: Haver Analytics, Morgan Stanley Research; Note: Grey bars are US recessions.

This kind of recency bias ignores the fact that recessions come in a variety of 'flavors' and intensity. The recession of 1973-75 was exacerbated by an oil price shock, the recession of 1981-82 coincided with the LatAm debt crisis, and, infamously, the Great Recession of 2007-09 saw a banking crisis, credit crunch, *and* a real estate bubble burst all at the same time. It's worth noting that this last slowdown was a *rarity* – only the Great Depression comes close as a comparable event and, even then, the very different international and policy environments between then and now mean that one ends up comparing apples to oranges.

Exhibit 48:

US recessions over the last century have varied a lot in terms of length and characteristics

Peak	Trough	Length (Mths)	Announced Date		NBER Lag Mths		Bear Mkt			Tight Policy	Credit Crunch	Real Estate Bust	Banking Crisis
			Peak	Trough	Peak	Trough	Date	Drawdown					
Oct-26	Nov-27	13	~	~	~	~	~	~	~	Y	~	~	~
Aug-29	Mar-33	43	~	~	~	~	Y - Sep-29	-86%		Y	Y	Y	Y
May-37	Jun-38	13	~	~	~	~	Y - Mar-37	-54%		Y	Y	~	~
Feb-45	Oct-45	8	~	~	~	~	Y - May-46	-28%		~	~	~	~
Nov-48	Oct-49	11	~	~	~	~	Y - Jun-48	-21%		Y	~	~	~
Jul-53	May-54	10	~	~	~	~	~	~	~	Y	Y	~	~
Aug-57	Apr-58	8	~	~	~	~	Y - Aug-56	-22%		Y	Y	~	~
Apr-60	Feb-61	10	~	~	~	~	Y - Dec-61	-28%		Y	Y	~	~
Dec-69	Nov-70	11	~	~	~	~	Y - Nov-68	-36%		Y	Y	~	~
Nov-73	Mar-75	16	~	~	~	~	Y - Jan-73	-48%		Y	Y	~	~
Jan-80	Jul-80	6	Jun-80	Jul-81	5	12	~	~	~	Y	Y	~	~
Jul-81	Nov-82	16	Jan-82	Jul-83	6	8	Y - Nov-80	-27%		Y	~	~	~
Jul-90	Mar-91	8	Apr-91	Dec-92	9	21	Y - Jul-90	-20%		Y	Y	~	~
Mar-01	Nov-01	8	Nov-01	Jul-03	8	20	Y - Mar-00	-49%		Y	~	~	~
Dec-07	Jun-09	18	Dec-08	Sep-10	12	15	Y - Oct-07	-57%		Y	Y	Y	Y

Source: Haver Analytics, Bloomberg, Morgan Stanley Research; Note: Qualitative recession characteristics based on paper by Michael D. Bordo and Joseph G. Haubrich (2009), "Credit Crises, Money and Contractions: an historical view." NBER Working Paper No. 15389.

Given the varied nature and policy backdrop of US recessions, in our analysis below we focus only on the five episodes from 1980 onwards, given that the Fed's implementation of monetary policy over this period is more analogous to what we have now. We acknowledge that five data points is a small sample size, and each of these recession periods has its own unique twist, but we think that it offers a good starting point to think about asset allocation for recession scenarios. For summaries of what happened during the last five US recessions, see [Appendix I: US Recessions – Summaries](#).

Exhibit 49:

Bear markets around US recessions

US Recessions		ACWI Bear Mkt		SPX Bear Mkt		MSCI Europe Bear Mkt		TOPIX Bear Mkt			MSCI EM Bear Mkt	
Peak	Trough	Date	Drawdown	Date	Drawdown	Date	Drawdown	Date	Drawdown		Date	Drawdown
Oct-26	Nov-27	~	~	~	~	~	~	~	~	~	~	~
Aug-29	Mar-33	~	~	~	~	~	~	~	~	~	~	~
May-37	Jun-38	~	~	~	~	Y - Sep-29	-86%	~	~	~	~	~
Feb-45	Oct-45	~	~	~	~	Y - Mar-37	-54%	~	~	~	~	~
Nov-48	Oct-49	~	~	~	~	Y - May-46	-28%	~	~	~	~	~
Jul-53	May-54	~	~	~	~	~	~	~	~	~	~	~
Aug-57	Apr-58	~	~	~	~	Y - Jun-48	-21%	~	~	Y - May-49	-57%	
Apr-60	Feb-61	~	~	~	~	~	~	~	~	Y - Feb-53	-36%	
Dec-69	Nov-70	~	~	~	~	Y - Aug-56	-22%	~	~	Y - Jan-57	-21%	
Nov-73	Mar-75	~	~	~	~	Y - Dec-61	-28%	~	~	Y - Jul-61	-34%	
Jan-80	Jul-80	~	~	~	~	Y - Nov-68	-36%	~	~	Y - Apr-70	-21%	
Jul-81	Nov-82	~	~	~	~	Y - Jan-73	-48%	Y - Aug-72	-46%	Y - Jan-73	-40%	
Jul-90	Mar-91	~	~	~	~	~	~	~	~	~	~	~
Mar-01	Nov-01	Y - Jan-90	-26%	Y - Jul-90	-20%	Y - Jul-90	-24%	Y - Dec-89	-62%	Y - Aug-90	-32%	
Dec-07	Jun-09	Y - Mar-00	-51%	Y - Mar-00	-49%	Y - Sep-00	-58%	Y - Feb-00	-56%	Y - Apr-02	-30%	
		Y - Oct-07	-60%	Y - Oct-07	-57%	Y - Jun-07	-57%	Y - Feb-07	-61%	Y - Oct-07	-66%	

Source: Bloomberg, Morgan Stanley Research; Note: ACWI and MSCI EM data begin 1986, MSCI Europe 1968, and TOPIX 1948.

What happens *during* recessions – equities and credit most vulnerable, bonds most defensive

We show average monthly returns for the major markets *during* US recessions in [Exhibit 50](#); not all assets have data which go back five cycles, but we show what we can. Unsurprisingly, risk assets tend to perform poorly during recession periods, while bonds outperform. What's notable:

- **US recessions overlap with equity bear markets.** Four out of the last five US recessions were associated with a bear market, all of which either started before or at the same time as the macro peak ([Exhibit 49](#)); the exception was the 1980 recession, which saw a sell-off of 'only' 17% from mid-February 1980 to late March 1980. All other major equity markets also saw bear markets around the last three recessions, with the sell-offs most severe for TOPIX on average. The 2007-09 recession with a banking crisis and real estate bust saw the most severe equity drawdown, but it doesn't seem like episodes with a credit crunch necessarily coincide with bigger sell-offs. For more on bear markets, see [Cross-Asset Dispatches: The Bear Market Almanac 2018 Edition \(12 Nov 2018\)](#).
- **Equities exhibit poor monthly performance during US recessions, with ex-US markets often more affected than the US.** The S&P 500 was, on average, the most defensive market among

major equity regions ([Exhibit 50](#)); TOPIX fared far worse than the S&P 500 in 1990 and 2001, and MSCI EM exhibited particularly poor performance (the caveat being that we only have data for the last three recessions). The most likely explanation for EM's underperformance is that episodes of US recessions often coincide with periods of global slowdown, which tend to be a drag on earnings.

- **Credit tends to fare poorly in US recessions.** EU HY in particular stands out as the worst performer, driven by the facts that: i) We only have two observed cycles; and ii) The EU HY market in 2001 was in its nascency – at only one-tenth of the size of the US HY market, and much less diversified ratings-wise, with bad performance being amplified by shallow markets. As the European market matured, the difference in return between the two regions has become smaller – although EU HY still underperformed US in 2007 – but we think this highlights how assets facing low liquidity may do worse in a recession environment.
- **Brent underperformed in the last two recessions.** The 1990 recession was exacerbated by the oil price shock after Iraq invaded Kuwait in August 1990, and it skewed the average monthly returns across later recessions higher ([Exhibit 52](#)). While oil demand is exposed to the fluctuations of global economic demand, oil-specific supply shocks can be large enough to distort cyclical trends.

Exhibit 50:

Average monthly return during US recessions

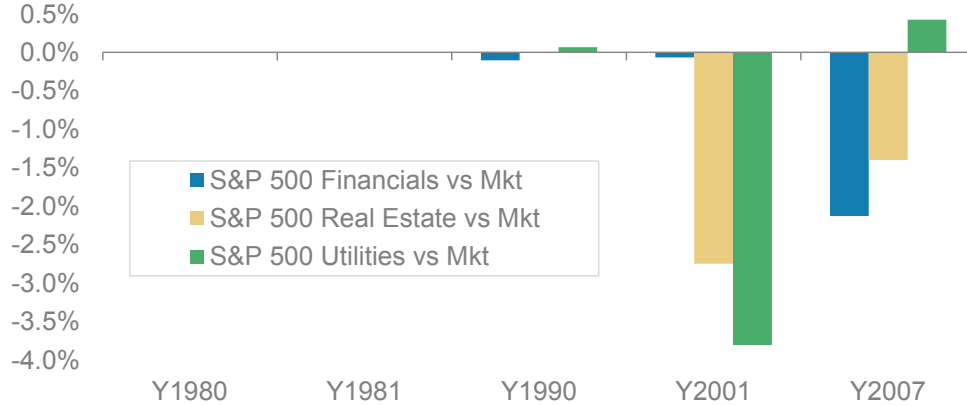
Average Monthly Return During US Recessions										
	Y1980	Y1981	Y1990	Y2001	Y2007	Entire Period	Pre NBER Announcement	Post NBER Announcement	Improves Post Announcement?	Number of Obs.
EQUITIES										
MSCI ACWI			-0.1%	-0.6%	-2.3%	-1.4%	-2.5%	2.3%	✓	36
S&P 500	1.9%	0.5%	0.6%	-0.1%	-2.2%	-0.3%	-1.3%	1.8%	✓	60
MSCI Europe Local	1.4%	0.6%	-0.6%	-1.1%	-2.6%	-0.7%	-1.7%	1.3%	✓	60
TOPIX	0.4%	0.0%	-1.2%	-2.3%	-2.3%	-1.2%	-2.2%	0.7%	✓	60
MSCI EM			0.6%	-0.5%	-1.9%	-1.0%	-3.0%	6.4%	✓	36
RATES										
UST 10yr	0.7%	2.2%	1.0%	0.6%	0.6%	1.1%	1.1%	1.3%	✓	60
Bunds 10Y	0.8%	1.6%	0.9%	0.6%	0.7%	1.0%	0.7%	1.6%	✓	60
JGB 10Y			0.6%	0.1%	0.3%	0.3%	0.4%	0.2%		36
CREDIT										
US IG XS			0.0%	0.1%	-0.3%	-0.1%	-0.8%	1.9%	✓	36
US HY XS			0.5%	-0.7%	-0.5%	-0.3%	-1.8%	4.6%	✓	36
EU IG XS				0.0%	-0.4%	-0.3%	-0.7%	0.6%	✓	27
EU HY XS				-2.2%	-0.8%	-1.2%	-3.8%	5.2%	✓	27
EM \$ Sov XS					-0.2%	-0.2%	-2.4%	3.5%	✓	19
FX										
DX	0.1%	0.7%	0.2%	-0.1%	0.3%	0.3%	0.3%	0.3%	✓	60
EURUSD	-0.4%	-0.7%	-0.2%	0.3%	-0.1%	-0.3%	-0.3%	-0.1%	✓	60
GBPUSD	0.8%	-1.0%	0.1%	0.1%	-1.1%	-0.5%	-0.5%	-0.5%	✓	60
JPYUSD	0.9%	-0.4%	1.0%	0.3%	0.8%	0.4%	1.0%	-0.6%	✓	60
BRLUSD				-1.7%	-0.3%	-0.7%	-2.3%	2.7%	✓	27
RUBUSD				-0.5%	-1.1%	-0.9%	-0.8%	-1.1%		27
KRWUSD				0.6%	-1.4%	-0.8%	-2.2%	2.2%	✓	27
COMMODITIES										
Brent			8.2%	-2.4%	-2.1%	0.4%	0.5%	-1.1%		36
Gold	-1.0%	0.3%	-0.2%	0.7%	1.1%	0.4%	-0.4%	1.8%	✓	59

Source: Bloomberg, Morgan Stanley Research; Note: equity sectors data start from 1995, and EM FX starts from 1999. Price returns used for equities, FX, and commodities, total returns for rates and excess returns for credit. Pre NBER announcement period is between the date when recession begins and the announcement date, while post NBER announcement period is between the announcement date and the end of the recession.

Exhibit 51:

Equity sector performance is skewed by distinct periods

Average Monthly Return

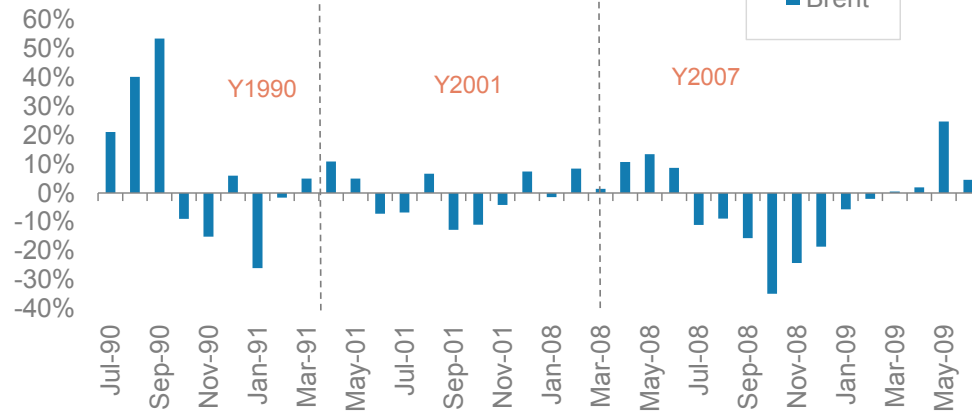


Source: Bloomberg, Morgan Stanley Research

Exhibit 52:

The supply shock in 1990 skews the average performance of oil

Monthly Return

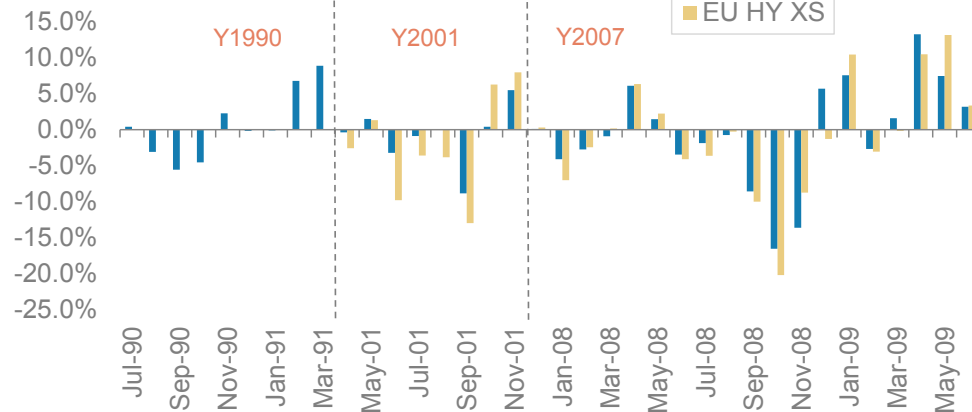


Source: Bloomberg, Morgan Stanley Research

Exhibit 53:

EU HY tends to see moves of greater magnitude than US HY

Monthly Return



Source: Bloomberg, Morgan Stanley Research

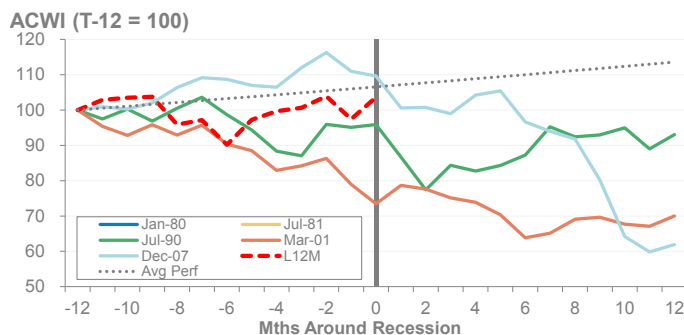
But risk asset underperformance starts even **before** recession begins...

Stocks and credit underperformance really begins *prior to the start of a recession, while government bonds start to outperform before a macro peak is reached.* This can be largely explained by markets pricing in lower growth in advance of macro data turning, although there's also likely some chicken-and-egg situation where financial conditions getting tighter (e.g., from credit spreads widening) contributes to weaker growth down the line. What's perhaps slightly surprising is that **commodities also tend to strengthen into a recession**, with both oil and gold peaking one to two quarters *after* the macro peak. We highlight what's notable across each asset class below:

- **Equities start to underperform going into the start of a recession.** Stocks tend to trend sideways in the 12 months going into a macro peak, versus being up 6-10% in any typical year ([Exhibit 55](#) and [Exhibit 57](#)). The range of performance across the last five recessions is wide though, with the episodes in early 1980 being outliers across various regions ([Exhibit 56](#)), likely because of a very different inflation and policy environment.

Exhibit 54:

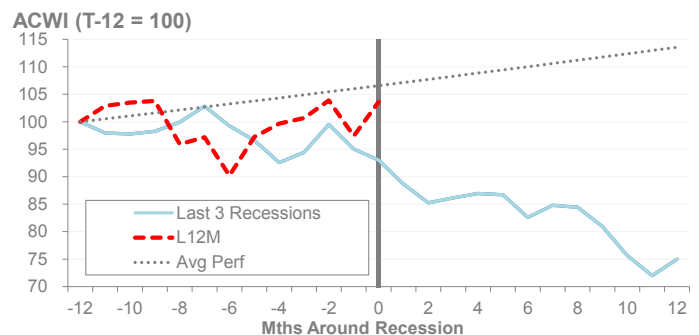
Global stocks started trending lower prior to recession start; 2007 was an exception



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 55:

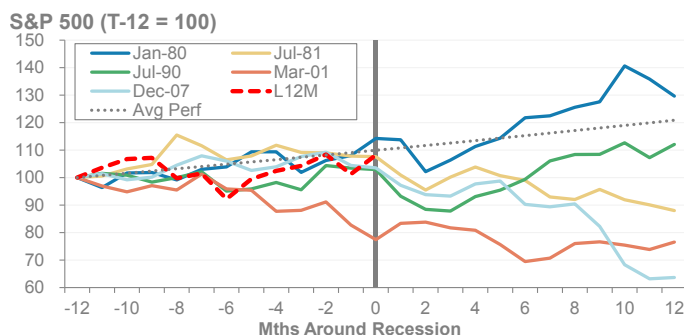
By the time recession starts, ACWI had underperformed average 12-month performance by ~20%



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 56:

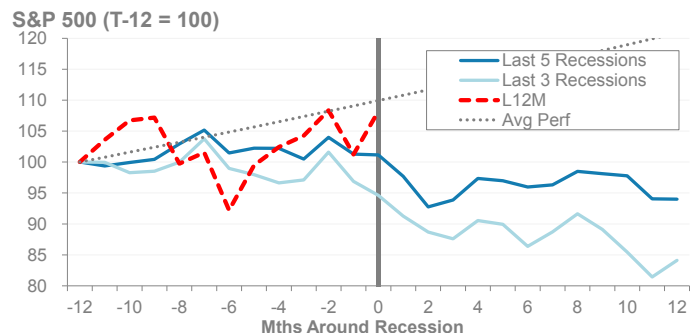
For S&P, the 1980 recession was an outlier



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 57:

S&P on average trends sideways into a recession start, versus the +10% in any typical year

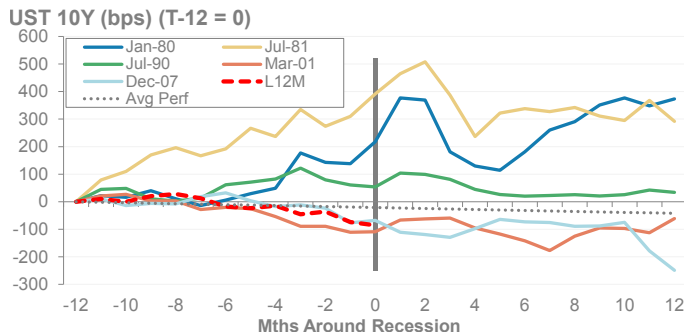


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

- Bond yields tend to fall well before macro slowdown.** The experience of the last three recessions saw UST 10Y yields trend lower into the start of a recession; but the 1980s recessions once again prove to be outliers – yields actually rose in the 12 months into the start of recession in 1980 and 1981 (and also 1990, to a lesser extent) (**Exhibit 58**). There's dispersion in 2s10s performance too, but what's interesting is that the trend for the yield curve to steepen into and out of a macro peak is the same whether we look at all recessions over the last 40 years, or exclude the 1980s episodes (**Exhibit 61**). Notably, 10Y yields over the last 12 months have declined more than what one would usually find going into a recession, which is incredible given that the absolute level of yields today is a lot lower than in those periods; the 2s10s curve has also flattened more than what one would find if we're at the macro peak today.

Exhibit 58:

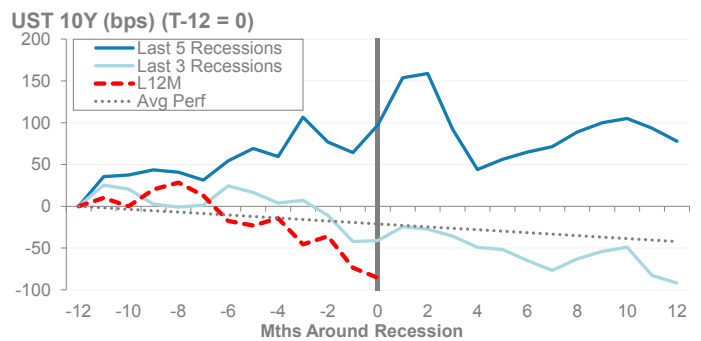
UST 10Y yields path varied a lot over the last five recessions



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 59:

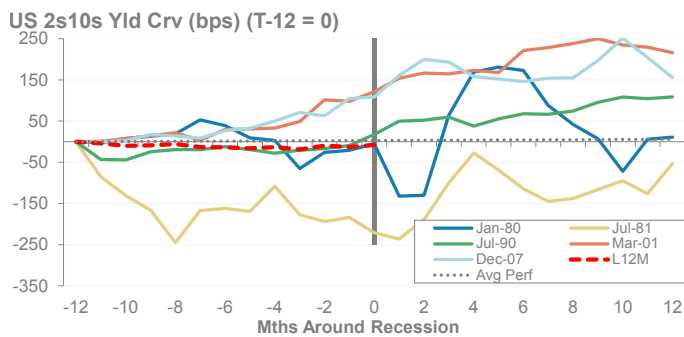
Yields trended lower by 50bp on average 12 months going into a recession in the last three recessions



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 60:

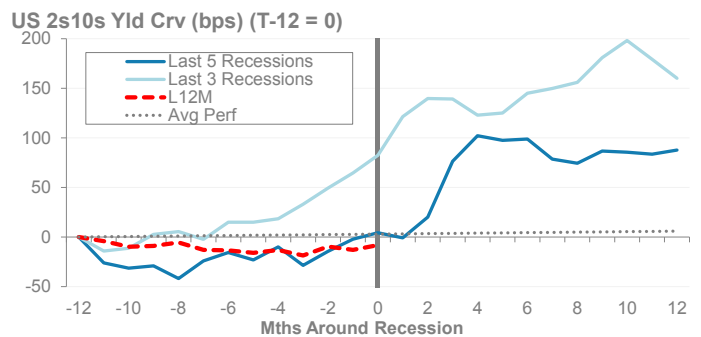
2s10s curve performance in the last five US recessions looks dispersed...



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 61:

...but the trend for the yield curve to steepen into and out of macro peaks is evident

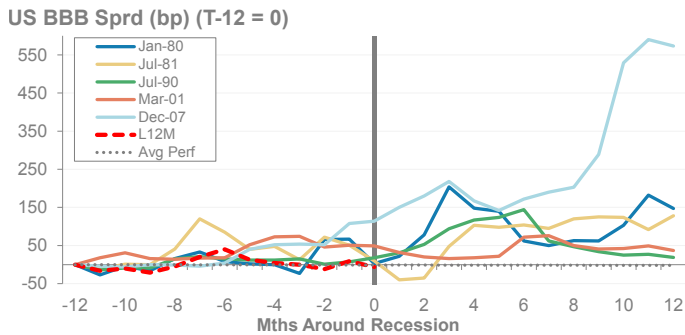


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

- Credit spreads start widening well before the start of a recession.** On average, US BBB spreads widened by about 50bp 12 months going into a macro peak; crucially, spreads tend to continue to widen, with the bulk of the asset's underperformance coming after recession starts (**Exhibit 63**). Like other markets, performance of credit has been dispersed across the last five recessions though, with – no surprise – the credit crisis in 2007 being the outlier (**Exhibit 62**).

Exhibit 62:

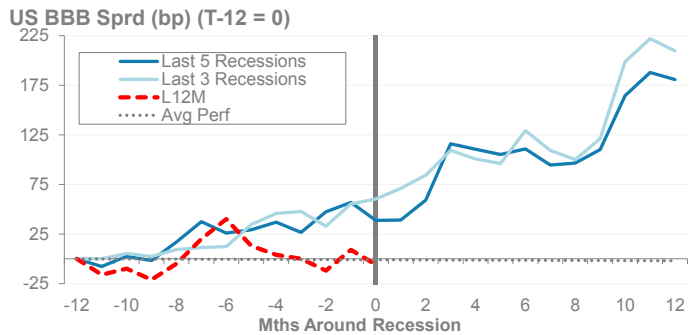
Credit spreads tend to widen into start of recessions, but skewed by 2007 episode



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 63:

US BBB spreads tend to widen by about 50bp into a macro peak, and continue widening

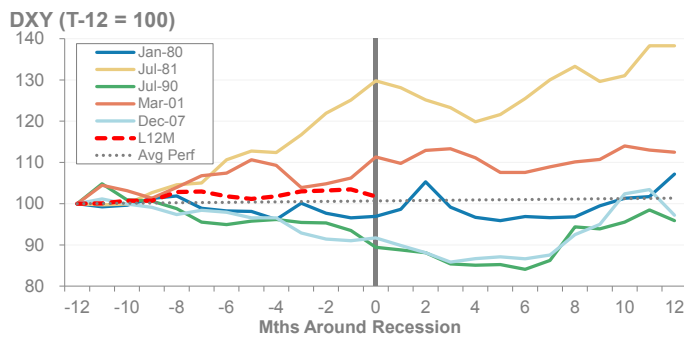


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

- USD on average strengthens by about 3% in the 12 months going into the start of a recession**, but the average belies a more complicated picture. DXY rose by 10% in 2001 and 30% in 1981, but the broad USD index also declined by about 10% in both 1990 and 2007. What does seem to unite all these episodes is that we've seen USD weaken in the six months or so after recession starts before it strengthens again, contrary to received wisdom that USD is a safe haven when growth disappoints. The trend for USD is seen in sharper relief when we focus on specific crosses like USDJPY. In four out of the last five US recessions, JPY had depreciated in the 12 months going into a recession, and then strengthened in the six months or so after reaching the macro peak (**Exhibit 67**). While JPY's performance strays a lot from what's typical in recessions, a strengthening JPY into macro weakness is not unheard of – in the 12 months going into the 2007 slowdown, JPY appreciated by ~6%, and continued to do so after the macro peak.

Exhibit 64:

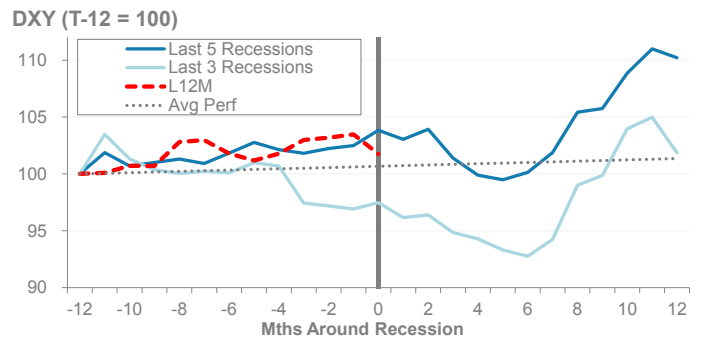
DXY performance into recessions – extremes in both directions



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 65:

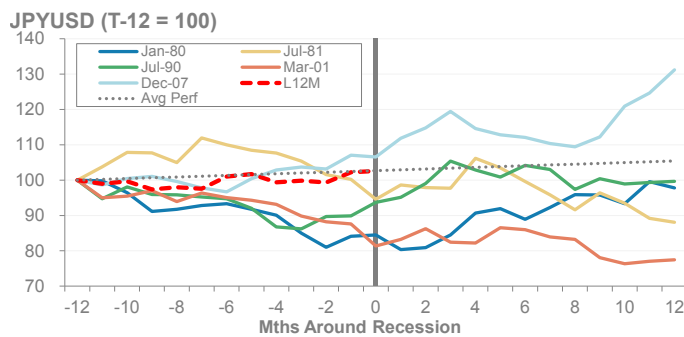
Trend for weaker USD in the six months following a macro peak unites all episodes



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 66:

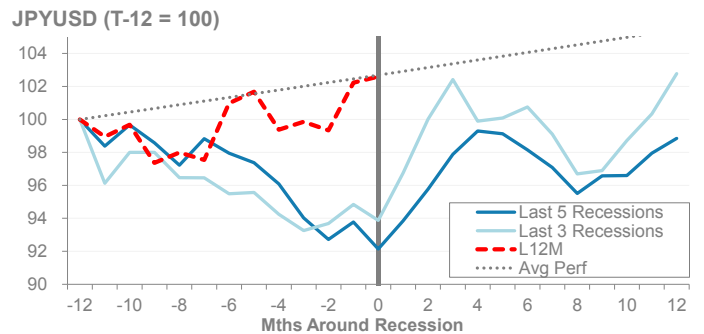
JPY tends to weaken into starts of US recessions



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 67:

Strengthening JPY over the last 12 months at odds with usual recession path



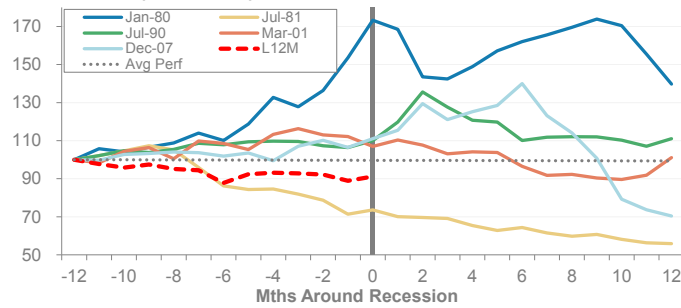
Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

- **Commodities on average strengthen going into the start of a recession**, which might be surprising given that other risk assets tend to do poorly. Given that we only have five recession observations though, it's impossible to delineate what's cyclical and what's idiosyncratic – oil price shocks which contributed to the 1980 and 1990 recessions skewed recession averages higher (**Exhibit 68**). Looking at the last 12 months, commodity performance has generally been weaker than the typical path going into a recession, although gold strength is reminiscent of the experience in the last three recessions (**Exhibit 73**).

Exhibit 68:

Oil shocks in 1980 and 1990 episodes skew commodities performance

BCOM Index (T-12 = 100)

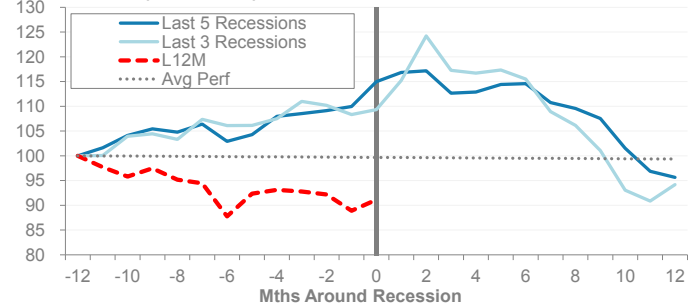


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 69:

BCOM on average strengthens by 10-15% in the 12 months going into a recession

BCOM Index (T-12 = 100)

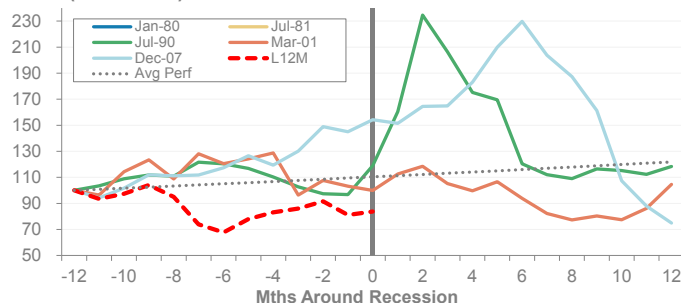


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 70:

Brent prices peaked after recession started in 1990 and 2007

Brent (T-12 = 100)

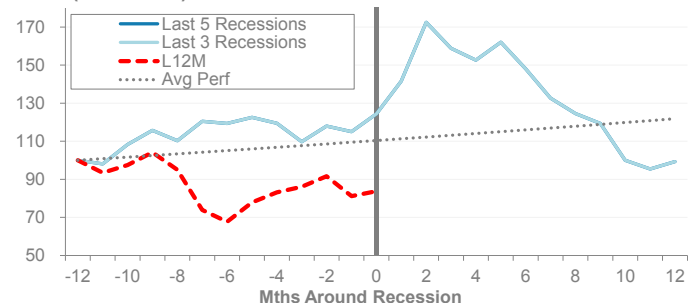


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 71:

Brent on average outperforms into and out of start of recessions

Brent (T-12 = 100)

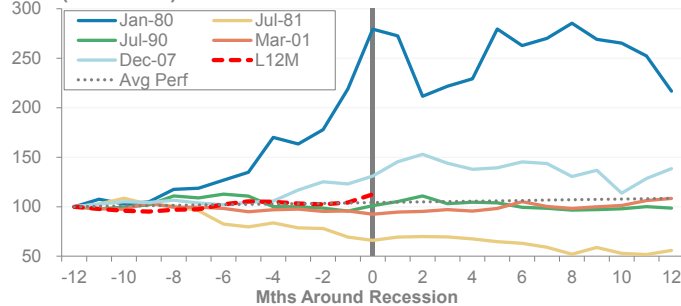


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 72:

1980 recession once again an exception for gold performance

Gold (T-12 = 100)

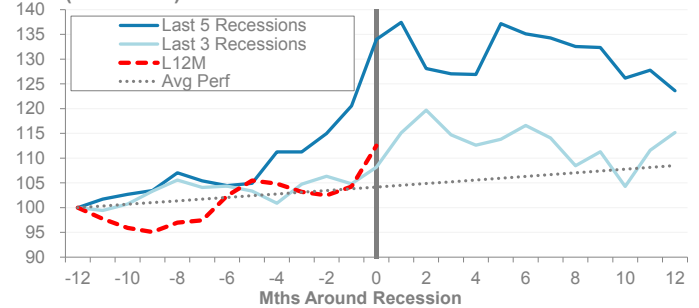


Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 73:

Gold's performance in the last 12 months has followed the average path in the last three recessions

Gold (T-12 = 100)



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 74:

Average returns of assets going X months going into start of US recessions, and X months after macro peaks

Asset	Xm Returns Going Into A Recession				Xm Returns After Recession Starts			
	12m	6m	3m	1m	1m	3m	6m	12m
MSCI ACWI	-7.0%	-6.9%	-1.6%	-2.4%	-3.6%	-6.5%	-11.3%	-17.1%
S&P 500	1.1%	-0.5%	0.5%	-0.5%	-2.9%	-6.6%	-5.6%	-7.1%
MSCI Europe	0.6%	-1.6%	-1.2%	-0.2%	-2.3%	-8.6%	-9.8%	-8.8%
TOPIX	-5.0%	-5.3%	0.5%	-0.4%	-2.9%	-8.1%	-11.1%	-15.7%
MSCI EM	15.4%	4.7%	6.1%	-0.5%	-7.0%	-11.4%	-18.0%	-13.5%
UST 10Y	3.3%	2.5%	3.1%	-1.0%	-2.2%	2.9%	6.6%	10.9%
US IG	-1.6%	-1.7%	-0.3%	0.0%	-0.3%	-1.7%	-2.0%	-5.0%
DXY	3.8%	1.5%	1.5%	1.1%	-0.7%	-2.4%	-3.6%	6.3%
EURUSD	-0.6%	0.5%	-1.2%	-0.9%	0.5%	2.4%	3.8%	-7.8%
GBPUSD	-1.1%	-3.1%	0.1%	-0.3%	0.7%	1.0%	3.1%	-7.3%
JPYUSD	-7.9%	-5.7%	-1.8%	-1.7%	1.6%	5.8%	6.5%	6.7%
Bloomberg Commod. Index	15.0%	11.7%	6.0%	4.6%	1.6%	-2.0%	-0.3%	-16.8%
Brent	24.4%	4.2%	13.4%	8.1%	13.8%	27.7%	19.0%	-20.1%
Gold	34.0%	28.3%	20.4%	11.1%	2.6%	-5.2%	0.8%	-7.7%

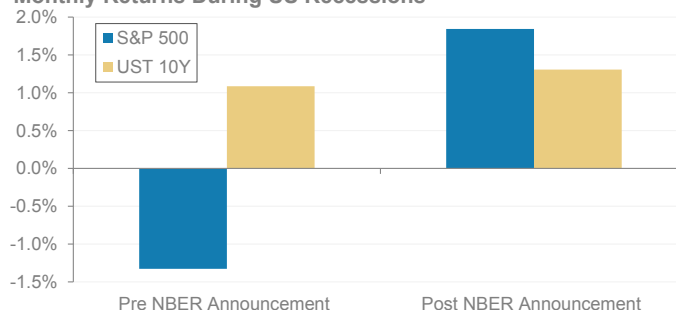
Source: Bloomberg, Morgan Stanley Research; Note: Shows averages for last five US recessions, where data exist.

...and definitely before recessions are officially confirmed

More importantly, however, is the observation that the worst performance for equities tends to happen between the start of the recession and its NBER announcement date. This is true for bonds too – Treasuries and other risk-free assets already start to see positive returns, in absolute terms and relative to stocks, prior to any recession announcements. An investor who only rotates from equities to bonds after a recession is confirmed by the NBER would have both felt the worst of equity underperformance *and* missed out on substantial positive bond returns leading up to the announcement date (**Exhibit 75**). This is because of the considerable identification and confirmation lag inherent in the NBER's recession calls: on average, since 1980, a recession has been announced eight months after it actually starts, or roughly 70% through the duration of a slowdown. Again, averages probably flatter the real picture – in 1990 the recession was announced a month *after* the trough (in retrospect) had already been reached, and in 2001 the recession was identified the same month it ended. In short, **an investor should not wait until a recession is announced to rotate to defensive assets, one of the reasons why we've downgraded global equities to underweight recently (see [Cross-Asset Dispatches: Downgrading Global Equities to Underweight \(7 Jul 2019\)](#)).**

Exhibit 75:

Equity underperformance versus bonds occurs mainly before a recession is officially 'called' by the NBER – waiting for confirmation means investors miss out

Monthly Returns During US Recessions

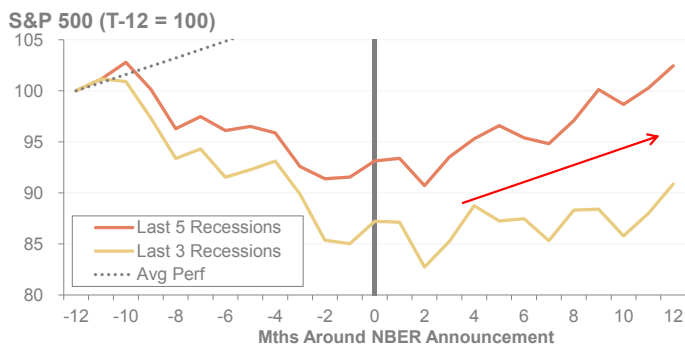
Source: Bloomberg, Morgan Stanley Research; Note: Shows averages for last five US recessions, where data exist. Price returns for equities, total returns for bonds. Pre NBER announcement period is between the date when recession begins and the announcement date, while post NBER announcement period is between the announcement date and the end of the recession.

In fact, if anything, NBER confirmation of a recession start paradoxically tends to be a good signal to get more constructive.

Global equities have tended to bounce after the NBER announces the start of a recession; around the same time, credit spreads peak, and copper recovers. The two markets where we see strong consistent trends before and after recession announcements are: i) The 2s10s yield curve, which steepens into and out of an announcement; and ii) JPY, which strengthens through the recession.

Exhibit 76:

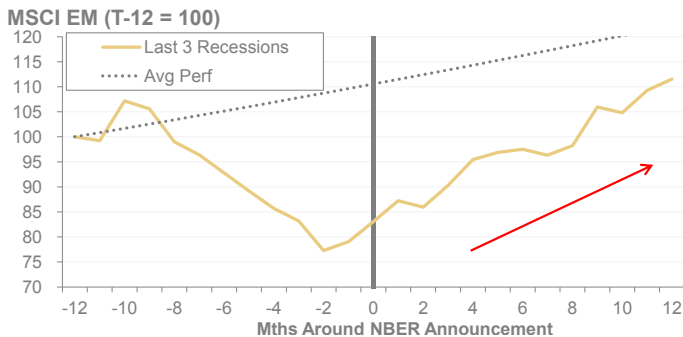
US equities tends to claw back losses after the NBER declares a recession has begun



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 77:

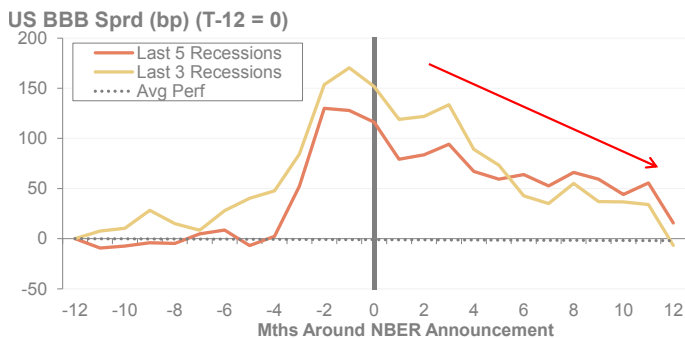
Recovery in EM equities after the NBER recession announcement



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 78:

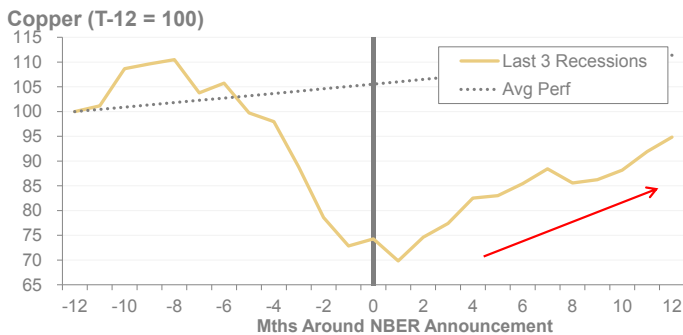
Credit spreads tend to peak around time the NBER confirms a recession has begun



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

Exhibit 79:

Copper troughs right after the NBER announces recession



Source: Bloomberg, Morgan Stanley Research; Note: Grey dotted line shows through-the-cycle average from 1980.

What Happens in Recessions? Stock Implications

Adam Virgadamo, Mike Wilson, Andrew Pauker, and Michelle Weaver

A look at industry group trading history in and around prior recession shows that most parts of the market have a varied history, though a few consistent patterns do emerge.

Given the breadth of business lines in any given GICS sector, we went to the industry group level to provide more detail on how different parts of the market have traded around prior recessions. Like the market at large, the worst performance for most industry groups tends to come in the roughly 3-month period after the start of a recession. After that period, the dispersion of returns is quite large, with some industry groups tending to rally nicely while others continue to show weak price momentum. Extrapolating a pattern from an average of 5 prior cases is of course tenuous, especially given wide variations around average performance in virtually all cases, but in a few cases, patterns that look to be fairly consistent over time did emerge. For the GICS industry groups and various size/style cohorts, **Exhibit 80** shows the average absolute returns of buy-and-hold strategies over various time horizons surrounding the last 5 recessions. For example, the leftmost column shows the returns from buying 12 months before the start of recession and holding through the month before recession began, while the rightmost column shows the returns of buying at the start of the months where recession began and holding for 12 months. **Exhibit 81** shows performance over these same time horizons, but on a relative basis — relative to the broader market for the industry groups, and relative to the opposite end of size/style cohorts in the case of the size/style returns.

- **Persistent outperformance — Staples & Health Care.** Among industry groups there are a few that tend to display stronger average relative performance versus the market following the onset of recessions, with many concentrated in parts of the market traditionally thought of as more defensive. Our work shows that Food/Beverage/Tobacco, Health Care Equipment and Services, and Pharmaceuticals/Biotech/Life Sciences all fall into this category. To a lesser extent, the same is also true of Household and Personal Products, Software, and Utilities, but with much wider variance. In the case of Software, we would also note that the outperformance post recession start generally comes on the back of material underperformance before the recessions begin, something which is not the case today.
- **Persistent underperformance — Autos, Media, TMT.** On the opposite end of the spectrum, consistent underperformers tend to be concentrated in more cyclical parts of the economy. Our work here shows a strong tendency for the Autos and Tech Hardware industry groups to continue weakening through recessions. Though the trend is not as clearly persistent, the same is also true of Capital Goods, Materials, Media/Entertainment, & Telco. Finally, Semiconductors also show a trend toward weakening after recessions start, but what is more notable is volatility in their returns around recessions that lead to a wide range of potential outcomes.
- **Watching for a rebound — Consumer Discretionary.** In prior work we have spoken about Consumer Discretionary as an "early cycle" sector, meaning the sector tends to see its best returns coming out of the middle of recessions. The analysis below backs this up, showing that many of the component industry groups in Discretionary - Consumer Durables/Apparel, Consumer Services (restaurants/leisure), and Retailing - all have a tendency to show sharp rebounds in relative performance starting a few months after the beginning of recessions. Commercial Services (waste management firms, data providers, pest control, auction services, and professional staffing) and Transportation also show similar patterns, though with generally stronger performance through the entire recession.
- **Sizes & Styles — Avoid Junk & Lean Defensive.** Junk displays consistently poor performance after the start of recessions and Defensives tend to outperform Cyclical.

Exhibit 80:

Average Absolute Industry Group and Size/Style Returns Around the Prior 5 Recessions

	Absolute Returns							
	Returns Before US Recession Begins				Returns After US Recession Begins			
	12M	6M	3M	1M	1M	3M	6M	12M
Top 1500	3.4%	0.5%	1.2%	-0.5%	-2.8%	-6.2%	-5.0%	-4.9%
Communication Services								
Media & Entertainment	-3.3%	-2.6%	1.2%	-4.2%	-4.1%	-6.2%	-6.3%	-8.6%
Telecommunication Services	-7.6%	-5.3%	-1.3%	-2.5%	-3.4%	-2.1%	-2.7%	-9.4%
Consumer Discretionary								
Automobiles & Components	-3.0%	-2.4%	-0.2%	-1.3%	-4.3%	-13.8%	-17.6%	-16.8%
Consumer Durables & Apparel								
Consumer Services	1.5%	1.9%	-1.7%	-5.1%	-6.0%	-7.8%	-8.8%	-0.8%
Retailing	-1.6%	4.5%	0.5%	-2.9%	-3.9%	-6.6%	-2.1%	6.8%
Consumer Staples								
Food & Staples Retailing	11.8%	7.7%	0.1%	-1.0%	-4.9%	-13.3%	-8.1%	-2.5%
Food, Beverage & Tobacco	16.8%	11.1%	4.2%	-0.6%	-4.7%	-1.9%	3.8%	11.1%
Household & Personal Products	10.1%	11.7%	1.6%	-2.6%	-6.0%	-2.8%	2.1%	5.3%
Energy	29.6%	11.1%	8.5%	7.2%	0.5%	-5.2%	-3.6%	-8.1%
Financials								
Banks	-1.8%	-4.2%	-3.3%	-3.9%	-3.7%	-7.9%	-7.3%	1.0%
Diversified Financials	4.5%	-1.9%	-1.1%	-3.6%	-3.9%	-7.2%	-6.1%	-0.7%
Insurance	11.5%	3.8%	1.0%	-1.1%	-5.1%	-7.4%	-4.0%	-6.8%
Health Care								
Health Care Equipment & Services	19.0%	8.4%	3.4%	-1.1%	-5.1%	-3.9%	4.4%	8.9%
Pharmaceuticals, Biotechnology & Life Sciences	13.0%	4.8%	0.5%	-3.5%	-3.5%	-3.5%	3.3%	10.4%
Industrials								
Capital Goods	11.2%	3.8%	1.4%	-0.7%	-3.7%	-8.2%	-7.1%	-8.9%
Commercial & Professional Services	15.5%	8.7%	4.7%	-0.5%	-3.3%	-6.2%	-1.5%	1.7%
Transportation	13.7%	3.8%	2.6%	0.7%	-2.2%	-7.5%	-2.8%	5.1%
Information Technology								
Semiconductors & Semiconductor Equipment	3.9%	-0.7%	-2.8%	-1.5%	-4.5%	-11.5%	-9.4%	-6.2%
Software & Services	-5.5%	-4.1%	0.4%	-4.1%	-1.0%	-4.9%	1.4%	4.6%
Technology Hardware & Equipment	-1.5%	-4.1%	-5.1%	-4.0%	-3.3%	-8.6%	-7.4%	-14.7%
Materials	14.4%	11.2%	4.2%	1.2%	-2.9%	-8.2%	-3.8%	-7.4%
Real Estate	4.8%	2.5%	-0.5%	-0.7%	-1.9%	-6.4%	-2.6%	-3.3%
Utilities	11.3%	0.9%	3.4%	0.6%	-1.5%	-1.4%	-0.9%	-3.0%

	Absolute Returns: Size / Style Pairs							
	Returns Before US Recession Begins				Returns After US Recession Begins			
	12M	6M	3M	1M	1M	3M	6M	12M
Cyclicals/Defensive								
Cyclicals	4.6%	-0.5%	1.1%	0.4%	-2.1%	-7.8%	-7.8%	-8.6%
Defensives	1.7%	0.6%	0.7%	-1.9%	-2.8%	-2.8%	-1.1%	-0.4%
Growth/Value								
Russell 1000 Growth (Total Return)	1.8%	-0.7%	1.1%	-0.9%	-2.4%	-6.4%	-5.0%	-6.0%
Russell 1000 Value (Total Return)	3.0%	0.4%	0.0%	-0.4%	-3.0%	-6.8%	-5.9%	-7.4%
Large/Small								
S&P 500 (Total Return)	4.8%	1.3%	1.4%	-0.2%	-2.6%	-5.7%	-3.8%	-3.6%
Russell 2000 (Total Return)	7.8%	2.3%	2.7%	-0.8%	-4.5%	-9.3%	-7.2%	-2.1%
Leverage - High/Low								
High Leverage	3.0%	-0.5%	0.6%	-1.1%	-2.3%	-5.5%	-6.3%	-2.9%
Low Leverage	6.0%	2.6%	1.9%	-1.2%	-3.2%	-3.8%	-3.7%	-6.4%
Quality/Junk								
Quality	7.4%	3.3%	-0.5%	-1.6%	-3.0%	-4.7%	-4.4%	-2.2%
Junk	-4.2%	-7.8%	-5.9%	-5.4%	-3.0%	-8.4%	-13.9%	-16.0%

Source: Bloomberg, Clarifi, Morgan Stanley Research.

Note: Table above shows the average absolute returns of buy-and-hold strategies over various time horizons surrounding the last 5 recessions. For example, the leftmost column shows the returns from buying 12 months before the start of recession and holding through the month before recession began; the rightmost column shows the returns of buying at the start of the month where recession began and holding for 12 months.

Exhibit 81:

Average Relative Industry Group and Size/Style Returns Around the Prior 5 Recessions

Sector / Industry Group	Relative Returns: Industry Group - Top 1500							
	Returns Before US Recession Begins				Returns After US Recession Begins			
	12M	6M	3M	1M	1M	3M	6M	12M
Communication Services								
Media & Entertainment	-6.8%	-3.1%	0.0%	-3.7%	-1.3%	0.0%	-1.3%	-3.7%
Telecommunication Services	-11.0%	-5.8%	-2.6%	-2.0%	-0.6%	4.2%	2.3%	-4.4%
Consumer Discretionary								
Automobiles & Components	-6.4%	-2.9%	-1.5%	-0.8%	-1.5%	-7.5%	-12.7%	-11.8%
Consumer Durables & Apparel	-3.4%	-0.5%	-1.2%	0.5%	2.8%	6.2%	5.0%	4.9%
Consumer Services	-1.9%	1.4%	-2.9%	-4.6%	-3.2%	-1.6%	-3.8%	4.1%
Retailing	-5.0%	4.0%	-0.7%	-2.4%	-1.0%	-0.4%	2.9%	11.7%
Consumer Staples								
Food & Staples Retailing	8.4%	7.3%	-1.2%	-0.5%	-2.0%	-7.0%	-3.2%	2.4%
Food, Beverage & Tobacco	13.3%	10.6%	3.0%	-0.1%	-1.8%	4.4%	8.8%	16.0%
Household & Personal Products	6.7%	11.2%	0.3%	-2.1%	-3.2%	3.4%	7.0%	10.2%
Energy	26.1%	10.6%	7.3%	7.7%	3.3%	1.0%	1.4%	-3.2%
Financials								
Banks	-5.2%	-4.7%	-4.5%	-3.4%	-0.9%	-1.7%	-2.3%	5.9%
Diversified Financials	1.1%	-2.4%	-2.4%	-3.1%	-1.1%	-0.9%	-1.1%	4.2%
Insurance	8.0%	3.3%	-0.2%	-0.5%	-2.3%	-1.1%	0.9%	-1.9%
Health Care								
Health Care Equipment & Services	15.6%	7.9%	2.2%	-0.6%	-2.3%	2.4%	9.4%	13.8%
Pharmaceuticals, Biotechnology & Life Sciences	9.5%	4.3%	-0.7%	-3.0%	-0.7%	2.8%	8.2%	15.3%
Industrials								
Capital Goods	7.8%	3.3%	0.2%	-0.2%	-0.9%	-1.9%	-2.2%	-4.0%
Commercial & Professional Services	12.1%	8.2%	3.5%	0.0%	-0.5%	0.0%	3.5%	6.7%
Transportation	10.3%	3.3%	1.3%	1.2%	0.6%	-1.3%	2.1%	10.0%
Information Technology								
Semiconductors & Semiconductor Equipment	0.5%	-1.2%	-4.0%	-1.0%	-1.7%	-5.3%	-4.5%	-1.3%
Software & Services	-9.0%	-4.6%	-0.8%	-3.6%	1.8%	1.3%	6.4%	9.5%
Technology Hardware & Equipment	-5.0%	-4.6%	-6.3%	-3.5%	-0.5%	-2.4%	-2.5%	-9.8%
Materials	10.9%	10.7%	3.0%	1.7%	-0.1%	-2.0%	1.1%	-2.5%
Real Estate	1.4%	2.0%	-1.8%	-0.2%	1.0%	-0.2%	2.3%	1.6%
Utilities	7.9%	0.4%	2.2%	1.1%	1.3%	4.8%	4.1%	1.9%
Styles	Relative Returns: Size / Style Pairs							
	Returns Before US Recession Begins				Returns After US Recession Begins			
	12M	6M	3M	1M	1M	3M	6M	12M
Styles								
Cyclical - Defensive	2.8%	-1.1%	0.4%	2.3%	0.8%	-5.0%	-6.7%	-8.2%
Growth - Value	-1.2%	-1.1%	1.1%	-0.4%	0.6%	0.4%	0.9%	1.4%
Large - Small	-3.0%	-1.0%	-1.3%	0.6%	1.9%	3.6%	3.3%	-1.4%
Leverage: High - Low	-3.0%	-3.1%	-1.3%	0.2%	0.9%	-1.7%	-2.5%	3.5%
Quality - Junk	11.5%	11.0%	5.4%	3.8%	-0.1%	3.7%	9.5%	13.8%

Source: Bloomberg, Clarifi, Morgan Stanley Research.

Note: Table above shows the average absolute returns of buy-and-hold strategies over various time horizons surrounding the last 5 recessions. For example, the leftmost column shows the returns from buying 12 months before the start of recession and holding through the month before recession began; the rightmost column shows the returns of buying at the start of the month where recession began and holding for 12 months.

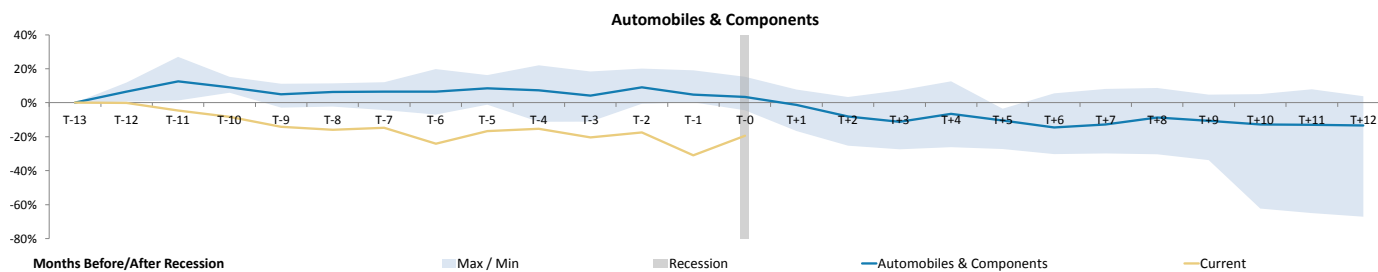
Industry Group Performance

The balance of this section gives a more granular look at the data underlying [Exhibit 80](#) and [Exhibit 81](#) above. For the 24 GICS industry groups and various size/style cohorts, we plot the total return of a buy-and-hold strategy from 12 months before to 12 months after the start of prior recessions. Our graphs show average returns across the prior 5 recessions as well as maximum and minimum cumulative returns for any given month in the 24-month span. The trailing 12-month return through June 2019 is also plotted as a reference point for current conditions. In addition to showing absolute returns, we also show returns for the industry groups less broader market returns and for, the size/style cohorts, we show relative returns within common paris (e.g., Growth - Value).

Autos & Components — Weakening into Recession with No Clear Bottom. The Autos industry group has historically seen poor returns into and following the start of recession. The group tends to see negative returns on both an absolute ([Exhibit 82](#)) and relative basis ([Exhibit 83](#)) with those returns getting worse in the twelve months following the start of recession. While the relative performance range in [Exhibit 83](#) shows a large positive return in at least on recession, this is really only driven by the recession of 2001, where absolute returns following the recession were flat to down, but the derating in higher multiple stocks elsewhere helped boost the relative performance of Autos. The group's poor performance in the last twelve months may mean some downside risk is already priced in, but given the tendency of the industry group to continue falling into recession, this is not a group where it is easy to call a bottom early.

Exhibit 82:

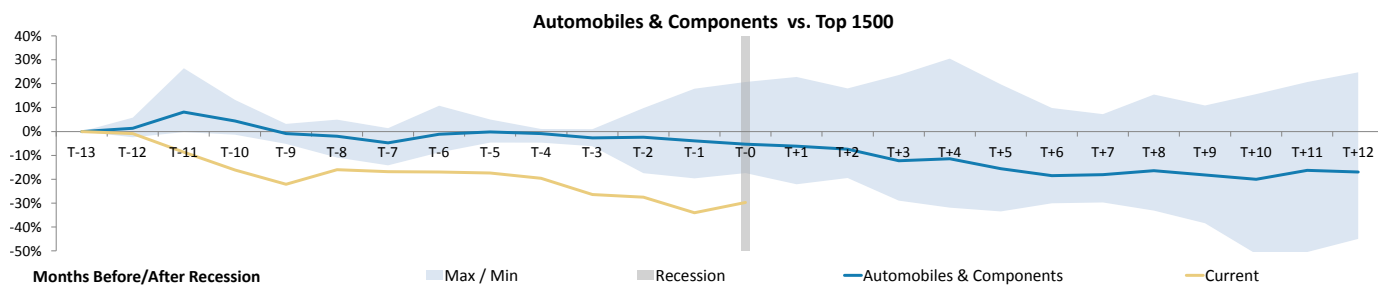
Avg. Autos Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 83:

Avg. Autos Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

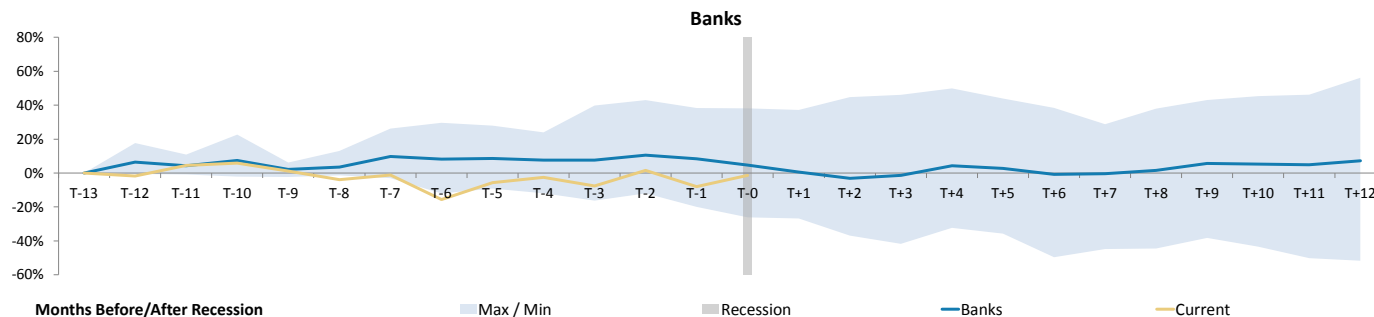


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Banks — Mixed History. Banks are an interesting case because memories of the last recession figure prominently for investors. **Exhibit 84** shows a wide range of absolute return outcomes in and around recessions, with the downside case driven by the last recession. In the recessions of the 1980s (part 1), 1990s, and in 2001, Banks showed a tendency for their absolute performance to trough within a few months after the recession started and their prices rebounded from there. On a relative basis though, the history has been a bit more mixed with no clear average outperformance trend visible until about 8 months after prior recessions (**Exhibit 85**).

Exhibit 84:

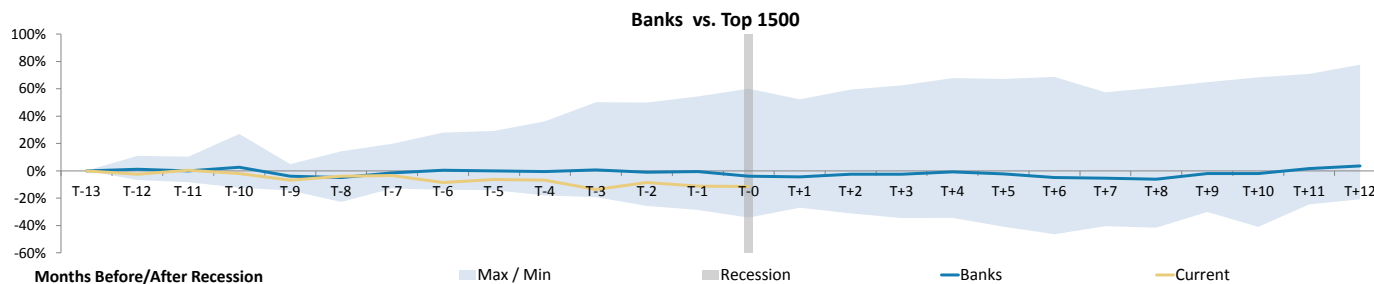
Avg. Bank Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 85:

Avg. Bank Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

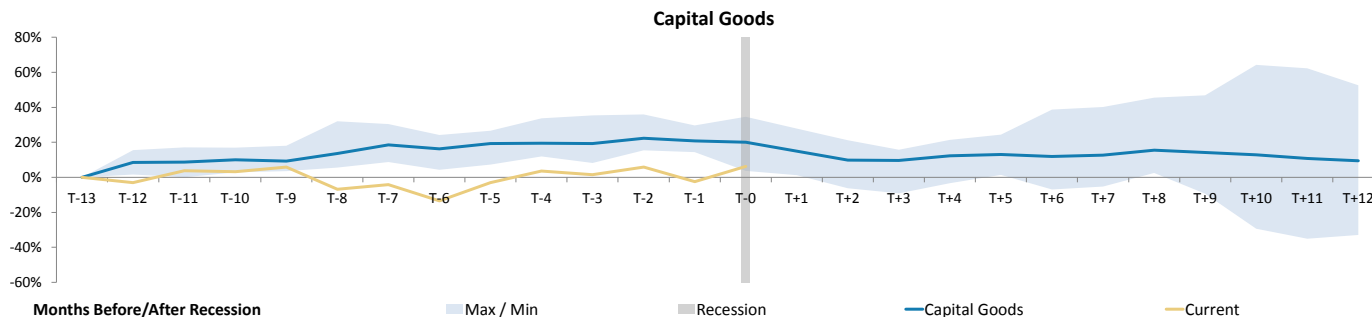


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Capital Goods — Weaker, but Perhaps Not as Much as Expected. Given their cyclicality, investors might expect Capital Goods to underperform meaningfully in and around recessions. Absolute ([Exhibit 86](#)) returns and relative ([Exhibit 87](#)) returns tend to fall in the year following recessions starting, but only by about 10%/ 6% respectively. The year leading up to recessions also tends to see strong performance from this group, something which the market has not seen today. Having a lower base from which to weaken may help mitigate downside in a potential near-term recession in the current cycle.

Exhibit 86:

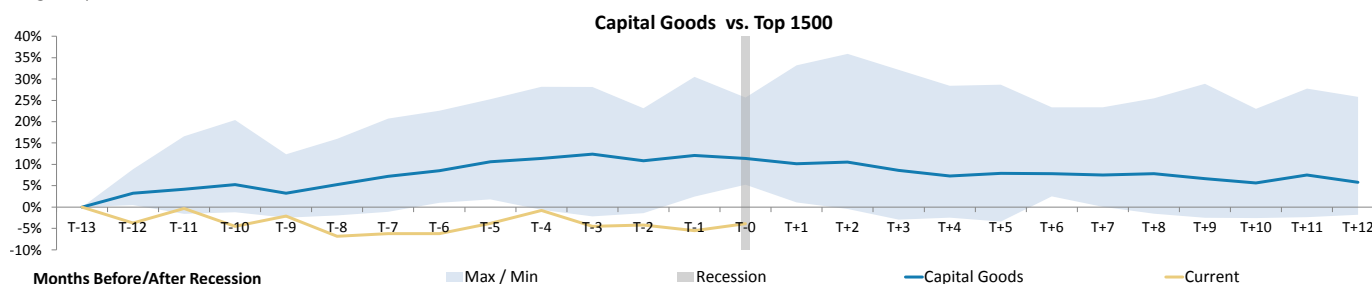
Avg. Cap Goods. Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 87:

Avg. Cap Goods. Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

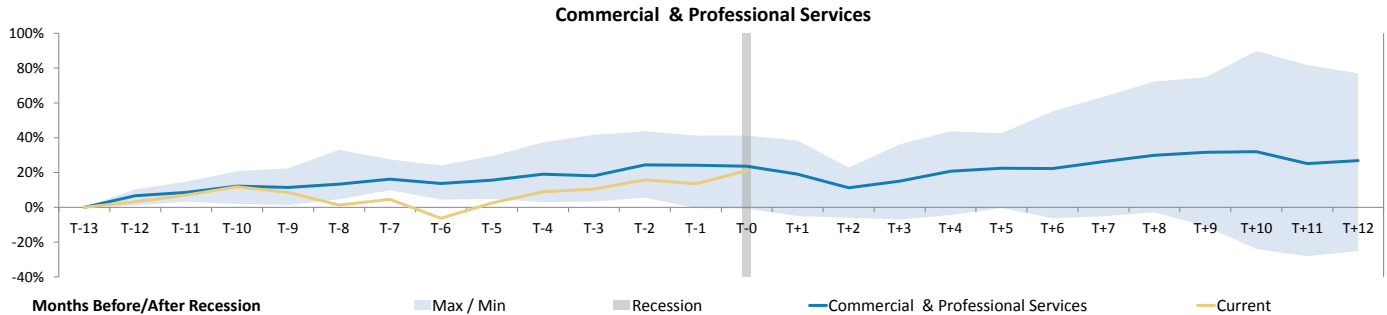


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Commercial & Professional Services — Relative Strength Within Industrials. Commercial and Professional Services as an industry group is rather eclectic, including waste management firms, data providers, pest control, auction services, and professional staffing firms, among others. On an absolute basis the group's performance has historically stagnated following recessions (**Exhibit 88**), but on a relative basis, the group has outperformed the market one year from the start of recession in all cases (**Exhibit 89**), albeit with a modest dip right around the start of recessions.

Exhibit 88:

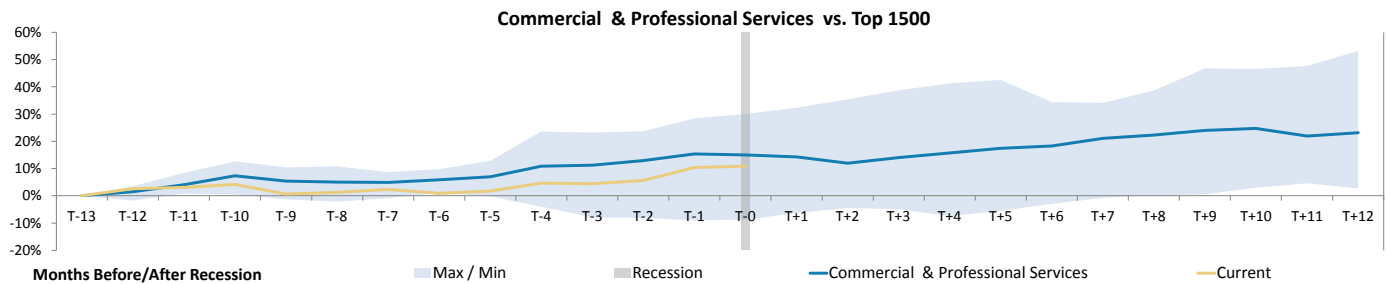
Avg. Comm./Prof. Services Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 89:

Avg. Comm./Prof. Services Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

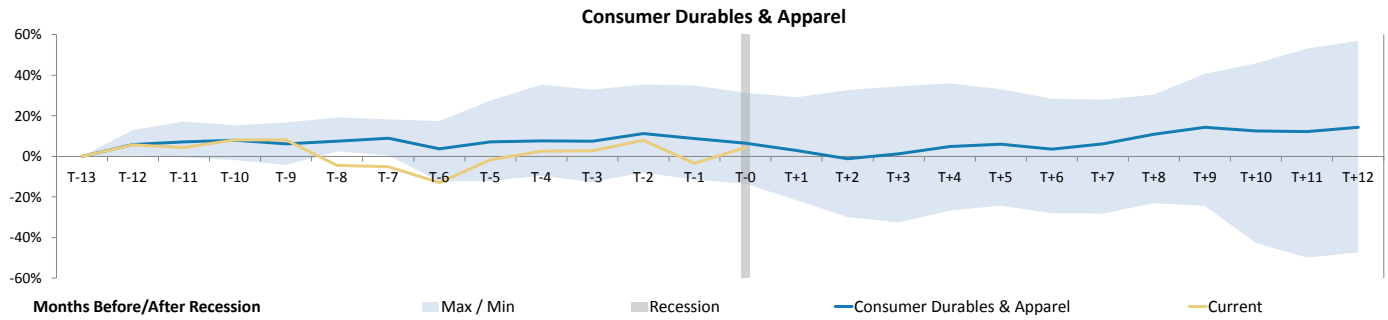


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Consumer Durables/Apparel — Relative Outperformance from About 7 Months After Recessions Start. On an absolute return basis, Consumer Durables and Apparel has averaged a positive return one year after the start of recession, following an initial period of 2-3 months' weakness when the recession begins, but this average comes with a wide degree of variation ([Exhibit 90](#)). On a relative basis, the trend toward outperformance is a little more clear with the upward inflection starting ~7 months after the recessions have started ([Exhibit 91](#)). The relative recovery from the start of recession was weakest in the recession of the early 1990s and the financial crisis, but other recessions saw 10%+ outperformance from the group one year after the start of recession.

Exhibit 90:

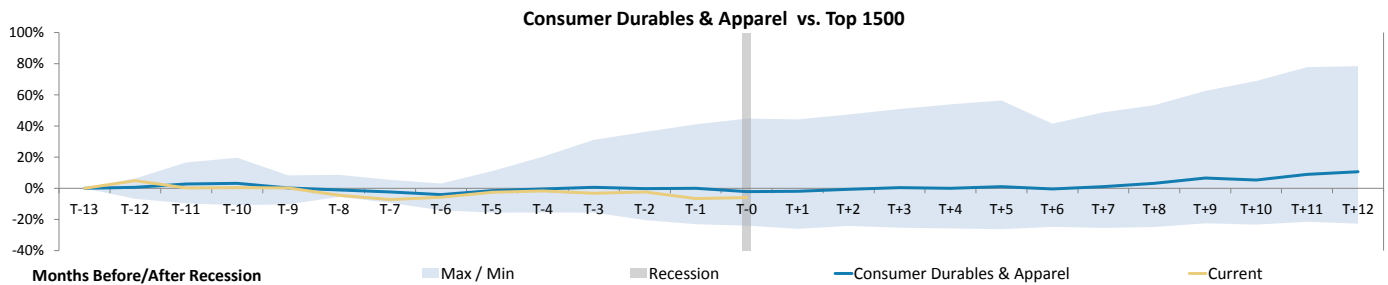
Avg. Consumer Durables/Apparel Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 91:

Avg. Consumer Durables/Apparel Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

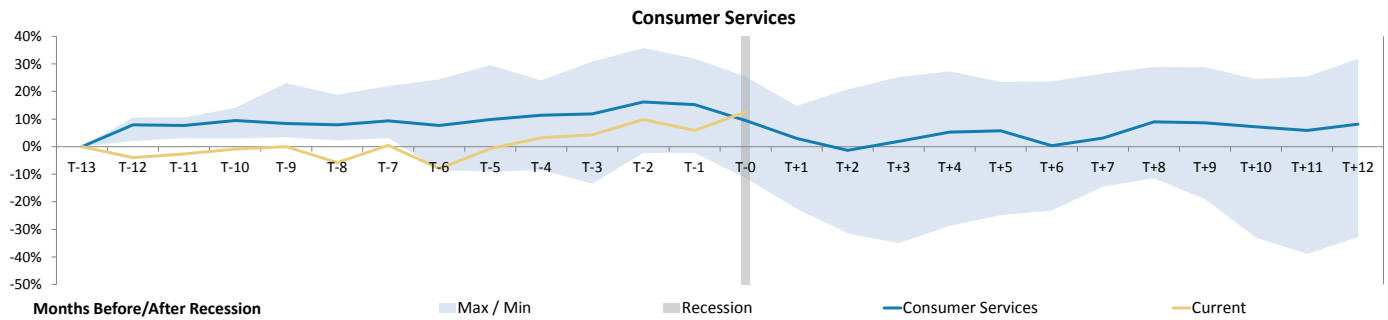


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Consumer Services — Early Downside & Moderate Recovery. Given the inherent cyclicity in Consumer Services, a group comprised mainly of lodging and restaurants, investors may look at the group as particularly cyclical. In reality, the prevalence of franchise models and the large market cap dominance of McDonald's (MCD), a defensive stock, means the group's returns often hold up better than expected. On an absolute return basis, the group generally sells off very quickly starting about a month before recessions and troughs 2-6 months after the recessions start (**Exhibit 92**). A year later, the group has recovered most, but not all, of the lost performance. The same pattern is generally true relative to the market (**Exhibit 93**).

Exhibit 92:

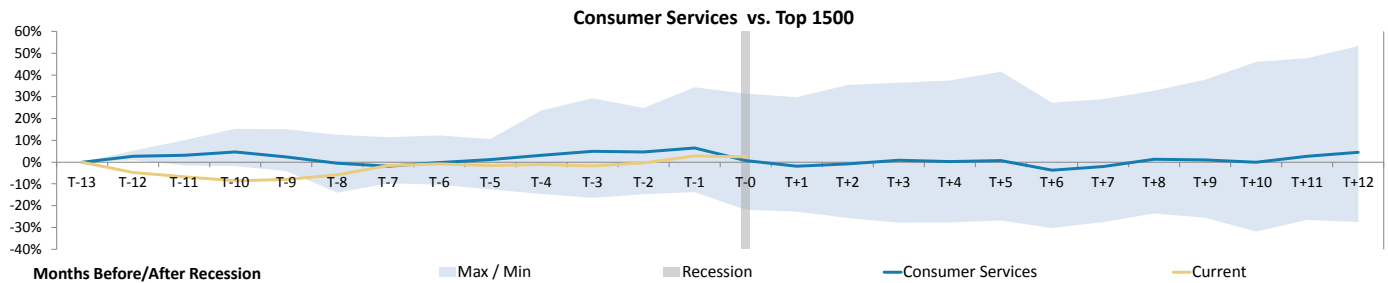
Avg. Consumer Services Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 93:

Avg. Consumer Services Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

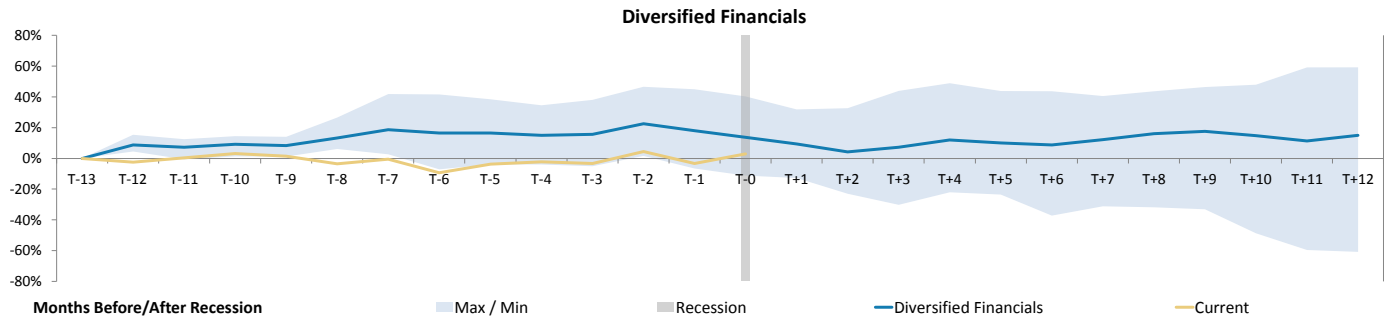


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Diversified Financials — Early Downside & Slow Recovery. Diversified Financials has a variety of company types including card companies, investment banks, alternative asset managers, index providers. Even the largest firm in the group — Berkshire Hathaway — is itself a mix of various business lines. On an absolute return basis, the group has tended to peak about 2 months before prior recessions before selling off into a trough about 2 months after the start of recession (**Exhibit 94**). From the trough, a slow rebound has ensued on average, but the group often struggles to reclaim prior peaks one year post recession. Relative to the market, the pattern looks similar (**Exhibit 95**).

Exhibit 94:

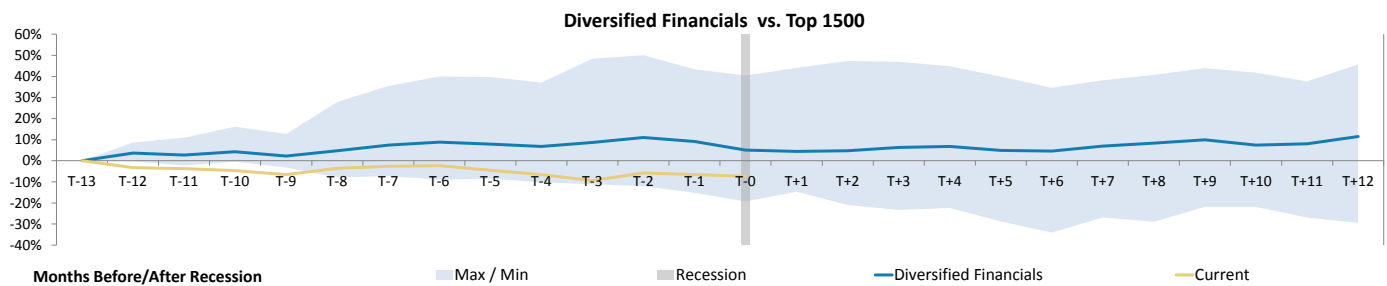
Avg. Div. Fin. Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 95:

Avg. Div. Fin. Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

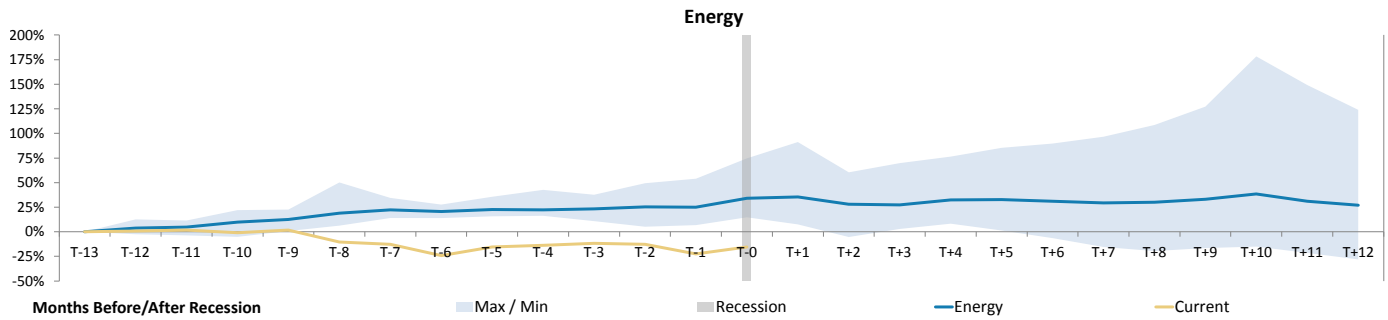


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Energy — Mixed Record, but Tends to Lag. At first blush, the absolute (**Exhibit 96**) and relative (**Exhibit 97**) return graphs for the Energy industry group tell a supportive story around recessions. The average is lifted though by the first 80s recession, which had an extreme oil price shock as a contributing factor. Absent that data series, the picture is not as positive, with Energy being modestly up one year after the recession starts in two instances (1991, 2001) and down considerably in two others (second of 1980s recessions, financial crisis). On a relative basis the underperformance is even more frequent. Given the sensitivity of oil prices to demand, the underperformance is not a big surprise, but we do note that even in cases where the sector underperforms a year after starting recession this underperformance typically did not start until ~6 months after the start of recession.

Exhibit 96:

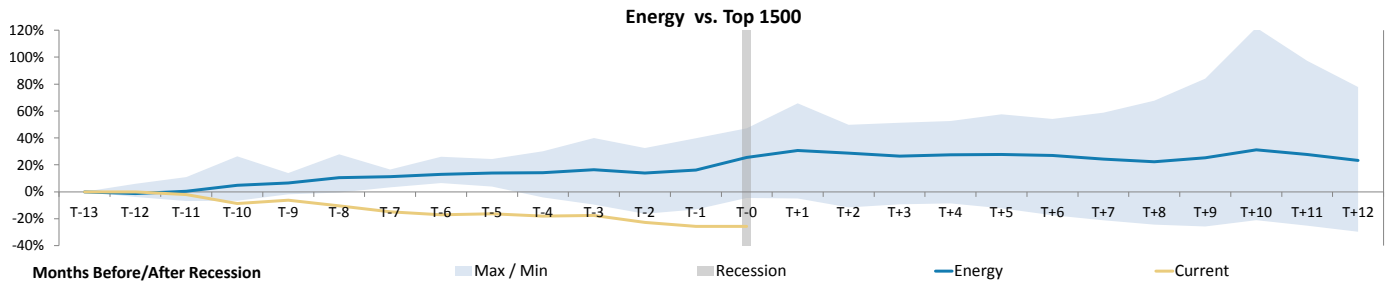
Avg. Energy Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 97:

Avg. Energy Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

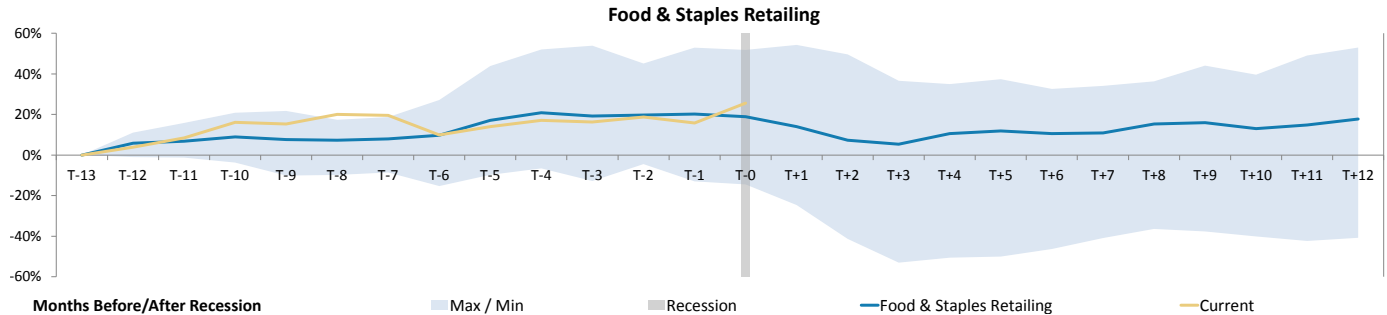


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Food and Staples Retailing — Not as Defensive as Expected. On an absolute basis, returns in Food and Staples Retailing have done a poor job predicting recessions, rising or holding steady into the start of recession, then falling for a few months thereafter, with returns nearly getting back to pre-recession levels 12 months out (**Exhibit 98**). On a relative basis, the trends are similar, though with modest outperformance 12 months out (**Exhibit 99**). Given the wide range of outcomes and the lack of clear trends over the last few recessions, this group is hard to call.

Exhibit 98:

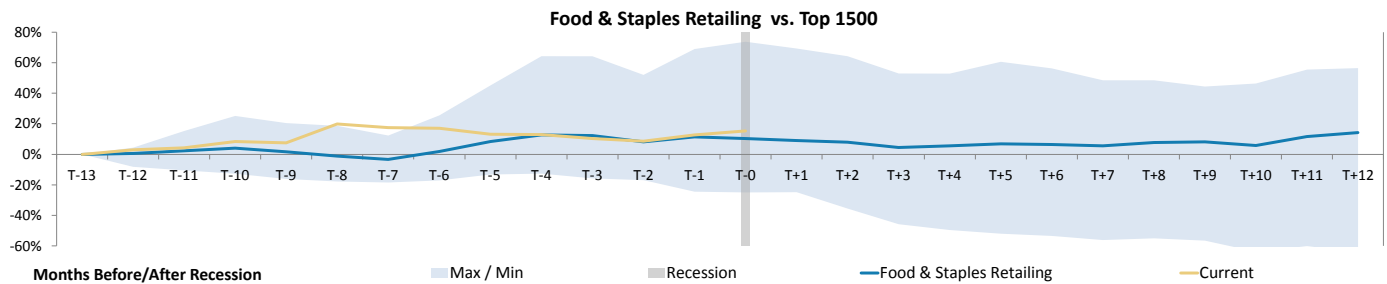
Avg. Food/Staples Retail Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 99:

Avg. Food/Staples Retail Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

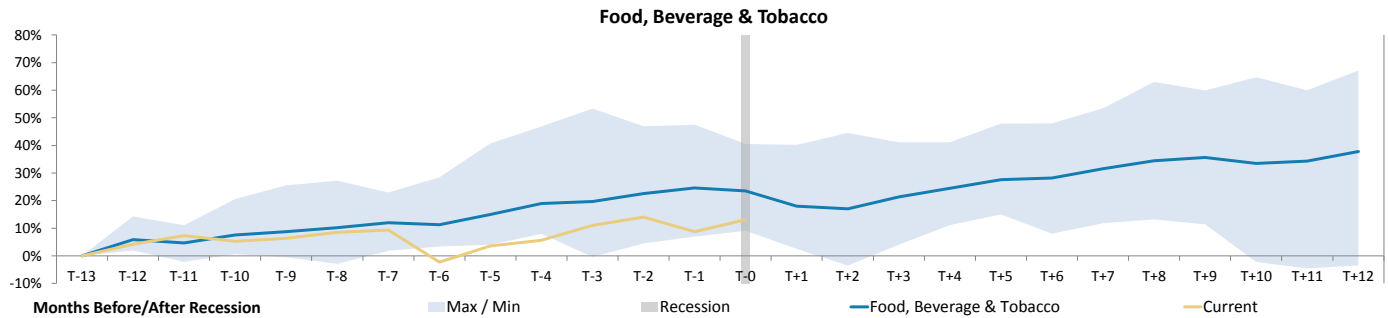


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Food/Beverage/Tobacco — Absolute & Relative Safety. In the year following the onset of recession, the Food/Beverage/Tobacco industry group has generally posted positive absolute 12-month performance, only failing to do so in the financial crisis (**Exhibit 100**). On a relative basis, the industry group also has a strong track record of outperforming the broader market over the ensuing 12 months, with average outperformance of about 16% (**Exhibit 101**). The group only underperformed in the first 1980s and only by a couple percentage points.

Exhibit 100:

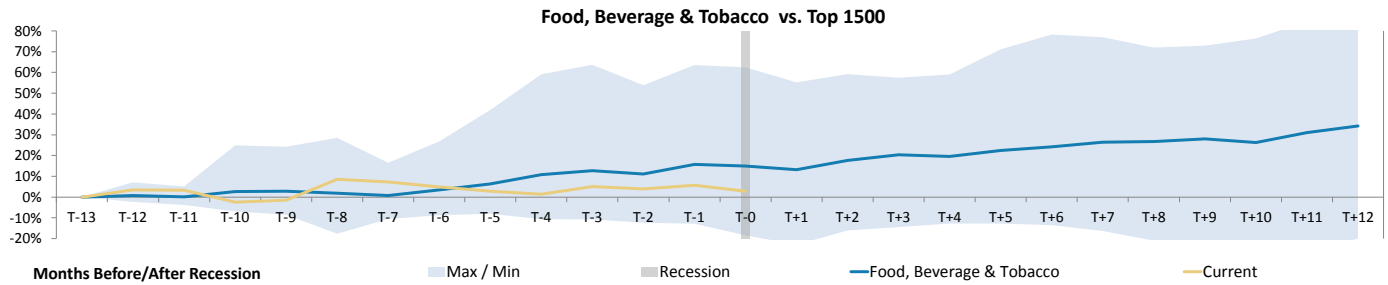
Avg. Food/Bev./Tobacco Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 101:

Avg. Food/Bev./Tobacco Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

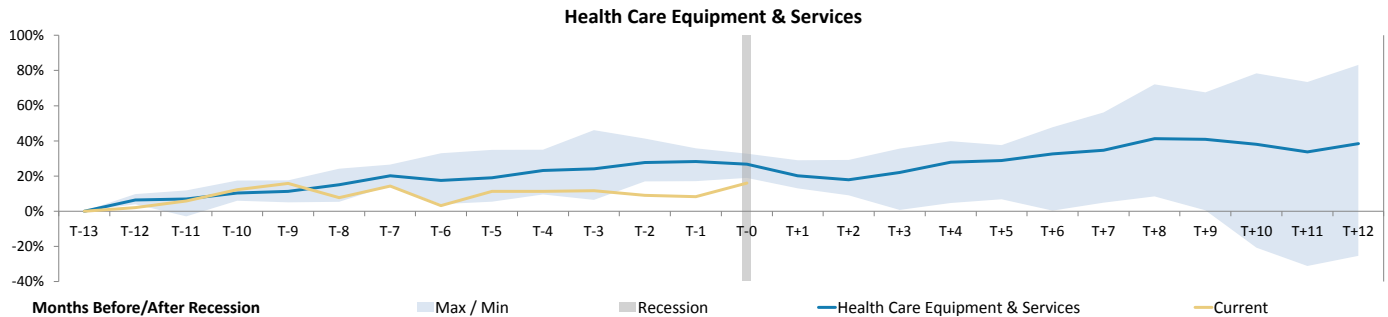


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Health Care Equipment and Services Relative Safety. Health Care Equipment and Services also tends to be a reliably defensive industry group through recessions. 12 months following the start of recessions, absolute returns have been positive in 3 out of 5 instances producing an average 12-month forward performance of ~9% (**Exhibit 102**). Relative to the market, the trend is even stronger as only the financial crisis saw the group modestly underperform, and only by a few percentage points (**Exhibit 103**). On both an absolute and relative basis, these returns are also generally continuations of upward trends headed into recessions as well.

Exhibit 102:

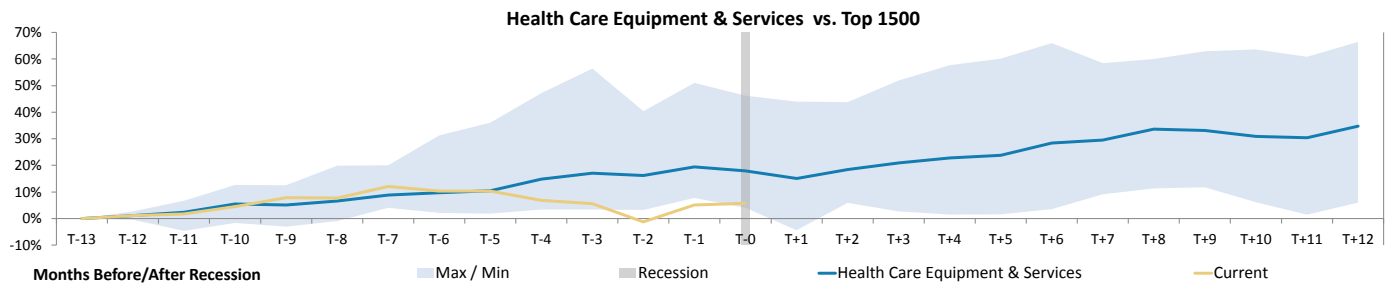
Avg. HC Equipment/Services Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 103:

Avg. HC Equipment/Services Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

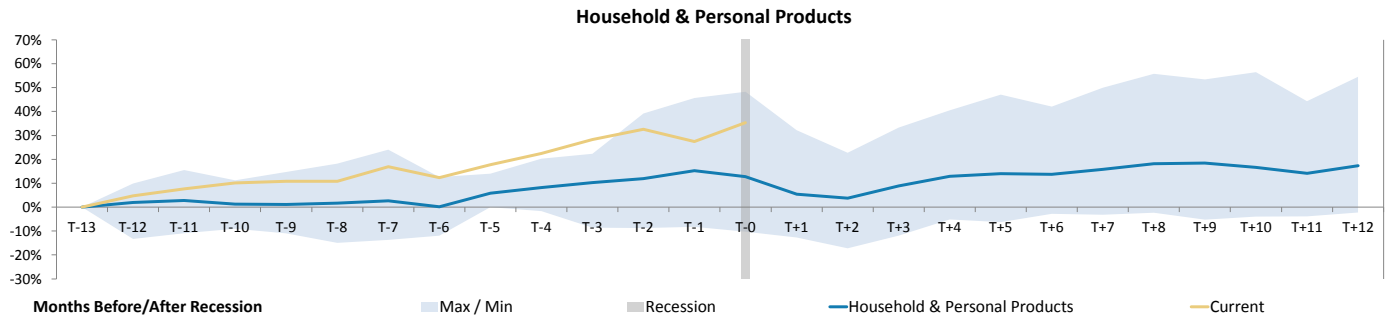


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Household Products & Services — Modest Pre- & Post-Recession Leadership. Household Products as an industry group has tended to appreciate headed into recession, selling off in the first 2-3 months of recessions and then beginning a slow rebound past pre-recession levels one year later (**Exhibit 104**). On a relative basis, the sector has generally started to outperform about 6 months before the onset of recession and 2-3 months after the start of prior recessions has had steady, but modest average outperformance (**Exhibit 105**).

Exhibit 104:

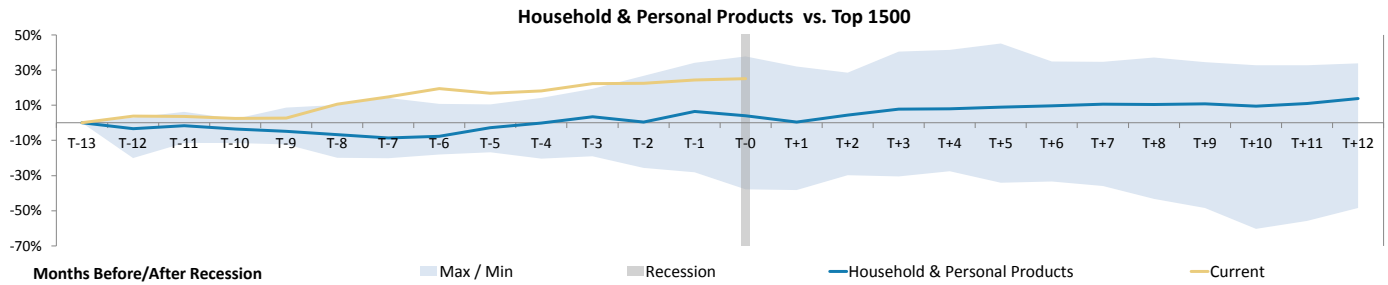
Avg. Household/Personal Products Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 105:

Avg. Household/Personal Products Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

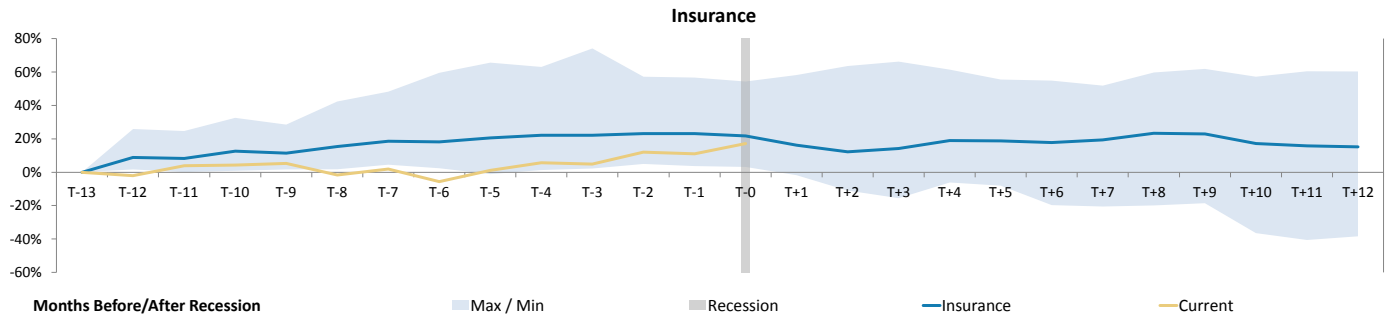


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Insurance — A Market Performer. The absolute ([Exhibit 106](#)) and relative ([Exhibit 107](#)) return trends in and around recessions are very mixed leading to roughly flat average performance over the last 5 cycles. As with most industry groups, the range of outcomes is wide, but the distribution of these outcomes is so wide that no clear average trends emerge.

Exhibit 106:

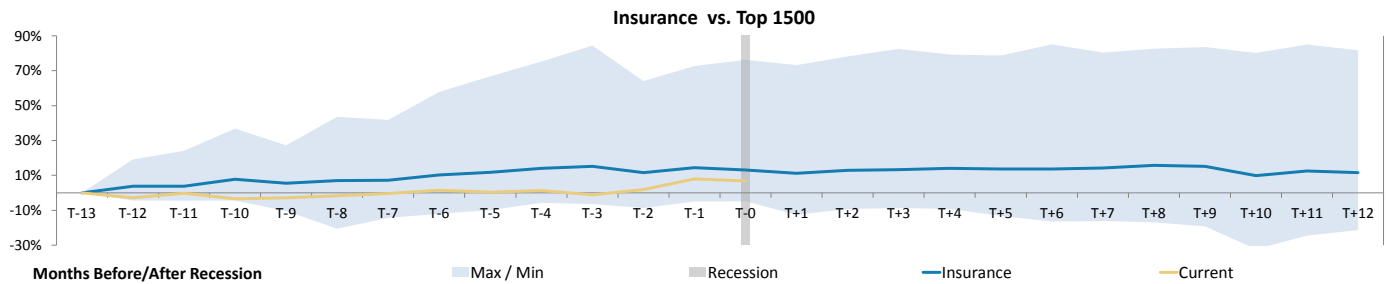
Avg. Insurance Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 107:

Avg. Insurance Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

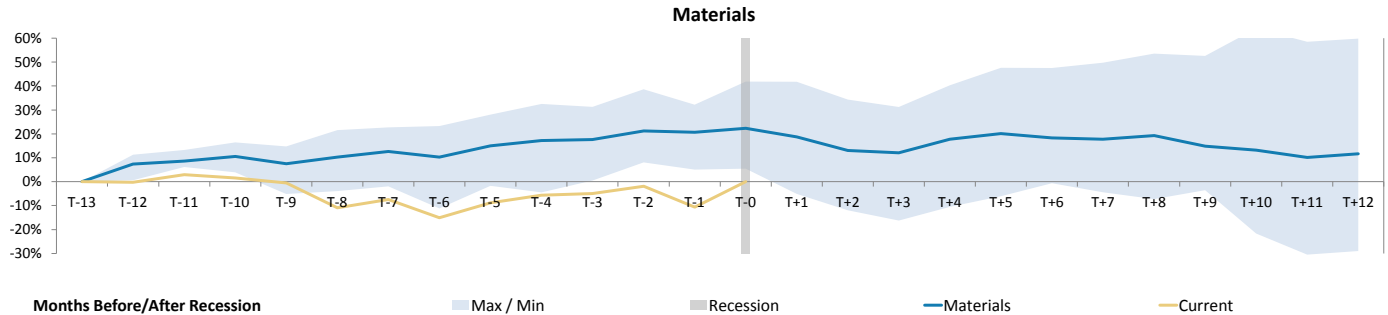


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Materials — A Tendency to Underperform. Heading into prior recession, the Materials industry group has shown consistent positive returns, a trend which has not held to the same degree over the last 12 months. Once recession starts, this has tended to reverse, though there has been a wide range of potential outcomes one year out from the onset of recession (**Exhibit 108**). The strong absolute return prior to recession has generally produced positive relative returns starting about 6 months before prior recessions, but outside of 2001, where high valuation Tech stocks fell more than the market, relative returns have tended to fall over the 12 months following recessions starting (**Exhibit 109**).

Exhibit 108:

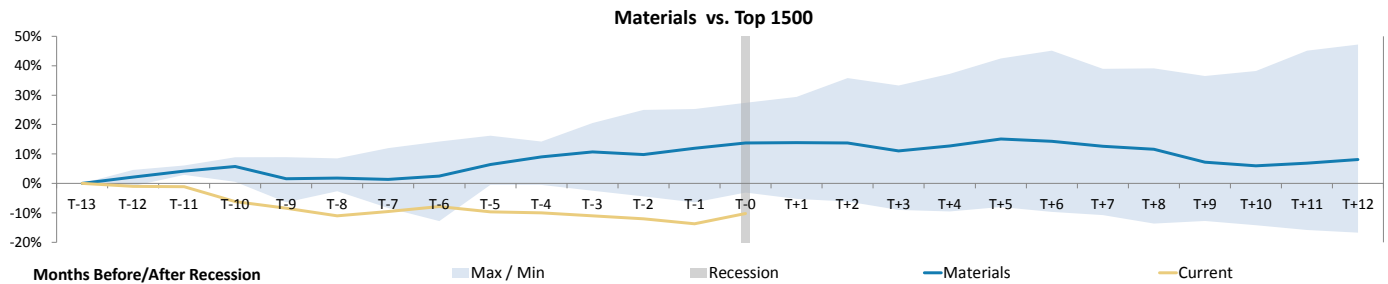
Avg. Materials Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 109:

Avg. Materials Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

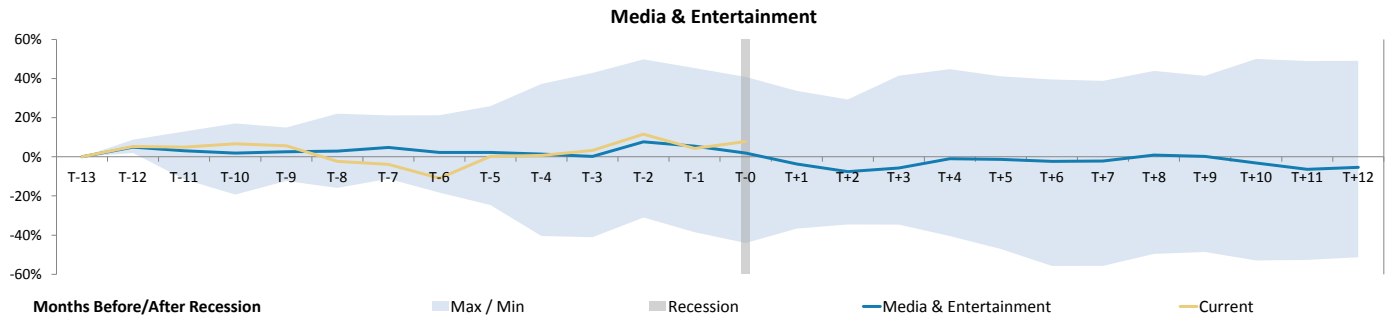


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Media & Entertainment — An Underperformer in Recent Recessions. Headed into and after prior recessions, absolute returns in Media and Entertainment have hovered around the 0 line on average, but with a wide range of outcomes (**Exhibit 110**). The upper end of the return bands were the 1980s recessions while absolute performance has been significantly weaker in the most recent 3 recessions. Relative to the market, the trend looks similar in that the early 1980s saw some outperformance while the last 3 recessions all saw the group underperform the market in the years before and after the recessions began (**Exhibit 111**). The current trailing 12-month underperformance relative to the market also looks to be very near the average line of prior recessions.

Exhibit 110:

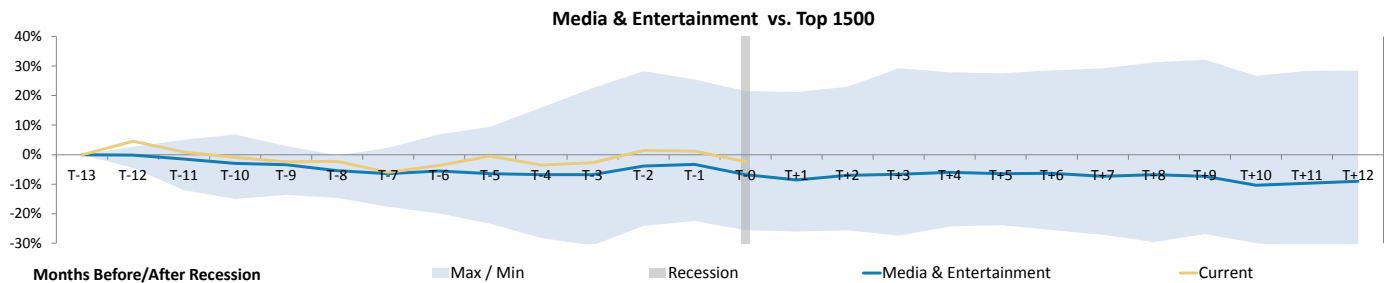
Avg. Media/Entertainment Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 111:

Avg. Media/Entertainment Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

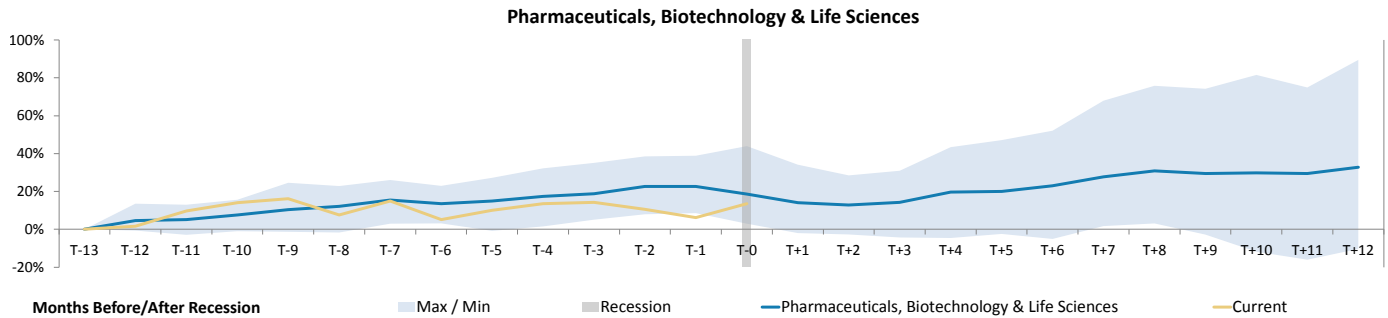


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Pharmaceuticals/Biotech/Life Sciences — A Consistently Strong Performer Around Recessions. The Pharmaceutical industry has shown strong positive returns in the 12-month periods leading up to prior recessions, and, notwithstanding 2-3 months of weakness around the start of prior recessions the positive return trends have generally continued in the 12 months following prior recession starts (**Exhibit 112**). This strong absolute performance has also made the relative performance in and around recessions look quite strong (**Exhibit 113**).

Exhibit 112:

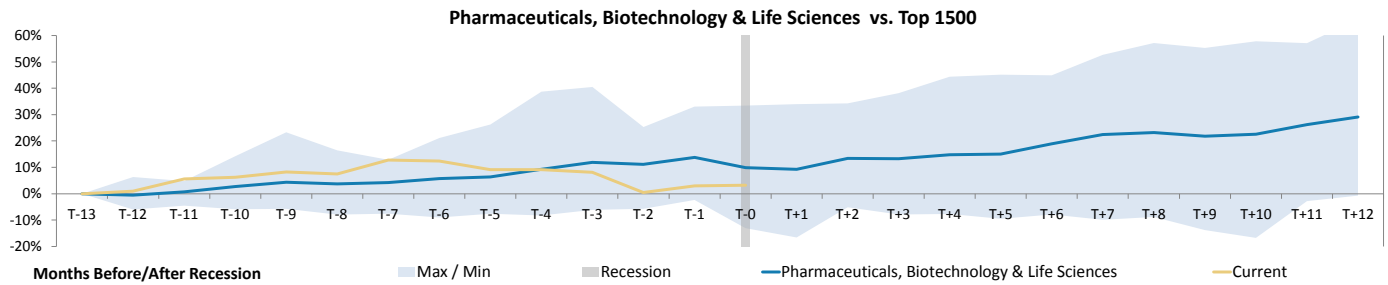
Avg. Pharma/Biotech/Life Sci. Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 113:

Avg. Pharma/Biotech/Life Sci. Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

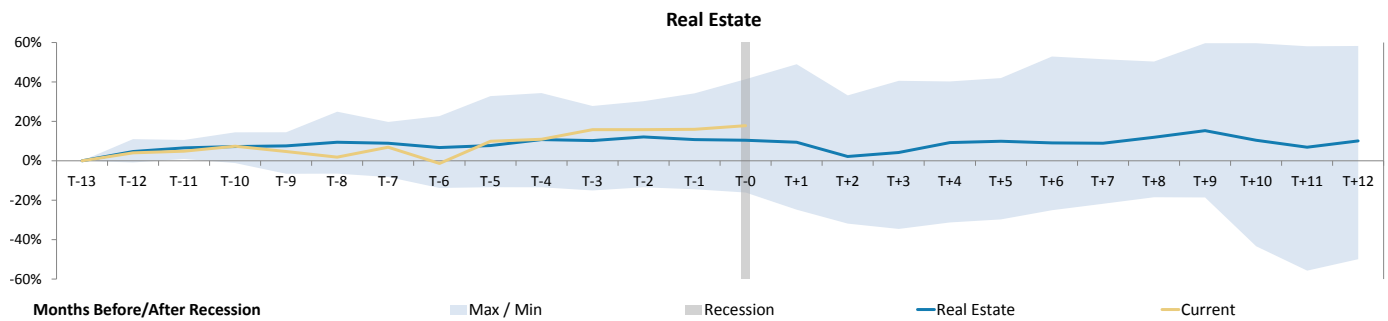


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Real Estate — A Market Performer. The absolute (**Exhibit 114**) and relative (**Exhibit 115**) return trends in and around recessions are very mixed leading to modestly positive performance/outperformance over the last 5 cycles. As with most industry groups, the range of outcomes is wide, and the distribution of these outcomes is so wide that no clear average trends emerge.

Exhibit 114:

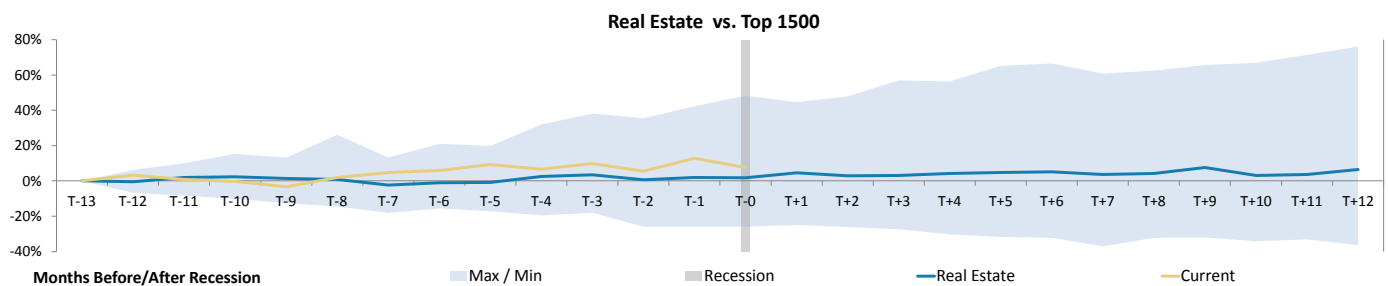
Avg. Real Estate Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 115:

Avg. Real Estate Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

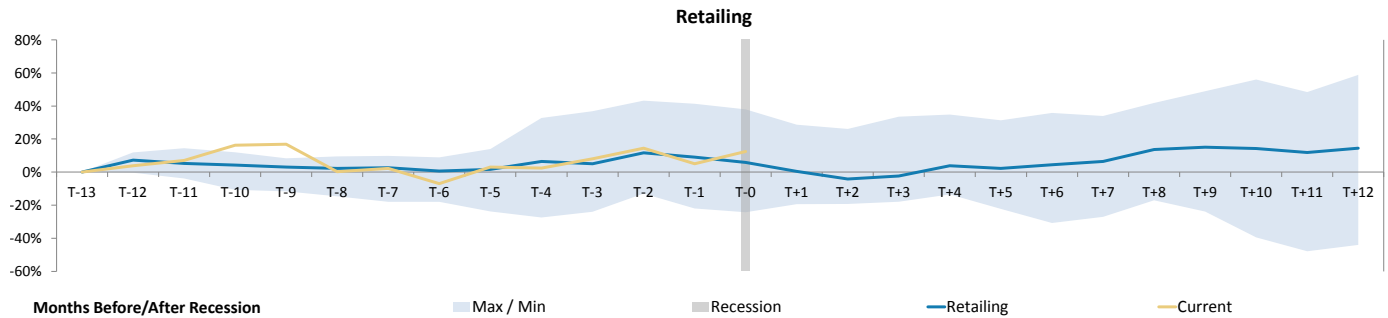


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Retailing — Rebounding After Recessions Start. For the Retailing industry group, historical returns have been mixed and on average roughly flat in the 12-month periods before prior recessions. Modest weakness has tended to follow into the start of recessions followed by an uptick in performance ~6 months following the start of recession (**Exhibit 116**). Relative to the market, this has meant the sector has tended to be an underperformer headed into and for the first few months of recessions, before moving higher relative to the market (**Exhibit 117**).

Exhibit 116:

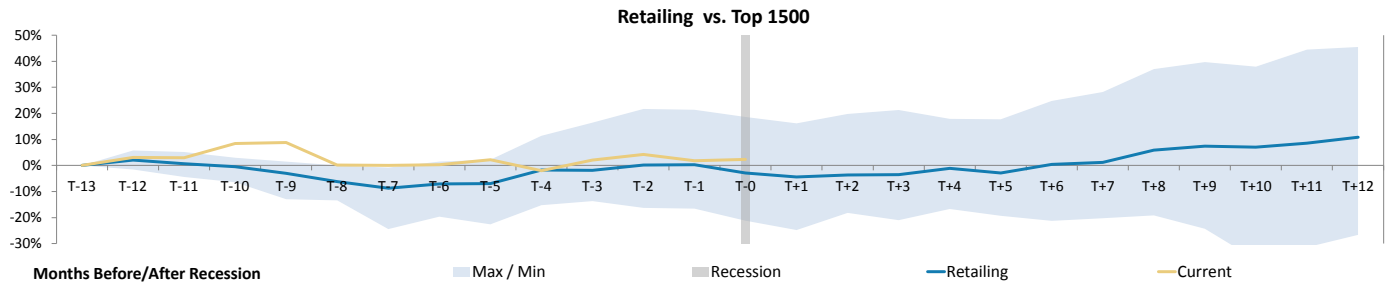
Avg. Retailing Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 117:

Avg. Retailing Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

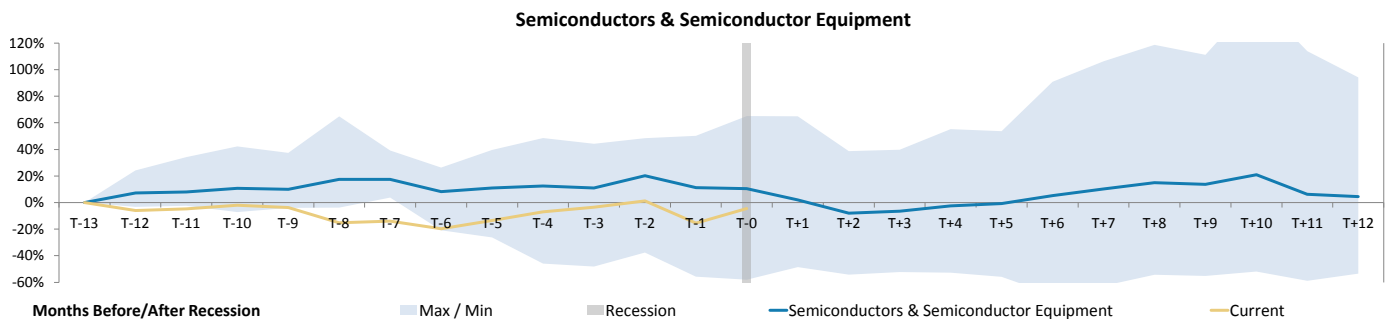


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Semiconductors — Avoid Near Recession Starts. In the 12-month periods leading up to prior recession, the Semiconductor industry group has generally seen positive absolute, returns, with 2001 being a large and singular exception (**Exhibit 118**). Historically though, this performance started to fade materially about 2 months before the recessions began and trough around 2 months after, resulting in large swings over ~4 month periods. The ensuing recoveries off the trough have themselves had wide ranges — sometimes quite strong (1990s) and sometimes tepid (01) to down further (financial crisis). The relative return picture looks similar with the rapid absolute price drops shortly before and into recessions translating into material underperformance and the relative trough tending to last a bit longer at ~6 months into the recession (**Exhibit 119**). While the trailing 12-month underperformance of the group may provide some cushion if a recession were to begin imminently, the persistent early recession downside would still keep us on the sidelines for this group.

Exhibit 118:

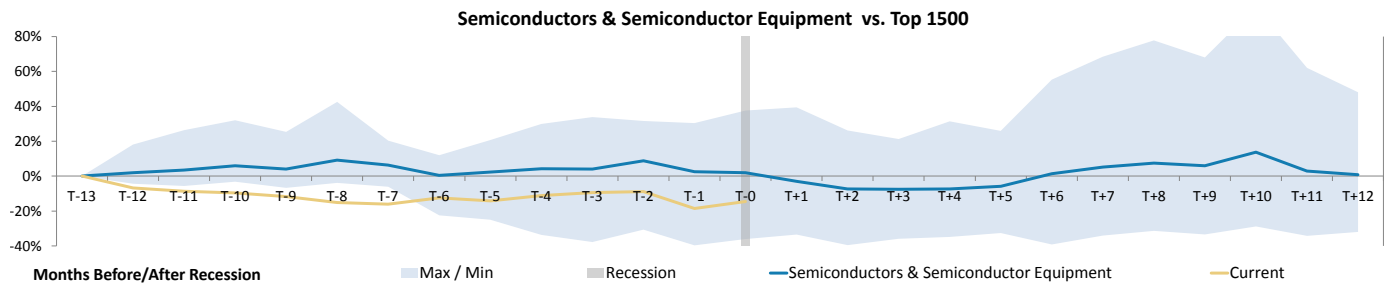
Avg. Semiconductor Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 119:

Avg. Semiconductor Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

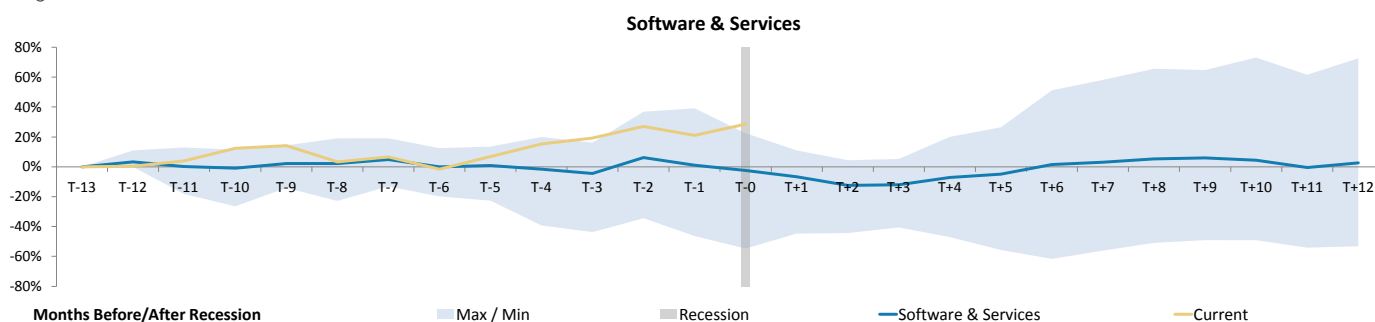


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Software & Services — Mixed Bag. Whether assessed on an absolute basis ([Exhibit 120](#)) or relative to the broader equity market ([Exhibit 121](#)), returns in Software and Services have shown a wide range of outcomes both into and out of recessions such that identifying a common trend around recessions is difficult. For instance in the first recession in our data set (early 1980s) underperformance vs. the market headed into recession accelerated over the next twelve months. In the recession of the 1990s, the opposite occurred and after a short, but material period of weakness a month before the recession, the outperformance regained momentum through the 12 months following the recession. In other cases like 2001 or the financial crisis, under/overperformance headed into a recession led to roughly flat returns 12 months later. Given the strong performance of the group today, we remain cautious on the potential for short term weakness, but may look to that as a buying opportunity.

Exhibit 120:

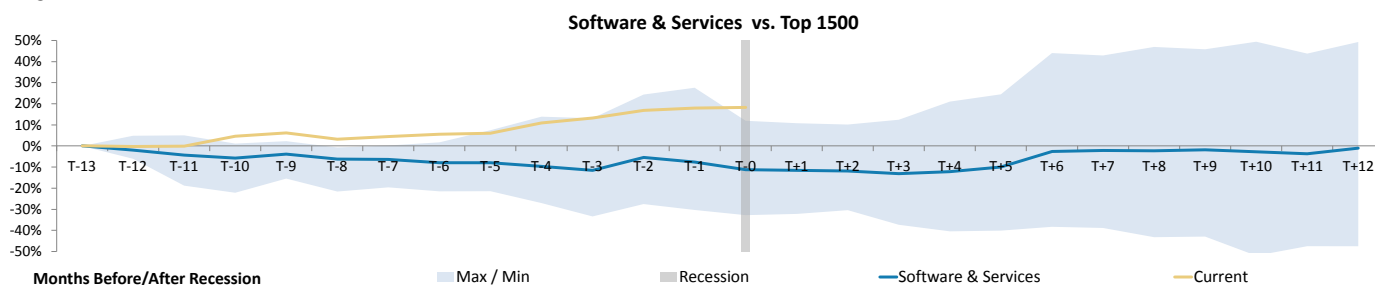
Avg. Software/Services Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 121:

Avg. Software/Services Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

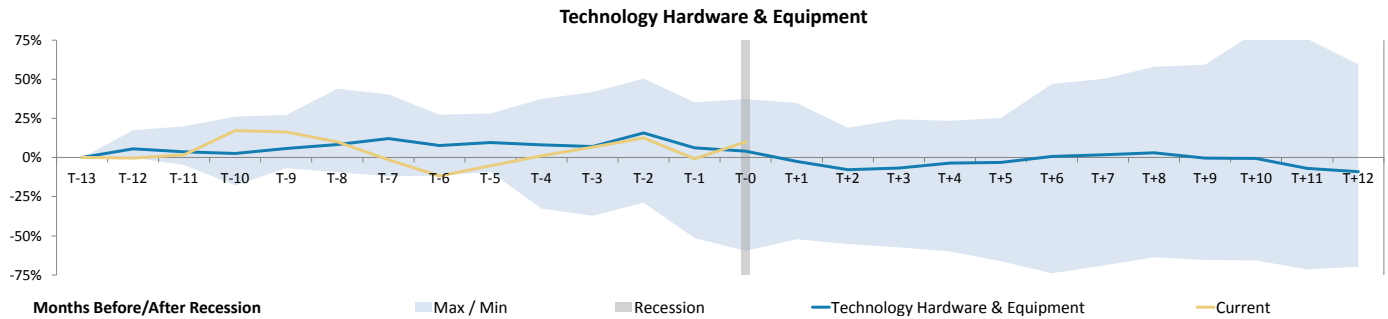


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Tech Hardware & Equipment — Falling Early and Persistently. Tech Hardware displays one of the more persistent trends among industry groups in the way it trades around recessions. On an absolute basis, strong price appreciation over the prior few months gives way to material weak performance about two months prior to recessions and the prices generally stagnate even 12 months after the recessions begin (**Exhibit 122**). Relative to the rest of the market, this means material underperformance headed into recessions and lagging performance as the rest of the market begins recovering earlier (**Exhibit 123**).

Exhibit 122:

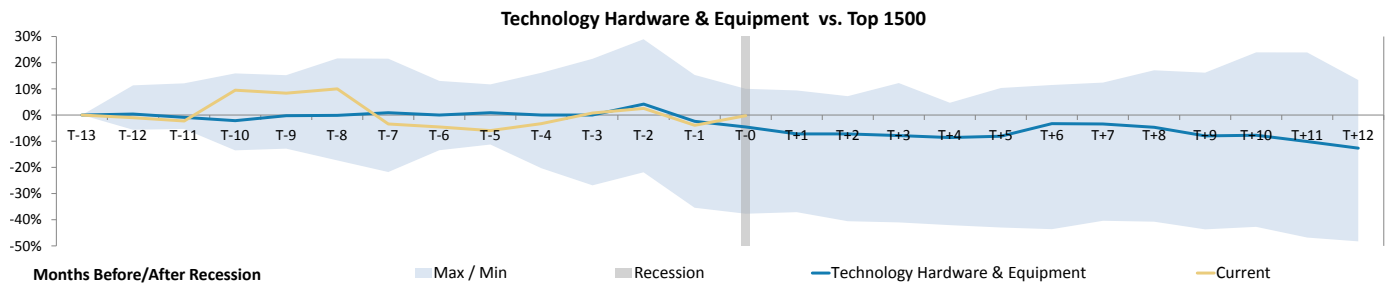
Avg. Tech Hardware/Equip. Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 123:

Avg. Tech Hardware/Equip. Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

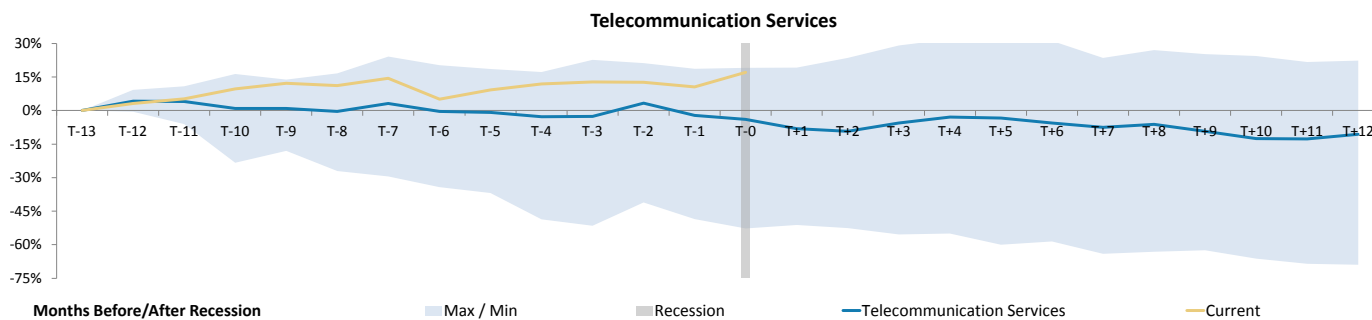


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Telecommunications Services — Not as Defensive as Expected. The behavior of Telecom in and around recessions is perhaps a bit surprising. The absolute return skew before and after recessions is wide but skews decidedly more negative than many other industry groups (**Exhibit 124**). As with many other industry groups, average returns started falling about 2 months prior to the recessions starting and troughed about 2 months after the starts, but with weak average recoveries thereafter. Relative to the market the group actually started weakening well before the prior recessions began and, outside of the second of the 1980s recessions, ended up flat to down versus the market twelve months later (**Exhibit 125**).

Exhibit 124:

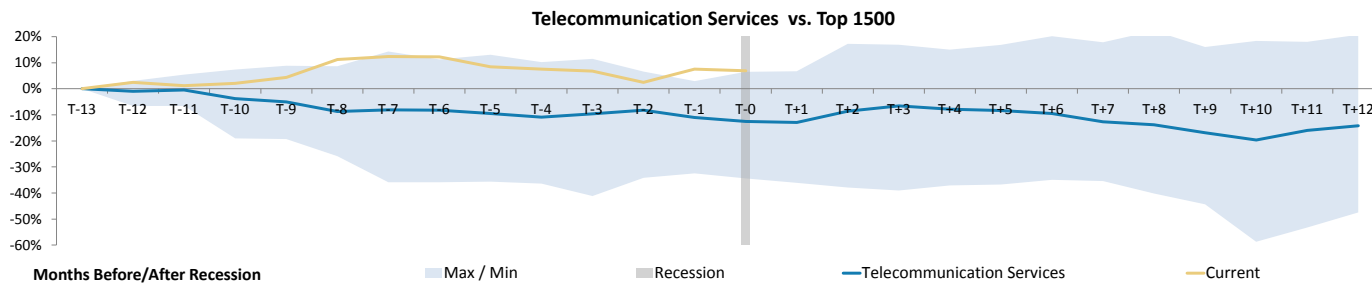
Avg. Telecom. Services Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 125:

Avg. Telecom. Services Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

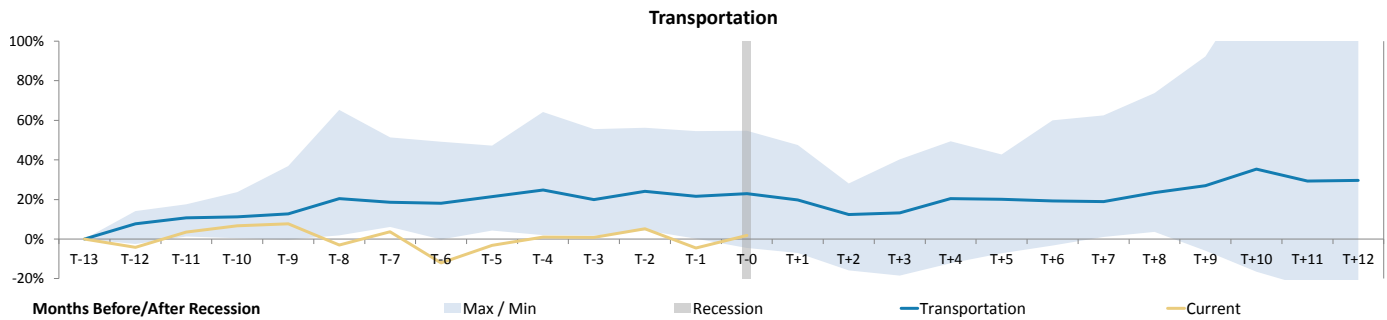


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Transportation — Surprising Relative Performance. Most investors would likely put Transportation near the top of their list of cyclical industry groups, so seeing the absolute and relative performance of the group hold up so well in and around recessions is a bit surprising. On an absolute basis, the group has tended to move higher right into the start of recessions, only to see material weakness in the 2 months after the recessions began. This weakness tended to be short lived though as it was followed by a resumption in the trend higher (**Exhibit 126**). Relative to the market, the downtrend at the start of the recessions is not as pronounced but the recoveries still appear to be (**Exhibit 127**) - the group has only underperformed 12 months after the start of recession in 1 out of the last 5 recessions (financial crisis).

Exhibit 126:

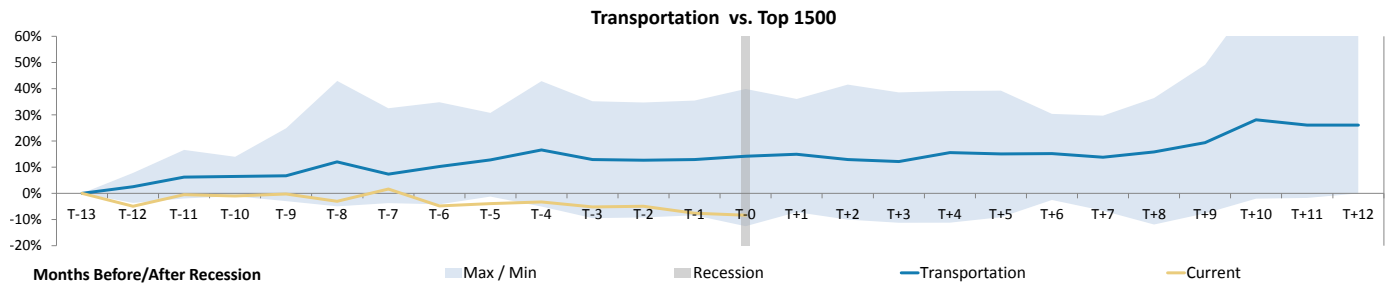
Avg. Transportation Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 127:

Avg. Transportation Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

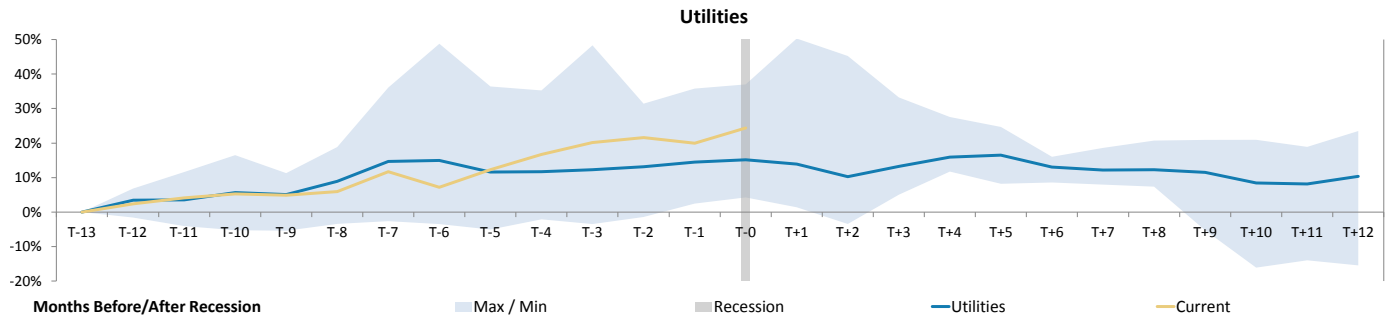


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Utilities — More Mixed Than Expected. The absolute returns of the Utilities industry group have tended to be positive into the start of recessions with the positive momentum continuing in the recessions of the 1980s and 1990s, but weakening in the recessions after 2000 (**Exhibit 128**). Performance relative to the market after the start of recessions was similarly mixed with outperformance in some cases and underperformance in others (**Exhibit 129**). For example, following the 2001 recession and financial crisis, the group's price level fell, but relative performance differed vs the market as in 2001 the market fell by less (Utilities underperformed) while in the financial crisis, the market fell more (Utilities outperformed).

Exhibit 128:

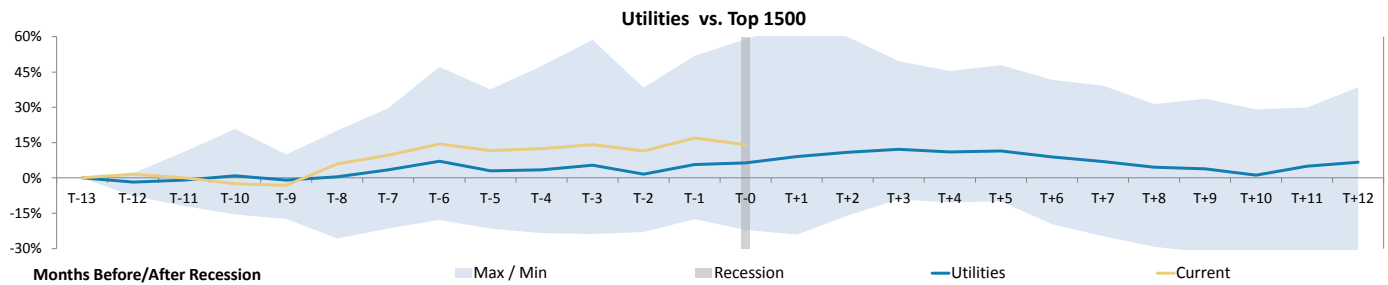
Avg. Utilities Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 129:

Avg. Utilities Returns vs. Market 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



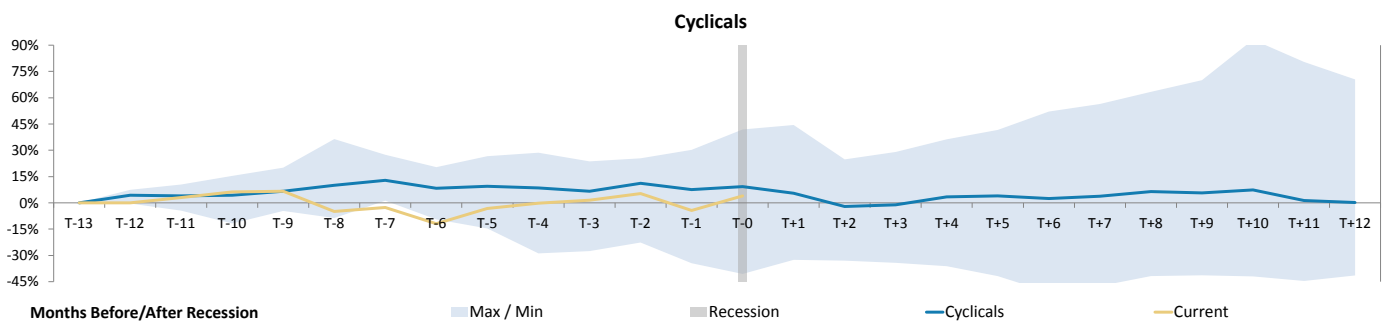
Source: Bloomberg, Clarifi, Morgan Stanley Research.

Size and Style Relative Performance

Cyclicals vs Defensives — Defensives Tend to Outperform, but Cyclical Moves Can Overwhelm. Cyclicals tend to generate positive returns in the 12 months leading up to recession which then fade in the 12 months after recessions ([Exhibit 130](#)). It is worth noting that the range of potential outcomes is particularly large for cyclicals though, especially 12 months after recession. With a much lower volatility, the absolute returns of Defensives also tend to rise until shortly before recessions begin and then fall for a short time after recessions start, but then rebound quickly ([Exhibit 131](#)). The tendency of Cyclicals to continue weakening through recessions while Defensives rebound means Defensives outperform on average ([Exhibit 132](#)), though large Cyclical rebounds in some cases means deviations from the average performance can be large.

Exhibit 130:

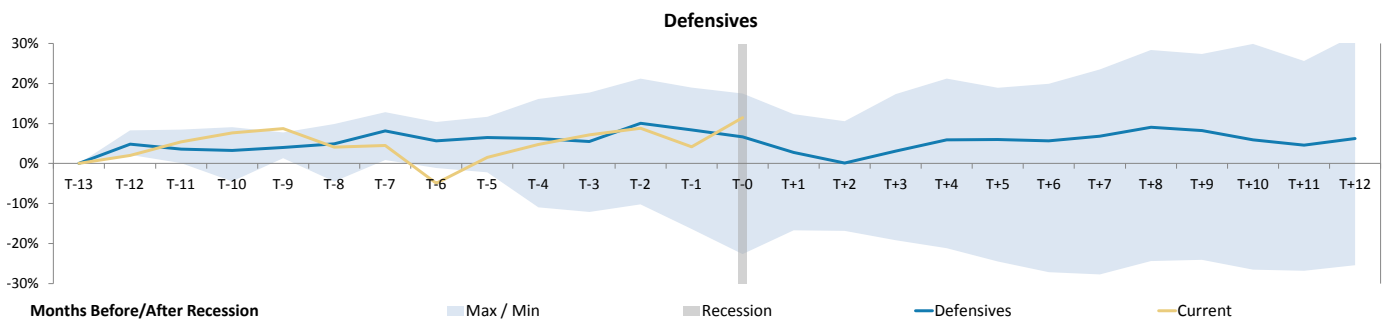
Avg. Cyclicals Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 131:

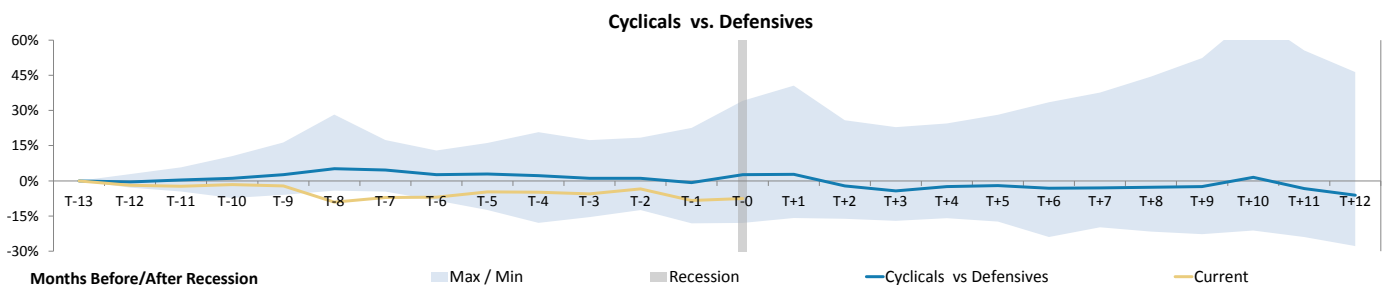
Avg. Defensives Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 132:

Avg. Cyclicals - Defensives Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

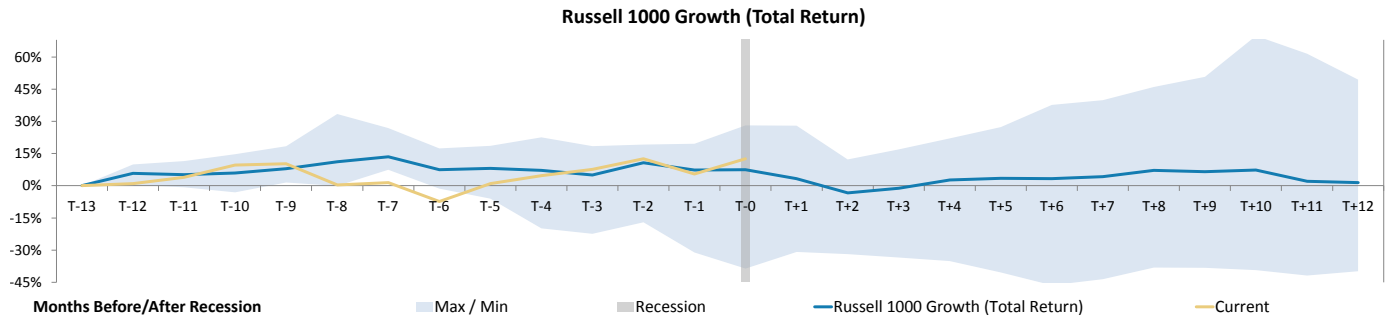


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Growth vs. Value — No Obvious Pattern. Both Growth ([Exhibit 133](#)) and Value ([Exhibit 134](#)) have a tendency to sell off in absolute terms through recessions and the magnitude and distribution of these returns looks about similar, leaving no clear pattern on the relative winner coming out of recessions ([Exhibit 135](#)).

Exhibit 133:

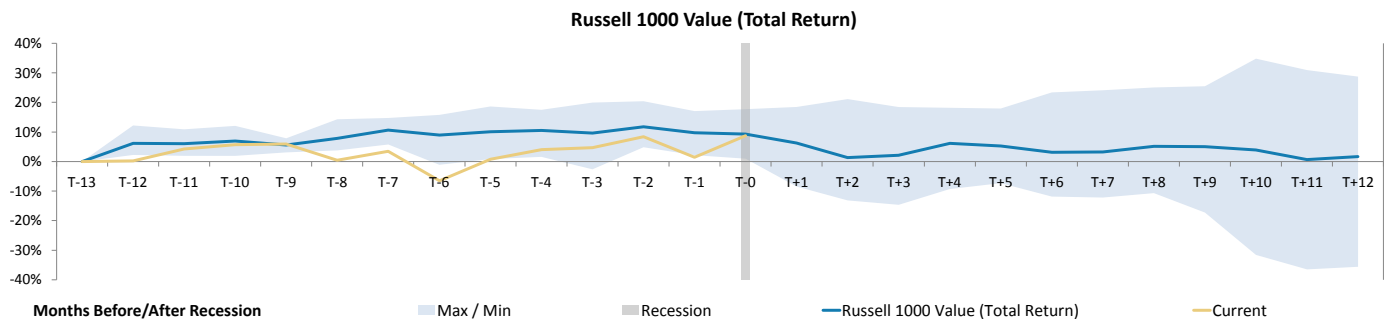
Avg. Russell 1000 Growth Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 134:

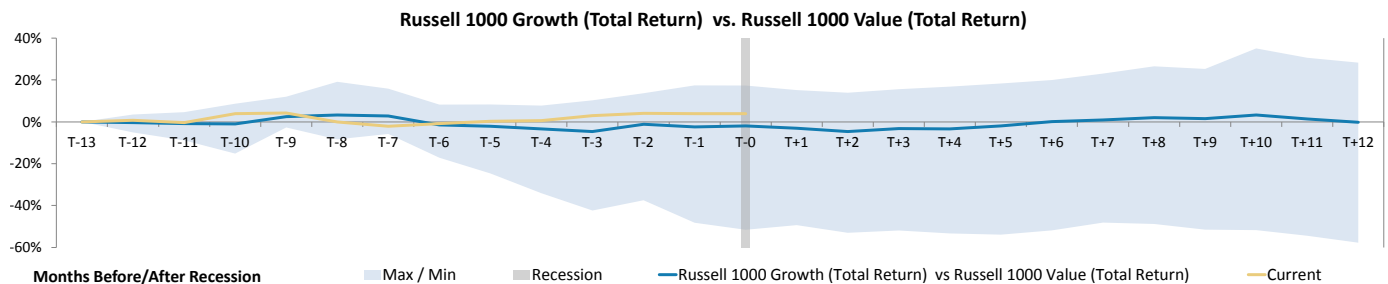
Avg. Russell 1000 Value Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 135:

Avg. Russell 1000 Growth - Value Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

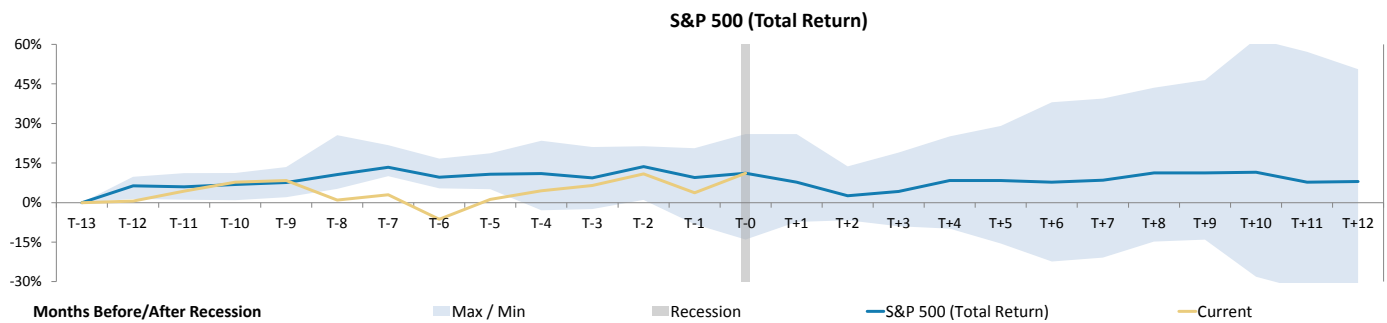


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Large vs Small — Mixed Relative Performance With A Shift To Small Caps Shortly After Recession. Large ([Exhibit 136](#)) and small cap ([Exhibit 137](#)) returns both tend to weaken at the onset of recession with the key difference being the wider range of outcomes (higher volatility) in small cap returns. The relative performance record 12 months after the start of recessions is mixed — large caps outperformed in the second of the 1980s recessions and the 1990s with small caps outperforming in the 12 months following the remaining recessions — but there is a slight trend toward the outperformance of small caps from about 2 months post recession on ([Exhibit 138](#)). The trailing 12-month outperformance of large over small does look to be at the high end of the range before prior recessions , but in the one instance which was more extreme (1991) large caps continued outperforming through the recession.

Exhibit 136:

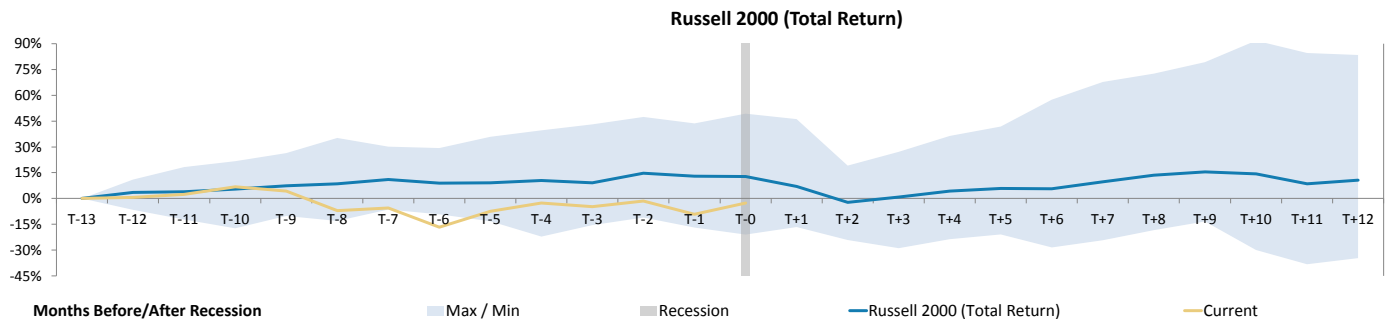
Avg. S&P 500 Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 137:

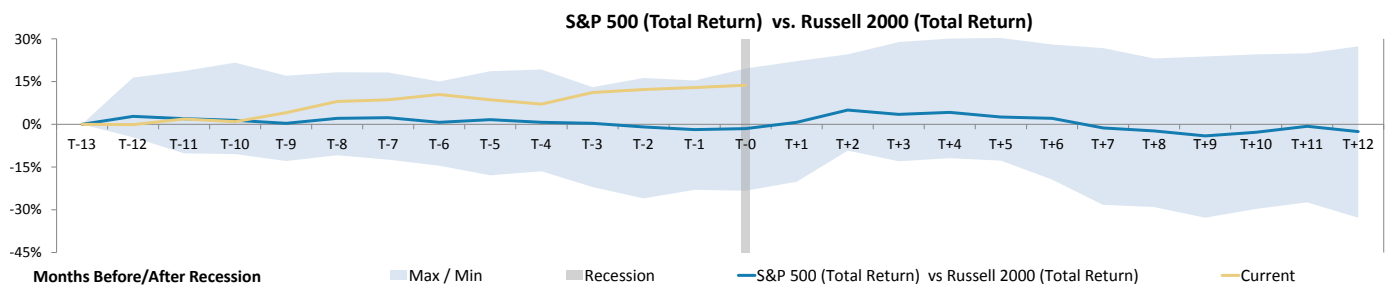
Avg. Russell 2000 Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 138:

Avg. S&P 500 - Russell 2000 Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

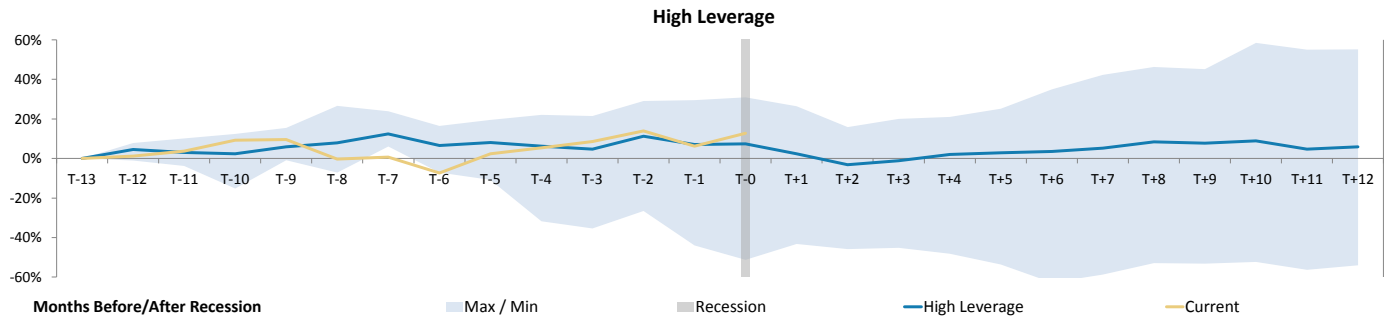


Source: Bloomberg, ClariFi, Morgan Stanley Research.

Leverage: High vs. Low — High Leverage May Rebound a Bit More Following Start of Recession. Both High Leverage ([Exhibit 139](#)) and Low Leverage ([Exhibit 140](#)) have a tendency to sell off in absolute terms through the start of recessions followed by modest rebounds or stagnant returns starting a few months after recessions begin. High Leverage tends to move a bit more, so the average returns starting a few months after recessions start tend to be greater, but there is wide variance of results ([Exhibit 141](#)).

Exhibit 139:

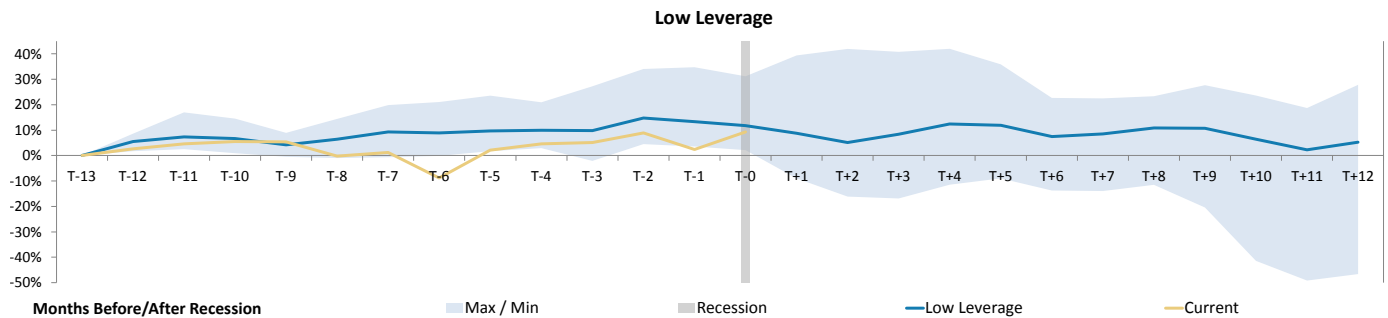
Avg. High Leverage Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 140:

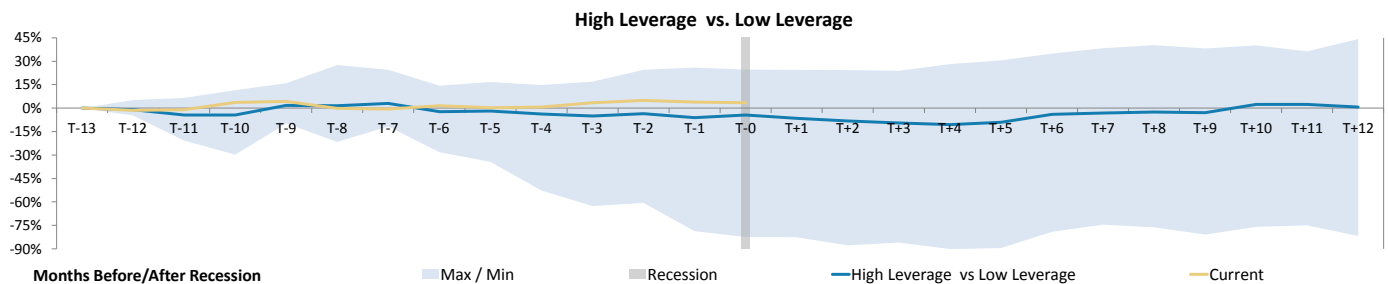
Avg. Low Leverage Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, Clarifi, Morgan Stanley Research.

Exhibit 141:

Avg. High - Low Leverage Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession

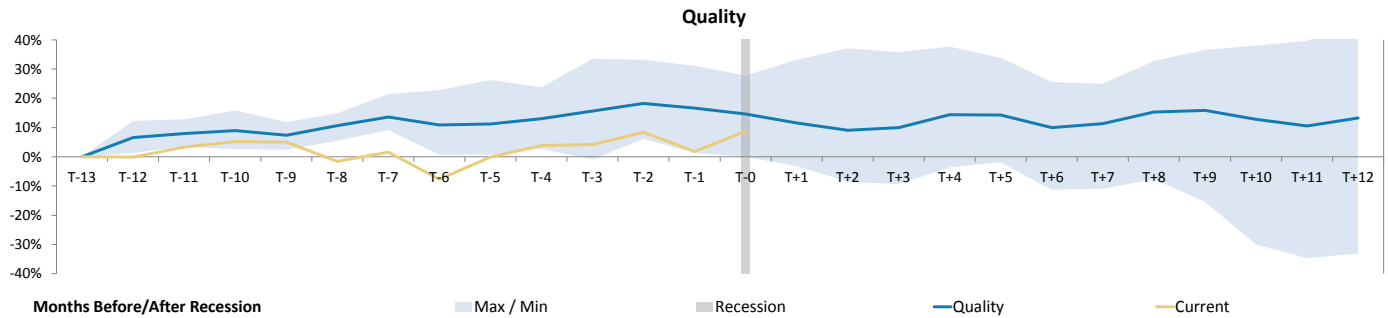


Source: Bloomberg, Clarifi, Morgan Stanley Research.

Quality vs. Junk — Negative Junk Momentum. On an absolute basis, Quality sells off with the market starting a few months before recessions begin and chops around over the 12 months following recession starts ([Exhibit 142](#)). In contrast, Junk begins to weaken about 2 months before recessions start and continues in the 12 months after the start ([Exhibit 143](#)). The net result is persistent outperformance of Quality over Junk ([Exhibit 144](#)).

Exhibit 142:

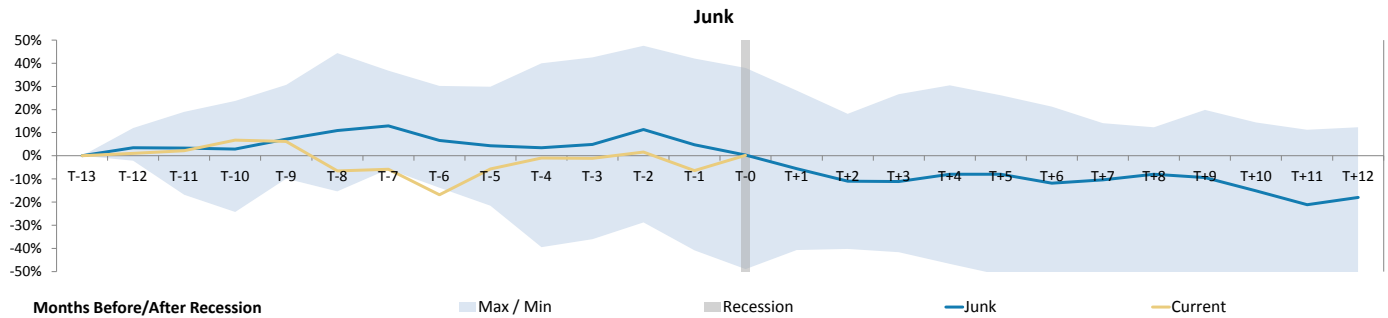
Avg. Quality Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 143:

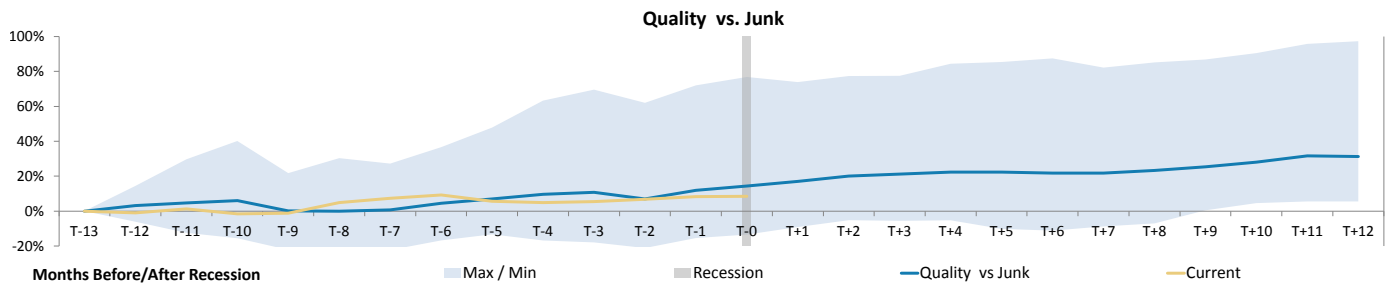
Avg. Junk Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Year Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Exhibit 144:

Avg. Quality - Junk Returns 1 Year Pre-/Post- Prior Recessions, Indexed to 1 Yr. Pre-Recession



Source: Bloomberg, ClariFi, Morgan Stanley Research.

Appendix I: US Recessions – Summaries

Serena Tang and Naomi Poole

January 1980 - July 1980

The first 'dip' of the 1980s 'double-dip' recession. The 1979 oil shock following the Iranian Revolution saw the price of crude spike from 57 to 125 per barrel within the span of 12 months, which fed through to double-digit inflation in the US. The Federal Reserve, under Chairman Paul Volcker, pursued restrictive monetary policy to fight inflation – it tightened money supply and implemented credit controls from 1Q80. These measures led to a sharp deceleration in economic activity, with real GDP growth dropping to -1.6% Q/Q at its lowest point in 1980, and unemployment rising to a high of 7% in June 1980. The economy saw a modest recovery from summer 1980 after the Fed shifted to rate cuts.

July 1981- November 1982

The second 'dip' of the 1980s 'double-dip' recession and, at the time, the worst slowdown since the Great Depression. Between 1979 and 1982 the Fed had shifted to targeting the quantity of money in circulation, before shifting back to targeting the fed funds rate. The Fed began to tighten policy in spring 1981, raising the fed funds rate to 19.1% by June. Inflation fell from 10%Y in 1981 to 4%Y in 1983, but at the cost of a sharp economic downturn; real GNP fell by ~5% and unemployment increased from 7.2% to 10.8%. The ongoing LatAm debt crisis of the 1980s also compounded issues by creating concerns over the solvency of banks which had lent to defaulting sovereigns. The economic peak was finally announced in January 1982, while the Fed only began to loosen policy in June that year.

July 1990 - March 1991

With real GNP falling 1.4%, the recession of 1990 was milder than those encountered in the previous decade. Inflation had reached 6.1%Y in the first half of 1990, and was only exacerbated by the oil price shock following Iraq's invasion of Kuwait in August that year. The Fed began to tighten policy from early 1988 onwards, hiking the fed funds rate to 9.8125% by May 1989. The Fed began to cut rates in July 1989, which was before the recession was announced in April 1991. The recovery was slow and unemployment remained high until its peak (7.7%) in 1992.

March 2001 - November 2001

After an unsustainable rally of 130% between 1999 and March 2000, NASDAQ fell into a bear market, and the tech bubble burst, leading to a rapid decline in wealth and consumption. However, the Fed was still *tightening* into this period, delivering six hikes between 1999 and 2000, partly because labor markets remained tight – the unemployment rate remained low throughout 2000 (between 3.8% and 4.0%). The Fed reacted decisively in January 2001 with a 100bp cut, and the fed funds rate declined by 475bp that year (six cuts were 50bp moves) – the largest magnitude of rate cuts within a 12-month period before or since. During the recession, real GDP growth declined from 3% (4Q00) to 0.2% in 4Q01. Inflation decreased from 3.5%Y to 1.9%Y and unemployment increased from 4.2% to 5.5%.

December 2007 - June 2009

Interest rates were kept low after the previous recession until June 2004, when the Fed began tightening policy again. The environment of very low interest rates as well as a global savings glut helped to inflate a housing boom which started to turn in 2006 and rates started to rise; this created spillover effects into the wider financial system via the collapse of the subprime mortgage markets and other securitized products. The severe stress in the interbank lending markets precipitated a credit crunch and banking crisis, causing volatility in financial markets which subsequently transmitted to the real economy. Real GDP growth dropped to -3.9% in 2Q09, the lowest recorded level since World War II. In addition, inflation decreased to -2.1%Y and unemployment skyrocketed to 10%. In order to inject liquidity into the system, the Fed implemented easing policy with the fed funds rate falling from 5% to 0%, effectively hitting the zero lower bound. Additional stimulus was provided through various unconventional measures, such as quantitative easing programmes.

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	Count	% of Total	Count	% of Total IBC	% of Rating Category	Count	% of Total Other MISC
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Equal-weight/Hold	1404	45%	312	47%	22%	656	47%
Not-Rated/Hold	13	0%	2	0%	15%	2	0%
Underweight/Sell	581	19%	73	11%	13%	229	16%
Total	3,108		669			1402	

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