

US Equity Markets

2019 Outlook

The current cycle is just shy of becoming the longest uninterrupted expansion since 1860. Its sheer longevity has become a source of anxiety. Long cycles can lead to excesses followed by a crash. Currently, this concern seems misplaced, in our opinion, since the present cycle has already experienced two intra-cycle resets, in mid-2011 and late-2015. These resets are healthy and should prolong the overall cycle as they put a brake on excesses by repricing risk, causing style/sector rotations to realign valuations and draining out excess leverage from the market. Similarly, 2018 could be viewed as a third reset—a year characterized by significant de-leveraging and unwinding of crowded trades. The key difference, however, between current reset and the past two is that economic momentum and earnings growth have remained resilient even when normalizing for the Tax Act stimulus. In our view, fundamentals and technicals decoupled, causing the S&P 500 multiple to de-rate by ~3x turns to 15x from 18x. While the impetus for the current reset was systematic flows, extremely poor liquidity and deleveraging of crowded trades, politics (including escalation of trade tariffs) was the key catalyst. As noted in our previous research (see [Market Update](#)), changes in market structure, systematic investing and electronic liquidity provision can yield any price outcome regardless of fundamentals, but ultimately should prove to be transient.

Looking ahead, fundamentals should remain healthy, as far as earnings, investment spending, corporate balance sheets and leverage are concerned. Even though earnings are expected to decelerate relative to 2018, they should remain positive and continue to grow. It has been widely expected before the passage of Tax Act that the injection will act as one-time and temporary boost. In fact, the underlying earnings growth trend next year should be in line with recent years (~10% for 2017, 2018 ex Tax Act). The largest source of risk to this earnings view is linked to tariff uncertainty via potentially higher input costs and profit margin compression. Our working assumption remains that there is greater probability of a trade deal than tariff escalation, given incremental progress at the G20 meeting between US and China. More so, in a pre-election year, the administration likely cannot afford a falling market, large trade related lay-offs, and fleeing donors. Timing this outcome, however, is very difficult and will likely remain a key source of volatility for the market. The other key source of risk for equities, the pace of monetary policy tightening, will likely be tempered given falling inflation expectations (see Figure 30 Inflation QMI) and more dovish remarks by Fed's chair and vice-chair. Escalation of these risks throughout 2018 has resulted in significant de-leveraging across investors. **Equity positioning has reached very low levels.** We estimate equity exposure of all hedge funds, discretionary and systematic, is now in the bottom 10th-percentile and at levels last seen in 1Q16. More so, the previously crowded growth momentum factor has significantly unwound and trades at a large discount to the market (-1.4x, 98%-tile), see recent [Style report](#). Also, the premium at which defensive stocks are still trading relative to cyclicals is near record levels (98%-tile). This pessimism has also spilled into retail sentiment. Based on 13F filings, non-institutional investors are underweight Tech and overweight defensive Staples and Utilities.

US Equity Strategy

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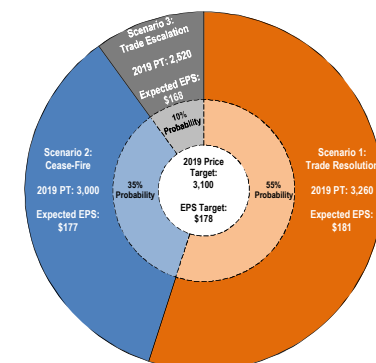
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Figure 1: JPM S&P 500 Price Target and EPS



Source: J.P. Morgan US Equity Strategy

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See page 44 for analyst certification and important disclosures.

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We expect the equity pain trade to be on the upside, given diminishing tariff and Fed related risks, positive earnings growth, attractive valuations, continued shrinkage of equity supply via buybacks, and given very low investor positioning. **Based on our probability-weighted analysis of US-China trade outcomes (55% trade deal, 35% cease-fire, 10% tariff escalation), we set our 2019 S&P 500 price target to 3,100 and EPS estimate at \$178.** Over the next 12-months we could see more than \$1.5 trillion worth of demand for US equities through buybacks (~\$800b), partial reinvestment of dividend income (~\$250b), as well as discretionary hedge fund and systematic flows (~\$500b would take equity positioning to ~50%-tile) as volatility normalizes. **We see the upside pain-trade driven by cyclical leadership, in particular Growth sectors.** Defensive/low volatility stocks are back in outright bubble territory and currently the most crowded equity trade that should no longer be deemed as safe given record high valuation and sub-par earnings growth potential. **At the sector level we are overweight Technology, Consumer Discretionary, Industrials and Energy and underweight Staples, Utilities, Real Estate and Healthcare.**

- **State of the Business Cycle.** US QMI, JPM leading indicator of business cycle, shows that the third intra-cycle that began in 2016 has been decelerating; however, it suggests the overall cycle remains intact and is unlikely to slip into outright recession. In particular, the Growth sub-component of QMI (at 83%-tile, end-Nov) is well above levels associated with a recession. This is consistent with an expected slowdown in corporate earnings from 25% in 2018 to 8% in 2019. Liquidity (6%-tile) and lately Sentiment (38%-tile) have weakened significantly and explain most of the deceleration of the US QMI. However, shifts in these sub-components are often temporary and a function of price action and uncertainty (i.e. tariff policy). As Sentiment mean reverts and Liquidity revives, we expect Growth to remain resilient. Recently, the Fed has been adding to market uncertainty given their unwavering focus on raising rates despite fluid and often times sensitive global macro environment. However, with most inflation metrics surprising to the downside (core PCE deflator, consumer prices, import prices, etc.), there is little reason for the Fed to aggressively tighten policy. While trade remains the largest source of risk to forward earnings, our base assumption is that trade does not escalate (90% probability) from current levels. Based on our textual and big data analysis, Corporates are increasingly discussing trade as a potential risk but actual earnings numbers have so far shown minimal impact in aggregate. In our view, China tariffs to date have been offset by CNH devaluation, strong domestic growth, and effective pass through of higher cost to end users. Full blown recessions are usually associated with deterioration in the balance sheets of corporates and/or households. Corporates are cash rich, leverage and more importantly the ability to service debt are not under pressure for either sector. Ultimately, the evolution of fundamentals will dictate the duration and end of this cycle.

- **Implication of rising rates on equity multiples.** The 10-year bond yield uptrend this year is expected to continue into 2019. The retreat in the yield during 4Q18 is likely to be temporary unless the economy heads into a recession, not our base case. JPM Fixed Income expects the yield to end 2019 at 3.6%. History suggests equity multiples move together with US 10-year bond yields in the initial stages of rate liftoff but start to experience a headwind as yields approach a tipping point. In effect, there is an inverted-U relationship between yields and multiples. The tipping point itself depends on the trend growth of the cycle. If growth is weak, equity multiples come under pressure sooner at lower yields. If growth is stronger, equity multiples are more resilient to higher yields. **With real GDP growth expected to average within the 2-3% range in 2019, we don't expect multiples to de-rate as long as yields remain below 4% (see Figure 115).**

Figure 2: S&P 500 PE now ~15x

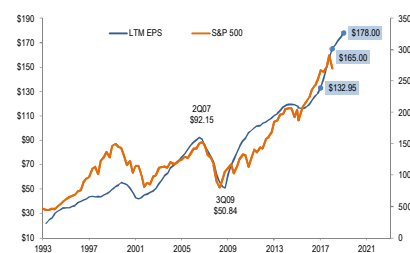


Figure 3: US QMI — Business Cycle

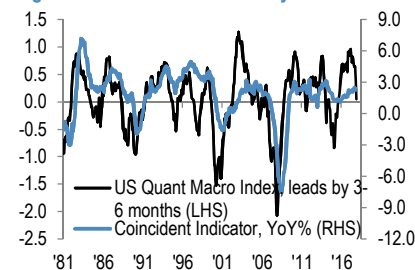


Figure 4: US QMI Growth Component Intact

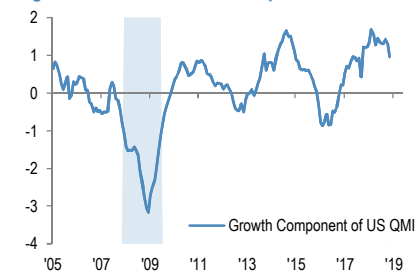


Figure 5: Trade is Largest Risk for Corporates

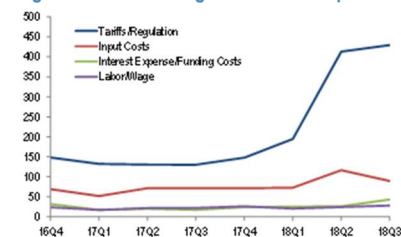
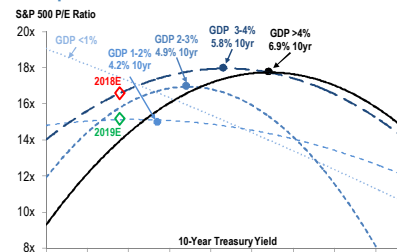


Figure 6: LT-Rates a concern for Equity Multiples at over 4%



Source: J.P. Morgan US Equity Strategy and Quantitative Research

- Interpreting the inversion of the yield curve.** Since 1960, 7 out of 8 yield curve inversions were followed by a recession. The commonly tracked 10yr-2yr term spread is at +15bps and JPM Fixed Income team expects it to turn negative late 2019. **Even though the yield curve inversion remains an important cycle indicator, its interpretation and timeliness should be more closely scrutinized** for the following reasons: (1) History suggests that the inversion of the 10yr-3mth spread has better predictive accuracy—it stands at +50bps and provides a larger cushion than the frequently cited 10yr-2yr spread; (2) The lag between inversion and subsequent recession has increased, nearly doubling (~17-months) for the latest three inversions/recessions compared to the prior four (9-months). In the 2008 recession, the lag was 22-months, and it could be even longer in this cycle given unconventional monetary policies; (3) Unconventional monetary policies have likely artificially compressed the term spread. JPM estimates for every \$1tr of asset purchases the US 10-year bond yield is lower by ~15bps. Additionally, foreign central bank policies and existing QE programs are also likely anchoring US bond yields to lower global yields; (4) Term premia (i.e. compensation investors demand for taking on inflation/growth risk) embedded in 10-year bond yield is substantially lower in the current cycle relative to history. Consequently, the tightening of term spread is likely overstated; (5) Equity valuations relative to bonds were much higher during past yield curve inversions. Spread of earnings yield to bond yield averaged -1.3% in the previous inversions compared to +0.3% currently; (6) The 2011 repeal of Reg-Q and greater stickiness of bank deposits may have structurally raised the short-end of the yield curve and narrowed the term spread for a reason unrelated to future recessions; (7) Even an inverted yield curve does not imply imminent market sell-off. After the last 5 curve inversions (since 1978), the market was up on average 13% before correcting.
- Fundamentals to remain above-trend even as the benefit of Tax Act fades next year.** Our probability-weighted analysis of trade outcomes implies S&P 500 EPS growth of 8% next year (2019 EPS at \$178 vs. consensus of \$176.25). In spite of an uphill battle with policy and global macro during 2018, S&P 500 companies are on track to deliver earnings growth inline with our ~25% growth expectation. While many are calling for peak EPS and sharp growth deceleration for 2019, we see little support for this scenario after companies have continued to deliver strong earnings surprise in 2018 (and 4Q18 could provide the strongest surprise of the year). Despite some headline capturing guidance misses in recent months, we argue corporate guidance in aggregate has been positive. Actually, if investment spending is any guide (i.e., proxy for corporate confidence), we expect earnings growth to remain resilient over the next year, especially on the back of a more balanced Fed, continued labor market expansion, and de-escalation of tariff risk. Our 2019 EPS of \$178 (+8% y/y) assumes in-line consensus sales growth (~6% y/y), flat net income margins on expanding operating margins and higher interest expense (investors expect margin compression), and elevated shareholder capital return on rising profits and further cash repatriation. **Our EPS estimate is based on probability-weighted analysis of trade outcomes: (1) Trade Deal EPS of \$181 (probability 55%), Cease-fire EPS of \$177 (probability 35%); and Tariff Escalation EPS of \$168 (probability 10%). The largest risk to our EPS growth is tariff escalation as it would cause margin compression, see Figure 43.**
- Revenue growth should moderate a bit but remain above trend.** We expect some moderation in revenue growth next year to 6% from 8% in 2018, which was supported by growth in consumption (continued labor market expansion and Tax Act), oil prices, business investment, and public spending. It is compelling that despite negative headlines and market volatility; there has been no material revision to next year's sales growth estimates in aggregate, which the Street has a better track record of forecasting than margins or EPS. Our ~6% revenue growth estimate has

Figure 7: S&P 500 EPS Drivers (2017A – 2019E)

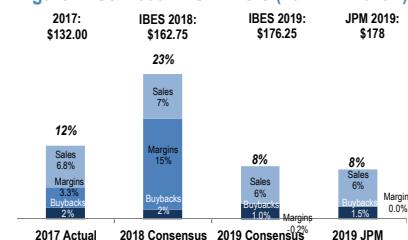


Figure 8: S&P 500 Consensus EPS Trend

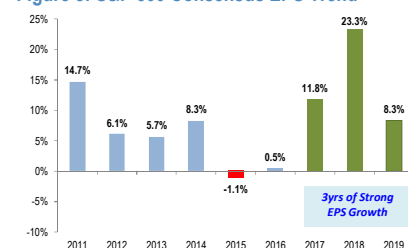


Figure 9: S&P 500 2019 Quarterly EPS Trend

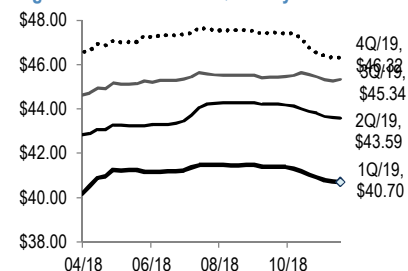
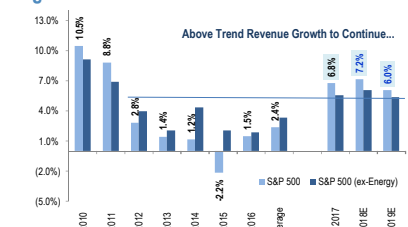


Figure 10: 2019 Earnings Contribution by Sector

S&P 500 Earnings	Earnings Contribution				
	2017	2018E	2019E	% of Sales	% to Earnings
Energy	\$38	\$77	\$96	6.5%	25.7%
Materials	\$27	\$37	\$39	2.6%	4.3%
Industrials	\$112	\$134	\$142	9.6%	7.4%
Discretionary	\$98	\$115	\$123	8.4%	7.2%
Staples	\$97	\$105	\$108	7.4%	3.4%
HealthCare	\$190	\$217	\$231	15.7%	6.4%
Financials	\$198	\$247	\$258	17.5%	4.7%
Technology	\$239	\$289	\$292	19.8%	1.2%
Communications	\$105	\$134	\$144	9.8%	7.9%
Utilities	\$34	\$37	\$39	2.6%	4.7%
Real Estate	\$18	\$19	\$17	1.2%	-9.3%
S&P 500	\$1,139	\$1,392	\$1,473	100%	5.9%
Ex-Energy	\$1,101	\$1,315	\$1,377	93%	4.7%

Figure 11: Sales Growth at Above Trend



Source: J.P. Morgan US Equity Strategy and Quantitative Research

room for companies to report upside if there is a US-China trade deal, commodity prices rebound, trade-weighted USD declines, and/or growth abroad accelerates. Also, the exact impact of fiscal stimulus is difficult to estimate but most economic models suggest that GDP will continue to see some benefit from the Tax Cuts and Jobs Act (~0.6% higher in 2018-2020). After that, the effect of TCJA wanes in some but not all models. This pattern appears similar to the Kennedy tax cut in Feb-1964 with GDP growth accelerating and peaking in 1966 before returning to trend rate. Also, additional fiscal stimulus could be likely next year from emerging bi-partisan support for infrastructure spending. Outside of the US, China is starting to accelerate fiscal easing and there is prospect for Europe / Germany (i.e. post Merkel) to consider fiscal easing in the coming quarters. We believe this is not in consensus top and bottom-up estimates, and could provide upside to our base view.

- We expect some operating margin expansion next year though investors' view is quite negative.** To start, during this business cycle, most of the net income margin expansion has been driven by policy (lower effective tax rate and interest expense savings) rather than industry margins (EBIT % margins are still well off peak levels and the upside is unexhausted). As shown in Figure 70, operating margin has been stubbornly flat for several years largely due to low productivity gains. As companies continue to deliver mid-single-digit sales growth (rising volume + pricing) and invest in capital/tech equipment, we believe they should deliver some operating margin expansion next year. While we respect the market's concern about late-cycle dynamics (tightening labor market), rising input costs (commodity and transportation price inflation) and higher interest expense adversely impacting margins, we believe this concern is premature with operating leverage benefit still underappreciated. The rising input cost concerns that corporates were noting during 1H18 seems to have abated some during 2H as commodity prices have fallen sharply. In fact, our textual analysis of company guidance shows that a decreasing number of companies are concerned about input costs, likely due to stronger dollar, declining commodity prices including Oil, and flat healthcare costs. As for interest expense, we estimate the headwind is dampened by rising interest income coming from still large holdings of cash and given favorable debt composition for S&P 500 (89% fixed debt with average maturity of ~11 years). The largest downside risk to our margin/ EPS view is trade escalation (\$8-10 headwind to 2019 EPS) as this should result in lower margins on sales abroad, higher import costs, lower commodity prices, and higher USD (negative foreign profit translation).
- Capital expenditures should grow faster than revenues.** Corporates have been funding CAPEX at a robust pace of ~15% y/y over the last twelve months with little sign of slowing so far, with spending growth led by Tech, Communication and Energy sectors. We expect Capex to grow at a rate of 5-10% with companies continuing to invest for growth (tighter capacity utilization), commodity prices stabilizing/rising, labor market expanding, and continued investment in technology (e.g., cloud, data, 5G, etc). We expect S&P 500 companies will allocate between 35-40% of operating cash flow for maintenance/growth related capex next year (~\$730b). This is ~\$100b higher than companies were spending on average prior to Tax Act (2011-2017). It is also worth noting, since R&D is expensed rather than capitalized, the reinvestment rate is significantly understated. In recent weeks, media headlines suggest corporates have ramped up working-capital and pulled demand by front-loading inventories. Our data suggest this risk is overstated for S&P 500 companies in aggregate. To be more precise, inventory buildup has trailed revenue growth over the past year (inventories for S&P 500 ex-Financials grew by 7% y/y and 3% q/q compared to revenue growth of 11% and 2%, respectively). This implies that corporate inventories could grow further.
- Shareholder return should reach a record ~\$1.3 trillion next year — \$800b buybacks and \$500b dividends.** We expect another record year for gross buybacks

Figure 12: Margins Supported by Operating Leverage

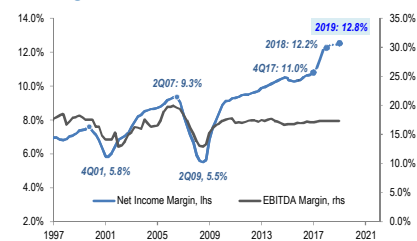


Figure 13: Margins Drivers by Sector

	NI Margin (Avg Last 4Qs)		
	2018	2019	Delta
Energy	6.9%	7.7%	0.8%
Materials	10.9%	10.5%	-0.4%
Industrials	9.8%	9.8%	0.0%
Discretionary	7.4%	7.5%	0.1%
Staples	6.9%	6.9%	0.0%
HealthCare	10.4%	10.3%	-0.1%
Financials	20.2%	20.4%	0.2%
Technology	23.4%	22.7%	-0.7%
Communication Svcs	16.0%	15.7%	-0.3%
Utilities	12.7%	12.9%	0.2%
Real Estate	18.0%	15.7%	-2.4%

Figure 14: Interest Expense Headwind Gradual

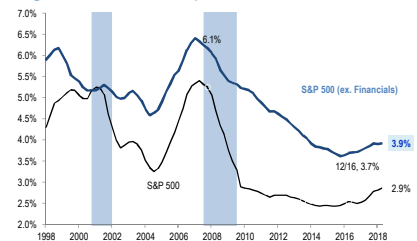
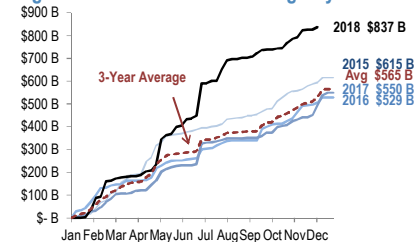


Figure 15: Largest Risk to Margins are Tariffs

	US Tariffs		
	\$50b	\$250b	\$500b
China Tariffs	\$50b	\$250b	\$500b
	\$1.50	\$4.00	\$7.10
	\$2.40	\$4.90	\$8.00
	\$3.00	\$5.50	\$8.60

Figure 16: Another Year of Strong Buybacks



Source: J.P. Morgan US Equity Strategy and Quantitative Research

(\$800b) and dividends (\$500b) on higher profits and cash repatriation. Throughout 2018, US corporates continue to binge on buybacks at an average pace of more than ~\$200b per quarter and slightly ahead of our \$800b estimate from one year ago. Technology (\$245b) and Financials (\$155b) have accounted for 53% of all executed buyback activity YTD (as of 3Q18). Energy (+168%, higher commodity prices and base year effect) and Technology (+125%, cash repatriation) more than doubled their executions this year. Despite higher rates, we expect the buyback binge to continue next year given still higher profits, lower valuation, and the leverage spread (earnings yield vs. bond yield) remaining ample at over ~200bps. Further, buyback executions have trailed announcements throughout the year with the latest reading suggesting the gap is still significant at ~\$200b. Based on these trends, we estimate the forward shareholder yield is near 5.5%, which is still attractive relative to sovereign debt yields. So far, higher shareholder return has been largely funded by internally generated funds and foreign-held cash, while debt funded programs have significantly declined YTD. We estimate US Multinationals repatriated \$340b YTD but still have ~\$1 trillion in cash and investment held abroad. As discussed in our [note](#), we expect cash repatriation to pick-up incrementally as IRS provides more clarity on tax treatment of foreign retained profits ([section 965 transition tax](#)). Macro uncertainties and higher regulatory hurdle resulted in lower than expected M&A activity this year (more growth and tuck-in transactions in the SMid universe than mergers of equals), which kept a lid on equity issuance and corporate leverage.

- **Corporate balance sheets remain healthy. While net debt to assets has risen to prior cycle highs, interest expense relative to profits is near record levels.** Financials are still overcapitalized and corporate cash balances remain near record highs (~\$2tr ex-financials). Given the extended period of low rates with HG bonds yielding 4.7% (cost of debt low) compared to S&P 500 earnings yield of 6.7% (cost of equity high), a case could be made for higher leverage. For reference, corporate leverage was significantly higher prior to the start of deleveraging cycle early 2000.
- **Investor positioning and equity valuation. As volatility normalizes (our Macro QDS team expects VIX to average 15 in 2019), systematic and discretionary funds could add \$500b in demand for equities given very low positioning.** The current hedge fund exposure to equities is below 10%-tile (see Figure 116), which is a stark contrast to end of last year when positioning was very elevated. For instance, Trend followers (CTAs) are net short equities at the moment (beta of -0.35) while fundamental investors have significantly reduced their equity exposure (Global HFs beta declined from 95th %-tile in September to now below 10%-tile, which is one of the largest and fastest declines on record). Similarly, short interest has risen to levels last seen in 2016 (shorts as % of gross, see Figure 121: Equity Hedge Fund L/S Positioning Ratios). Additionally, there has been a large rotation out of equity Growth Momentum factor. It is no longer crowded and now trades at an extreme discount to the market (see Figure 23). **Furthermore, equity valuations are attractive.** S&P 500 now trades at only ~14x ex-cash (~15x based on 2019 earnings), which is below the long-term average and similar to multiples seen during early cycle (see Figure 10). In addition to being cheap in absolute terms, valuation remains low if taken in context of low global interest rates. For instance, over the past 30 years interest rates have averaged almost four times higher than the current average developed market bond yield.
- **Style Positioning—we see Cyclical (in particular Growth stocks) leading style performance in 2019, while Defensive Low Vol/Quality style should lag given its bubble-like valuation and crowded positioning.** The market corrections in February and 4Q2018 (i.e. driven by severe deterioration in investor sentiment, uncertainty around trade, hawkish Fed) have made the existing style dislocations that began in early-2017 even more pronounced. The extreme valuation spread between

Figure 17: Announced vs Buyback Gap >\$200b

S&P 500 Sectors	Buybacks		
	Announced	Executed	Delta
Technology	\$334	\$211	\$123
Financials	\$190	\$117	\$72
Staples	\$44	\$26	\$18
Health Care	\$86	\$78	\$8
Discretionary	\$63	\$55	\$7
Materials	\$17	\$10	\$7
Energy	\$24	\$20	\$5
Industrials	\$59	\$56	\$3
Utilities	\$0	\$2	(\$1)
Comm. Serv.	\$20	\$31	(\$11)
S&P 500	\$837	\$607	\$231

Figure 18: Interest Expense as % of EPS

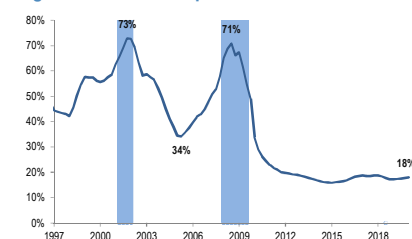


Figure 19: S&P 500 PE has de-rated by ~3 turns

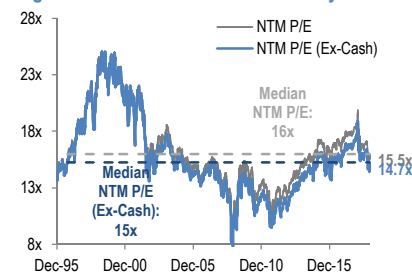


Figure 20: Investor Positioning Declined Sharply

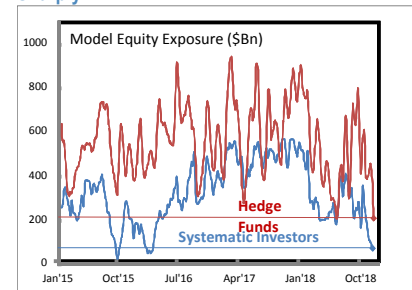
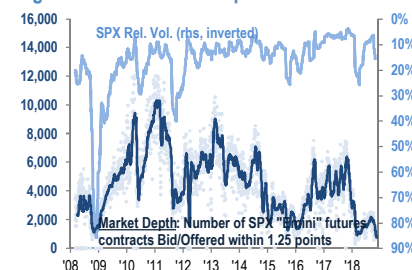


Figure 21: Poor Market Depth



Source: J.P. Morgan US Equity Strategy and Quantitative Research

inflated defensive (Low Vol / Quality) and neglected cyclical (Growth / Value) stocks is starting to price in a recession-like scenario, even though in our view the equity cycle remains intact and fundamentals healthy. The forward P/E spread between Low Vol vs. Value and Low Vol vs. Growth stands at +8.5x (98%-tile) and +2.5x (98%-tile) respectively and has surpassed the extreme levels seen in 2016. Similarly, the valuation of median Utilities stock (18.5x) is above that of Tech (17.1x) and Comm. Services (16.4x). We view the current style dislocation as overdone and inconsistent with the fundamental backdrop. Additionally, there is an increasing case to be made for rotation into cyclical stocks (Growth and Value), which could get magnified especially if there is continued improvement in trade and softening in Fed rhetoric. More specifically, **what could trigger a style rotation?** (1) Growth-based momentum crowding has unwound, while Low Vol stocks are trading at 30-year record high relative valuations. (2) Having decoupled from Momentum, Growth is now very cheap relative to the market (-0.5x, 87%-tile). Historically, Growth at such extreme relative discount has outperformed the market by mid-single digit returns over subsequent 12-months. Value is back to trading at near record discount, which is now at the opposite extreme of Momentum and increasingly becoming aligned with Growth. (3) Our working assumption remains that there is greater probability of a trade deal than tariff escalation in 2019. The recent G20 meeting points to progress in trade talks between US and China. More so, in a pre-election year, the US administration likely cannot afford a falling market, large trade related lay-offs, and fleeing donors. (4) Fed is turning increasingly more dovish which could drive the USD lower and be a significant catalyst for the cyclical trade. The Fed is starting to acknowledge that we may be close to the neutral rate, at a time when the 2nd derivative of inflation has been decelerating, inflation breakevens at 1-year lows, and oil is down ~30% since beginning of 4Q.

- **Sector Positioning**—we anticipate a rotation to Cyclical from Defensives and favor sectors that could benefit from improvements in trade and softening Fed rhetoric (Technology-OW, Discretionary-OW, Industrials-OW, Energy-OW). **Technology** is our highest conviction overweight. We expect the sector to outperform in 2019 as investors once again seek superior growth. Additionally, the sector has de-coupled from the crowded Momentum factor and now trades at attractive valuations (similar to market and cheaper than defensive sectors). Technology also possesses lower sensitivity to macro factors (e.g. rate, USD, oil) and should continue to benefit from elevated buyback activity. Such characteristics are typically sought after by investors in late cycle. We overweight **Consumer Discretionary** as a direct beneficiary of an expanding labor market and wage increases with some incremental upside from potential trade resolution. Tamer inflation and lower oil prices should provide additional relief to lower-middle income bracket and help fuel consumption. Also, there is the potential for higher-than-expected tax refunds in 1H19. We overweight **Industrials** as the most direct way to play trade resolution in 2019 and expect further support from lower USD ([Global FX Strategy 2019](#)), higher energy prices along with the incremental upside from a potential infrastructure spending plan. We overweight **Energy** on earnings growth potential (higher volume and prices) and still cheap valuation. The sector offers an asymmetric payout potential as well as a hedge against inflation and geopolitical risks (e.g. Iran strait closure). Also, the sector has favorable investor positioning with CTAs currently max short Oil. Lastly, this space should be a key beneficiary of a trade deal between US and China through higher demand for US energy complex.
- **We recommend investors avoid defensives (Staples-UW, REITs-UW, Utilities-UW, Healthcare-UW), given increasing crowding concerns, record high relative valuation and low probability of near-term recession.** We see **Utilities and REITs** as particularly vulnerable given rich valuations in spite of low revenue

Figure 22: Low-Vol to Value at 98%-tile

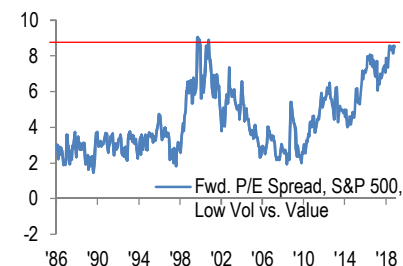


Figure 23: Market to Growth

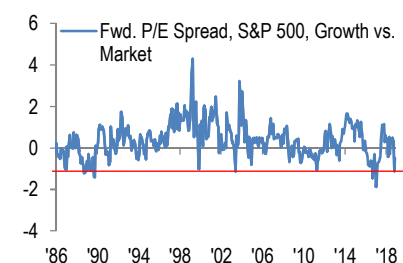


Figure 24: Sector Positioning

	Sector Recommendations		
	Market Cap \$bn	% of Total	Rating
Energy	\$1,241	5.5%	OW
Materials	\$600	2.7%	N
Industrials	\$2,200	9.8%	OW
Discretionary	\$2,458	10.9%	OW
Staples	\$1,931	8.6%	UW
HealthCare	\$3,628	16.1%	UW
Financials	\$2,680	11.9%	N
Technology	\$4,651	20.6%	OW
Communication Svcs	\$2,446	10.8%	N
Utilities	\$734	3.3%	UW
Real Estate	\$682	3.0%	UW

Figure 25: S&P 500 Price and EPS over the Cycle

	S&P 500 Index		S&P 500 EPS		P/E — Contraction/Expansion	
	As of	Level	%	YoY Growth	P/E	Contraction/Expansion
Peak 2007	1,565	10%		\$92.15 4.6%	17.0x	0.9x Contraction
2008	903	-42%		\$61.85 -32.9%	14.6x	-2.4x Contraction
2009	1,115	23%		\$62.02 0.3%	18.0x	3.4x Expansion
2010	1,258	13%		\$85.49 37.8%	14.7x	-3.3x Contraction
2011	1,258	0%		\$97.84 14.4%	12.9x	-1.9x Contraction
2012	1,426	13%		\$103.76 6.1%	13.7x	0.9x Expansion
2013	1,848	30%		\$110.39 6.4%	16.7x	3.0x Expansion
2014	2,059	11%		\$118.83 7.6%	17.3x	0.6x Expansion
2015	2,044	-1%		\$118.20 -0.5%	17.3x	0.0x Flat
2016	2,239	10%		\$119.08 0.7%	18.8x	1.5x Expansion
2017	2,674	19%		\$132.00 10.8%	20.3x	1.5x Expansion
2018	2,696	1%		\$165.00 25.0%	16.3x	-3.9x Contraction
2019	2,696	-7.5%		\$178.00 2.3%	15.1x	-1.6x Contraction
? 2007-19E	1,131	72%		\$85.85 93%	-1.8x	Contraction
CAGR 2007-19E			4.5%	5.5%		

Source: J.P. Morgan US Equity Strategy and Quantitative Research

growth and minimal margin expansion opportunities. Both remain sensitive to rising rates and rising capital costs given high capital intensity. **Staples** are likely to remain in “stagflation” with companies finding it difficult to increase volume and raise prices due to market share erosion and declining pricing power, especially given rising labor, freight, and general overhead costs. We downgrade **Healthcare** to underweight as the sector has benefited from its defensive growth status and seen its relative valuation expand over the last year. While the sector will continue to provide sustainable growth over the long-term, we believe the political rhetoric could turn increasingly more negative on healthcare leading up to the 2020 presidential elections. We take a neutral view on **Financials** as the sector will increasingly come under pressure from flattening yield curve, slower loan growth, rising deposit costs, and higher provisions. On the contrary, the sector should remain supported by cheap valuation and elevated buyback as well as dividend payouts.

Investment Themes

Long Ideas

1. J.P. Morgan Oversold Secular Growth Basket (JPAMOSSG)

Many high quality secular growth stocks have seen significant de-rating and are now trading at sharply lower valuations. The JPAMOSSG basket trades at a multiple of 15.6x and is expected to deliver above consensus topline growth (9%) and earnings growth (16%).

2. J.P. Morgan China/Trade Sensitive Basket (JPAMCNEX)

The basket constituents have high China exposure and high mentions per million of trade/tariff concerns (based on textual analysis of ~2,000 earnings transcripts). The basket is underperforming the market by ~10% YTD and trades above market multiple. It is expected to deliver inline topline growth and slightly better bottom line growth. We expect this basket to outperform as we progress towards trade resolution.

3. J.P. Morgan Oil Beneficiaries Basket (JPAMNRGY)

This basket contains high conviction Energy stocks that our fundamental analysts think are best positioned for an environment where oil stays flat or surprises to the upside from current levels.

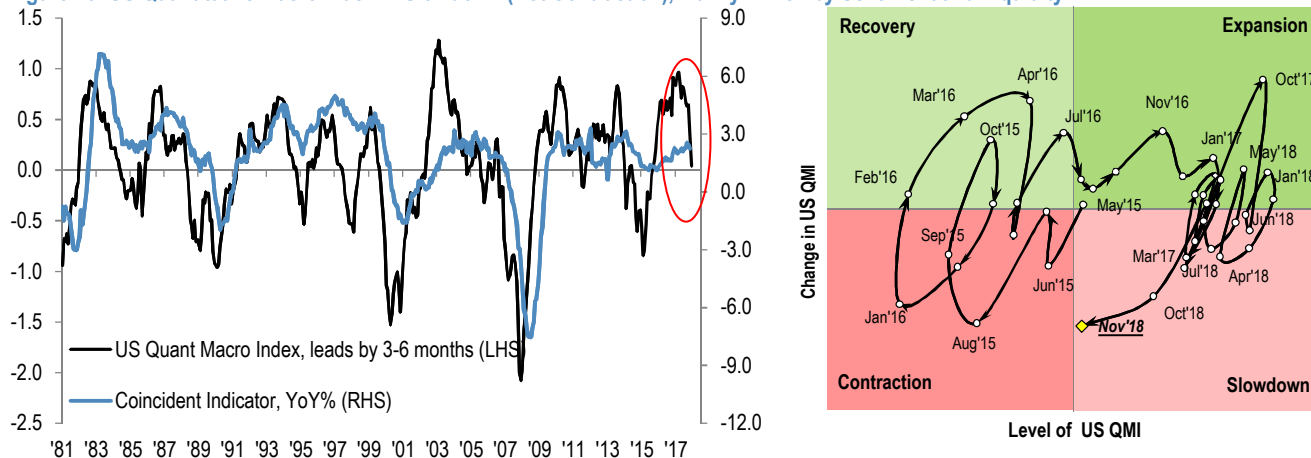
Short Ideas

4. J.P. Morgan Expensive Defensives Basket (JPAMEXDF)

We recommend shorting the defensive (Low Vol) stocks that are currently trading at extreme valuations and possess relatively low growth profile. As sentiment improves, we expect this extreme style dislocation to reverse and the JPAMEXDF basket to underperform.

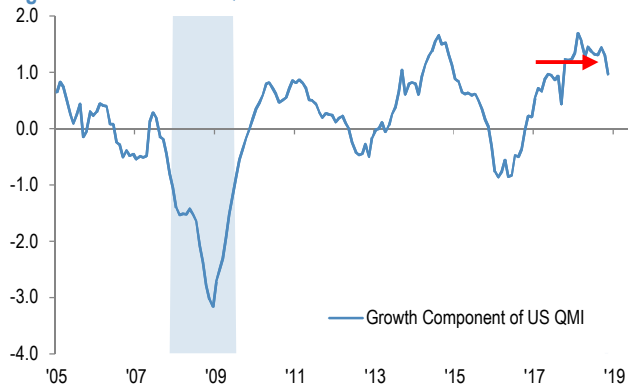
Macro and State of the Business Cycle

Figure 26: US Quantitative Macro Index in Slowdown (Not Contraction), Mainly Driven by Sentiment and Liquidity



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 27: US Growth QMI—Remains elevated



The blue bar show the months of recession.

Figure 28: US Sentiment QMI—Collapsed

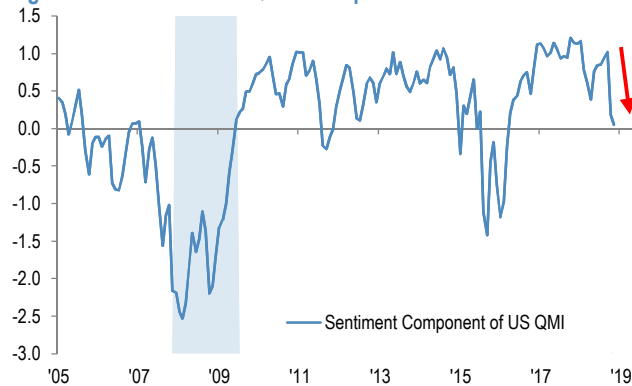
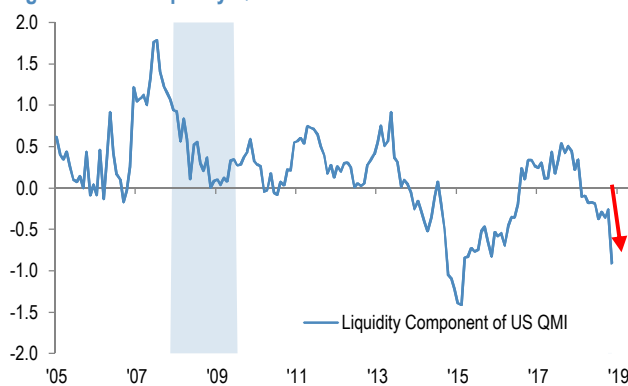


Figure 29: US Liquidity QMI—Remains weak



The blue bar show the months of recession.

Figure 30: US Inflation QMI—Rolling over

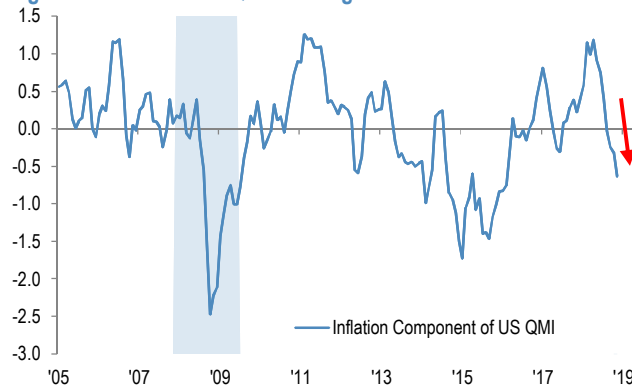
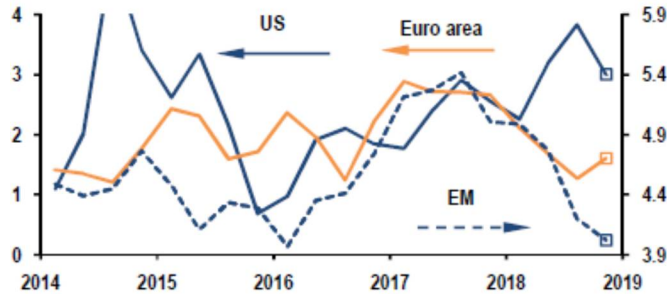


Figure 31: Global Real GDP Growth

% q/q, saar



Source: J.P. Morgan Economic Research, [2019 Global Economic Outlook](#)

Figure 32: J.P. Morgan Global Real GDP Growth

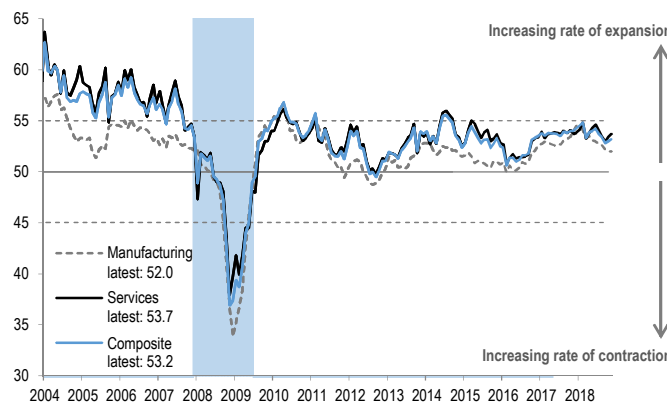
% change Q4/Q4

	2011-16	2017	2018	2019	2020
Global (2.7)	2.8	3.5	3.1	2.9	2.6
DM (1.4)	1.7	2.4	2.3	1.8	1.5
US (1.4)	2.1	2.5	3.1	1.9	1.2
Euro area (1.3)	1.1	2.7	1.6	2.0	1.8
Japan (1.0)	1.1	2.0	0.9	0.4	1.3
UK (1.7)	2.2	1.4	1.5	2.0	1.6
EM (4.7)	4.7	5.1	4.4	4.7	4.4
EM Asia (5.9)	6.3	6.1	5.8	5.6	5.6
China (6.4)	7.3	6.8	6.4	6.1	6.1
India (7.2)	6.9	6.9	7.2	7.2	7.0
...ex. Chn, Ind (2.8)	4.0	4.0	3.5	3.6	3.4
EMEA EM (2.4)	2.4	3.7	1.9	2.6	2.0
Russia (1.3)	0.4	1.2	1.7	1.7	1.3
CEE-4 (3.3)	2.7	5.2	4.5	3.5	2.8
Latam (2.0)	1.1	2.3	0.8	2.7	1.9
Mexico (2.5)	2.7	1.6	2.4	1.8	1.6
Brazil (1.0)	-0.6	2.2	1.4	2.6	2.0

Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 33: Global PMIs Stable

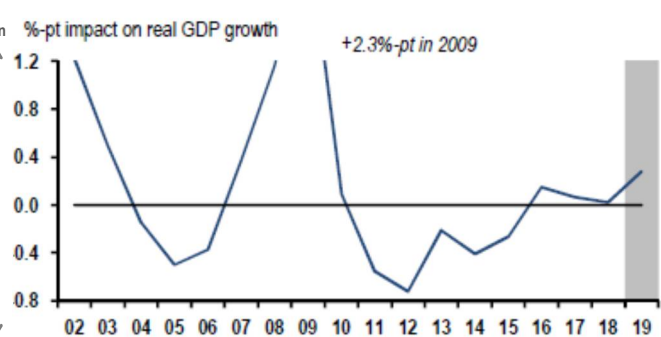
Since 2004



Source: J.P. Morgan US Equity Strategy and Quantitative Research, Bloomberg

Figure 34: Global Fiscal Expansion

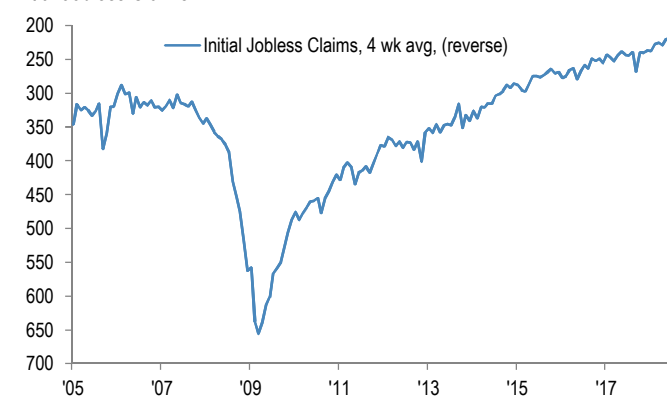
Since 2002



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 35: Robust Labor Market

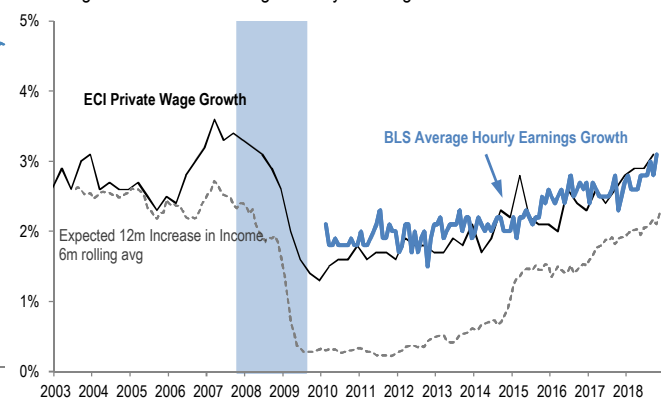
Initial Jobless Claims



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

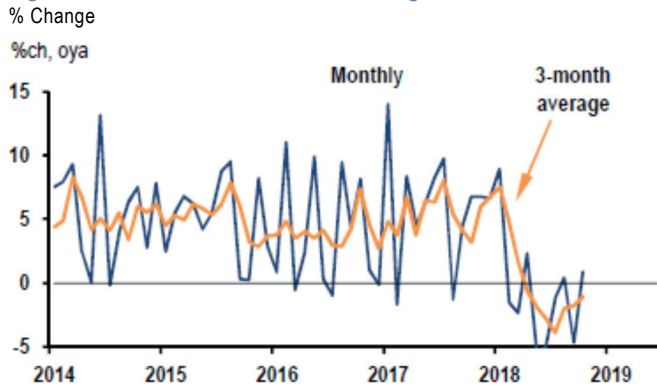
Figure 36: Similarly, Wages Growing at a Measured Pace

BLS Wage Growth and Average Hourly Earnings Growth



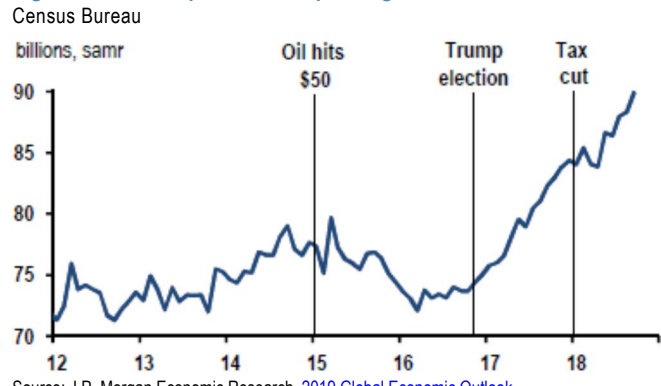
Source: J.P. Morgan US Equity Strategy and Quantitative Research, Bloomberg

Figure 37: Withheld Income Tax Trend – Higher Tax Refunds in 1H19?



Source: J.P. Morgan Economic Research, [2019 Global Economic Outlook](#)

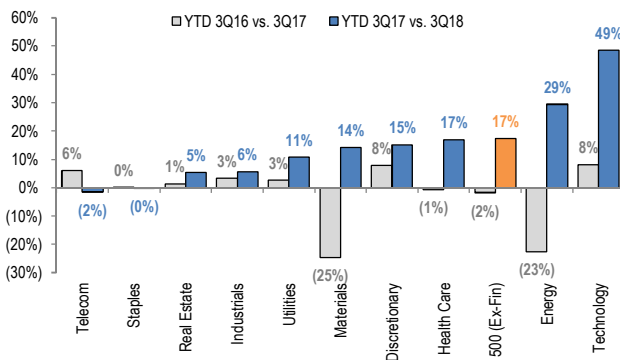
Figure 38: Core Capital Goods Spending



Source: J.P. Morgan Economic Research, [2019 Global Economic Outlook](#)

Figure 39: Companies are Spending: Capital Expenditures

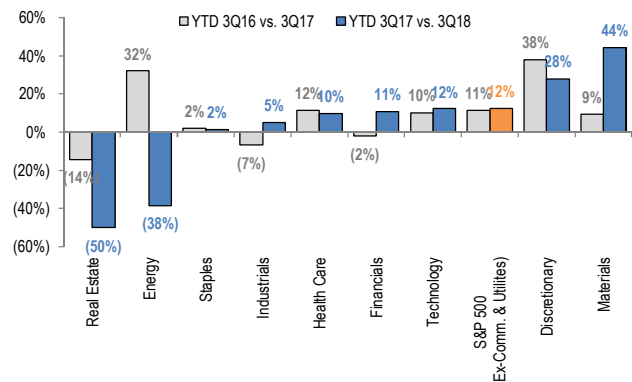
Capex growth of 17% in 2018 YTD



Source: J.P. Morgan US Equity Strategy & Global Quant Research, Factset

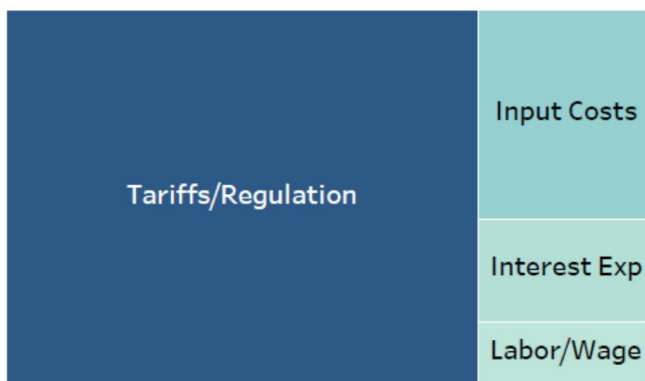
Figure 40: Companies are Spending: R&D

R&D Grew by 12% in 2018 YTD



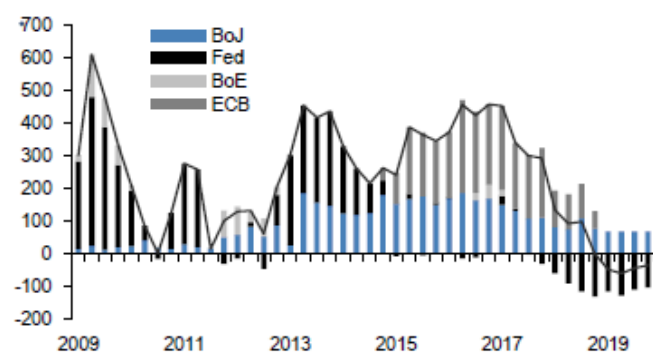
Source: J.P. Morgan US Equity Strategy & Global Quant Research, Factset

Figure 41: Textual Analysis - Tariffs Largest Concern for Corporates
Based on Mentions Per Million Words



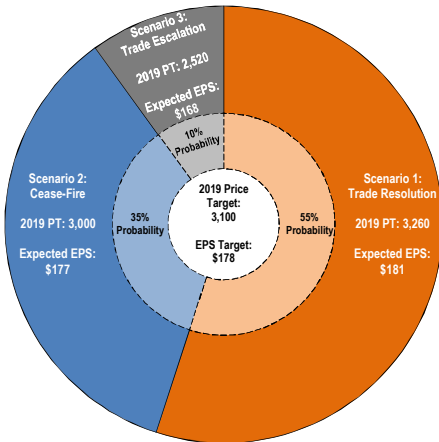
Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

Figure 42: G4 Central Banks Assets Normalizing but at Slower Pace
\$'s in billions



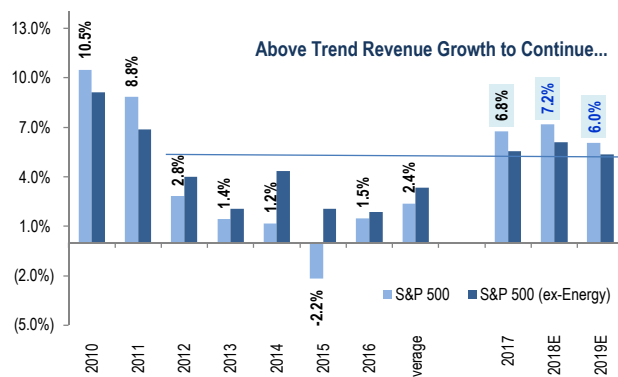
Source: J.P. Morgan US Equity Strategy and Quantitative Research, [2019 Fixed Income Outlook](#)

Figure 44: 2019 S&P 500 Price Target and Expected EPS
Probability Weighted



Source: J.P. Morgan US Equity Strategy and Global Quantitative Research

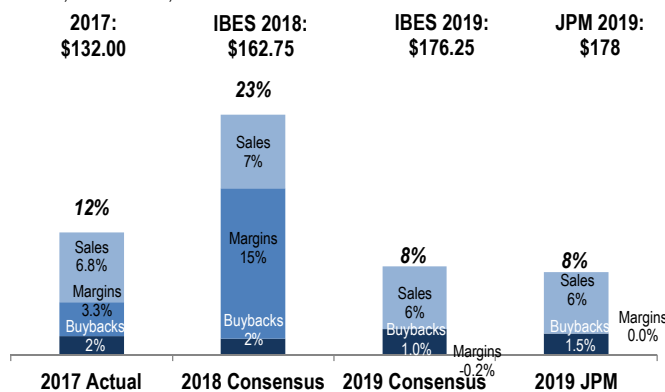
Figure 46: Revenue Growth Should Remain Above Trend at ~6%
'10-17 Actual, '18-19 Consensus Estimate



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, FactSet

Figure 48: EPS Growth Contribution (2017-2019E)

Actual, Consensus, and JPM Estimates



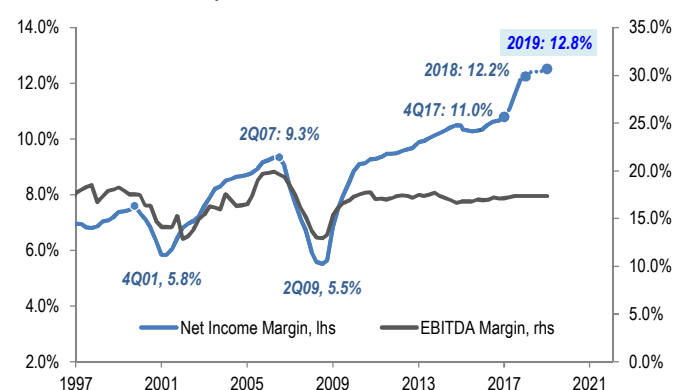
Source: J.P. Morgan US Equity Strategy & Global Quant Research

Figure 45: EPS Scenarios Based on Trade Outcome: Base Case \$178
Trade Escalation (10%), Cease-Fire (\$179), Trade Deal (\$180)

	Escalation	Cease-Fire	Trade Deal	Trade Weighted Base Case	Consensus
Probability	10%	35%	55%		
Sales Y/Y Growth	4.0%	5.0%	6.5%	5.7%	6.0%
Margin Expansion	-50bp	-1bp	6bp	0bp	0bp
Buybacks	\$600	\$700	\$800	\$745	\$580
EPS	\$168	\$177	\$181	\$178	\$176
Y/Y Growth	1.8%	7.3%	9.7%	8.1%	6.8%
P/E Multiple (LTM)	15.0x	17.0x	18.0x	17.4x	—
Implied Upside	2,520	3,009	3,258	3,097	—

Source: J.P. Morgan US Equity Strategy and Global Quantitative Research

Figure 47: Margins Should Expand Driven by Operating Leverage
S&P 500 Actual and Projected



Source: J.P. Morgan US Equity Strategy and Global Quantitative Research

Figure 49: Price and Earnings over the Cycle

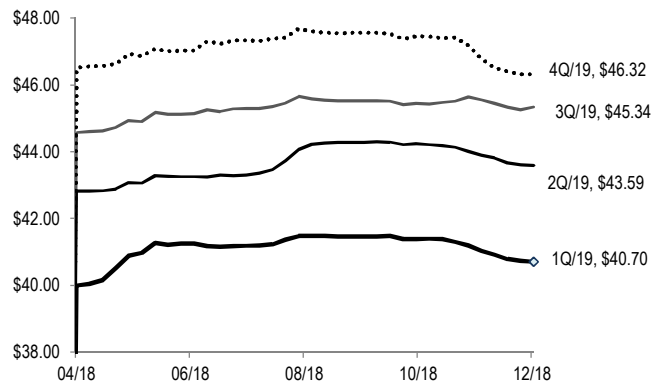
Actual EPS prior to 3Q2018; Consensus IBES Estimate

	S&P 500 Index		S&P 500 EPS		P/E — Contraction/Expansion	
	As of	Level	%	YoY Growth	P/E	Δ
Peak 2007		1,565	10%	\$92.15	17.0x	0.9x
2008		903	-42%	\$61.85	14.6x	-2.4x
2009		1,115	23%	\$62.02	18.0x	3.4x
2010		1,258	13%	\$85.49	14.7x	-3.3x
2011		1,258	0%	\$97.84	12.9x	-1.9x
2012		1,426	13%	\$103.76	13.7x	0.9x
2013		1,848	30%	\$110.39	16.7x	3.0x
2014		2,059	11%	\$118.83	17.3x	0.6x
2015		2,044	-1%	\$118.20	17.3x	0.0x
2016		2,239	10%	\$119.08	18.8x	1.5x
2017		2,674	19%	\$132.00	20.3x	1.5x
2018		2,696	1%	\$165.00	16.3x	-3.9x
2019		2,696	-7.5%	\$178.00	15.1x	-1.6x
Δ 2007-19E		1,131	72%	\$85.85	-1.8x	
CAGR 2007-19E			4.5%	5.5%		

Source: J.P. Morgan US Equity Strategy and Global Quantitative Research

Figure 50: S&P 500 Quarterly EPS: 1Q19 – 4Q19

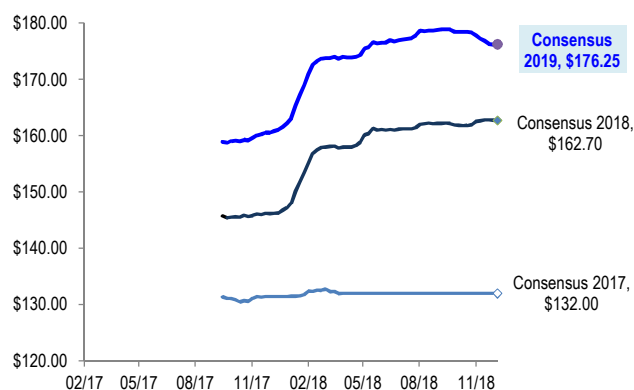
Bottom-up Consensus



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Thomson EPS

Figure 52: S&P 500 Annual EPS: 2017 – 2019

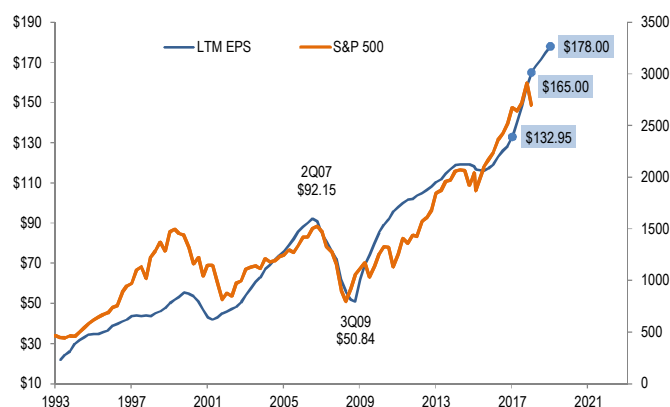
Bottom-up Consensus



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Thomson EPS

Figure 54: S&P 500 EPS Growth vs Index Performance

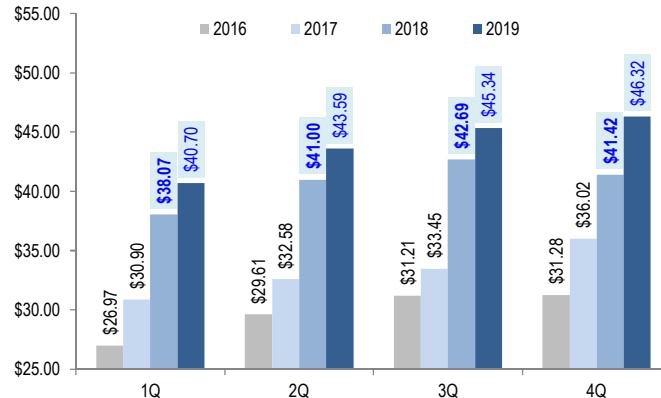
JPMorgan Strategy EPS Estimates for 2018 and 2019



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Thomson EPS

Figure 51: Quarterly EPS Comparison

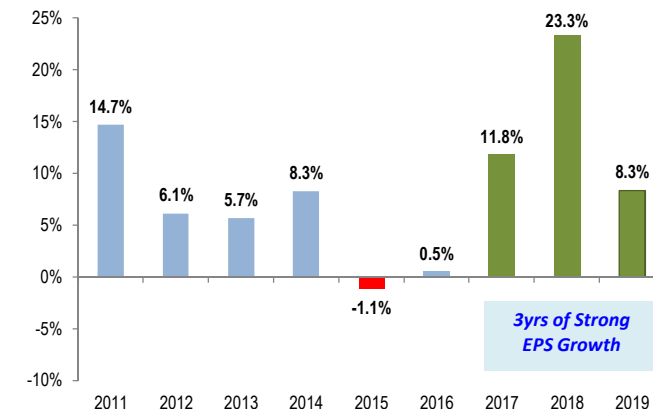
S&P 500 EPS Actual 1Q16-3Q18; Consensus 4Q18-4Q19



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Thomson EPS

Figure 53: Annual EPS Growth Rates

Bottom-up Consensus



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Thomson EPS

Figure 55: Tariffs Single Largest Risk to our EPS Estimate

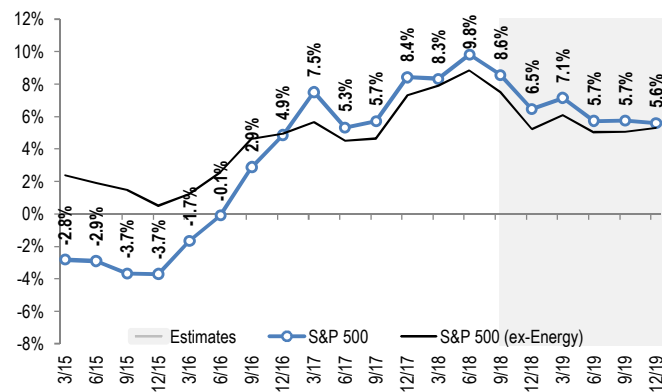
Scenario Analysis

		US Tariffs		
China Tariffs		\$50b	\$250b	\$500b
	\$50b	\$1.50	\$4.00	\$7.10
	\$100b	\$2.40	\$4.90	\$8.00
	\$130b	\$3.00	\$5.50	\$8.60

Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 56: Sales Growth by Quarter

Actual and Estimates



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

Figure 57: Sales Growth Contribution

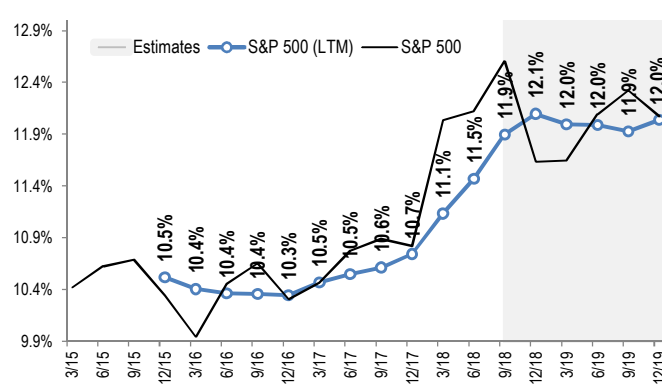
Actual and Estimates

	S&P 500 Sales				Sales Contribution		
	2017	2018E	2019E	% of Total	Sales Δ (\$)	% Chg	to Sales Growth
Energy	\$932	\$1,103	\$1,243	9.9%	\$140	12.7%	19%
Materials	\$312	\$366	\$396	3.1%	\$30	8.1%	4%
Industrials	\$1,298	\$1,403	\$1,475	11.7%	\$71	5.1%	10%
Discretionary	\$1,441	\$1,545	\$1,632	13.0%	\$87	5.6%	12%
Staples	\$1,462	\$1,517	\$1,567	12.4%	\$50	3.3%	7%
HealthCare	\$1,958	\$2,091	\$2,241	17.8%	\$150	7.2%	21%
Financials	\$1,402	\$1,477	\$1,524	12.1%	\$47	3.2%	7%
Technology	\$1,122	\$1,234	\$1,286	10.2%	\$52	4.2%	7%
Communication Svc	\$747	\$835	\$918	7.3%	\$83	9.9%	12%
Utilities	\$309	\$311	\$319	2.5%	\$8	2.6%	1%
Real Estate	\$94	\$106	\$111	0.9%	\$5	4.3%	1%
S&P 500	\$10,982	\$11,884	\$12,602	100%	\$719	6.0%	100%
Ex-Energy	\$10,050	\$10,780	\$11,359	90%	\$579	5.4%	81%

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

Figure 58: Net Income Margin by Quarter

Actual and Estimates



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

Figure 59: Margin Expectations by Sector

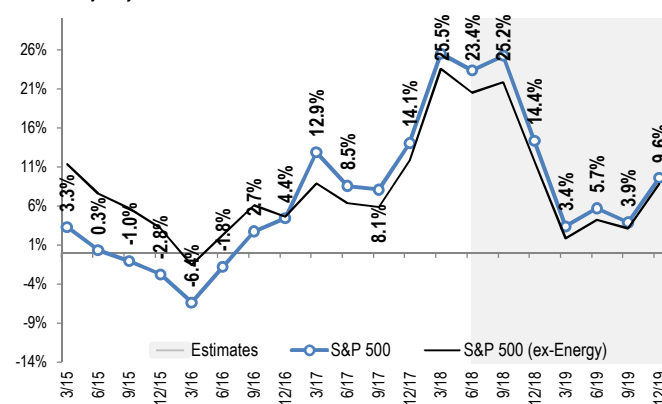
S&P 500 Actual and Projected

	Market Cap		NI Margin (Avg Last 4Qs)		
	\$'s in billions	% of Total	2018	2019	Delta
Energy	\$1,241	5.5%	6.9%	7.7%	0.8%
Materials	\$600	2.7%	10.9%	10.5%	-0.4%
Industrials	\$2,200	9.8%	9.8%	9.8%	0.0%
Discretionary	\$2,458	10.9%	7.4%	7.5%	0.1%
Staples	\$1,931	8.6%	6.9%	6.9%	0.0%
HealthCare	\$3,628	16.1%	10.4%	10.3%	-0.1%
Financials	\$2,680	11.9%	20.2%	20.4%	0.2%
Technology	\$4,651	20.6%	23.4%	22.7%	-0.7%
Communication Svcs	\$2,446	10.8%	16.0%	15.7%	-0.3%
Utilities	\$734	3.3%	12.7%	12.9%	0.2%
Real Estate	\$682	3.0%	18.0%	15.7%	-2.4%
S&P 500	\$22,568	100.0%	12.1%	12.0%	-0.1%
Ex-Energy	\$21,328	94.5%	12.6%	12.5%	-0.1%

Source: J.P. Morgan US Equity Strategy and Global Quantitative Research

Figure 60: Net Income Growth by Quarter

Probability Adjusted Growth Rates



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, FactSet

Figure 61: S&P 500 Earnings Growth Contribution

Actual and Estimates

	S&P 500 Earnings				Earnings Contribution		
	2017	2018E	2019E	% of Total	Sales Δ (\$)	% Chg	to Earnings Growth
Energy	\$38	\$77	\$96	6.5%	\$20	25.7%	24%
Materials	\$27	\$37	\$39	2.6%	\$2	4.3%	2%
Industrials	\$112	\$134	\$142	9.6%	\$7	5.4%	9%
Discretionary	\$98	\$115	\$123	8.4%	\$8	7.2%	10%
Staples	\$97	\$105	\$108	7.4%	\$4	3.4%	4%
HealthCare	\$190	\$217	\$231	15.7%	\$14	6.4%	17%
Financials	\$198	\$247	\$258	17.5%	\$12	4.7%	14%
Technology	\$239	\$289	\$292	19.8%	\$4	1.2%	4%
Communication	\$105	\$134	\$144	9.8%	\$10	7.9%	13%
Utilities	\$34	\$37	\$39	2.6%	\$2	4.7%	2%
Real Estate	\$18	\$19	\$17	1.2%	(\$2)	-9.3%	-2%
S&P 500	\$1,139	\$1,392	\$1,473	100%	\$82	5.9%	100%
Ex-Energy	\$1,101	\$1,315	\$1,377	93%	\$62	4.7%	76%

Source: J.P. Morgan US Equity Strategy & Global Quant Research

Margin Outlook: Expansion to Continue

Figure 62: Net Income Margins by Sector

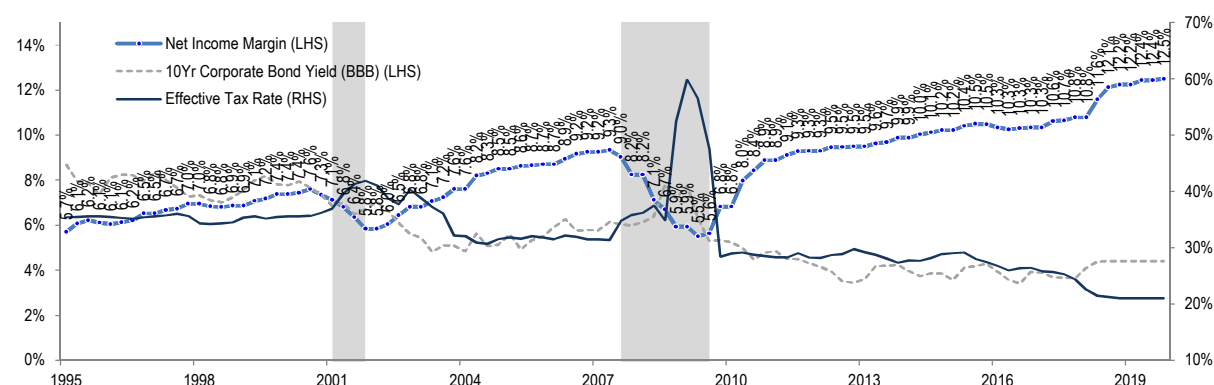
	Actual Net Income Margin						Consensus Bottom-up Estimate				
	2017/2C	2017/3C	2017/4C	2018/1C	2018/2C	2018/3C	2018/4C	2019/1C	2019/2C	2019/3C	2019/4C
Energy	3.5%	4.4%	4.4%	6.3%	6.5%	7.9%	7.0%	7.2%	7.7%	8.2%	7.8%
Materials	9.8%	9.3%	9.4%	10.8%	12.3%	10.5%	9.9%	10.2%	11.4%	10.4%	10.2%
Industrials	9.6%	9.2%	8.2%	9.1%	10.3%	10.1%	9.4%	8.8%	10.2%	10.1%	10.0%
Discretionary	7.0%	7.3%	6.5%	6.9%	7.8%	8.3%	6.8%	6.6%	7.8%	8.4%	7.3%
Staples	6.7%	6.8%	6.8%	6.6%	7.1%	7.2%	6.7%	6.5%	7.1%	7.1%	6.9%
HealthCare	9.9%	10.0%	9.4%	10.5%	10.8%	10.7%	9.7%	10.5%	10.5%	10.5%	9.9%
Financials	17.3%	15.7%	17.4%	20.9%	20.0%	20.1%	19.9%	20.6%	20.3%	20.2%	20.6%
Technology	20.6%	21.3%	22.8%	22.9%	23.4%	23.9%	23.4%	22.0%	22.2%	22.8%	23.7%
Telecom	13.2%	14.7%	14.2%	17.2%	14.4%	17.2%	15.3%	15.2%	16.0%	16.0%	15.6%
Utilities	11.2%	14.0%	10.1%	13.1%	12.4%	15.5%	9.6%	12.6%	11.8%	15.7%	11.2%
S&P 500	10.8%	10.9%	10.8%	12.0%	12.1%	12.6%	11.6%	11.6%	12.1%	12.3%	12.1%
ex-Energy	11.5%	11.5%	11.4%	12.6%	12.7%	13.1%	12.1%	12.1%	12.6%	12.8%	12.6%

	Incremental Net Margin — YoY Change in BP										
	2017/2C	2017/3C	2017/4C	2018/1C	2018/2C	2018/3C	2018/4C	2019/1C	2019/2C	2019/3C	2019/4C
Energy	248bp	237bp	220bp	245bp	298bp	357bp	252bp	92bp	123bp	25bp	86bp
Materials	-313bp	-15bp	230bp	260bp	254bp	125bp	53bp	-57bp	-99bp	-12bp	26bp
Industrials	28bp	-44bp	-77bp	97bp	71bp	83bp	128bp	-37bp	-14bp	0bp	58bp
Discretionary	-16bp	-12bp	1bp	41bp	71bp	100bp	35bp	-22bp	1bp	10bp	49bp
Staples	11bp	-1bp	25bp	31bp	41bp	40bp	-5bp	-10bp	-2bp	-3bp	18bp
HealthCare	23bp	23bp	13bp	75bp	87bp	72bp	36bp	0bp	-29bp	-22bp	18bp
Financials	97bp	-129bp	159bp	342bp	263bp	443bp	245bp	-31bp	29bp	7bp	69bp
Technology	243bp	226bp	200bp	274bp	278bp	264bp	60bp	-95bp	-116bp	-109bp	35bp
Telecom	-326bp	38bp	-49bp	302bp	117bp	251bp	106bp	-195bp	156bp	-121bp	30bp
Utilities	-28bp	-7bp	81bp	135bp	118bp	151bp	-45bp	-45bp	-54bp	18bp	156bp
S&P 500	32bp	23bp	52bp	157bp	135bp	172bp	81bp	-39bp	-3bp	-28bp	44bp
ex-Energy	20bp	13bp	44bp	151bp	125bp	160bp	71bp	-47bp	-13bp	-31bp	41bp

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

Figure 63: S&P 500 Net Income Margins have Steadily Risen Supported by Monetary/Fiscal Policy

Actual and Estimated Operating Net Income Margin, Effective Tax Rate, and Corporate Bond Yield

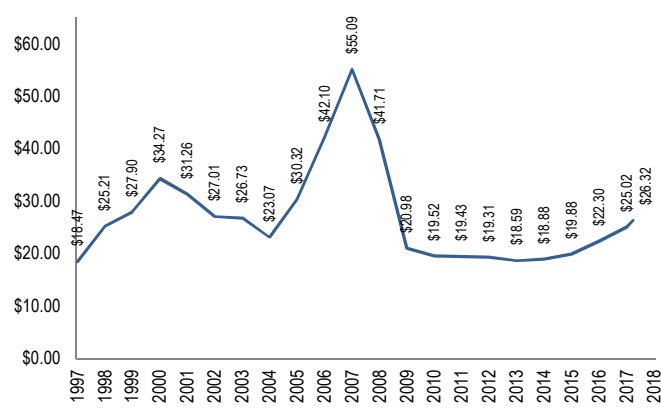


Source: J.P. Morgan US Equity Strategy and Quantitative Research

Margin Headwind: Rising Rates a Gradual Headwind

Figure 64: Interest Expense Is Down from \$55.09 in '07 to \$26.32

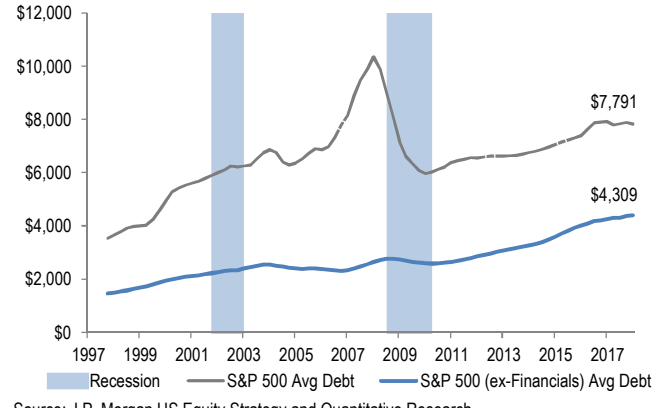
S&P 500



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 65: ...Despite Rising Total Debt

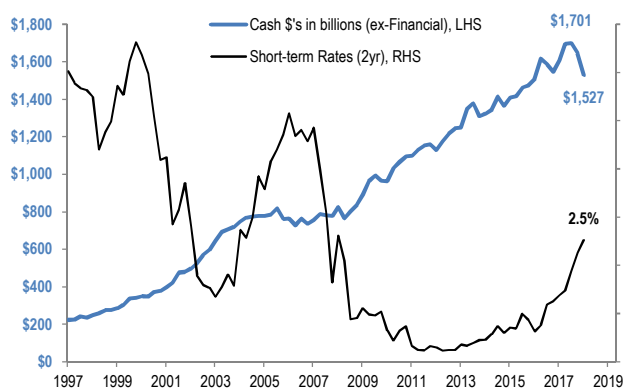
\$'s in billions, ex-Financials



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 66: Net Interest Expense Offset by Rising Interest Income

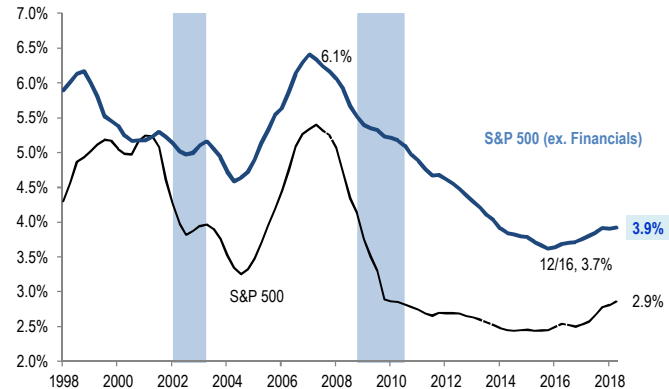
S&P 500 ex-Financials



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 67: ...Resulting in a Gradual Increase in Implied Interest Rate

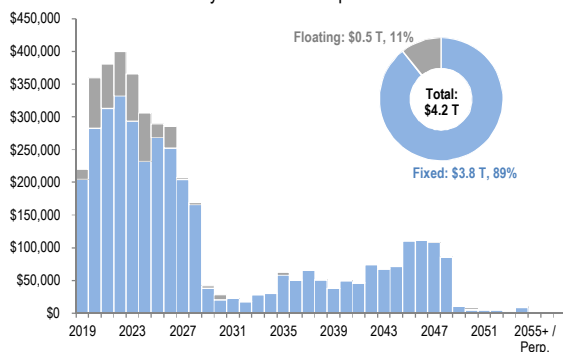
Net Interest Expense/Total Debt



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 68: S&P 500 Long Term Debt Schedule (ex Financials)

Debt securities issued by S&P 500 companies and their subsidiaries



Source: J.P. Morgan US Equity Strategy and Quantitative Research, Factset

Figure 69: S&P 500 Long Term Debt Schedule by Sector

Debt securities issued by S&P 500 companies and their subsidiaries

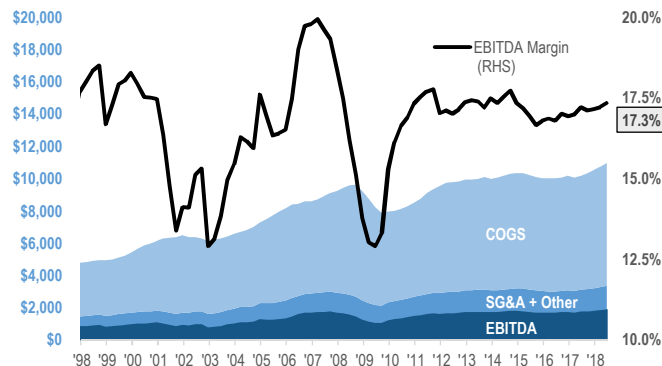
												2029 & Beyond	% of Total Debt 2029+	Wighted Avg Maturity
# in billions	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029 & Beyond	Total Debt	% of Total	Maturity
Defensives	\$116	\$132	\$129	\$129	\$122	\$80	\$102	\$89	\$63	\$63	\$521	\$1,545	34%	11.3
Health Care	46	65	61	68	58	38	65	42	25	33	182	665	27%	10.0
Staples	39	36	36	35	35	22	19	24	18	13	95	373	26%	9.2
Utilities	29	31	31	25	30	20	19	23	20	18	243	467	50%	14.8
Cyclicals	\$138	\$179	\$206	\$215	\$192	\$140	\$158	\$125	\$114	\$83	\$609	\$2,159	28%	10.3
Comm. Serv.	26	30	48	52	35	41	43	35	19	25	228	583	39%	12.7
Technology	46	57	55	61	55	39	48	29	35	9	125	558	22%	9.1
Industrials	31	43	46	45	46	27	32	27	24	30	139	490	28%	10.3
Discretionary	25	36	47	42	41	26	29	29	27	16	84	400	21%	8.9
Materials	11	12	10	15	14	8	7	5	9	3	34	127	25%	9.8
Other	\$28	\$40	\$46	\$60	\$53	\$34	\$41	\$41	\$31	\$23	\$138	\$535	26%	9.8
Energy	17	21	22	31	20	16	19	19	14	13	104	295	35%	11.3
Real Estate	11	19	24	29	33	18	22	22	18	11	34	240	14%	8.0
S&P 500 ex Fin	\$282	\$350	\$380	\$404	\$367	\$254	\$302	\$256	\$208	\$169	\$1,267	\$4,239	30%	10.6
% of total ex Fin	7%	8%	9%	10%	9%	6%	7%	6%	5%	4%	30%	-	-	-
Financials	92	100	147	80	79	73	54	58	34	37	550	1,305	42%	13.8
S&P 500	\$374	\$450	\$527	\$484	\$446	\$326	\$356	\$314	\$242	\$206	\$1,818	\$5,545	33%	11.4
% of Total	7%	8%	10%	9%	8%	6%	6%	6%	4%	4%	33%	-	-	-

Source: J.P. Morgan US Equity Strategy and Quantitative Research, Factset

Offset by Ample Operating Leverage

Figure 70: S&P 500 EBITDA Margin

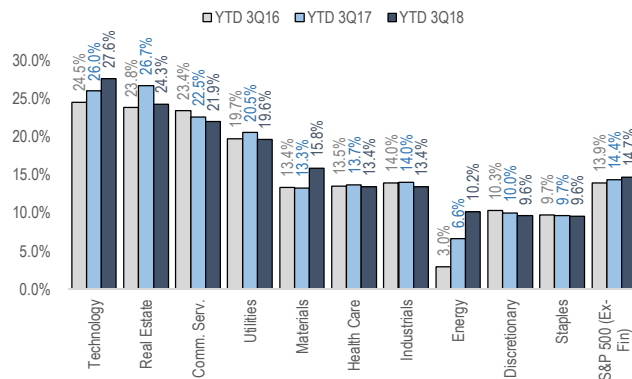
Actual since 1998



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Factset

Figure 71: S&P 500 EBIT Margin (Ex-Financials)

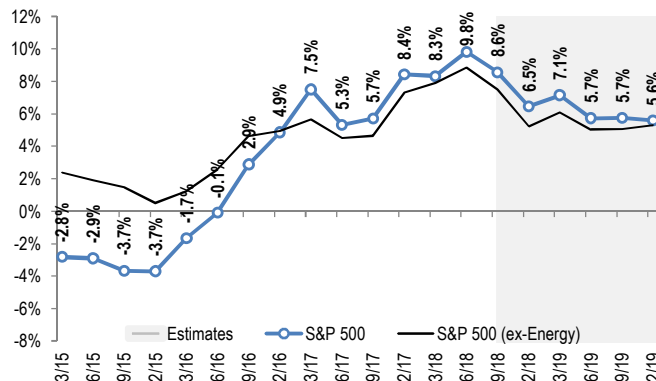
YTD 3Q18 vs YTD 3Q17 vs YTD 3Q16



Source: J.P. Morgan US Equity Strategy & Global Quant Research, Factset

Figure 72: S&P 500 Sales Growth (Bottom-up)

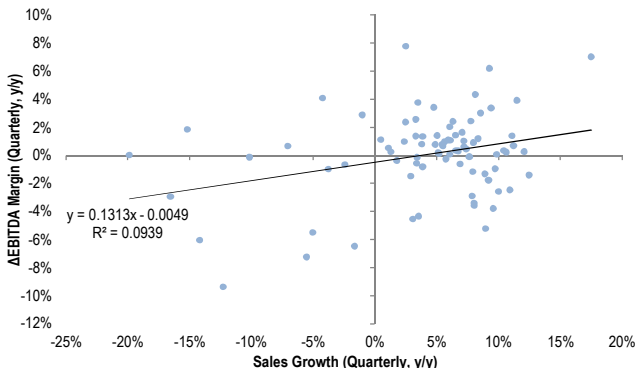
Current Constituents



Source: J.P. Morgan and Bloomberg

Figure 73: Correlation of Sales Growth and Margin Expansion

S&P 500 since 1995



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

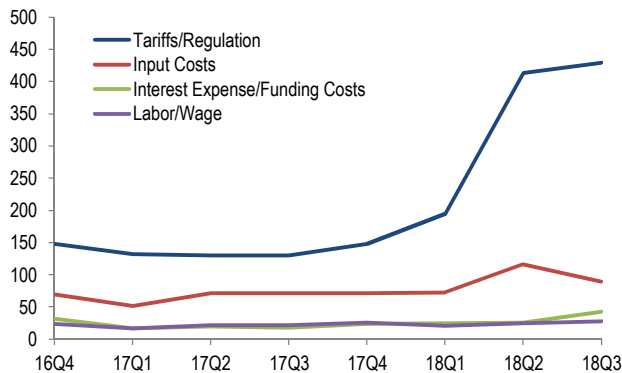
Figure 74: S&P 500 EBITDA Margin Below Previous Cycle Peaks (LTM)

Sector / Sub-Sector	2000		2007		Average Peak	Now (2Q18)	Delta
	Peak Margin	Quarter	Peak Margin	Quarter			
S&P 500	18.5%	3Q 98	19.9%	1Q 07	19.2%	17.3%	(1.9%)
Energy	34.0%	4Q 99	21.8%	2Q 07	27.9%	16.4%	(11.5%)
Materials	18.2%	4Q 00	19.2%	1Q 07	18.7%	21.3%	2.6%
Industrials	11.7%	4Q 99	18.4%	3Q 06	15.1%	14.5%	(0.6%)
Capital Goods	9.8%	4Q 00	20.5%	4Q 07	15.1%	16.4%	1.2%
Commercial & Professional Services	27.9%	3Q 98	30.8%	4Q 04	29.4%	26.0%	(3.4%)
Transportation	21.8%	1Q 98	7.6%	1Q 03	14.7%	2.8%	(11.9%)
Discretionary	17.1%	3Q 98	13.0%	4Q 04	15.1%	12.8%	(2.3%)
Automobiles & Components	24.3%	4Q 98	9.5%	3Q 07	16.9%	10.2%	(6.8%)
Consumer Durables & Apparel	12.7%	3Q 00	19.3%	2Q 06	16.0%	9.1%	(6.9%)
Consumer Services	23.9%	3Q 99	23.5%	3Q 03	23.7%	25.2%	1.4%
Retailing	11.4%	3Q 98	11.6%	4Q 04	11.5%	12.6%	1.1%
Staples	25.8%	2Q 99	17.7%	2Q 06	21.7%	10.9%	(10.8%)
Food & Staples Retailing	13.4%	2Q 99	25.7%	1Q 04	19.6%	5.7%	(13.8%)
Food, Beverage & Tobacco	34.7%	1Q 01	23.8%	1Q 03	29.3%	19.3%	(10.0%)
Household & Personal Products	26.8%	2Q 99	24.5%	4Q 05	25.7%	20.4%	(5.3%)
HealthCare	23.2%	1Q 99	16.4%	3Q 03	19.8%	14.6%	(5.2%)
Health Care Equipment & Services	17.6%	1Q 99	9.1%	2Q 06	13.4%	8.2%	(5.2%)
Pharmaceuticals, Biotechnology & Life Sciences	31.9%	3Q 00	35.9%	3Q 04	33.9%	35.8%	1.9%
Financials	30.4%	4Q 00	32.6%	2Q 07	31.5%	18.1%	(13.5%)
Banks	33.8%	4Q 01	55.5%	2Q 04	44.6%	43.4%	(1.2%)
Diversified Financials	56.7%	4Q 98	43.4%	2Q 07	50.0%	15.1%	(34.9%)
Insurance	24.2%	3Q 98	15.5%	2Q 05	19.9%	(5.9%)	(25.8%)
Technology	23.7%	4Q 99	20.2%	1Q 07	21.9%	28.4%	6.5%
Software & Services	31.2%	2Q 98	27.7%	4Q 07	29.5%	25.5%	(4.0%)
Technology Hardware & Equipment	23.3%	2Q 99	15.9%	4Q 06	19.6%	25.9%	6.3%
Semiconductors & Semiconductor Equipment	—	—	35.8%	3Q 04	35.8%	41.6%	5.7%
Communication Services	25.6%	1997/2C	35.6%	1Q 07	30.6%	32.5%	1.9%
Telecommunication Services	25.6%	2Q 97	35.6%	1Q 07	30.6%	32.5%	1.9%
Media & Entertainment	29.0%	3Q 98	33.2%	2Q 04	31.1%	17.6%	(13.4%)

Source: J.P. Morgan US Equity Strategy & Global Quant Research, Factset

Largest Risks to Our View: Trade War

Figure 75: Trade War the Single Largest Risk to Corporate Sentiment
Mentions per Million Words (MPM)



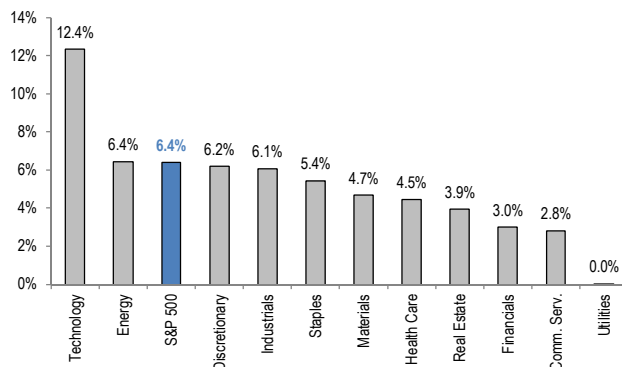
Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 77: Sector Exposure based on Textual Analysis
Mentions per Million Words (MPM)

Sector	16Q4	17Q1	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3
Industrials	205	206	207	209	274	407	904	917
Staples	262	324	296	285	325	353	643	690
Discretionary	220	162	155	187	217	285	605	615
Materials	329	337	339	416	361	431	601	600
S&P 500	148	132	130	130	148	195	413	429
Technology	107	93	96	84	112	92	337	386
Health Care	113	68	53	65	56	128	275	328
Energy	188	157	180	145	164	136	213	149
Real Estate	55	133	86	44	66	175	242	133
Utilities	99	49	66	73	67	69	83	106
Financials	24	13	23	14	22	44	88	41

Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 79: Revenue Exposure to China (Market-Cap Weighted)



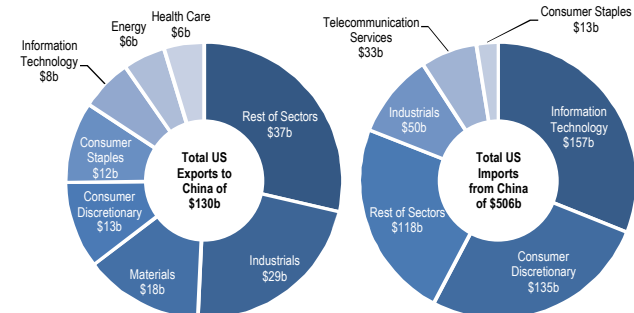
Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 76: S&P 500 EPS Impact
Scenario Analysis

		US Tariffs		
		\$50b	\$250b	\$500b
China Tariffs	\$50b	\$1.50	\$4.00	\$7.10
	\$100b	\$2.40	\$4.90	\$8.00
	\$130b	\$3.00	\$5.50	\$8.60

Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 78: Sector Exposure based US-China Trade Data
Exports (Industrials, Materials, Discretionary); Imports (Tech, Discretionary)



Source: J.P. Morgan Equity and Quantitative Research

Figure 80: Impact of Chinese Tariffs on US Exports for S&P 500

\$ in millions	US Exports to China - Tariff Scenario		
	\$50,000	\$100,000	\$130,000
Incremental \$ Amt of Tariff	\$50,000	\$50,000	\$30,000
% Tariff	25%	25%	25%
S&P 500 Exposure to US Exports to China	80%	80%	80%
\$ Amt Yr1 Tariff paid by S&P 500 Companies	\$10,000	\$10,000	\$6,000
Pricing Power: Corporate Pass Through to End-Users	20%	20%	20%
\$ Amt Corporates	\$8,000	\$8,000	\$4,800
S&P 500 Divisor	\$8,470	\$8,470	\$8,470
\$ EPS Impact - Incremental (Full-Year)	\$0.90	\$0.90	\$0.60
\$ EPS Impact - Cumulative (Full-Year)	\$0.90	\$1.80	\$2.40

\$ in millions	US Imports from China - Tariff Scenario		
	\$50,000	\$250,000	\$500,000
\$ Amt of Tariff	\$50,000	\$200,000	\$250,000
% Tariff	25%	25%	25%
S&P 500 Exposure to US Imports from China	60%	60%	60%
\$ Amt Yr1 Tariff	\$7,500	\$30,000	\$37,500
Pricing Power: Corporate Pass Through to End-Users	30%	30%	30%
\$ Amt Corporates	\$5,250	\$21,000	\$26,250
S&P 500 Divisor	\$8,470	\$8,470	\$8,470
\$ EPS Impact - Incremental (Full-Year)	\$0.60	\$2.50	\$3.10
\$ EPS Impact - Cumulative (Full-Year)	\$0.60	\$3.10	\$6.20

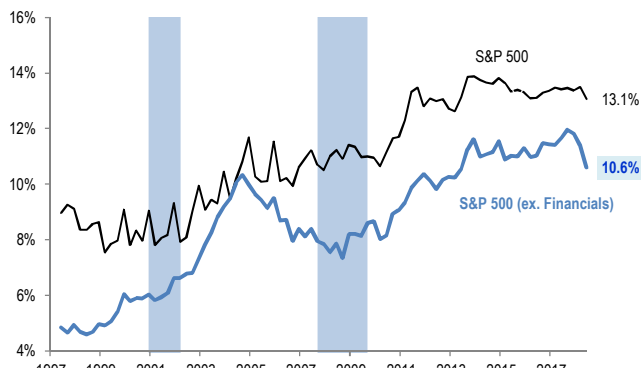
\$ Total EPS Impact (Full-Year)	\$1.50	\$4.90	\$8.60
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Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Factset

Corporate Balance Sheets Still Healthy

Figure 81: Cash Balance Still High

Cash as % of Total Assets



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Factset

Figure 82: Cash Held Overseas

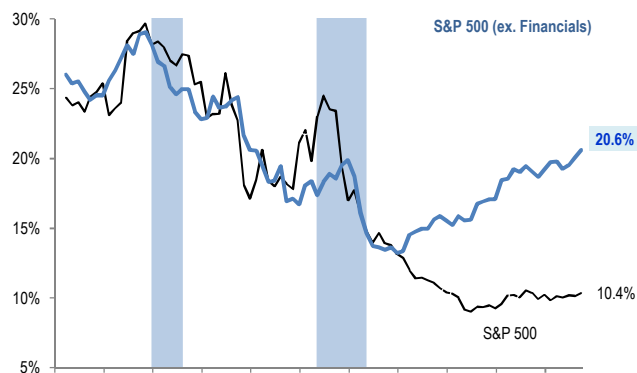
S&P 500

S&P 500 Sectors	Overseas Cash		
	1Q	Current	Delta
Energy	\$33,391	\$29,286	(\$4,105)
Materials	\$22,632	\$14,447	(\$8,185)
Consumer Staples	\$77,395	\$58,797	(\$18,598)
Consumer Discretionary	\$84,756	\$60,220	(\$24,536)
Industrials	\$102,614	\$74,674	(\$27,940)
Health Care	\$189,875	\$114,346	(\$75,529)
Information Technology	\$764,527	\$585,027	(\$179,500)
Total	\$1,275,190	\$936,798	(\$338,392)

Source: J.P. Morgan US Equity Strategy and Quantitative Research, Bloomberg

Figure 83: A Long Deleveraging Cycle that Began in Early 2000's

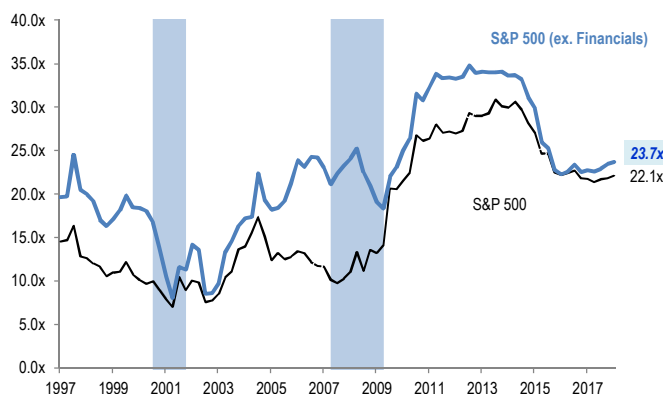
Net Debt to Total Assets



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Factset

Figure 85: Interest Coverage: EBIT to Interest Expense

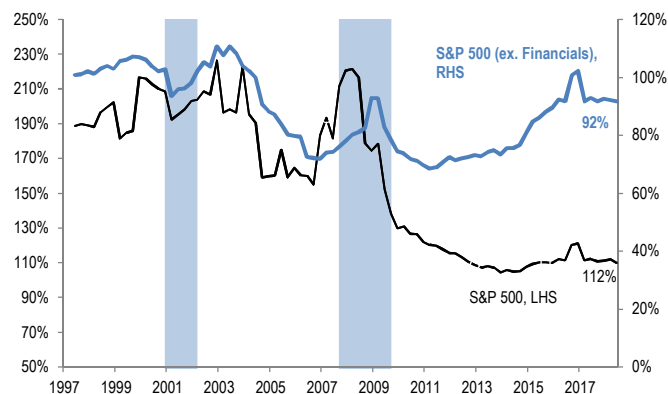
S&P 500 and S&P 500 ex-Financials



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Factset

Figure 84: Debt to Equity Higher Ex-Financials

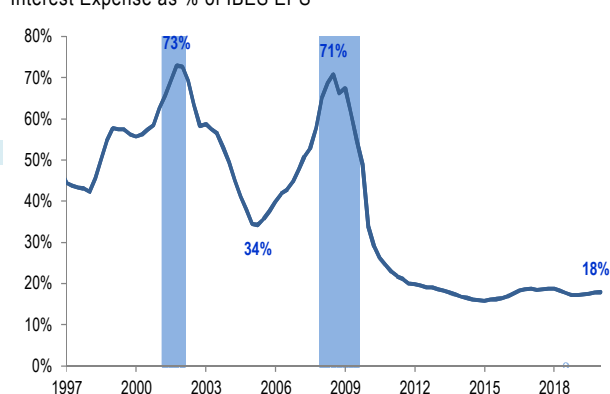
S&P 500 and S&P 500 ex-Financials



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research,

Figure 86: Interest Expense % of Earnings Near Record Low

Interest Expense as % of IBES EPS

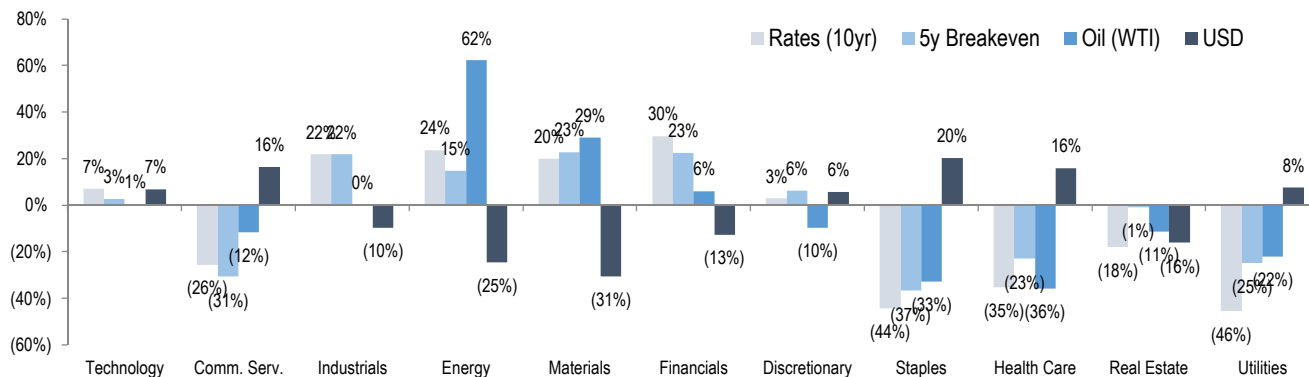


Source: J.P. Morgan US Equity Strategy & Global Quantitative Research

Sector Metrics and Fundamentals

Figure 87: Macro Correlations for S&P 500 Sectors

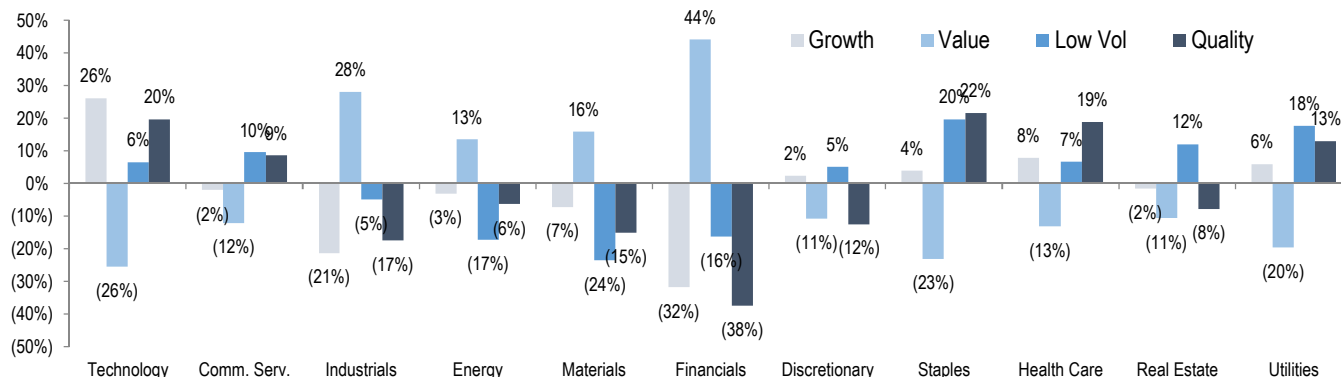
USD, Rates, Oil, Breakeven



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 88: Macro Correlations for Factors

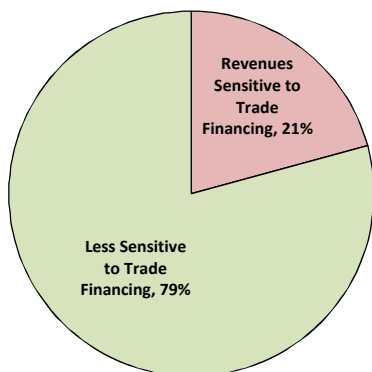
Growth, Value, Low-Vol, Quality



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 89: Rising Trade Financing Cost

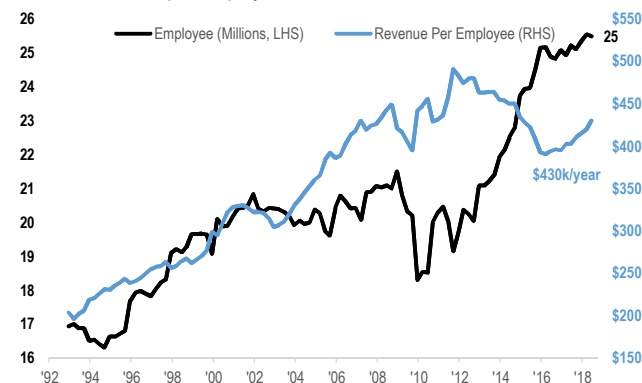
~1/5th of S&P 500 Exposed to Sale of Capital Equipment



Source: J.P. Morgan US Equity Strategy & Global Quant Research

Figure 90: Room for Productivity Growth, however, Companies tied to Lower-end Wages Could see some Pressure

S&P 500 Revenue per Employee



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 91: Sales Growth, Net Income Margin, Earnings Growth, and Valuation

	Market Cap		Sales Growth						NI Margin (Avg Last 4Qs)			Earnings Growth						Valuation — PE	
	\$'s in billions	% of Total	2019/1C	2019/2C	2019/3C	2019/4C	2018	2019	2018	2019	Delta	2019/1C	2019/2C	2019/3C	2019/4C	2018	2019	2018	2019
Energy	\$1,275	5.5%	18%	13%	13%	8%	18.5%	12.7%	6.9%	7.8%	0.8%	36%	34%	16%	22%	102.6%	26.0%	16.6x	13.2x
Materials	\$615	2.7%	11%	9%	9%	4%	17.4%	8.0%	10.9%	10.6%	-0.3%	5%	-1%	7%	8%	40.5%	4.5%	15.7x	15.0x
Industrials	\$2,280	9.9%	5%	5%	5%	4%	8.1%	4.8%	9.7%	9.8%	0.0%	1%	3%	5%	11%	19.8%	5.0%	16.3x	15.5x
Discretionary	\$2,494	10.8%	5%	5%	7%	7%	7.3%	5.8%	7.4%	7.5%	0.1%	2%	5%	8%	14%	16.9%	7.5%	21.6x	20.1x
Staples	\$1,966	8.5%	3%	3%	4%	4%	3.8%	3.3%	6.9%	6.9%	0.0%	1%	2%	3%	7%	7.8%	3.5%	18.8x	18.1x
HealthCare	\$3,672	15.9%	6%	5%	5%	5%	6.6%	5.2%	10.4%	10.4%	0.0%	6%	3%	4%	8%	14.1%	5.1%	16.8x	16.0x
Financials	\$2,869	12.4%	7%	2%	0%	5%	5.3%	3.3%	20.1%	20.3%	0.2%	2%	4%	4%	8%	24.7%	4.7%	11.4x	10.9x
Technology	\$4,749	20.5%	4%	4%	4%	6%	10.0%	4.3%	23.4%	22.8%	-0.7%	0%	-1%	-1%	7%	21.0%	1.4%	16.4x	16.2x
Communication Svcs	\$2,494	10.8%	13%	12%	9%	7%	11.8%	9.9%	16.0%	15.7%	-0.3%	0%	24%	1%	8%	27.1%	7.8%	18.0x	16.7x
Utilities	\$723	3.1%	2%	2%	5%	0%	0.7%	2.5%	12.5%	12.7%	0.2%	0%	-2%	8%	13%	9.2%	4.4%	17.2x	16.5x
Real Estate	\$676	2.9%	4%	4%	4%	5%	13.3%	4.4%	18.0%	15.7%	-2.4%	-17%	-6%	-18%	6%	1.9%	-9.2%	35.3x	38.9x
S&P 500	\$23,137	100.0%	6.7%	5.4%	5.4%	5.4%	8.2%	5.7%	12.1%	12.0%	0.0%	3.5%	5.6%	4.0%	9.5%	22.3%	5.7%	16.4x	15.5x
Ex-Energy	\$21,862	94.5%	5.6%	4.6%	4.6%	5.1%	7.2%	5.0%	12.6%	12.5%	-0.1%	2.0%	4.1%	3.2%	8.6%	19.5%	4.5%	16.3x	15.6x
Energy Equipment & Ser	\$145	0.6%	6%	5%	9%	13%	13.1%	8.5%	4.8%	6.4%	1.6%	31%	20%	51%	70%	35.3%	43.8%	29.2x	20.3x
Oil Gas & Consumable Fi	\$1,131	4.9%	20%	14%	13%	8%	19.1%	13.1%	7.2%	7.9%	0.7%	36%	36%	14%	19%	109.8%	24.7%	15.8x	12.6x
Chemicals	\$466	2.0%	15%	13%	14%	6%	21.9%	12.0%	11.4%	11.3%	-0.1%	8%	7%	15%	16%	36.6%	11.1%	17.3x	15.5x
Construction Materials	\$27	0.1%	11%	8%	8%	10%	10.1%	9.0%	12.7%	14.0%	1.3%	36%	8%	18%	36%	23.6%	19.8%	24.9x	20.8x
Containers & Packaging	\$70	0.3%	6%	6%	6%	2%	6.0%	5.1%	8.3%	9.2%	0.9%	23%	10%	22%	-1%	25.0%	12.6%	12.9x	11.5x
Metals & Mining	\$53	0.2%	-2%	-9%	-11%	-3%	15.9%	-6.4%	11.0%	6.7%	-4.3%	-32%	-54%	-45%	-38%	101.8%	-43.5%	7.4x	13.1x
Aerospace & Defense	\$633	2.7%	10%	7%	7%	5%	8.1%	7.2%	9.3%	8.5%	-0.7%	-8%	-2%	-6%	11%	34.6%	-1.1%	18.1x	18.2x
Building Products	\$64	0.3%	7%	5%	7%	4%	5.8%	5.8%	9.1%	9.0%	-0.2%	5%	3%	2%	8%	9.2%	3.9%	13.5x	13.0x
Construction & Engineeri	\$20	0.1%	3%	5%	6%	5%	18.3%	4.8%	2.9%	3.4%	0.5%	92%	7%	14%	13%	44.4%	22.7%	14.9x	12.1x
Electrical Equipment	\$113	0.5%	6%	6%	6%	5%	8.5%	5.7%	12.4%	12.7%	0.3%	11%	0%	14%	10%	17.2%	8.2%	17.9x	16.6x
Industrial Conglomerates	\$321	1.4%	-5%	-4%	-3%	2%	0.6%	-2.5%	9.7%	10.3%	0.6%	-3%	-4%	11%	11%	-8.4%	3.7%	16.5x	15.9x
Machinery	\$355	1.5%	3%	4%	4%	3%	13.9%	3.6%	11.1%	11.2%	0.1%	6%	7%	4%	4%	31.6%	5.2%	13.7x	13.0x
Trading Companies & Dis	\$44	0.2%	11%	10%	9%	8%	12.5%	9.7%	12.6%	12.4%	-0.3%	6%	6%	8%	9%	43.1%	7.4%	14.3x	13.3x
Commercial Services & S	\$114	0.5%	4%	5%	5%	5%	4.0%	4.9%	11.9%	12.2%	0.3%	5%	8%	5%	11%	26.0%	7.3%	22.8x	21.2x
Professional Services	\$70	0.3%	4%	5%	6%	5%	5.6%	4.8%	14.0%	14.7%	0.8%	6%	10%	9%	16%	7.3%	10.5%	22.8x	20.6x
Air Freight & Logistics	\$184	0.8%	7%	7%	6%	6%	10.4%	6.3%	7.3%	7.5%	0.1%	4%	3%	13%	13%	27.4%	8.3%	15.1x	14.0x
Airlines	\$122	0.5%	7%	7%	7%	6%	6.9%	6.6%	6.9%	7.3%	0.4%	-9%	14%	12%	25%	1.7%	12.8%	11.0x	9.7x
Road & Rail	\$240	1.0%	7%	6%	5%	5%	9.4%	5.4%	22.5%	22.8%	0.3%	9%	5%	6%	8%	35.7%	7.0%	18.4x	17.2x
Auto Components	\$33	0.1%	3%	4%	7%	6%	-2.3%	5.0%	7.1%	7.5%	0.4%	-4%	2%	22%	22%	-11.7%	10.5%	11.3x	10.2x
Automobiles	\$96	0.4%	-3%	1%	2%	2%	-0.9%	0.5%	5.0%	5.0%	0.0%	-12%	-2%	-1%	17%	-14.9%	-0.4%	6.4x	6.4x
Household Durables	\$82	0.4%	5%	-3%	3%	4%	10.0%	2.3%	8.6%	8.9%	0.3%	12%	4%	0%	11%	22.8%	6.0%	9.8x	9.2x
Leisure Products	\$17	0.1%	-1%	4%	9%	8%	-8.8%	6.2%	1.9%	6.6%	4.7%	-50%	-86%	43%	66%	-44.7%	269.1%	96.5x	26.2x
Textiles Apparel & Luxur	\$200	0.9%	4%	5%	5%	6%	8.9%	5.0%	10.4%	11.0%	0.5%	6%	9%	12%	13%	6.7%	10.3%	21.4x	19.4x
Hotels Restaurants & Lei	\$451	2.0%	4%	5%	6%	6%	2.2%	5.1%	14.8%	14.7%	-0.2%	-7%	3%	6%	13%	13.7%	4.0%	20.7x	19.9x
Diversified Consumer Se	\$6	0.0%	-3%	1%	0%	1%	2.0%	-2.1%	22.1%	13.0%	-9.1%	-26%	7%	-2%	-5%	160.0%	-42.5%	8.3x	14.4x
Distributors	\$24	0.1%	11%	8%	4%	4%	17.5%	6.7%	5.0%	5.1%	0.1%	11%	10%	7%	10%	20.4%	9.7%	15.7x	14.3x
Internet & Direct Marketin	\$945	4.1%	18%	19%	19%	19%	27.9%	18.7%	6.4%	6.7%	0.3%	26%	18%	18%	37%	93.3%	24.0%	54.7x	44.1x
Multiline Retail	\$117	0.5%	4%	3%	3%	3%	3.9%	3.3%	4.7%	4.7%	-0.1%	7%	1%	2%	1%	18.1%	2.1%	13.5x	13.2x
Specialty Retail	\$523	2.3%	4%	3%	4%	3%	5.5%	3.6%	7.8%	7.8%	0.1%	5%	3%	6%	5%	18.7%	4.7%	17.7x	16.9x
Food & Staples Retailing	\$524	2.3%	3%	3%	4%	4%	4.5%	3.6%	2.8%	2.7%	-0.1%	-4%	-3%	0%	3%	8.9%	-0.7%	19.4x	19.5x
Beverages	\$462	2.0%	2%	2%	3%	5%	-1.1%	3.1%	17.7%	18.1%	0.4%	6%	4%	4%	9%	8.5%	5.5%	21.3x	20.2x
Food Products	\$326	1.4%	4%	3%	3%	3%	4.9%	3.4%	8.9%	8.9%	0.1%	0%	4%	4%	7%	8.0%	4.0%	15.6x	15.0x
Tobacco	\$235	1.0%	-1%	1%	4%	5%	2.1%	2.5%	31.3%	32.3%	1.1%	6%	2%	5%	11%	10.7%	6.0%	93.4x	88.1x
Household Products	\$362	1.6%	-1%	0%	3%	3%	1.5%	1.2%	15.7%	16.1%	0.4%	1%	5%	4%	6%	2.3%	3.9%	15.6x	15.0x
Personal Products	\$57	0.2%	0%	2%	4%	5%	5.8%	2.6%	9.6%	10.1%	0.6%	6%	13%	4%	12%	12.4%	8.5%	431.9x	397.9x
Health Care Equipment & S	\$774	3.3%	3%	5%	6%	6%	10.3%	5.0%	19.1%	19.9%	0.7%	8%	7%	9%	12%	14.3%	9.0%	30.9x	28.3x
Health Care Providers & I	\$868	3.8%	6%	6%	5%	5%	6.3%	5.8%	3.6%	3.7%	0.1%	7%	8%	7%	10%	20.6%	7.9%	18.0x	16.7x
Health Care Technology	\$19	0.1%	7%	7%	8%	8%	4.9%	7.7%	15.2%	15.4%	0.2%	10%	7%	7%	12%	2.0%	9.1%	1169.9x	1072.1x
Biotechnology	\$590	2.5%	6%	1%	2%	5%	5.2%	3.4%	39.6%	40.3%	0.7%	8%	2%	1%	10%	9.7%	5.1%	19.9x	18.9x
Pharmaceuticals	\$1,185	5.1%	4%	1%	2%	3%	4.8%	2.4%	28.5%	28.0%	-0.4%	5%	-3%	0%	2%	12.5%	0.9%	12.8x	12.7x
Life Sciences Tools & Ser	\$236	1.0%	4%	5%	5%	7%	16.5%	5.2%	17.6%	18.3%	0.7%	9%	9%	8%	11%	17.9%	9.2%	107.1x	98.1x
Banks	\$1,425	6.2%	2%	4%	3%	4%	3.7%	3.4%	27.3%	27.6%	0.3%	3%	8%	2%	6%	24.7%	4.7%	7.5x	7.1x
Diversified Financial Ser	\$7	0.0%	19%	-3%	-13%	5%	5.2%	0.5%	19.8%	13.3%	-6.5%	-6%	-82%	-28%	79%	84.8%	-50.6%	841.1x	1703.6x
Consumer Finance	\$181	0.8%	7%	6%	6%	6%	11.4%	6.2%	18.2%	17.6%	-0.6%	4%	-6%	7%	5%	32.8%	2.5%	55.2x	53.9x
Capital Markets	\$709	3.1%	1%	3%	5%	6%	9.6%	3.6%	26.2%	26.0%	-0.2%	-2%	3%	1%	9%	23.0%	2.7%	18.7x	18.2x
Insurance	\$547	2.4%	8%	1%	3%	5%	4.0%	4.0%	10.1%	10.6%	0.5%	4%	6%	14%	14%	23.0%	9.2%	21.1x	19.3x
IT Services	\$1,154	5.0%	3%	4%	6%	6%	7.1%	5.1%	20.1%	20.7%	0.7%	6%	8%	9%	11%	16.5%	8.5%	17.2x	15.8x
Software	\$1,452	6.3%	10%	8%	10%	10%	13.4%	9.4%	28.2%	27.5%	-0.8%	4%	4%	5%	12%	23.1%	6.4%	16.5x	15.6x
Communications Equipme	\$271	1.2%	4%	4%	3%	5%	6.1%	3.8%	24.4%	24.6%	0.3%	8%	7%	0%	5%	8.9%	4.9%	58.7x	56.0x
Technology Hardware St	\$960	4.1%	3%	3%	2%	4%	9.4%	2.9%	18.5%	17.9%	-0.6%	-3%	-6%	-3%	5%	20.2%	-0.7%	12.8x	12.9x
Electronic Equipment Inst	\$103	0.4%	2%	2%	4%	5%	9.2%	3.4%	14.9%	15.5%	0.6%	5%	7%	6%	10%	6.7%	7.2%	156.6x	146.1x
Semiconductors & Semic	\$809	3.5%	1%	-1%	0%	6%	13.2%	1.5%	33.0%	30.3%	-2.7%	-8%	-11%						

Figure 92: Margin Trends (YTD 3Q18 vs. 3Q17)

S&P 500 Sectors and Industries (* means ex-Financials)

	COGS as a % of Revenue			Gross Margin			SG&A as a % of Revenue			EBIT Margin			Operating Leverage			Implied Interest Rate			Effective Tax Rate			Net Income Margin		
Sector	YTD 3Q17	YTD 3Q18	Delta	YTD 3Q17	YTD 3Q18	Delta	YTD 3Q17	YTD 3Q18	Delta	YTD 3Q17	YTD 3Q18	Delta	YTD 3Q17	YTD 3Q18	Delta	YTD 3Q17	YTD 3Q18	Delta	YTD 3Q17	YTD 3Q18	Delta	YTD 3Q17	YTD 3Q18	Delta
Energy	79.6%	78.0%	(1.5%)	9.5%	13.6%	4.1%	5.1%	4.3%	(0.8%)	6.6%	10.2%	3.6%	9.8x	4.3x	(5.5x)	4.1%	4.2%	0.1%	38.3%	32.6%	(5.7%)	3.2%	5.7%	2.5%
Materials	68.8%	68.1%	(0.7%)	24.8%	25.6%	0.9%	10.8%	10.6%	(0.2%)	13.3%	15.8%	2.5%	0.9x	2.4x	1.5x	4.1%	4.2%	0.1%	28.7%	25.9%	(2.8%)	8.3%	10.6%	2.3%
Industrials	69.6%	69.8%	0.2%	26.0%	25.8%	(0.2%)	14.5%	14.1%	(0.4%)	14.0%	13.4%	(0.6%)	1.1x	0.5x	(0.5x)	3.8%	3.9%	0.1%	28.0%	19.6%	(8.4%)	9.0%	9.5%	0.5%
Consumer Discretionary	65.5%	64.7%	(0.8%)	30.3%	30.9%	0.7%	20.9%	21.7%	0.8%	10.0%	9.6%	(0.3%)	0.4x	0.6x	0.1x	3.2%	3.2%	0.0%	29.3%	22.3%	(6.9%)	6.6%	7.0%	0.3%
Consumer Staples	68.0%	68.7%	0.7%	29.6%	28.9%	(0.7%)	19.9%	19.5%	(0.4%)	9.7%	9.6%	(0.1%)	0.6x	0.8x	0.1x	3.2%	3.2%	0.0%	27.8%	24.3%	(3.4%)	6.5%	6.8%	0.3%
Health Care	68.9%	68.4%	(0.5%)	27.7%	28.1%	0.4%	16.9%	17.5%	0.6%	13.7%	13.4%	(0.3%)	1.3x	0.7x	(0.6x)	3.5%	3.6%	0.1%	24.4%	19.9%	(4.5%)	9.7%	10.3%	0.6%
Financials	57.9%	56.4%	(1.5%)	39.1%	40.6%	1.4%	32.3%	30.8%	(1.5%)	23.9%	23.5%	(0.3%)	1.9x	0.7x	(1.2x)	1.3%	1.7%	0.3%	31.2%	24.5%	(6.7%)	15.4%	17.4%	2.0%
Information Technology	45.2%	44.7%	(0.6%)	47.8%	48.8%	1.0%	26.1%	24.7%	(1.4%)	26.0%	27.6%	1.6%	2.0x	1.6x	(0.4x)	3.2%	3.3%	0.1%	20.6%	15.9%	(4.7%)	20.5%	23.0%	2.5%
Communication Services	47.5%	46.9%	(0.6%)	41.3%	41.7%	0.4%	23.8%	23.9%	0.1%	22.5%	21.9%	(0.6%)	0.5x	0.7x	0.2x	4.6%	5.0%	0.4%	30.0%	21.2%	(8.8%)	14.1%	15.9%	1.8%
Utilities	64.1%	66.6%	2.5%	22.8%	20.4%	(2.4%)	2.5%	1.7%	(0.9%)	20.5%	19.6%	(0.9%)	1.6x	(0.7x)	(2.3x)	4.2%	4.1%	(0.0%)	29.8%	18.9%	(10.9%)	10.6%	11.7%	1.1%
Real Estate	61.1%	62.4%	1.3%	32.9%	31.3%	(1.5%)	7.9%	8.0%	0.1%	26.7%	24.3%	(2.5%)	4.0x	0.2x	(3.8x)	4.1%	4.1%	(0.0%)	2.8%	(3.2%)	(6.0%)	19.4%	17.8%	(1.6%)
S&P 500	63.8%	63.4%	(0.4%)	30.9%	31.4%	0.5%	18.8%	18.4%	(0.4%)	14.4%	14.7%	0.3%	1.6x	1.2x	(0.5x)	2.7%	2.9%	0.2%	27.1%	21.2%	(5.9%)	10.5%	11.6%	1.2%
Industries																								
Energy Equipment & Services	77.4%	77.3%	(0.1%)	13.7%	14.9%	1.2%	7.2%	6.6%	(0.6%)	6.9%	8.2%	1.2%	(0.2x)	1.8x	1.9x	4.3%	4.5%	0.3%	35.6%	32.3%	(3.3%)	3.1%	4.7%	1.6%
Oil, Gas & Consumable Fuels	79.8%	78.1%	(1.7%)	9.0%	13.4%	4.4%	4.9%	4.0%	(0.8%)	6.6%	10.4%	3.8%	11.2x	4.7x	(6.5x)	4.1%	4.2%	0.1%	38.5%	32.6%	(5.9%)	3.2%	5.8%	2.6%
Chemicals	66.3%	66.2%	(0.1%)	27.8%	27.8%	(0.1%)	13.1%	12.8%	(0.3%)	14.0%	16.3%	2.3%	(3.4x)	2.1x	5.4x	3.9%	3.7%	(0.1%)	26.0%	21.6%	(4.4%)	9.5%	11.8%	2.3%
Construction Materials	67.6%	67.9%	0.3%	24.8%	24.3%	(0.5%)	7.3%	7.0%	(0.3%)	16.6%	16.8%	0.1%	0.5x	1.1x	0.6x	5.4%	4.5%	(0.9%)	25.3%	24.1%	(1.2%)	10.1%	11.1%	1.0%
Containers & Packaging	74.8%	74.0%	(0.8%)	19.4%	20.4%	1.0%	9.1%	8.7%	(0.5%)	9.6%	11.8%	2.3%	(0.8x)	5.4x	6.2x	5.3%	4.9%	(0.5%)	25.9%	22.3%	(3.6%)	5.6%	7.6%	2.0%
Metals & Mining	70.9%	68.8%	(2.0%)	19.7%	23.3%	3.6%	4.1%	3.9%	(0.2%)	15.3%	19.2%	3.9%	9.2x	2.4x	(6.8x)	2.7%	5.4%	2.6%	45.0%	45.6%	0.6%	7.0%	9.6%	2.6%
Aerospace & Defense	77.2%	76.0%	(1.2%)	20.3%	21.4%	1.0%	10.2%	10.2%	(0.0%)	12.1%	12.6%	0.5%	(6.6x)	1.6x	8.1x	4.5%	4.3%	(0.2%)	27.1%	21.5%	(5.6%)	7.9%	8.9%	0.9%
Building Products	63.3%	64.5%	1.2%	33.6%	32.5%	(1.1%)	20.3%	19.9%	(0.4%)	12.8%	12.7%	(0.0%)	0.9x	0.9x	0.1x	4.2%	4.3%	0.1%	26.6%	22.8%	(3.7%)	8.3%	8.6%	0.4%
Construction & Engineering	89.3%	87.4%	(1.9%)	9.3%	11.2%	1.9%	5.7%	6.7%	1.0%	4.5%	4.0%	(0.5%)	2.1x	0.3x	(1.8x)	3.8%	4.9%	1.0%	34.4%	30.9%	(3.5%)	2.8%	2.6%	(0.2%)
Electrical Equipment	58.9%	58.5%	(0.4%)	37.0%	37.5%	0.5%	21.4%	20.9%	(0.5%)	15.0%	16.0%	1.0%	0.9x	1.7x	0.8x	3.6%	3.9%	0.3%	23.3%	19.8%	(3.5%)	11.0%	11.9%	0.9%
Industrial Conglomerates	64.8%	64.4%	(0.4%)	29.9%	29.8%	(0.1%)	17.6%	17.3%	(0.3%)	16.1%	13.3%	(2.8%)	3.5x	(4.6x)	(8.0x)	3.4%	3.7%	0.3%	14.6%	(11.1%)	(25.6%)	11.5%	10.0%	(1.5%)
Machinery	64.9%	65.4%	0.5%	30.6%	30.6%	0.0%	16.3%	15.0%	(1.3%)	13.8%	14.4%	0.7%	5.6x	1.3x	(4.3x)	2.9%	3.1%	0.2%	27.6%	22.2%	(5.5%)	9.0%	10.9%	1.9%
Trading Companies & Distributors	50.7%	51.0%	0.3%	41.2%	40.7%	(0.5%)	24.1%	22.5%	(1.6%)	17.4%	18.6%	1.2%	(2.1x)	1.6x	3.6x	4.7%	4.7%	(0.1%)	37.0%	29.3%	(7.7%)	9.5%	11.4%	1.9%
Commercial Services & Support	61.1%	58.6%	(2.5%)	30.0%	32.3%	2.2%	14.9%	14.8%	(0.1%)	17.7%	18.0%	0.2%	1.0x	1.2x	0.3x	4.3%	4.0%	(0.3%)	35.7%	26.4%	(9.3%)	9.5%	11.1%	1.6%
Professional Services	43.7%	44.8%	1.1%	48.0%	46.7%	(1.4%)	28.0%	29.3%	1.3%	24.9%	23.3%	(1.6%)	0.9x	0.0x	(0.8x)	4.3%	4.5%	0.2%	31.3%	24.7%	(6.6%)	15.3%	14.8%	(0.5%)
Air Freight & Logistics	79.5%	80.5%	1.0%	16.8%	16.0%	(0.8%)	12.4%	12.0%	(0.4%)	10.4%	9.5%	(0.9%)	0.3x	0.1x	(0.1x)	3.1%	3.4%	0.3%	33.2%	22.3%	(10.9%)	6.6%	7.2%	0.6%
Airlines	67.6%	71.4%	3.8%	27.2%	23.5%	(3.7%)	13.2%	12.9%	(0.3%)	12.8%	10.1%	(2.7%)	(5.9x)	(2.3x)	3.6x	4.5%	4.5%	(0.0%)	35.9%	27.0%	(8.9%)	7.2%	6.4%	(0.8%)
Road & Rail	58.7%	57.9%	(0.8%)	31.5%	32.8%	1.3%	1.6%	1.7%	0.1%	31.3%	32.0%	0.7%	2.0x	1.4x	(0.6x)	4.6%	4.8%	0.2%	37.0%	27.2%	(9.8%)	17.8%	20.9%	3.1%
Auto Components	74.2%	74.7%	0.4%	21.8%	20.8%	(1.0%)	10.9%	10.5%	(0.4%)	12.0%	11.1%	(0.9%)	0.5x	5.0x	4.5x	4.7%	4.7%	(0.1%)	23.3%	23.6%	0.3%	8.3%	7.5%	(0.8%)
Automobiles	78.9%	80.8%	1.9%	15.5%	13.3%	(2.2%)	9.1%	8.3%	(0.8%)	6.4%	5.8%	(0.5%)	(12.7x)	3.4x	16.1x	2.1%	2.4%	0.2%	22.4%	17.2%	(5.2%)	5.5%	5.2%	(0.3%)
Household Durables	73.3%	73.8%	0.6%	24.5%	24.2%	(0.3%)	14.0%	13.3%	(0.6%)	12.1%	11.4%	(0.7%)	1.0x	0.3x	(0.7x)	3.8%	3.8%	(0.0%)	26.8%	20.2%	(6.7%)	7.9%	8.5%	0.6%
Leisure Products	48.5%	50.2%	1.7%	46.8%	44.4%	(2.5%)	39.0%	40.4%	1.3%	8.2%	11.6%	(9.8%)	256.0x	13.9x	(242.1x)	4.6%	6.0%	1.4%	18.5%	(18.6%)	(37.1%)	5.4%	(4.4%)	(9.8%)
Textiles, Apparel & Luxury Goods	49.0%	48.2%	(0.8%)	48.4%	49.2%	0.8%	36.3%	36.8%	0.5%	12.8%	11.8%	(1.0%)	0.5x	0.2x	(0.4x)	3.7%	3.8%	0.1%	19.9%	12.3%	(7.6%)	10.1%	9.7%	(0.5%)
Hotels, Restaurants & Leisure	65.6%	64.4%	(1.2%)	28.3%	29.2%	0.9%	10.0%	10.8%	0.8%	18.9%	19.1%	0.2%	3.2x	1.6x	(1.6x)	4.0%	4.1%	0.0%	27.9%	21.0%	(6.9%)	11.5%	13.2%	1.7%
Diversified Consumer Services	44.7%	43.7%	(1.1%)	50.0%	51.6%	1.6%	18.0%	18.6%	0.5%	31.7%	32.1%	0.4%	8.8x	1.4x	(7.5x)	5.7%	5.7%	(0.0%)	34.9%	17.2%	(17.7%)	19.1%	24.9%	5.8%
Distributors	66.5%	65.8%	(0.8%)	32.0%	32.5%	0.5%	24.3%	25.5%	1.2%	8.0%	7.7%	(0.3%)	0.3x	0.7x	0.4x	3.3%	3.8%	0.5%	34.6%	27.4%	(7.2%)	5.0%	4.9%	(0.1%)
Internet & Direct Marketing Retail	47.9%	45.6%	(2.2%)	45.5%	47.6%	2.1%	40.0%	39.5%	(0.5%)	5.7%	6.7%	1.0%	(0.2x)	1.7x	1.9x	3.1%	3.2%	0.2%	27.0%	18.0%	(9.0%)	4.0%	5.1%	1.1%
Multiline Retail	64.9%	64.8%	(0.1%)	31.5%	31.7%	0.2%	25.3%	25.7%	0.5%	7.7%	7.5%	(0.2%)	(16.5x)	0.6x	17.0x	4.5%	4.0%	(0.5%)	35.6%	27.5%	(8.1%)	4.3%	4.9%	0.5%
Specialty Retail	65.4%	65.5%	0.1%	32.4%	32.4%	0.0%	20.9%	21.5%	0.5%	11.6%	11.2%	(0.4%)	1.1x	0.5x	(0.5x)	3.9%	3.6%	(0.2%)	36.1%	28.0%	(8.1%)	6.9%	7.6%	0.6%
Food & Staples Retailing	75.7%	76.2%	0.5%	22.5%	22.0%	(0.5%)	18.3%	18.1%	(0.3%)	4.5%	4.2%	(0.2%)	(0.5x)	0.1x	0.6x	4.5%	4.2%	(0.3%)	30.8%	26.2%	(4.6%)	2.7%	2.8%	0.1%
Beverages	39.7%	40.1%	0.4%	56.6%	56.0%	(0.5%)	34.0%	33.0%	(1.0%)	19.3%	22.0%	2.7%	(0.6x)	(4.0x)	(3.3x)	2.3%	2.6%	0.3%	23.6%	23.8%	0.2%	15.3%	16.4%	1.1%
Food Products	73.2%	73.6%	0.4%	24.0%	23.6%	(0.4%)	11.6%	11.6%	(0.1%)	12.8%	12.3%	(0.5%)	(0.6x)	0.1x	0.8x	3.4%	3.6%	0.3%	26.6%	20.7%	(5.9%)	8.5%	8.9%	0.5%
Tobacco	35.1%	34.3%	(0.9%)	62.6%	63.3%	0.7%	18.2%	19.9%	1.7%	42.3%	42.6%	0.2%	1.7x	1.1x	(0.7x)	3.4%	2.6%	(0.8%)	29.9%	26.8%	(3.1%)	28.1%	30.3%	2.2%
Household Products	47.0%	48.5%	1.4%	49.0%	47.5%	(1.6%)	27.4%	26.6%	(0.7%)	21.5%	21.0%	(0.6%)	(10.8x)	0.3x	11.1x	2.0%	2.2%	0.2%	27.3%	24.0%	(3.3%)	15.2%	15.5%	0.3%
Personal Products	24.0%	23.7%	(0.3%)	70.4%	70.5%	0.1%	59.9%	59.3%	(0.7%)	13.1%	14.0%	0.9%	0.6x	1.6x	1.0x	3.5%	3.7%	0.2%	26.7%	23.9%	(2.8%)	8.5%	9.6%	1.1%
Health Care Equipment & Supplies	34.0%	33.9%	(0.1%)	57.6%	57.4%	(0.2%)	38.6%	38.5%	(0.1%)	24.9%	24.5%	(0.3%)	3.0x</											

Textual Analysis of Macro Trends

Figure 93: Discussion Trends in Company Reports

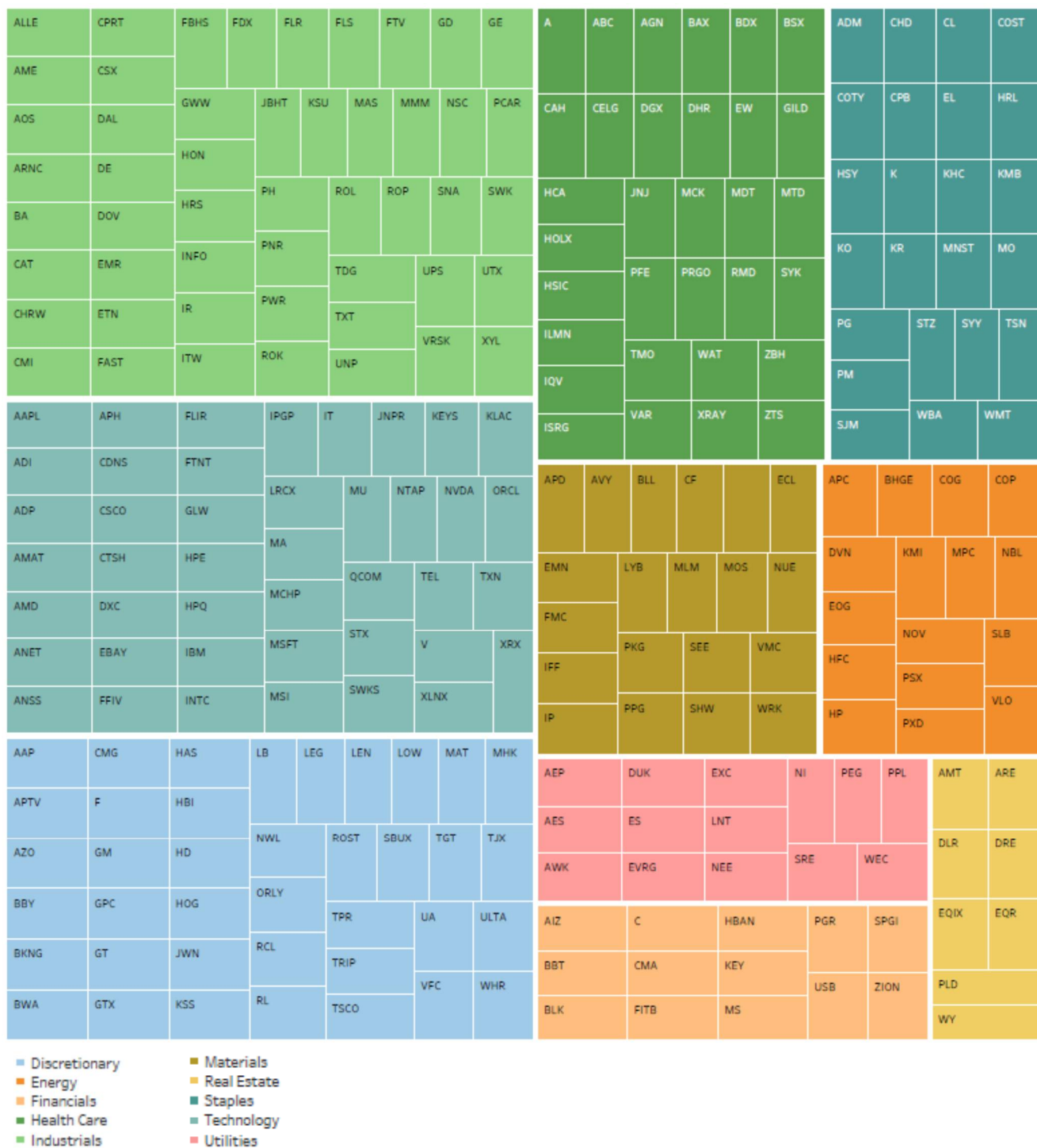
S&P 500 Companies

Topic	Sector	16Q4	17Q1	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3	16Q4	17Q1	17Q2	17Q3	17Q4	18Q1	18Q2	18Q3
Input Costs	Materials	392	339	445	554	516	423	780	482	78%	88%	72%	88%	88%	83%	100%	91%
	Staples	150	127	159	117	253	240	358	173	65%	66%	65%	63%	78%	78%	71%	67%
	Discretionary	138	117	118	122	114	109	192	160	38%	34%	35%	39%	42%	53%	43%	43%
	Industrials	73	44	84	96	76	104	144	96	38%	43%	38%	40%	48%	57%	58%	52%
	S&P 500	69	52	71	72	71	73	116	89	31%	31%	27%	30%	31%	37%	36%	32%
	Energy	69	45	30	64	60	70	72	82	57%	52%	26%	48%	42%	57%	48%	43%
	Real Estate	42	25	46	11	20	21	18	49	39%	13%	28%	13%	19%	16%	22%	21%
	Utilities	4	9	10	3	8	28	23	30	4%	11%	11%	3%	7%	21%	15%	18%
	Health Care	8	8	7	13	9	12	19	19	13%	19%	11%	18%	16%	23%	23%	16%
	Technology	13	8	22	23	14	13	19	11	13%	11%	7%	16%	7%	16%	19%	13%
	Financials	15	14	9	8	9	5	12	5	17%	20%	14%	16%	11%	8%	9%	8%
Interest Exp/Funding Costs	Financials	116	56	78	64	49	75	85	112	46%	40%	31%	34%	33%	48%	44%	45%
	Utilities	21	43	46	56	87	71	120	75	12%	19%	11%	21%	30%	36%	33%	21%
	Discretionary	33	13	12	15	14	25	17	52	18%	7%	7%	9%	10%	12%	11%	19%
	Real Estate	28	63	8	17	74	42	8	45	19%	19%	6%	13%	44%	25%	6%	17%
	S&P 500	32	17	20	17	24	25	26	43	17%	12%	10%	10%	15%	18%	15%	20%
	Industrials	24	13	26	14	11	20	25	30	16%	12%	10%	7%	7%	15%	15%	18%
	Materials	5	4	21	0	5	16	20	24	4%	4%	16%		4%	17%	13%	22%
	Technology	18	3	2	7	14	6	5	23	13%	3%	1%	6%	10%	6%	4%	13%
	Health Care	11	2	3	0	9	3	8	21	8%	2%	3%		10%	3%	8%	14%
	Staples	12	0	13	3	36	27	16	21	6%		10%	3%	13%	22%	10%	19%
	Energy	14	8	0	4	0	8	20	11	11%	7%		3%		3%	10%	7%
Labor/Wage	Real Estate	67	39	50	23	43	42	28	91	26%	22%	38%	20%	47%	34%	25%	41%
	Discretionary	69	60	65	70	76	53	71	76	39%	38%	40%	37%	37%	34%	39%	38%
	Staples	29	20	9	39	20	27	10	52	16%	16%	10%	7%	22%	19%	10%	22%
	S&P 500	24	17	22	22	26	20	25	28	16%	15%	15%	15%	20%	20%	16%	18%
	Health Care	14	21	18	24	22	13	19	23	8%	8%	5%	11%	13%	11%	7%	12%
	Materials	14	12	41	36	41	16	16	17	17%	13%	12%	13%	13%	21%	13%	17%
	Industrials	10	5	11	8	16	14	26	15	18%	10%	13%	10%	16%	15%	15%	17%
	Technology	4	3	2	9	12	9	3	12	6%	7%	3%	7%	9%	10%	3%	6%
	Energy	0	0	2	2	8	15	12	11			3%	3%	10%	10%	13%	11%
	Financials	18	12	11	14	14	22	27	11	14%	22%	13%	19%	24%	30%	25%	16%
	Utilities	4	6	7	0	4	5	0	4	4%	4%	4%		4%	7%		4%
Tariffs/Regulation	Industrials	205	206	207	209	274	407	904	917	72%	66%	63%	65%	67%	75%	81%	76%
	Staples	262	324	296	285	325	353	643	690	77%	81%	77%	90%	88%	97%	84%	89%
	Discretionary	220	162	155	187	217	285	605	615	68%	58%	56%	49%	68%	65%	60%	57%
	Materials	329	337	339	416	361	431	601	600	78%	75%	88%	75%	79%	88%	87%	87%
	S&P 500	148	132	130	130	148	195	413	429	53%	51%	48%	47%	53%	58%	59%	56%
	Technology	107	93	96	84	112	92	337	386	49%	58%	49%	44%	57%	61%	60%	64%
	Health Care	113	68	53	65	56	128	275	328	60%	45%	48%	50%	35%	65%	53%	56%
	Energy	188	157	180	145	164	136	213	149	54%	69%	52%	71%	71%	63%	65%	57%
	Real Estate	55	133	86	44	66	175	242	133	23%	16%	22%	13%	34%	34%	44%	28%
	Utilities	99	49	66	73	67	69	83	106	36%	37%	18%	34%	26%	25%	33%	50%
	Financials	24	13	23	14	22	44	88	41	17%	17%	14%	8%	17%	18%	33%	20%

Source: J.P. Morgan US Equity Strategy and Quantitative Research

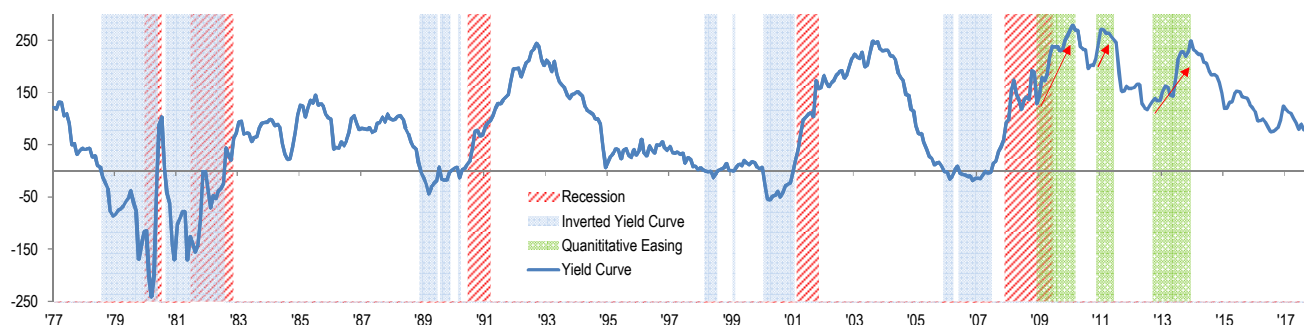
Figure 94: Trade Tariff Discussion by Sector and Industries

Scaled per Million Words for Universe



Sector Implications for Rising Rates and Flattening Yield Curve

Figure 95: Yield Curve Inversion Precedes Recessions, QEs Boost to Spreads this Cycle



Source: J.P. Morgan US Equity Strategy & Quantitative Research, Bloomberg

Figure 96: Sector Performance Sensitivity to Short- and Long-Term Rates in Rising Rate Environment

Post GFC, Impact: - Slightly Negative, -- Negative, --- Significantly Negative, + Slightly Positive, ++ Positive, +++ Significantly Positive; Blank = Not Significant

Industry		Sensitivity to Bond Yields/Yield Curve in Rising Rates Environment			
		2Y Bond Yield	10Y Bond Yield	Bear Steepener	Bear Flattener
Energy	Energy	+	+++	++	--
Materials	Materials		+++	+++	--
Industrials	Capital Goods		++	+++	--
	Comm & Prof Services	+			
	Transportation	+		-	+
Discretionary	Auto & Components				
	Cons Durables & Apparel				
	Consumer Services				
	Media		+	+	-
	Retailing				
Staples	Food/Staple Retailing		---	---	+++
	Food Bev & Tobacco	--	--		
	Household & Personal Pdts	---	---		
Health Care	Healthcare Equip & Svc				
	Pharma Bio & Life Sc	-	-		
Financials	Banks				
	Diversified Financial		+	++	--
	Insurance				
	Real Estate				
Technology	Software & Services				
	Tech Hardware & Eqp				
	Semi & Semi Eqp	+			
Telecom	Telecomm Services			-	+
Utilities	Utilities		--	---	+++
Market	S&P 500		+		

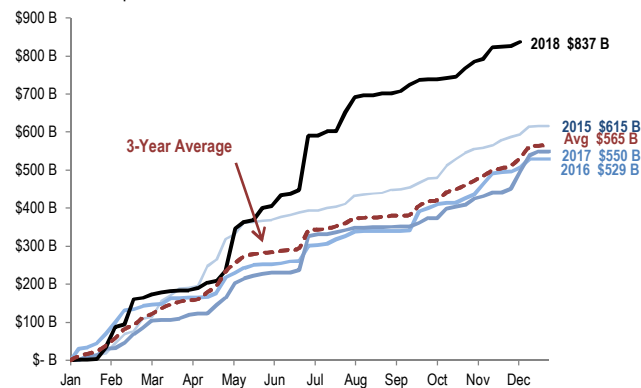
Source: J.P. Morgan US Equity Strategy & Quantitative Research, Bloomberg

Figure 97: Sector and Industry Correlations to Macro Drivers and Style Factors

		Correlations to Macro Drivers								Correlations to Factors															
		USD		US BY 10yr		WTI Oil		Inflation Breakeven		High Beta		Value		Momentum		Growth		Quality		Low Vol					
GICS #	S&P 500 Sector/Industries	2yr	10Yr	2yr	10Yr	2yr	10Yr	2yr	10Yr	2yr	10Yr	2yr	10Yr	2yr	10Yr	2yr	10Yr	2yr	10Yr	2yr	10Yr				
10	Energy	(10.9%)	(24.7%)	22.5%	23.6%	57.9%	62.2%	7.3%	14.7%	24.4%	9.2%	9.1%	13.4%	(0.3%)	(16.0%)	(23.8%)	(3.1%)	(15.9%)	(6.3%)	(26.5%)	(17.4%)				
101010	Energy Equipment & Services	(19.8%)	(31.6%)	22.4%	27.9%	60.4%	61.0%	17.0%	24.4%	19.5%	12.8%	13.3%	17.3%	(5.3%)	(22.4%)	(26.4%)	1.6%	(21.8%)	(10.0%)	(24.6%)	(22.5%)				
101020	Oil, Gas & Consumable Fuels	(8.1%)	(20.3%)	21.8%	20.1%	54.9%	57.7%	4.5%	10.0%	24.7%	7.4%	7.8%	11.5%	1.1%	(13.2%)	(21.7%)	(4.5%)	(13.7%)	(4.8%)	(26.1%)	(14.6%)				
15	Materials	(8.0%)	(30.6%)	22.9%	20.0%	0.3%	29.2%	19.9%	22.9%	19.2%	18.5%	12.6%	16.0%	(2.2%)	(20.7%)	(15.5%)	(7.2%)	(28.6%)	(15.2%)	(19.2%)	(23.6%)				
151010	Chemicals	(4.5%)	(14.5%)	25.0%	9.8%	2.0%	11.7%	16.3%	17.0%	16.4%	14.3%	16.3%	4.4%	(2.3%)	(8.8%)	(18.4%)	(7.3%)	(22.8%)	(10.2%)	(13.1%)	(15.0%)				
151020	Construction Materials	12.9%	(4.3%)	10.3%	10.5%	(14.6%)	4.9%	6.2%	(0.5%)	16.2%	3.4%	(10.4%)	3.2%	10.8%	(10.5%)	16.9%	(5.6%)	(12.4%)	(15.3%)	(26.9%)	(6.9%)				
151030	Containers & Packaging	(2.6%)	(9.2%)	14.5%	8.8%	(17.6%)	4.1%	13.7%	(0.3%)	(3.6%)	2.2%	6.1%	14.4%	(5.9%)	(13.9%)	(14.7%)	(6.3%)	(5.9%)	(11.5%)	8.7%	(6.5%)				
151040	Metals & Mining	(25.3%)	(40.6%)	(1.5%)	15.6%	16.4%	37.0%	16.8%	18.2%	22.5%	17.9%	2.7%	23.5%	(5.5%)	(26.9%)	(3.0%)	(5.8%)	(36.2%)	(13.0%)	(32.3%)	(25.0%)				
20	Industrials	(3.0%)	(9.7%)	27.0%	21.8%	(0.4%)	0.4%	6.8%	21.8%	(2.0%)	(0.2%)	10.0%	28.2%	3.8%	(24.6%)	(8.3%)	(21.4%)	(1.6%)	(17.5%)	9.8%	(4.9%)				
201010	Aerospace & Defense	(12.8%)	3.8%	15.3%	6.0%	10.3%	(9.7%)	2.5%	5.9%	7.6%	(1.9%)	(5.8%)	13.3%	19.4%	(0.9%)	(10.6%)	(11.5%)	(6.0%)	(1.0%)	13.5%	4.2%				
201020	Building Products	(11.4%)	(24.6%)	5.1%	8.8%	(13.1%)	6.2%	12.9%	16.5%	(9.6%)	(2.0%)	1.0%	19.6%	(9.6%)	(21.4%)	(5.5%)	(23.8%)	(4.7%)	(33.0%)	(4.5%)	(9.7%)				
201030	Construction & Engineering	(5.9%)	(11.8%)	24.9%	27.8%	14.0%	25.9%	18.3%	24.1%	(2.7%)	9.8%	20.2%	24.7%	2.9%	(23.3%)	(29.6%)	(7.6%)	(5.0%)	(14.7%)	(15.9%)	(18.0%)				
201040	Electrical Equipment	(10.0%)	(6.1%)	26.0%	19.8%	9.7%	17.5%	12.4%	11.2%	8.6%	3.1%	11.7%	13.0%	(6.4%)	(13.8%)	(13.4%)	(2.9%)	(17.1%)	(2.7%)	(7.5%)	(5.3%)				
201050	Industrial Conglomerates	(2.4%)	(9.2%)	13.5%	12.6%	5.9%	(2.9%)	(8.8%)	13.0%	(13.8%)	(0.4%)	5.1%	30.0%	(6.1%)	(32.3%)	(1.4%)	(30.8%)	7.3%	(24.7%)	28.0%	(5.1%)				
201060	Machinery	(11.0%)	(24.1%)	24.9%	27.1%	5.5%	21.6%	14.8%	23.5%	(9.3%)	8.6%	(3.4%)	19.5%	3.3%	(21.5%)	(3.0%)	(6.1%)	(7.8%)	(13.2%)	3.8%	(14.1%)				
201070	Trading Companies & Distributors	4.0%	7.1%	15.1%	10.0%	4.7%	3.4%	7.9%	9.3%	0.5%	(3.2%)	5.1%	0.2%	10.3%	3.6%	(7.6%)	(2.6%)	3.4%	7.0%	(16.4%)	6.3%				
202010	Commercial Services & Supplies	11.8%	17.3%	(13.1%)	(13.9%)	(27.3%)	(16.3%)	(9.7%)	(8.3%)	(8.6%)	(12.5%)	1.8%	3.3%	(11.3%)	3.4%	6.4%	8.0%	21.8%	4.5%	23.2%	11.8%				
202020	Professional Services	(0.9%)	(0.3%)	(3.6%)	8.0%	(8.9%)	(3.5%)	(20.1%)	8.8%	(10.4%)	(7.6%)	(8.4%)	(11.5%)	(2.1%)	7.1%	5.3%	6.1%	(6.5%)	0.8%	(1.0%)	5.9%				
203010	Air Freight & Logistics	12.2%	4.0%	7.7%	(8.2%)	(18.8%)	(15.2%)	13.2%	(5.2%)	(6.5%)	(7.3%)	18.1%	2.9%	(9.3%)	(6.9%)	(7.4%)	(5.5%)	15.8%	(1.2%)	(3.1%)	4.2%				
203020	Airlines	18.9%	10.2%	7.0%	(3.8%)	(28.2%)	(27.1%)	(3.9%)	(2.7%)	14.7%	(2.4%)	30.6%	6.8%	(10.5%)	3.3%	7.0%	(2.3%)	(11.0%)	(4.8%)	(11.7%)	3.6%				
203040	Road & Rail	8.7%	(8.3%)	22.8%	19.8%	6.4%	10.1%	15.0%	25.8%	7.3%	(1.8%)	16.6%	7.4%	4.1%	(9.5%)	(5.1%)	(5.0%)	(0.4%)	(5.2%)	(13.7%)	(2.1%)				
25	Consumer Discretionary	4.7%	5.8%	(7.4%)	2.9%	(0.8%)	(9.7%)	2.6%	6.2%	2.4%	(4.6%)	(3.0%)	(10.9%)	(0.8%)	4.4%	0.9%	2.4%	(10.8%)	(12.4%)	(25.9%)	5.2%				
251010	Auto Components	(6.5%)	(25.8%)	17.3%	19.6%	(19.0%)	12.4%	19.0%	24.6%	(3.9%)	6.1%	18.1%	26.7%	(25.4%)	(26.9%)	(11.9%)	(11.1%)	(21.9%)	(25.5%)	1.3%	(14.4%)				
251020	Automobiles	5.3%	(14.2%)	(1.4%)	9.4%	(18.1%)	6.4%	0.9%	12.1%	28.6%	16.0%	28.3%	26.2%	(21.3%)	(27.7%)	(20.9%)	(18.9%)	(28.4%)	(30.4%)	(25.4%)	(18.4%)				
252010	Household Durables	5.5%	(15.1%)	(2.3%)	10.5%	(23.8%)	3.1%	(2.9%)	19.5%	7.9%	1.4%	17.6%	13.0%	(28.2%)	(19.5%)	13.1%	(21.1%)	(11.1%)	(35.2%)	(18.0%)	(6.8%)				
252020	Leisure Products	2.6%	4.9%	(1.0%)	(8.1%)	(20.3%)	(12.0%)	11.7%	(5.6%)	22.6%	4.9%	24.7%	9.9%	(42.6%)	(15.2%)	(16.9%)	(8.2%)	(17.1%)	(10.2%)	(32.5%)	(5.0%)				
252030	Textiles, Apparel & Luxury Goods	8.0%	3.0%	(1.5%)	3.3%	(2.8%)	(2.7%)	16.5%	11.0%	16.4%	(6.4%)	25.1%	(10.2%)	(28.6%)	2.4%	(12.4%)	13.7%	(5.5%)	6.0%	(29.0%)	10.4%				
253010	Hotels, Restaurants & Leisure	7.2%	15.6%	(25.2%)	(20.1%)	(40.4%)	(28.0%)	(13.5%)	(12.5%)	11.4%	2.2%	(13.5%)	(23.0%)	12.4%	21.3%	(0.2%)	14.9%	(0.8%)	9.7%	10.7%	7.6%				
253020	Diversified Consumer Services	3.5%	11.6%	9.5%	(6.2%)	(20.4%)	(13.0%)	(13.8%)	(7.1%)	(17.3%)	(5.6%)	(4.2%)	(3.3%)	(8.1%)	8.2%	11.3%	3.6%	16.4%	7.5%	7.3%	6.6%				
255010	Distributors	(11.8%)	6.7%	(7.8%)	(6.4%)	(8.6%)	(13.0%)	(15.5%)	(8.2%)	(11.5%)	(15.2%)	6.7%	(6.0%)	(9.8%)	7.0%	(15.7%)	(7.9%)	2.4%	7.8%	20.7%	20.1%				
255020	Internet & Direct Marketing Retail	(0.5%)	(1.8%)	(2.6%)	5.7%	15.6%	1.1%	6.5%	13.4%	(6.4%)	0.6%	(40.0%)	28.3%	31.4%	18.8%	22.7%	22.2%	(11.9%)	5.8%	(6.6%)	5.1%				
255030	Multiline Retail	(1.5%)	16.2%	(5.3%)	(5.9%)	4.0%	(9.3%)	(0.7%)	(2.2%)	12.3%	0.7%	37.6%	14.4%	(19.8%)	(9.7%)	(26.3%)	(9.2%)	6.4%	(3.5%)	(16.9%)	4.3%				
255040	Specialty Retail	1.6%	11.5%	(5.9%)	(7.8%)	0.6%	(18.2%)	(1.4%)	(4.8%)	(1.1%)	(8.3%)	17.7%	(2.5%)	(12.9%)	3.7%	(16.5%)	(7.3%)	20.1%	4.4%	(16.9%)	14.2%				
30	Consumer Staples	(5.5%)	20.2%	(23.3%)	(44.2%)	(21.9%)	(32.8%)	(5.0%)	(36.7%)	(1.6%)	(10.6%)	26.6%	(23.1%)	(33.3%)	23.2%	(24.4%)	3.8%	1.6%	21.7%	18.2%	19.6%				
301010	Food & Staples Retailing	(5.0%)	23.7%	(7.3%)	(31.5%)	1.5%	(28.3%)	(1.1%)	(28.1%)	(0.5%)	(10.9%)	32.7%	(12.9%)	(30.3%)	16.9%	(29.0%)	1.9%	4.9%	19.3%	0.3%	20.5%				
302010	Beverages	(5.3%)	14.0%	(24.1%)	(37.8%)	(24.5%)	(27.6%)	(9.2%)	(29.6%)	(0.4%)	(10.6%)	4.6%	(25.9%)	(14.9%)	26.3%	(9.2%)	5.4%	(0.8%)	19.3%	27.4%	19.0%				
302020	Food Products	0.8%	18.4%	(19.6%)	(34.0%)	(20.1%)	(21.3%)	(7.3%)	(27.8%)	(6.8%)	(3.7%)	23.3%	(16.1%)	(31.9%)	17.5%	(15.7%)	3.9%	3.8%	14.7%	18.7%	8.7%				
302030	Tobacco	(6.2%)	3.2%	(12.2%)	(35.6%)	(13.7%)	(16.7%)	5.1%	(24.6%)	(3.4%)	(6.9%)	16.7%	(14.8%)	(17.3%)	13.9%	(16.0%)	4.4%	3.0%	13.5%	14.7%	9.8%				
303010	Household Products	(1.9%)	20.3%	(25.4%)	(35.8%)	(24.9%)	(32.0%)	(8.9%)	(34.0%)	2.0%	(6.8%)	23.1%	(17.9%)	(32.7%)	15.1%	(20.9%)	(0.7%)	(3.8%)	17.7%	16.0%	15.2%				
303020	Personal Products	(5.5%)	(14.6%)	(5.1%)	1.8%	(26.3%)	(2.4%)	(1.1%)	3.5%	10.3%	(0.1%)	3.1%	(0.4%)	(10.9%)	(6.3%)	3.6%	(3.6%)	(16.5%)	(4.6%)	(24.5%)	(1.3%)				
35	Health Care	(10.9%)	15.8%	(15.2%)	(35.4%)	(27.4%)	(35.7%)	(8.6%)	(22.9%)	(14.8%)	(6.4%)	(1.7%)	(13.2%)	(18.6%)	20.1%	2.0%	8.0%	16.8%	18.9%	3.7%	6.7%				
351010	Health Care Equipment & Supplies	(19.5%)	4.8%	(12.6%)	(24.1%)	(12.4%)	(34.3%)	(7.5%)	(12.8%)	(17.5%)	(4.6%)	(41.3%)	(12.9%)	16.6%	17.1%	33.8%	3.3%	4.7%	6.5%	7.2%	7.4%				
351020	Health Care Providers & Services	13.6%	5.8%	3.9%	(15.0%)	(22.4%)	(23.3%)	5.9%	(12.2%)	(4.3%)	5.0%	25.2%	16.1%	(8.9%)	2.4%	(16.8%)	7.3%	18.4%	8.6%	(3.5%)	(6.5%)				
351030	Health Care Technology	(11.7%)	NA	(2.7%)	NA	(9.2%)	NA	(2.1%)	NA	(1.4%)	NA	(6.7%)	NA	(9.6%)	NA	8.3%	NA	(11.2%)	NA	(6.0%)	NA				
352010	Biotechnology	(12.4%)	12.1%	(8.4%)	(25.1%)	(13.4%)	(26.9%)	1.0%	(9.3%)	(11.3%)	(13.8%)	(9.9%)	(21.3%)	(17.3%)	18.7%	12.1%	13.5%	6.9%	20.4%	(14.3%)	11.6%				
352020	Pharmaceuticals	(9.0%)	17.4%	(19.1%)	(35.4%)	(22.9%)	(28.8%)	(18.8%)	(26.0%)	(9.3%)	(4.5%)	16.7%	(10.7%)	(30.8%)	16.1%	(16.5%)	(0.7%)	14.7%	16.2%	17.8%	6.5%				
352030	Life Sciences Tools & Services	(19.0%)	6.6%	(10.2%)	(1.7%)	(13.9%)	(12.4%)	1.1%	(8.7%)	(5.3%)	(4.7%)	(35.7%)	(22.4%)	18.2%	20.5%	16.4%	7.6%	0.7%	9.0%	13.4%	8.9%				
40	Financials	13.6%	(12.7%)	52.0%	29.7%	(3.4%)	6.0%	19.0%	22.5%	(6.7%)	8.0%	39.9%	44.0%	(13.5%)	(43.5%)	(15.7%)	(31.9%)	(7.8%)	(37.6%)	(1.5%)	(16.4%)				
401010	Banks	15.4%	(5.5%)	52.0%	26.1%	(0.6%)	5.9%	22.2%	17.6%	2.2%	10.8%	42.6%	39.9%	(14.1%)	(41.4%)	(14.5%)	(29.0%)	(10.7%)	(36.2%)	(9.1%)	(17.5%)				
402010	Diversified Financial Services	12.6%	(18.8%)	35.6%	26.9%	(4.7%)	12.5%	12.6%	24.2%	(24.0%)	9.0%	12.4%	39.5%	5.5%	(39.8%)	(9.9%)	(27.9%)	16.3%	(32.0%)	24.4%	(16.1%)				
402020	Consumer Finance	12.6%	(8.6%)	27.2%	21.9%	(0.4%)	2.3%	(2.4%)	16.3%	(13.6%)	4.4%	29.7%	37.3%	(10.9%)	(36.6%)	(11.5%)	(20.9%)	(1.9%)	(22.9%)	4.9%	(12.7%)				
403010	Insurance	1.1%	(16.4%)	30.1%	16.4%	(8.9%)	(6.9%)	13.7%	8.8%	(17.1%)															

Shareholder Return to Reach \$1.3T

Figure 98: \$ Announced Share Repurchases
S&P 500 companies as of 11/8/2017



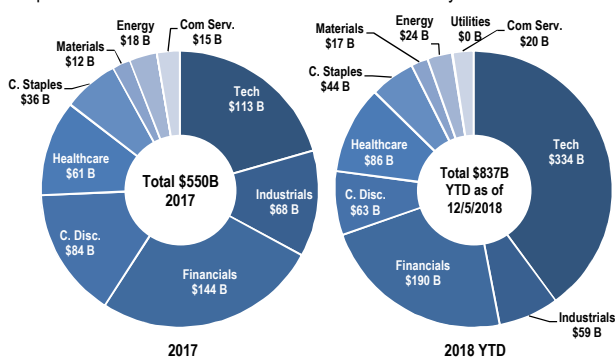
Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 99: Announced vs. Executed Buybacks YTD
\$ in billions

S&P 500 Sectors	Buybacks		
	Announced	Executed	Delta
Technology	\$334	\$211	\$123
Financials	\$190	\$117	\$72
Staples	\$44	\$26	\$18
Health Care	\$86	\$78	\$8
Discretionary	\$63	\$55	\$7
Materials	\$17	\$10	\$7
Energy	\$24	\$20	\$5
Industrials	\$59	\$56	\$3
Utilities	\$0	\$2	(\$1)
Comm. Serv.	\$20	\$31	(\$11)
S&P 500	\$837	\$607	\$231

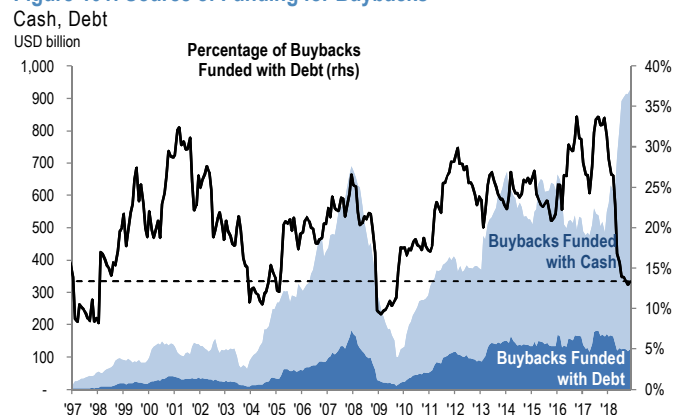
Source: J.P. Morgan US Equity Strategy and Quantitative Research, Bloomberg

Figure 100: Repurchase Landscape, Then and Now
Comparison of 2017 and 2018 YTD announcements by sector



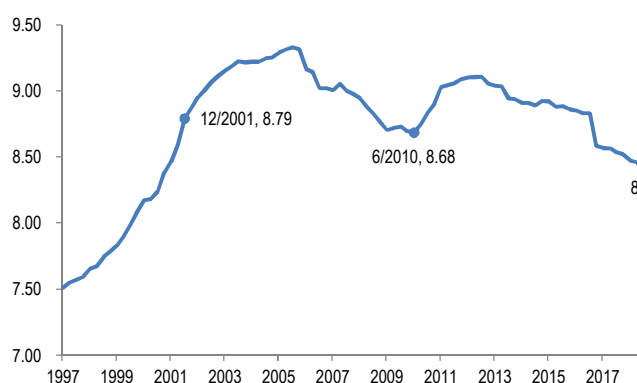
Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 101: Source of Funding for Buybacks



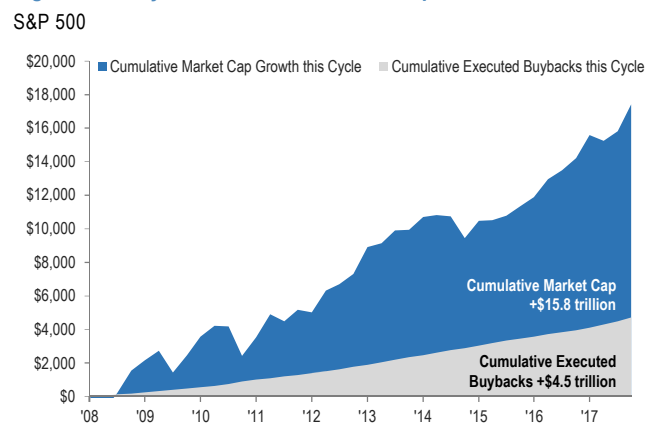
Source: J.P. Morgan US Equity Strategy and Quantitative Research, Bloomberg

Figure 102: S&P 500 Divisor at 2001 Levels Due to Buybacks
Since 1997



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 103: Buybacks Relative to Market Cap



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 104: S&P 500 Buyback Activity

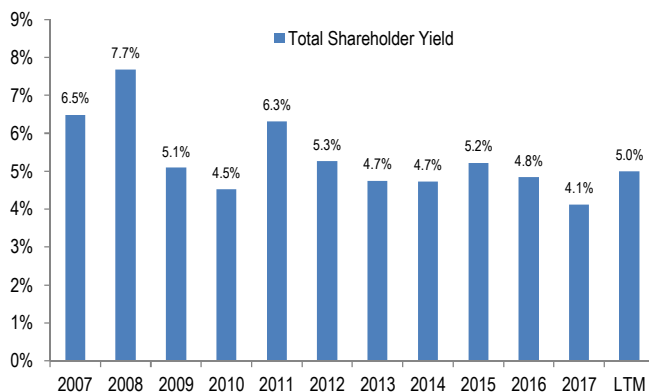
Current Constituents

	S&P 500 Index, Current Constituents																
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	4Q2017	1Q2018	2Q2018	3Q2018	LTM	2019E
Gross Stock Buybacks	\$529,934	\$344,858	\$278,494	\$282,498	\$444,752	\$382,647	\$455,459	\$524,350	\$562,871	\$553,050	\$545,551	\$143,708	\$197,541	\$197,345	\$214,779	\$753,374	\$800,000
YoY Change	29%	-35%	-19%	1%	57%	-14%	19%	15%	7%	-2%	-1%	3%	42%	60%	61%	41%	
Less: Equity Issuance	115,305	444,910	244,252	114,417	129,932	125,333	118,299	121,014	141,111	102,877	87,386	19,149	25,643	23,586	26,009	94,386	100,000
Net Buybacks	\$414,629	\$100,052	\$34,242	\$168,081	\$314,820	\$257,314	\$337,161	\$403,336	\$421,760	\$450,172	\$458,165	\$124,559	\$171,898	\$173,759	\$188,771	\$658,988	\$700,000
Net Buyback Yield	3.5%	-1.3%	0.4%	1.5%	2.8%	2.0%	2.1%	2.2%	2.3%	2.2%	1.9%	0.5%	0.7%	0.7%	0.7%	2.7%	
Cash Dividend Paid	\$234,449	\$239,778	\$213,031	\$221,074	\$255,150	\$288,007	\$321,356	\$357,268	\$405,368	\$422,238	\$448,295	\$115,610	\$117,053	\$120,551	\$120,257	\$473,471	\$500,000
YoY Change	14%	2%	-11%	4%	15%	13%	12%	11%	13%	4%	6%	6%	9%	10%	4%	7%	
Total: Gross Buybacks + Dividends	\$764,384	\$584,636	\$491,524	\$503,572	\$699,902	\$670,654	\$776,816	\$881,618	\$968,239	\$975,288	\$993,847	\$259,318	\$314,594	\$317,896	\$335,037	\$1,226,844	\$1,300,000
Total Shareholder Yield	6.5%	7.7%	5.1%	4.5%	6.3%	5.3%	4.7%	4.7%	5.2%	4.8%	4.1%	1.1%	1.3%	1.3%	1.3%	5.0%	5.1%
Net Income	\$694,336	\$553,797	\$527,731	\$757,630	\$867,572	\$924,478	\$963,673	\$1,054,309	\$1,057,173	\$1,062,101	\$1,178,608	\$317,630	\$343,284	\$359,997	\$377,766	\$1,398,677	\$1,572,130
Dividend Payout as % of Net Income	34%	43%	40%	29%	29%	31%	33%	34%	38%	40%	38%	36%	34%	33%	32%	34%	32%
Buybacks as % of Net Income	76%	62%	53%	37%	51%	41%	47%	50%	53%	52%	46%	45%	58%	55%	57%	54%	38%
Total Payout as % of Net Income	110%	106%	93%	66%	81%	73%	81%	84%	92%	92%	84%	82%	92%	88%	89%	88%	70%
Cash flow from Operations	\$1,213,912	\$1,199,010	\$1,215,755	\$1,441,239	\$1,550,852	\$1,601,905	\$1,648,654	\$1,704,088	\$1,680,871	\$1,742,559	\$1,855,827	\$370,073	\$503,775	\$516,453	\$562,827	\$1,953,129	
less Capex	\$451,881	\$489,551	\$413,015	\$444,230	\$529,695	\$584,842	\$607,958	\$663,177	\$629,697	\$602,257	\$617,113	\$179,309	\$164,094	\$176,635	\$175,949	\$695,986	\$730,786
YoY Change	7%	8%	-16%	8%	19%	10%	4%	9%	-5%	-4%	2%	9%	21%	20%	13%	15%	5%
Adjusted CFO	\$762,031	\$709,460	\$802,740	\$997,009	\$1,021,157	\$1,017,063	\$1,040,696	\$1,040,910	\$1,051,174	\$1,140,302	\$1,238,714	\$190,765	\$339,681	\$339,818	\$386,878	\$1,257,142	
Capex as % of CFO	37%	82%	61%	51%	69%	66%	37%	39%	37%	35%	33%	48%	33%	34%	31%	36%	

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Factset

Figure 105: Total Shareholder Yield (LTM)

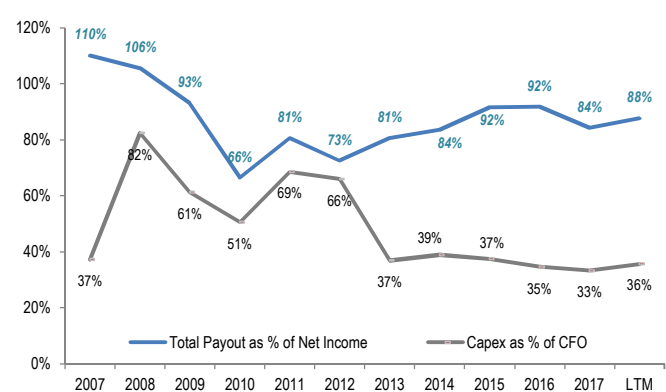
Current Constituents



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 106: Total Payout as % of Net Incomes and % of Cash Flow

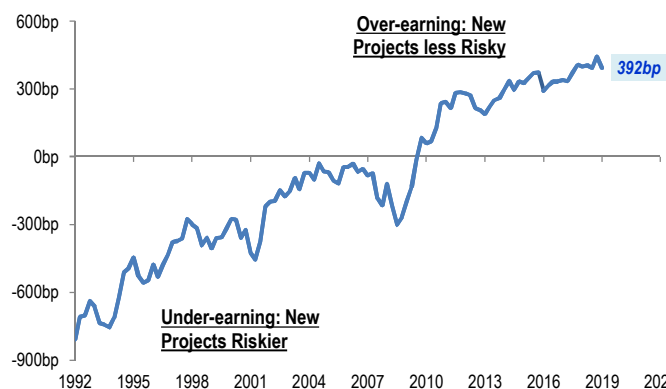
Current Constituents



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 107: Ample Opportunity Spread, a Catalyst for CAPEX

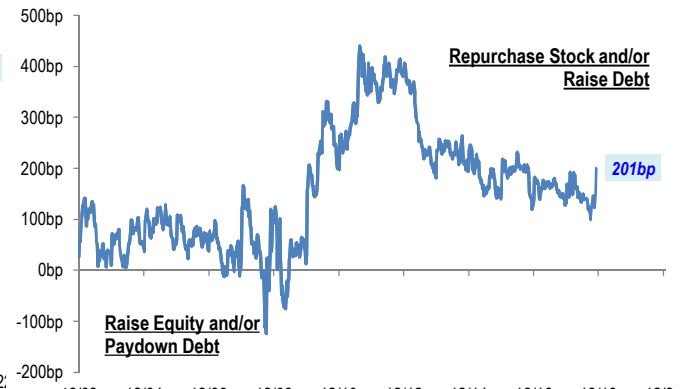
Net income Margin less Equity Discount Rate



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 108: Leverage Spread Declining, but Still Positive

Earnings Yield less High Grade Bond Yield



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

Figure 109: 2018 YTD — Top 50 Buyback Announcements

Company	Ticker	BB Size USD (mm)
1 Apple Inc	AAPL	100,000
2 QUALCOMM Inc	QCOM	30,000
3 Cisco Systems Inc	CSCO	25,000
4 UnitedHealth Group Inc	UNH	24,865
5 Wells Fargo & Co	WFC	24,500
6 Wells Fargo & Co	WFC	22,571
7 JPMorgan Chase & Co	JPM	20,700
8 Bank of America Corp	BAC	20,600
9 Caterpillar Inc	CAT	20,000
10 Wells Fargo & Co	WFC	18,046
11 Citigroup Inc	C	17,600
12 QUALCOMM Inc	QCOM	16,000
13 PepsiCo Inc	PEP	15,000
14 NIKE Inc	NKE	15,000
15 Intel Corp	INTC	15,000
16 Oracle Corp	ORCL	12,000
17 Broadcom Inc	AVGO	12,000
18 Texas Instruments Inc	TXN	12,000
19 Amgen Inc	AMGN	10,000
20 AbbVie Inc	ABBV	10,000
21 QUALCOMM Inc	QCOM	10,000
22 Micron Technology Inc	MU	10,000
23 Walgreens Boots Alliance Inc	WBA	10,000
24 PayPal Holdings Inc	PYPL	10,000
25 QUALCOMM Inc	QCOM	10,000
26 3M Co	MMM	10,000
27 Facebook Inc	FB	9,000
28 ConocoPhillips	COP	9,000
29 Alphabet Inc	GOOGL	8,590
30 Adobe Inc	ADBE	8,000
31 Visa Inc	V	7,500
32 AbbVie Inc	ABBV	7,500
33 Mastercard Inc	MA	6,500
34 eBay Inc	EBAY	6,000
35 Mondelez International Inc	MDLZ	6,000
36 Applied Materials Inc	AMAT	6,000
37 Starbucks Corp	SBUX	5,938
38 Lowe's Cos Inc	LOW	5,000
39 Celgene Corp	CELG	5,000
40 Colgate-Palmolive Co	CL	5,000
41 Goldman Sachs Group Inc/The	GS	5,000
42 Western Digital Corp	WDC	5,000
43 Morgan Stanley	MS	4,700
44 LyondellBasell Industries NV	LYB	4,435
45 NetApp Inc	NTAP	4,000
46 McKesson Corp	MCK	4,000
47 HP Inc	HPQ	4,000
48 International Business Machine	IBM	4,000
49 CSX Corp	CSX	3,500
50 Waters Corp	WAT	3,500
Top 50 Total		638,046

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bloomberg

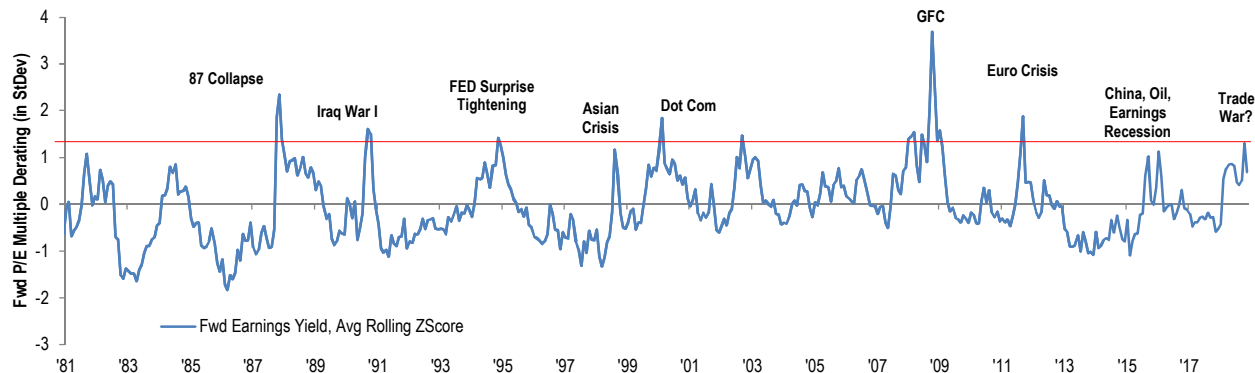
Figure 110: 2017 — Top 50 Buyback Announcements

Company	Ticker	BB Size USD (mm)
1 Apple Inc	AAPL	35,000
2 Walmart Inc	WMT	20,000
3 JPMorgan Chase & Co	JPM	19,400
4 Boeing Co/The	BA	18,000
5 Citigroup Inc	C	15,600
6 Home Depot Inc/The	HD	15,000
7 Home Depot Inc/The	HD	15,000
8 Bank of America Corp	BAC	12,000
9 Oracle Corp	ORCL	12,000
10 Wells Fargo & Co	WFC	11,500
11 Goldman Sachs Group Inc/The	GS	11,313
12 Intel Corp	INTC	10,000
13 Merck & Co Inc	MRK	10,000
14 Pfizer Inc	PFE	10,000
15 Honeywell International Inc	HON	8,000
16 Comcast Corp	CMCSA	7,000
17 Norfolk Southern Corp	NSC	6,550
18 Texas Instruments Inc	TXN	6,000
19 Verizon Communications Inc	VZ	5,009
20 General Motors Co	GM	5,000
21 Lowe's Cos Inc	LOW	5,000
22 Aon PLC	AON	5,000
23 AbbVie Inc	ABBV	5,000
24 Best Buy Co Inc	BBY	5,000
25 VF Corp	VFC	5,000
26 Travelers Cos Inc/The	TRV	5,000
27 Visa Inc	V	5,000
28 PayPal Holdings Inc	PYPL	5,000
29 Delta Air Lines Inc	DAL	5,000
30 Medtronic PLC	MDT	5,000
31 Walgreens Boots Alliance Inc	WBA	5,000
32 Morgan Stanley	MS	5,000
33 Hewlett Packard Enterprise Co	HPE	5,000
34 Bank of America Corp	BAC	5,000
35 Anthem Inc	ANTM	5,000
36 CarMax Inc	KMX	4,550
37 American Express Co	AXP	4,400
38 Aetna Inc	AET	4,000
39 Fidelity National Information	FIS	4,000
40 DowDuPont Inc	DWDP	4,000
41 Mastercard Inc	MA	4,000
42 Marriott International Inc/MD	MAR	3,564
43 American International Group I	AIG	3,500
44 Cognizant Technology Solutions	CTSH	3,400
45 LyondellBasell Industries NV	LYB	3,288
46 Express Scripts Holding Co	ESRX	3,086
47 ConocoPhillips	COP	3,000
48 Altaba Inc	YHOO	3,000
49 Marathon Petroleum Corp	MPC	3,000
50 eBay Inc	EBAY	3,000
Top 50 Total		381,160

Valuation Outright Cheap after 3x turn P/E De-rating

Figure 111: US Equities Are Pricing in Shock after the Significant De-rating

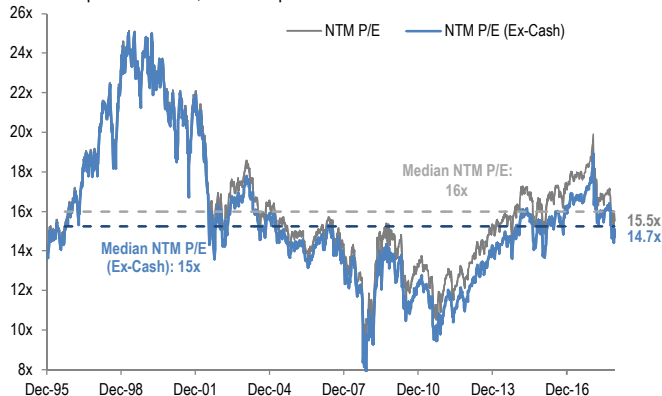
S&P 500



Source: US Equity Strategy and Global Quantitative Research

Figure 112: S&P 500 Valuation based on IBES Operating EPS

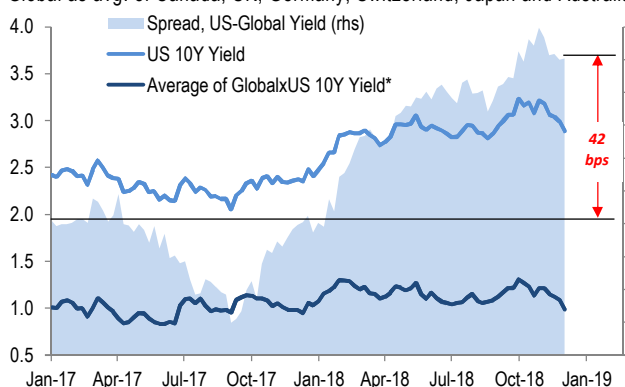
Bottom-Up Since 1995, PE Multiple 0.8x lower ex-Cash at ~14.7x



Source: J.P. Morgan US Equity Strategy and Quantitative Research, I/B/E/S

Figure 114: US 10Y 54bps Higher vs. Avg Global Yield Since 2017

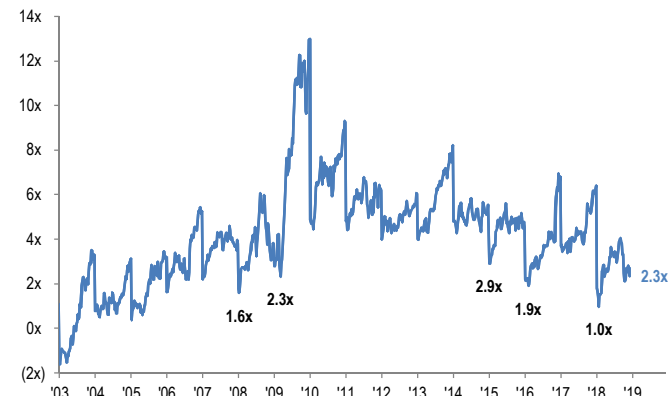
Global as avg. of Canada, UK, Germany, Switzerland, Japan and Australia



Source: J.P. Morgan US Equity Strategy and Quantitative Research, Bloomberg

Figure 113: Small-Cap vs. Large-cap Valuation Spread Tightening

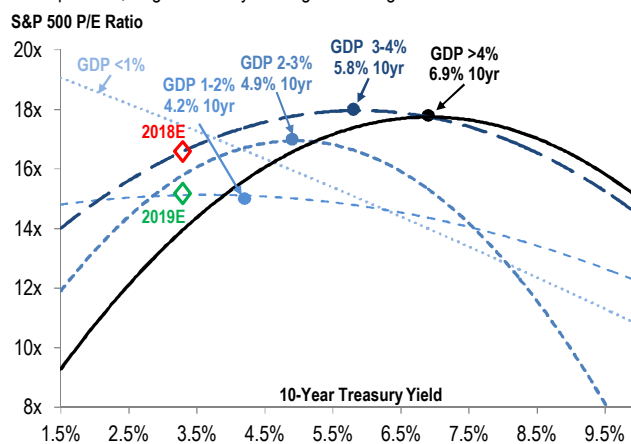
S&P 500 NTM P/E Relative to S&P 600



Source: J.P. Morgan US Equity Strategy and Quantitative Research, BEA, Bloomberg

Figure 115: P/E Sensitivity to Rising Yields

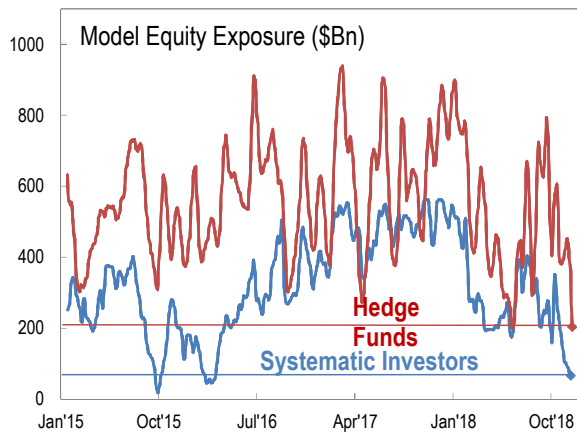
1947-present, segmented by GDP growth regime



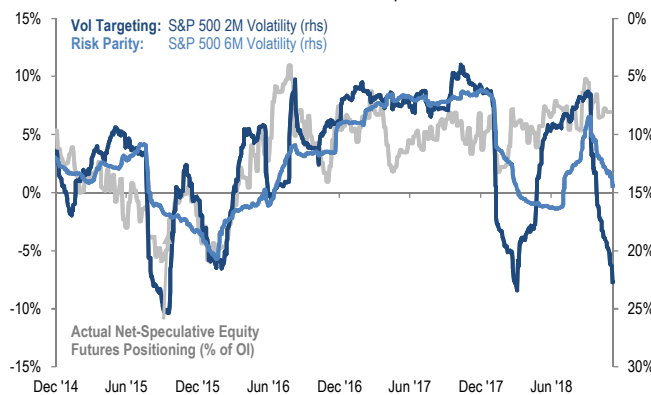
Source: J.P. Morgan US Equity Strategy and Quantitative Research, BEA, Bloomberg

Investor Positioning

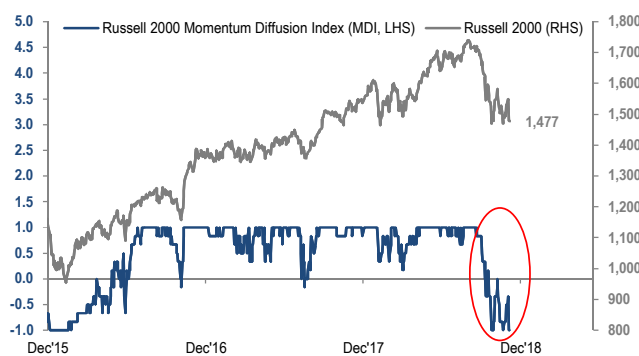
Figure 116: Systematic and Discretionary Funds Exposure
USD billion, model



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, S&P and Bloomberg
Figure 118: Positioning Signals for Systematic Equity Strategies
Futures include S&P 500, S&P E-Mini, Nasdaq 100Mini, DJIA Mini, R2000

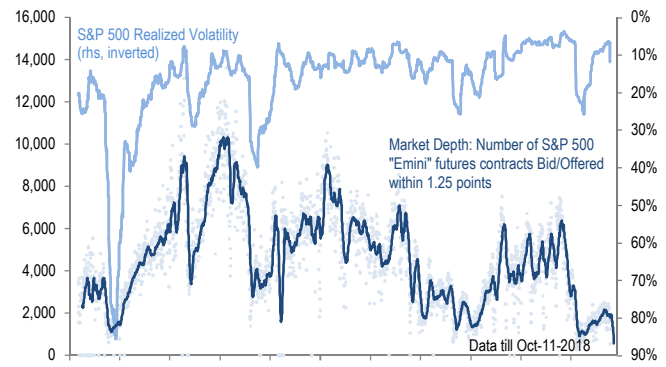


Source: J.P. Morgan US Equity Strategy & Global Quantitative Research
Figure 120: Trend Following Strategies Max Short Small-Caps
MDI vs. Russell 2000 Performance



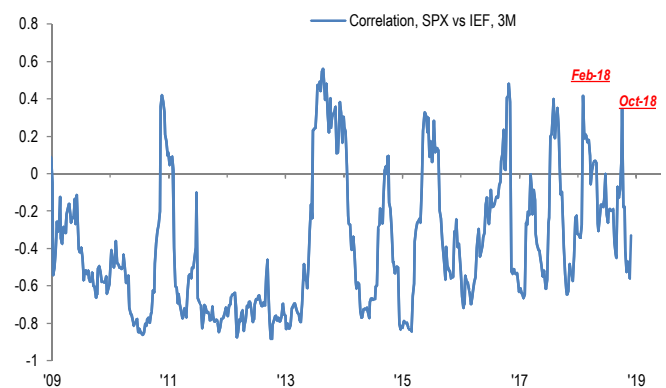
Source: J.P. Morgan US Equity Strategy & Global Quant Research

Figure 117: Deleveraging in a Poor Market Depth Environment
Realized Vol vs Market Depth

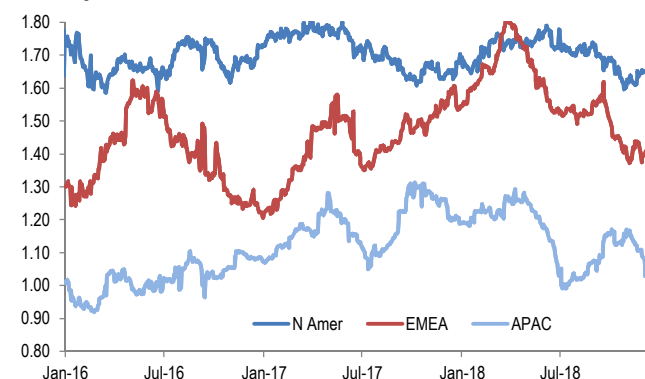


Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Federal Reserve

Figure 119: Equity/Bond Correlations Break Twice in 2018
3M Rolling Correlation



Source: J.P. Morgan US Equity Strategy & Global Quantitative Research
Figure 121: Equity Hedge Fund L/S Positioning Ratios
J.P. Morgan Prime



Source: J.P. Morgan US Equity Strategy & Global Quant Research

Stock-level ownership data indicates significant disparity in relative sector positioning of investor types. Broadly, Hedge Funds report larger sector overweights than Mutual Funds and Pension Funds whose holdings more closely resemble the market at large, but note that Hedge Fund positions include only their long exposure.

Figure 122: 3Q18 Industry Positioning by Investor Type

Over / underweight relative to S&P 1500

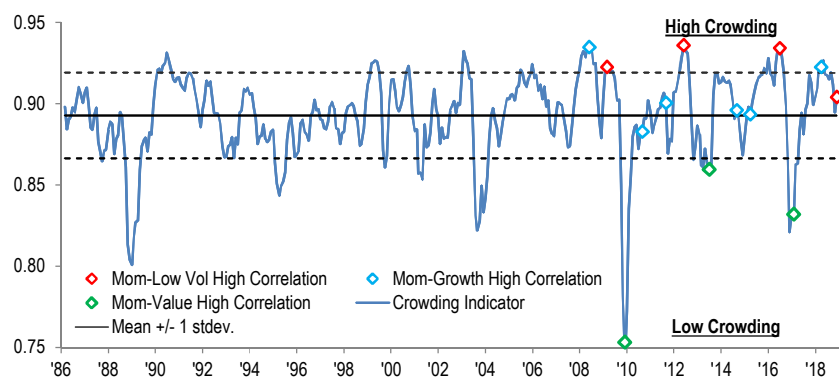
Sector / Industry	Fund Positioning Relative to S&P 1500 - As of Last Quarter End								Total Institutional
	Asset Manager (ex Mutual Fund)	Mutual Fund	Hedge Fund*	Pension Fund	Sovereign Wealth	Pension Fund + Sovereign WF	Private Banking/WM	Non-Institutional	
Communications	-0.3%	-0.5%	-4.4%	+2.0%	+7.7%	+3.8%	+1.4%	+1.2%	-0.4%
Media	+0.0%	-0.2%	-3.0%	+2.0%	+8.1%	+4.0%	+1.2%	-0.0%	+0.0%
Telecom Serv.	-0.3%	-0.3%	-1.4%	-0.0%	-0.5%	-0.2%	+0.2%	+1.2%	-0.4%
Discretionary	-0.1%	-0.2%	-0.4%	+1.4%	-1.6%	+0.4%	+1.3%	+0.2%	-0.1%
Autos	+0.1%	+0.0%	-0.1%	+0.1%	+0.3%	+0.1%	-0.0%	-0.1%	+0.0%
Durables/Apparel	+0.2%	+0.1%	-0.0%	+0.6%	+0.3%	+0.5%	+0.3%	-0.6%	+0.2%
Cons. Svcs.	-0.0%	-0.1%	+0.3%	+0.8%	-0.5%	+0.4%	+0.6%	-0.1%	+0.0%
Retailing	-0.4%	-0.3%	-0.5%	-0.1%	-1.7%	-0.6%	+0.4%	+1.0%	-0.3%
Energy	-0.2%	+0.0%	-0.5%	-0.6%	-0.4%	-0.6%	-0.0%	+0.6%	-0.2%
Financials	+0.3%	-1.1%	+0.9%	-2.7%	+2.2%	-1.1%	-2.8%	+1.0%	-0.3%
Banks	+0.2%	-1.4%	+1.4%	-1.3%	-1.6%	-1.4%	-2.3%	+1.3%	-0.4%
Div. Finls.	-0.1%	-0.1%	-0.1%	-1.0%	+4.3%	+0.7%	-0.2%	+0.1%	-0.0%
Insurance	+0.1%	+0.5%	-0.5%	-0.4%	-0.5%	-0.4%	-0.3%	-0.4%	+0.1%
Health Care	+0.8%	+1.0%	+2.6%	-0.4%	-2.2%	-1.0%	+0.6%	-2.8%	+0.9%
HC Equip/Svc	+0.7%	+0.5%	+3.1%	-0.5%	-1.4%	-0.8%	-0.2%	-2.4%	+0.7%
Pharma/Biotech	+0.0%	+0.5%	-0.5%	+0.1%	-0.8%	-0.2%	+0.8%	-0.5%	+0.1%
Industrials	-0.1%	+0.4%	+2.7%	+0.6%	-1.6%	-0.1%	+1.3%	-1.0%	+0.3%
Capital Goods	-0.3%	+0.4%	+2.2%	+0.5%	-2.4%	-0.4%	-0.2%	-0.2%	+0.1%
Com/Prof Svcs	+0.1%	+0.1%	-0.0%	+0.0%	+0.7%	+0.3%	+0.3%	-0.4%	+0.1%
Transportation	+0.1%	-0.1%	+0.5%	+0.1%	+0.1%	+0.1%	+1.2%	-0.4%	+0.1%
Materials	+0.0%	+0.1%	+0.6%	+0.5%	-0.6%	+0.1%	+0.1%	-0.3%	+0.1%
Staples	-1.1%	-1.1%	-0.3%	-1.3%	-1.1%	-1.3%	-0.9%	+3.5%	-1.1%
Food/Stpls Retail	-0.7%	-0.6%	-0.8%	-0.5%	-0.6%	-0.5%	-0.9%	+2.2%	-0.7%
Food/Bev/Tobac	-0.2%	-0.6%	+0.6%	-0.6%	-0.1%	-0.5%	-0.1%	+0.9%	-0.3%
HH/Per Prod.	-0.2%	+0.0%	-0.1%	-0.2%	-0.4%	-0.3%	+0.1%	+0.4%	-0.1%
Technology	+0.4%	+0.0%	-2.2%	+0.2%	-1.8%	-0.5%	-0.8%	-0.1%	+0.0%
Semiconductors	+0.2%	+0.1%	-0.4%	-0.3%	-0.0%	-0.2%	-0.4%	-0.2%	+0.1%
Software & Svcs	+0.4%	+0.6%	+0.3%	+1.0%	-2.2%	-0.1%	-0.9%	-1.3%	+0.4%
Hardware/Equip	-0.2%	-0.6%	-2.2%	-0.5%	+0.4%	-0.2%	+0.5%	+1.5%	-0.4%
Real Estate	+0.8%	+0.8%	+0.4%	+0.8%	-0.4%	+0.4%	+0.0%	-2.3%	+0.7%
Utilities	-0.3%	+0.5%	+0.5%	-0.4%	-0.2%	-0.3%	-0.1%	+0.1%	-0.0%
% of total AUM	43%	20%	5%	3%	1%	4%	3%	23%	77%

Source: J.P. Morgan US Equity Strategy & Global Quant Research, 13F Filings and FactSet. *Includes only long positions.

Change (vs. 1Q ago) — Fund Positioning Relative to S&P 1500							
Sector / Industry	Asset Manager (ex Mutual Fund)	Mutual Fund	Hedge Fund*	Pension Fund + Sovereign WF	Private Banking/WM	Non- Institutional	Total Institutional
Communications	-0.9%	-0.8%	+1.9%	-1.3%	-4.9%	+2.5%	-0.6%
Media	-1.0%	-0.4%	+1.9%	-1.3%	-4.9%	+3.2%	-0.6%
Telecom Serv.	+0.1%	-0.4%	-0.0%	+0.0%	+0.0%	-0.7%	-0.0%
Discretionary	-0.2%	-1.6%	+1.3%	-0.6%	-0.8%	+2.8%	-0.5%
Autos	+0.1%	+0.0%	-0.3%	-0.0%	+0.1%	-0.1%	+0.0%
Durables/Apparel	+0.3%	+0.1%	+0.6%	+0.2%	+0.1%	-1.1%	+0.3%
Cons. Svcs.	-0.0%	+0.1%	+0.3%	+0.4%	+0.5%	-0.1%	+0.0%
Retailing	-0.6%	-1.9%	+0.8%	-1.2%	-1.5%	+4.1%	-0.9%
Energy	+0.2%	+0.1%	-0.8%	-0.1%	+0.2%	-0.8%	+0.1%
Financials	+0.8%	+0.5%	-0.3%	+0.1%	+1.1%	-3.8%	+0.5%
Banks	+0.4%	+0.5%	+0.7%	+0.5%	+0.7%	-3.0%	+0.4%
Div. Finls.	+0.3%	-0.6%	-0.4%	-0.3%	+0.7%	-0.2%	+0.0%
Insurance	+0.1%	+0.6%	-0.5%	-0.2%	-0.3%	-0.6%	+0.2%
Health Care	+0.4%	-0.2%	+2.0%	+0.1%	+0.7%	+0.1%	+0.3%
HC Equip/Svc	+0.9%	+0.8%	+2.3%	-0.2%	+0.7%	-3.1%	+0.9%
Pharma/Biotech	-0.5%	-1.0%	-0.3%	+0.3%	+0.0%	+3.2%	-0.5%
Industrials	-0.2%	+0.9%	-1.7%	+1.3%	+1.3%	+0.1%	+0.1%
Capital Goods	-0.4%	+0.8%	-1.1%	+0.9%	+0.2%	+0.7%	-0.1%
Com/Prof Svcs	+0.0%	+0.1%	-0.2%	+0.1%	+0.0%	+0.1%	+0.0%
Transportation	+0.3%	+0.1%	-0.4%	+0.3%	+1.1%	-0.7%	+0.2%
Materials	-0.1%	-0.1%	+0.5%	+0.2%	+0.9%	+0.3%	-0.0%
Staples	-1.7%	-1.3%	-1.4%	-0.4%	+0.5%	+5.8%	-1.5%
Food/Stpls Retail	-1.1%	-0.6%	-1.1%	-0.5%	-0.4%	+3.5%	-0.9%
Food/Bev/Tobac	-0.2%	-0.6%	+0.2%	-0.0%	+0.6%	+1.0%	-0.3%
HH/Per Prod.	-0.4%	-0.1%	-0.5%	+0.1%	+0.3%	+1.3%	-0.3%
Technology	+1.1%	+0.8%	-2.5%	+0.3%	-0.1%	-3.8%	+0.7%
Semiconductors	-0.1%	-0.2%	-0.2%	+0.1%	-0.0%	+1.1%	-0.2%
Software & Svcs	+0.2%	+0.5%	-2.2%	+0.3%	-0.7%	+0.5%	+0.1%
Hardware/Equip	+1.0%	+0.5%	-0.1%	-0.1%	+0.6%	-5.3%	+0.8%
Real Estate	+0.9%	+1.0%	+0.3%	+0.4%	+0.7%	-3.0%	+0.8%
Utilities	-0.3%	+0.7%	+0.6%	+0.1%	+0.5%	-0.3%	+0.1%
% of total AUM	43%	20%	5%	4%	3%	23%	77%

Style Positioning — Neglected Cyclical; Beloved Defensives

Figure 123: Growth-Based Momentum Crowding Unwound, and Shifting to Low Vol



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 124: JPM US Style Views

++ = Very Favorable, + = Favorable, ~ = Neutral, - = Unfavorable, -- = Very Unfavorable

	Recommendation	Business Cycle	Valuation	Positioning /Sentiment
Value	N	~	++	++
Growth	O/W	+	++	++
Mom.	N	+	--	+
Quality	N	+	-	-
Low Vol	U/W	~	--	-

Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 125: Low-Vol-Value Forward P/E Spread at 98 %-tile

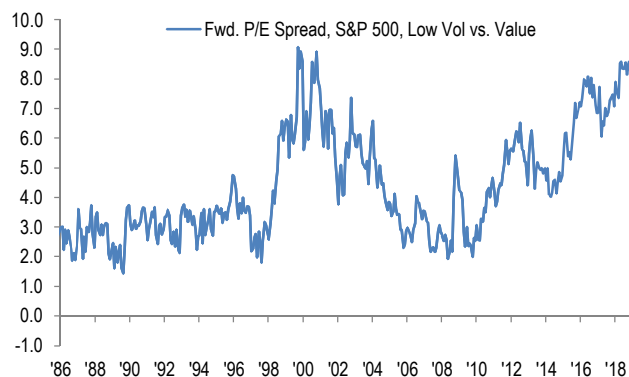


Figure 126: Low-Vol-Growth Forward P/E Spread at 98%-tile

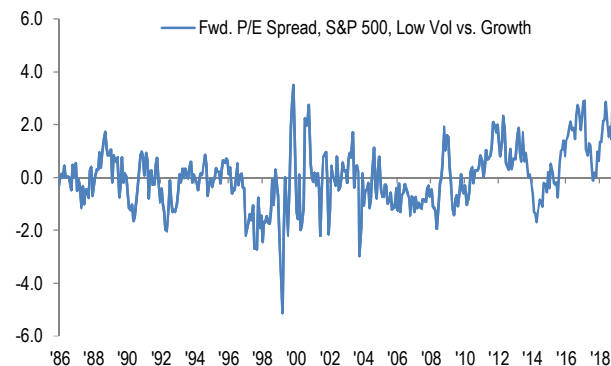
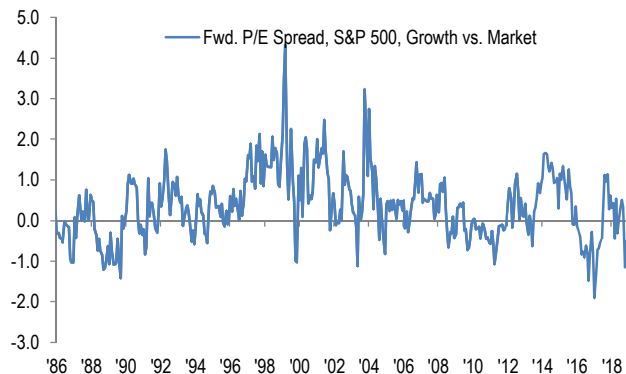


Figure 127: Market-Growth Spread at 87%ile



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 128: Market-Value Spread at 97%ile

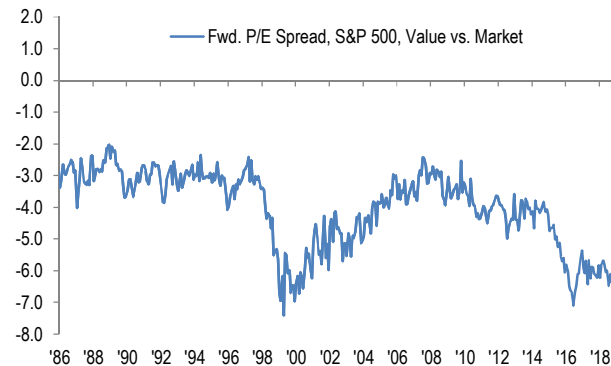


Figure 129: Historical Drivers of Momentum



Figure 130: Momentum-Growth Decoupled

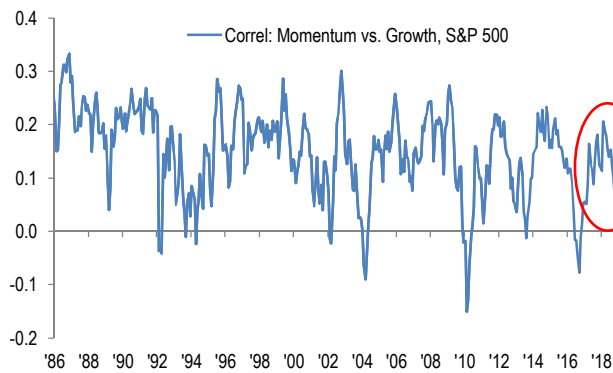
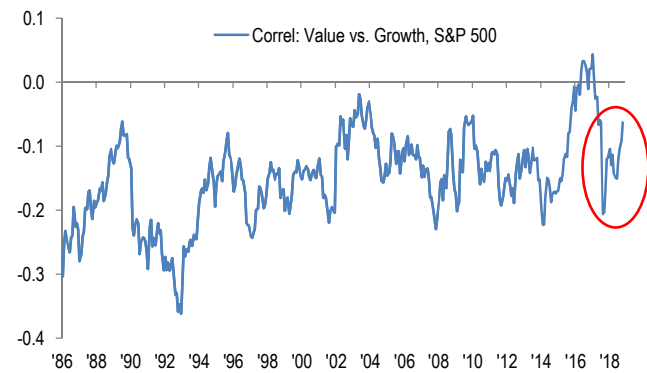
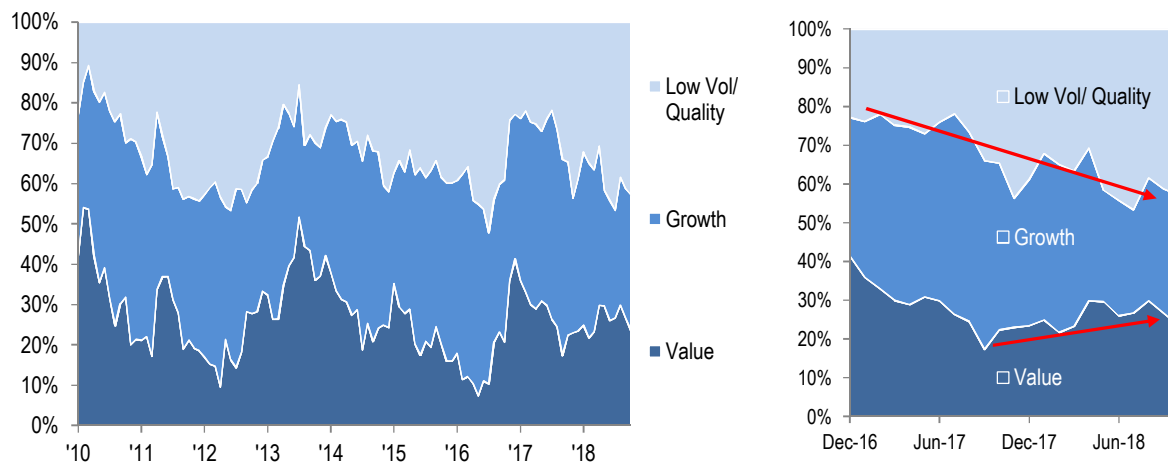


Figure 131: Growth-Value Convergence



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Figure 132: Momentum Basket Decomposition—Dominated by Quality/Low Vol Stocks



Source: J.P. Morgan US Equity Strategy and Quantitative Research

Style Screen

Figure 133: US Stocks: Rotate out of Low Vol and Quality (Stocks to Avoid) and into Growth (Stocks to Favor), as of Nov 30th, 2018

	Growth (OW)	Value (N)	Mom. (N)	Quality (N)	LowVol (UW)
Top Ind.	Semiconductors & Semiconductor Software & Services Materials Energy	Automobiles & Components Insurance Telecommunication Services Materials	Technology Hardware & Equipmen Retailing Health Care Equipment & Servic Telecommunication Services	Technology Hardware & Equipmen Telecommunication Services Diversified Financials Consumer Services	Utilities Diversified Financials Pharmaceuticals Real Estate
Bottom Ind.	Utilities Automobiles & Components Food Beverage & Tobacco Consumer Services	Software & Services Real Estate Consumer Services Household & Personal Products	Automobiles & Components Materials Insurance Capital Goods	Biotechnology Energy Consumer Durables & Apparel Semiconductors & Semiconductor	Retailing Semiconductors & Semiconductor Energy Consumer Durables & Apparel
	Name Ticker Score	Name Ticker Score	Name Ticker Score	Name Ticker Score	Name Ticker Score
Top 50 Stocks based on Sector Neutral Scores	Incyle Corp INCY 3.00	Pg&E Corp PCG 3.00	Adv Micro Device AMD 3.00	Public Strage PSA 2.80	Alexandria Real ARE 2.03
	Cboe Global Mark CBOE 3.00	Western Digital WDC 3.00	Mosaic Co/The MOS 3.00	S&P Global Inc SPGI 2.80	Verisk Analyt VRSK 1.93
	Brighthouse Fina BHF 3.00	Brighthouse Fina BHF 3.00	Fortinet Inc FTNT 2.79	Micron Tech MU 2.75	Ihs Markit Ltd INFO 1.92
	Micron Tech MU 2.87	Xerox Corp XRX 3.00	Aes Corp AES 2.70	H&R Block Inc HRB 2.63	Essex Property ESS 1.90
	PulteGroup Inc PHM 2.54	Dxc Technology C DXC 2.98	United Continent UAL 2.66	Moody'S Corp MCO 2.61	Waste Management WM 1.85
	Adv Micro Device AMD 2.47	Ford Motor Co F 2.84	Under Armo-C UA 2.50	Starbucks Corp SBUX 2.52	Republic Svcs RSG 1.84
	Analog Devices ADI 2.41	Hewlett Packa HPE 2.84	Tripadvisor Inc TRIP 2.43	United Parcel-B UPS 2.49	Us Bancorp USB 1.77
	Lennar Corp-A LEN 2.31	Micron Tech MU 2.72	Hca Healthcare I HCA 2.41	Apartment Invest AIV 2.48	Genuine Parts Co GPC 1.71
	Amazon.Com Inc AMZN 2.19	Quanta Services PWR 2.70	Hollyfrontier Co HFC 2.40	Centerpoint Ener CNP 2.46	Kinder Morgan In KMI 1.69
	Starbucks Corp SBUX 2.15	Cbre Group Inc-A CBRE 2.59	Abiomed Inc ABMD 2.38	Simon Property SPG 2.44	Walt Disney Co DIS 1.66
	Nvidia Corp NVDA 2.10	Goodyear Tire GT 2.56	Cme Group Inc CME 2.28	Intuit Inc INTU 2.20	Amphenol Corp-A APH 1.60
	Facebook Inc-A FB 2.08	Mylan Nv MYL 2.52	Under Armour-A UAA 2.26	Lyondellbasell-A LYB 2.08	Exxon Mobil Corp XOM 1.56
	Paccar Inc PCAR 2.02	General Motors C GM 2.52	Mccormick-NV MKC 2.24	Pfizer Inc PFE 2.06	Fiserv Inc FISV 1.53
	Tapestry Inc TPR 1.98	Mckesson Corp MCK 2.45	Ww Grainger Inc GWW 2.23	Home Depot Inc HD 2.03	Interpublic Grp IPG 1.51
	Cbre Group Inc-A CBRE 1.96	General Electric GE 2.43	Advance Auto Par AAP 2.15	Mastercard Inc-A MA 2.02	Jpmorgan Chase JPM 1.50
	Fmc Corp FMC 1.89	Westrock Co WRK 2.24	Nrg Energy NRG 1.97	Nvidia Corp NVDA 1.97	Zoetis Inc ZTS 1.48
	Vertex Pharm VRTX 1.87	Valero Energy VLO 2.19	Progressive Corp PGR 1.95	Clorox Co CLX 1.97	Torchmark Corp TMK 1.47
	Ch Robinson CHRW 1.86	Baker Hughes A BHGE 2.15	Rollins Inc ROL 1.94	Vertex Pharm VRTX 1.93	Linde Plc LIN 1.42
	Dollar Tree Inc DLTR 1.85	Cardinal Health CAH 2.12	Church & Dwight CHD 1.93	Zoetis Inc ZTS 1.92	Expedia Group In EXPE 1.42
	Pioneer Natural PXD 1.82	Coty Inc-CI A COTY 2.12	Twitter Inc TWTR 1.84	Seagate Technolo STX 1.87	Costco Wholesale COST 1.40
	Align Technology ALGN 1.81	Lennar Corp-A LEN 2.10	Conocophillips COP 1.82	Altria Group Inc MO 1.85	Air Prods & Chem APD 1.38
	Centerpoint Ener CNP 1.78	Prudential Finl PRU 2.04	Express Scripts ESRX 1.76	Mettler-Toledo MTD 1.81	Kansas City Sout KSU 1.36
	Concho Resources CXO 1.76	News Corp-CI B NWS 2.04	Msci Inc MSCI 1.71	Masco Corp MAS 1.80	Merck & Co MRK 1.36
	Molson Coors-B TAP 1.73	Host Hotels & Re HST 2.03	Realty Income O 1.69	Csx Corp CSX 1.77	Ecolab Inc ECL 1.33
	Regency Centers REG 1.71	Unum Group UNM 2.03	Discovery Inc - DISCA 1.68	Hershey Co/The HSY 1.75	Pentair Plc PNR 1.32
	Hologic Inc HOLX 1.68	Fluor Corp FLR 2.00	Bail Corp BLL 1.61	O'Reilly Automot ORLY 1.72	Roper Technologi ROP 1.29
	Philip Morris In PM 1.67	Jacobs Engin Grp JEC 2.00	Twenty-First - B FOX 1.59	T Rowe Price Grp TROW 1.69	Morgan Stanley MS 1.26
	Schwab (Charles) SCHW 1.67	Weyerhaeuser Co WY 1.95	Simon Property SPG 1.58	Extra Space Stor EXR 1.69	Coca-Cola Co/The KO 1.25
	Alexandria Real ARE 1.67	Allergan Plc AGN 1.87	Csx Corp CSX 1.58	Torchmark Corp TMK 1.68	Western Union WU 1.25
	Northern Trust NTRS 1.64	Mettlife Inc MET 1.87	Twenty-First C-A FOXA 1.51	Ross Stores Inc ROST 1.63	Oracle Corp ORCL 1.24
	People'S United PBCT 1.56	Archer-Daniels ADM 1.84	Chipotle Mexican CMG 1.48	Progressive Corp PGR 1.61	Fidelity Nationa FIS 1.21
	Digital Realty DLR 1.55	Tyson Foods-A TSN 1.82	Discovery Inc-C DISCK 1.45	Apple Inc AAPL 1.58	Johnson&Johnson JNJ 1.21
	State St Corp STT 1.53	American Interna AIG 1.82	Merck & Co MRK 1.45	Accenture Plc-A ACN 1.58	Aon Plc AON 1.21
	Csx Corp CSX 1.53	Kimco Realty KIM 1.76	Arthur J Gallagher AJG 1.43	Msci Inc MSCI 1.56	Booking Holdings BKNG 1.21
	Stryker Corp SYK 1.52	Express Scripts ESRX 1.75	Aon Plc AON 1.42	Nextera Energy NEE 1.51	Honeywell Intl HON 1.21
	Sherwin-Williams SHW 1.51	American Airline AAL 1.69	Oneok Inc OKE 1.42	Phillips 66 PSX 1.48	Intercontinental ICE 1.21
	Netflix Inc NFLX 1.51	Marathon Petrole MPC 1.67	Motorola Solutio MSI 1.39	Exelon Corp EXC 1.48	Ingersoll-Rand IR 1.20
	Dte Energy Co DTE 1.50	United Continent UAL 1.66	Key sight Tec KEYS 1.39	Affli Managers AMG 1.47	Norfolk Southern NSC 1.20
	Hunt (Jb) Trans JBHT 1.50	Lincoln Natl Crp LNC 1.66	Netflix Inc NFLX 1.39	Celgene Corp CELG 1.45	Constellation-A STZ 1.19
	Dxc Technology C DXC 1.45	Cvs Health Corp CVS 1.63	Illumina Inc ILMN 1.38	Tjx Cos Inc TJX 1.43	Omnicom Group OMC 1.18
	Garmin Ltd GRMN 1.43	Macy'S Inc M 1.60	Verisk Analyti VRSK 1.36	Berkshire Hath-B BRK/B 1.42	Williams Cos Inc WMB 1.17
	Eog Resources EOG 1.42	Johnson Controls JCI 1.59	Boeing Co/The BA 1.35	Regeneron Pharm REGN 1.40	Garmin Ltd GRMN 1.17
	Discovery Inc - DISCA 1.41	Kroger Co KR 1.58	Macy'S Inc M 1.34	Amerisourceberge ABC 1.40	Accenture Plc-A ACN 1.17
	Discovery Inc-C DISCK 1.41	Stericycle Inc SRCL 1.56	Red Hat Inc RHT 1.34	Texas Instrument TXN 1.39	Duke Realty Corp DRE 1.14
	Cintas Corp CTAS 1.40	Edison Intl EIX 1.53	Transdigm Group TDG 1.34	Sherwin-Williams SHW 1.35	Arthur J Gallagher AJG 1.11
	Ulta Beauty Inc ULTA 1.38	Whirlpool Corp WHR 1.52	Ecolab Inc ECL 1.33	Ch Robinson CHRW 1.34	Iqvia Holdings I IQV 1.11
	Phillips 66 PSX 1.38	Nucor Corp NUE 1.51	Nasdaq Inc NDAQ 1.33	Fastenal Co FAST 1.31	Pub Serv Enterp PEG 1.07
	Merck & Co MRK 1.36	United Rentals URI 1.51	Hcp Inc HCP 1.31	Nektar Therapeut NKTR 1.30	Waters Corp WAT 1.07
	Applied Material AMAT 1.32	PulteGroup Inc PHM 1.45	American Express AXP 1.27	Cbre Group Inc-A CBRE 1.30	Thermo Fisher TMO 1.07
	Sysco Corp SYY 1.31	Intl Paper Co IP 1.41	Eli Lilly & Co LLY 1.26	Hunt (Jb) Trans JBHT 1.25	Mcdonalds Corp MCD 1.06

Source: J.P. Morgan Macro Quantitative and Derivatives Strategy. For details about the construction of investment styles, please see our note [Framework for Style Investing](#)

Investment Themes

LONG J.P. Morgan Oversold Secular Growth Basket (JPAMOSSG <Index>)

Criteria Top 50 stocks from S&P 500 (excl. hard-to-borrow & M&A candidates) ranked on the following:

- 15% wt: High Revenue Growth based on Actual (last 3 years) and Consensus Estimates (next 3 yrs)
- 15% wt: High Investment (R&D and CAPEX) spending, last 3 years
- 15% wt: High Employee Growth, last 3 years
- 15% wt: High Price Momentum (Total Return and RSI), last 3 years
- 40% wt: Oversold Recently (Total Return and RSI), last 52 weeks

Figure 134: Oversold Secular Growth Basket (JPAMOSSG <Index>)

			Company Stats		Criteria					Technical					IBES Estimates		Valuation				
Ticker	Company	Industry	Current Price	Market Cap	Revenue		Investment Spending	Emp. Growth	Price Mom.	Recently		Short as % of Out.	RSI 30Day	Avg Rating 5 = Buy	Rating Repurchase % Mkt Cap	Sales	EPS	EV/	P/E	FCF Yield	
					Rank	Rank				Rank	Rank					Rank	Growth	NTM			Growth
ALGN	Align Technology, Inc.	Health Care Equipment & Supplies	\$219.3	\$17,544	33	22	7	57	66			4%	37	4.8	2.2%	29%	19%	60.8x	37.6x	14.7x	1.3%
NVDA	NVIDIA Corporation	Semiconductors & Semiconductor Equipment	\$158.3	\$96,557	32	65	125	69	69			2%	38	4.3	1.9%	4%	-5%	23.9x	21.9x	10.2x	4.3%
FB	Facebook, Inc. Class A	Interactive Media & Services	\$139.6	\$335,456	5	4	4	245	82			1%	43	4.4	4.1%	33%	12%	15.3x	18.8x	5.0x	3.8%
LRCX	Lam Research Corporation	Semiconductors & Semiconductor Equipment	\$145.7	\$22,615	45	53	66	129	71			5%	47	4.3	18.7%	-4%	-12%	6.6x	9.3x	4.2x	11.3%
IPGP	IPG Photonics Corporation	Electronic Equipment Instruments	\$131.4	\$7,016	64	18	36	231	65			7%	43	4.0	1.8%	0%	-8%	11.2x	18.1x	3.2x	5.3%
NKTR	Nektar Therapeutics	Pharmaceuticals	\$38.0	\$6,584	160	24	187	133	22			10%	41	4.5	0.0%	-79%	+ to -	12.1x	Neg	3.7x	12.4%
NFLX	Netflix, Inc.	Entertainment	\$282.9	\$123,360	16	9	9	79	173			4%	44	4.1	0.0%	33%	50%	98.3x	67.7x	24.6x	7.0%
MU	Micron Technology, Inc.	Semiconductors & Semiconductor Equipment	\$37.7	\$42,727	56	63	217	94	66			5%	44	4.1	0.0%	-1%	-19%	3.0x	3.9x	1.4x	23.3%
AMAT	Applied Materials, Inc.	Semiconductors & Semiconductor Equipment	\$34.7	\$34,100	84	78	134	142	64			2%	46	4.3	16.0%	-9%	-19%	6.3x	9.6x	5.0x	10.3%
ABMD	ABIOMED, Inc.	Health Care Equipment & Supplies	\$333.0	\$14,997	13	12	17	13	215			2%	46	5.0	0.5%	36%	21%	98.5x	66.6x	18.9x	1.2%
ATVI	Activision Blizzard, Inc.	Entertainment	\$48.2	\$36,741	152	21	67	291	39			3%	34	4.5	0.3%	9%	24%	25.8x	17.2x	3.4x	4.9%
COTY	Coty Inc. Class A	Personal Products	\$7.7	\$5,761	197	3	6	490	2			8%	35	3.5	—	-2%	3%	20.4x	10.7x	0.7x	2.6%
FANG	Diamondback Energy, Inc.	Oil Gas & Consumable Fuels	\$101.8	\$16,707	7	143	11	260	105			7%	40	4.8	0.0%	151%	60%	11.1x	9.8x	1.7x	-6.1%
ANET	Arista Networks, Inc.	Communications Equipment	\$238.4	\$17,984	129	8	26	45	185			2%	49	4.0	0.0%	30%	20%	75.9x	26.8x	9.2x	1.9%
SWKS	Skyworks Solutions, Inc.	Semiconductors & Semiconductor Equipment	\$70.6	\$12,536	116	57	48	424	30			3%	38	4.1	6.4%	3%	5%	9.3x	9.4x	3.1x	7.3%
MCHP	Microchip Technology Incorporated	Semiconductors & Semiconductor Equipment	\$73.4	\$17,360	44	43	50	166	159			16%	49	4.6	0.3%	23%	14%	20.3x	10.4x	3.4x	4.4%
INCY	Incyte Corporation	Biotechnology	\$65.1	\$13,854	15	2	14	467	87			3%	49	4.3	0.0%	21%	- to +	NA	30.8x	7.7x	0.6%
ALB	Albemarle Corporation	Chemicals	\$91.2	\$9,685	214	156	57	138	66			12%	42	4.2	5.3%	10%	16%	10.6x	14.7x	2.7x	3.6%
SIVB	SVB Financial Group	Banks	\$219.2	\$11,670	105	227	116	139	71			2%	36	4.5	0.0%	33%	29%	NA	10.6x	2.4x	8.0%
DXC	DXC Technology Co.	IT Services	\$60.5	\$16,952	234	327	12	73	53			2%	33	4.3	3.2%	-9%	6%	7.8x	6.8x	1.5x	16.3%
BR	Broadridge Financial Solutions, Inc.	IT Services	\$100.7	\$11,759	126	148	55	53	159			2%	38	3.5	2.3%	5%	10%	19.8x	20.6x	9.5x	5.6%
FLIR	FLIR Systems, Inc.	Electronic Equipment Instruments	\$44.7	\$6,190	275	88	109	161	70			2%	36	4.3	1.9%	2%	9%	22.1x	18.9x	3.2x	3.6%
URI	United Rentals, Inc.	Trading Companies & Distributors	\$104.8	\$8,502	139	254	162	230	14			4%	37	4.3	7.5%	19%	26%	6.8x	5.6x	2.6x	6.9%
AMZN	Amazon.com, Inc.	Internet & Direct Marketing Retail	\$1,699.2	\$830,851	22	5	2	17	296			1%	49	4.8	0.0%	27%	64%	39.2x	63.7x	21.2x	1.7%
LKQ	LKQ Corporation	Distributors	\$26.4	\$8,388	64	213	63	408	35			3%	40	4.9	0.1%	16%	18%	12.2x	10.5x	1.7x	7.5%
TTWO	Take-Two Interactive Software, Inc.	Entertainment	\$106.2	\$12,093	244	25	43	39	191			4%	43	4.6	4.0%	48%	70%	46.1x	20.9x	6.2x	2.8%
FTNT	Fortinet, Inc.	Software	\$75.4	\$12,853	31	35	27	29	278			4%	49	3.7	3.9%	20%	29%	57.9x	37.7x	14.4x	3.0%
CELG	Celgene Corporation	Biotechnology	\$72.8	\$50,906	50	6	128	462	87			2%	44	4.3	17.7%	15%	22%	15.6x	7.0x	10.5x	4.8%
CPRT	Copart, Inc.	Commercial Services & Supplies	\$49.0	\$11,476	108	148	117	16	188			3%	45	3.6	0.0%	11%	19%	16.5x	22.0x	6.9x	2.4%
WCG	WellCare Health Plans, Inc.	Health Care Providers & Services	\$244.2	\$12,206	53	163	93	11	216			4%	41	4.4	0.2%	37%	37%	15.2x	18.1x	2.9x	4.5%
AOS	A. O. Smith Corporation	Building Products	\$44.6	\$6,417	163	72	106	325	89			4%	40	4.1	2.2%	7%	14%	16.1x	15.9x	4.3x	5.4%
AVGO	Broadcom Inc.	Semiconductors & Semiconductor Equipment	\$227.2	\$93,952	24	1	34	175	256			2%	48	4.5	7.7%	8%	7%	11.2x	10.2x	3.5x	18.5%
XYL	Xylem Inc.	Machinery	\$66.8	\$12,010	220	31	108	81	180			2%	43	4.2	0.5%	7%	22%	18.4x	19.8x	4.6x	3.3%
XRAY	DENTSPLY SIRONA, Inc.	Health Care Equipment & Supplies	\$36.5	\$8,116	252	19	76	482	36			4%	47	3.7	6.2%	0%	-1%	NA	16.4x	1.6x	6.1%
BWA	BorgWarner Inc.	Auto Components	\$37.3	\$7,764	191	84	100	411	54			2%	43	4.2	1.9%	4%	7%	6.9x	8.0x	1.9x	11.1%
FTI	TechnipFMC Plc	Energy Equipment & Services	\$21.7	\$9,818	250	11	365	250	25			3%	35	4.2	4.5%	1%	30%	8.2x	15.6x	0.8x	5.8%
AAPL	Apple Inc.	Technology Hardware Stores	\$174.7	\$829,116	148	16	120	158	189			1%	39	4.0	9.1%	6%	16%	11.6x	12.7x	7.8x	3.5%
EA	Electronic Arts Inc.	Entertainment	\$83.9	\$25,343	236	86	230	307	34			2%	36	4.5	4.0%	6%	11%	23.0x	16.7x	4.8x	5.3%
LH	Laboratory Corporation of America	Health Care Providers & Services	\$143.6	\$14,488	147	175	34	291	114			2%	34	4.2	2.7%	2%	3%	12.0x	12.7x	2.0x	8.4%
APH	Amphenol Corporation Class A	Electronic Equipment Instruments	\$83.9	\$25,287	122	37	77	116	225			2%	43	4.4	2.9%	6%	10%	16.3x	20.8x	6.3x	3.7%
LEN	Lennar Corporation Class A	Household Durables	\$42.5	\$12,421	138	127	87	424	66			5%	46	4.7	0.4%	32%	60%	16.2x	6.4x	1.0x	12.4%
FBHS	Fortune Brands Home & Security	Building Products	\$42.5	\$6,015	213	112	98	450	30			3%	41	3.9	10.9%	9%	18%	12.6x	11.0x	2.7x	7.4%
ABBV	AbbVie, Inc.	Biotechnology	\$90.3	\$135,876	128	49	223	145	153			2%	51	3.5	7.7%	4%	16%	14.1x	10.4x	NA	9.4%
ETFC	E*TRADE Financial Corporation	Capital Markets	\$47.4	\$12,051	146	231	218	154	79			2%	40	4.8	6.7%	11%	20%	10.0x	11.3x	2.0x	11.5%
DHI	D.R. Horton, Inc.	Household Durables	\$37.0	\$13,907	57	173	78	320	126			3%	48	4.3	1.0%	11%	16%	8.6x	8.4x	1.5x	12.0%
WYNN	Wynn Resorts, Limited	Hotels Restaurants & Leisure	\$112.4	\$12,223	245	294	51	165	79			6%	48	4.0	0.1%	1%	-6%	15.3x	17.3x	6.8x	-2.8%
WRK	WestRock Company	Containers & Packaging	\$46.2	\$11,717	110	184	31	350	111			1%	46	4.2	1.7%	20%	15%	7.6x	9.9x	1.0x	11.4%
SCHW	Charles Schwab Corporation	Capital Markets	\$42.6	\$57,529	83	261	146	265	81			1%	39	4.2	0.8%	17%	29%	10.4x	14.7x	3.2x	6.3%
FLT	FleetCor Technologies, Inc.	IT Services	\$189.0	\$16,756	57	138	38	245	190			2%	43	5.0	2.3%	9%	18%	18.1x	15.8x	4.7x	5.5%
GOOGL	Alphabet Inc. Class A	Interactive Media & Services	\$1,078.1	\$322,315	48	36	54	192	249			1%	47	4.8	2.6%	25%	16%	21.4x	22.9x	4.4x	1.9%
Median				\$13.880	113	60	67	165	81			2.6%	43	4.3	2.2%	9%	16%	15.3x	15.6x	3.5x	5.4%

Ranks range from 1 to 500 with 1 being the best. Source: J.P. Morgan US Equity Strategy and Quantitative Research

LONG J.P. Morgan China/Trade Sensitive Basket (JPAMCNEX <Index>)

Criteria Top 50 stocks from S&P 500 (excl. hard-to-borrow & M&A candidates) ranked on the following:

- 50% wt: High Revenue to China
- 50% wt: High Mentions of Tariff Concerns in Call Transcripts

Figure 135: China/Trade Sensitive Basket (JPAMCNEX <Index>)

Ticker	Company	Industry	Company Stats		Price Perf (%)		Criteria		Technicals				IBES Estimates		Valuation			
			Current Price	Market Cap	12-mos Change	YTD	China Exposure Rank	Tariff Mentions Rank	Short as % of Out	Avg Rating RSI 30Day	1 = Sell 5 = Buy	Stock LTM % Mkt Cap	Sales Growth NTM	EPS Growth NTM	EV/ EBITDA LTM	P/E NTM	P/B	FCF Yield
APH	Amphenol Corporation Class A	Electronic Equipment Instrum	\$85.7	\$25,809	-5%	-2%	31	6	2%	45	4.4	2.9%	6%	10%	16.3x	21.3x	6.4x	3.7%
MTD	Mettler-Toledo International Inc.	Life Sciences Tools & Servic	\$628.7	\$15,745	0%	1%	40	1	3%	58	3.1	2.7%	4%	15%	22.2x	28.0x	29.6x	2.8%
COTY	Coty Inc. Class A	Personal Products	\$7.9	\$5,956	-54%	-60%	35	7	8%	36	3.5	—	-2%	3%	20.4x	11.0x	0.7x	2.5%
MCHP	Microchip Technology Corpora	Semiconductors & Semicond	\$74.5	\$17,615	-14%	-15%	15	36	16%	50	4.6	0.3%	23%	14%	20.3x	10.6x	3.4x	4.3%
A	Agilent Technologies, Inc.	Life Sciences Tools & Servic	\$72.9	\$23,242	5%	9%	33	38	1%	59	4.6	1.9%	6%	11%	17.7x	23.5x	5.1x	2.1%
EL	Estee Lauder Companies Inc. Cl	Personal Products	\$144.1	\$31,685	15%	13%	50	31	3%	54	4.4	3.7%	6%	9%	20.4x	28.1x	11.9x	2.7%
STX	Seagate Technology PLC	Technology Hardware Stora	\$41.6	\$11,897	8%	-1%	41	47	10%	43	3.0	3.2%	-8%	-16%	6.7x	7.9x	6.4x	15.7%
MOS	Mosaic Company	Chemicals	\$35.3	\$13,599	45%	37%	52	37	2%	55	3.9	0.0%	8%	46%	10.1x	14.3x	1.3x	4.0%
GLW	Corning Inc.	Electronic Equipment Instrum	\$32.2	\$25,733	-1%	1%	38	52	2%	49	4.0	8.9%	10%	23%	12.2x	15.4x	2.2x	3.2%
BWA	BorgWarner Inc.	Auto Components	\$37.7	\$7,841	-32%	-26%	20	76	2%	44	4.2	1.9%	4%	7%	6.9x	8.1x	1.9x	11.0%
FMC	FMC Corporation	Chemicals	\$83.2	\$11,206	-12%	-12%	24	75	3%	50	4.4	0.1%	3%	7%	16.1x	13.7x	3.7x	3.0%
SWKS	Skyworks Solutions, Inc.	Semiconductors & Semicond	\$70.8	\$12,562	-32%	-25%	2	102	3%	38	4.1	6.4%	3%	5%	9.3x	9.4x	3.1x	7.3%
TEL	TE Connectivity Ltd.	Electronic Equipment Instrum	\$74.2	\$25,443	-21%	-22%	37	71	1%	40	4.5	3.5%	-1%	5%	11.1x	12.6x	2.4x	6.5%
ADI	Analog Devices, Inc.	Semiconductors & Semicond	\$90.4	\$33,477	5%	2%	64	46	3%	52	4.2	0.7%	2%	-6%	14.1x	16.2x	3.0x	4.5%
ITW	Illinois Tool Works Inc.	Machinery	\$132.8	\$44,050	-22%	-20%	85	26	1%	47	3.3	4.0%	2%	9%	13.0x	16.4x	12.4x	4.6%
MMM	3M Company	Industrial Conglomerates	\$202.2	\$117,738	-17%	-14%	62	53	1%	50	3.2	3.5%	2%	10%	15.4x	18.7x	11.5x	4.1%
TXN	Texas Instruments Incorporated	Semiconductors & Semicond	\$96.1	\$92,318	-1%	-8%	7	110	2%	46	3.8	4.1%	-2%	2%	13.5x	17.3x	8.8x	5.2%
BF.B	Brown-Forman Corporation Clat	Beverages	\$46.7	\$14,563	-2%	-15%	107	11	2%	—	—	0.0%	7%	17%	NA	25.8x	16.4x	2.9%
AMAT	Applied Materials, Inc.	Semiconductors & Semicond	\$35.4	\$34,827	-33%	-31%	6	113	2%	47	4.3	15.6%	-9%	-19%	6.3x	9.8x	5.1x	10.1%
KLAC	KLA-Tencor Corporation	Semiconductors & Semicond	\$95.9	\$14,683	-6%	-9%	11	108	4%	48	4.5	3.4%	5%	4%	8.9x	9.4x	4.3x	11.0%
AVY	Avery Dennison Corporation	Containers & Packaging	\$93.7	\$8,122	-18%	-18%	21	99	1%	44	4.5	2.9%	4%	12%	12.7x	14.2x	7.8x	6.9%
VAR	Varian Medical Systems, Inc.	Health Care Equipment & Su	\$121.4	\$11,063	9%	9%	98	22	3%	56	3.2	1.6%	8%	9%	18.9x	25.2x	7.0x	2.8%
CAT	Caterpillar Inc.	Machinery	\$129.3	\$76,313	-8%	-18%	70	54	2%	48	4.2	2.6%	10%	18%	8.8x	10.1x	4.8x	6.4%
DHR	Danaher Corporation	Health Care Equipment & Su	\$106.3	\$74,506	13%	15%	57	67	1%	54	4.5	0.0%	5%	9%	18.4x	22.0x	2.7x	4.3%
LRGX	Lam Research Corporation	Semiconductors & Semicond	\$149.7	\$23,229	-22%	-19%	5	120	5%	49	4.3	18.2%	-4%	-12%	6.6x	9.6x	4.3x	11.0%
SEE	Sealed Air Corporation	Containers & Packaging	\$34.8	\$5,463	-28%	-29%	97	28	8%	44	4.2	19.9%	3%	15%	12.3x	12.9x	NA	0.7%
AME	AMETEK, Inc.	Electrical Equipment	\$72.1	\$16,731	-1%	-1%	111	14	3%	47	4.5	0.0%	10%	15%	16.2x	20.0x	3.7x	4.9%
IFF	International Flavors & Fragranc	Chemicals	\$138.3	\$14,740	-11%	-9%	22	104	4%	49	3.4	0.2%	49%	-1%	15.9x	22.3x	3.1x	3.0%
QCOM	QUALCOMM Incorporated	Semiconductors & Semicond	\$57.7	\$69,978	-13%	-10%	3	125	7%	42	4.0	32.7%	-6%	10%	40.0x	14.2x	75.8x	2.5%
PPG	PPG Industries, Inc.	Chemicals	\$106.7	\$25,603	-9%	-9%	66	62	3%	50	3.7	6.8%	3%	9%	12.5x	16.5x	5.1x	5.1%
GT	Goodyear Tire & Rubber Comp	Auto Components	\$23.0	\$5,362	-29%	-29%	82	50	7%	52	3.8	7.4%	3%	7%	5.6x	7.7x	1.1x	8.1%
MDLZ	Mondelez International, Inc. Clat	Food Products	\$44.5	\$64,652	4%	4%	23	111	1%	57	4.5	3.2%	0%	6%	19.8x	17.7x	2.5x	4.6%
BA	Boeing Company	Aerospace & Defense	\$342.5	\$194,501	24%	16%	92	42	1%	48	4.4	5.4%	9%	33%	16.5x	18.9x	NA	5.7%
WAT	Waters Corporation	Life Sciences Tools & Servic	\$195.5	\$14,805	-1%	1%	36	98	5%	51	2.9	6.1%	5%	15%	16.5x	21.3x	7.9x	1.0%
XRAY	DENTSPLY SIRONA, Inc.	Health Care Equipment & Su	\$36.8	\$8,192	-45%	-44%	55	83	4%	48	3.7	6.1%	0%	-1%	NA	16.6x	1.6x	6.1%
IPGP	IPG Photonics Corporation	Electronic Equipment Instrum	\$137.2	\$7,328	-40%	-36%	12	126	7%	45	4.0	1.7%	0%	-8%	11.2x	18.9x	3.3x	5.1%
APTIV	Aptiv PLC	Auto Components	\$71.6	\$18,859	-18%	-16%	51	88	2%	42	4.4	1.3%	7%	7%	12.1x	12.9x	5.2x	2.1%
SWK	Stanley Black & Decker, Inc.	Machinery	\$126.4	\$19,086	-26%	-26%	140	2	2%	47	4.4	2.8%	7%	7%	14.6x	14.4x	2.6x	5.6%
XYL	Xylem Inc.	Machinery	\$68.0	\$12,228	-2%	0%	72	73	2%	45	4.2	0.5%	7%	22%	18.4x	20.1x	4.7x	3.2%
XLNX	Xilinx, Inc.	Semiconductors & Semicond	\$91.3	\$23,100	31%	35%	26	122	2%	59	3.8	2.0%	16%	45%	19.9x	26.5x	9.4x	1.8%
FLS	Flowserve Corporation	Machinery	\$46.4	\$6,077	9%	10%	68	85	5%	46	3.1	0.0%	6%	30%	23.6x	21.4x	3.8x	3.6%
PG	Procter & Gamble Company	Household Products	\$93.3	\$232,473	4%	2%	73	82	1%	62	3.6	2.5%	1%	7%	14.0x	20.5x	4.4x	3.5%
CMI	Cummins Inc.	Machinery	\$146.4	\$23,501	-13%	-17%	141	16	2%	52	3.4	4.0%	6%	21%	7.8x	9.5x	3.3x	6.9%
QRVO	Qorvo, Inc.	Semiconductors & Semicond	\$64.2	\$8,014	-16%	-4%	13	145	5%	43	3.8	4.3%	7%	17%	11.7x	10.0x	1.7x	7.6%
AMD	Advanced Micro Devices, Inc.	Semiconductors & Semicond	\$21.1	\$21,107	94%	105%	19	143	12%	48	3.5	0.0%	7%	37%	46.4x	33.5x	18.8x	2.5%
FTNT	Fortinet, Inc.	Software	\$73.4	\$12,502	74%	68%	27	136	4%	47	3.7	4.0%	20%	29%	57.9x	36.7x	14.0x	3.0%
TMO	Thermo Fisher Scientific Inc.	Life Sciences Tools & Servic	\$243.9	\$98,184	27%	28%	117	51	1%	54	4.5	0.3%	5%	15%	19.7x	19.9x	3.7x	3.6%
WHR	Whirlpool Corporation	Household Durables	\$121.0	\$7,721	-28%	-28%	113	56	6%	52	3.2	16.9%	-1%	9%	16.4x	7.6x	3.3x	2.1%
ETN	Eaton Corp. Plc	Electrical Equipment	\$75.0	\$32,501	-4%	-5%	154	17	2%	46	4.1	2.1%	5%	13%	11.8x	12.7x	1.9x	6.5%
FFIV	FS Networks, Inc.	Communications Equipment	\$169.6	\$10,279	26%	29%	122	49	7%	46	3.2	5.8%	5%	10%	16.2x	15.6x	7.9x	6.3%
Median			\$18,237		-6%	-8%	46	59	2.8%	48	4.0	2.9%	5%	10%	15.0x	16.3x	4.4x	4.3%

Ranks range from 1 to 500 with 1 being the best. Source: J.P. Morgan US Equity Strategy and Quantitative Research

LONG J.P. Morgan Oil Beneficiaries Basket (JPAMNRGY <Index>)

This basket contains high conviction Energy stocks that our fundamental analysts think are best positioned for an environment where oil stays flat or surprises to the upside from current levels.

Figure 136: Foreign Exposure and USD Sensitive Basket (JPAMFORN<Index>)

Oil & Gas Stocks														
#	Ticker	Name	Industry	Analyst	Rating	Price		Wgt	Market Cap (\$M)	3m ADV (\$M)	Price Momentum			Div Yield Yr1E
						Price	Target				1M	3M	12M	
1	WPX US	WPX Energy	Oil Gas & Consumable Fuels	Michael A Glick	OW	\$13.95	\$22.00	7.1%	\$5,827	\$112	(13.1%)	(24.2%)	6.7%	na
2	SM US	SM Energy	Oil Gas & Consumable Fuels	Michael A Glick	OW	\$20.58	\$28.00	7.1%	\$2,299	\$68	(11.5%)	(31.2%)	(8.1%)	0.5%
3	OAS US	Oasis Petroleum	Oil Gas & Consumable Fuels	Michael A Glick	OW	\$7.40	\$14.00	7.1%	\$2,336	\$94	(25.0%)	(44.7%)	(28.2%)	na
4	CVE CT	Cenovus Energy	Oil Gas & Consumable Fuels	Phil Gresh, CFA	OW	\$11.20	\$17.00	7.1%	\$10,377	\$40	(5.1%)	(5.3%)	(8.8%)	1.8%
5	COP US	ConocoPhillips	Oil Gas & Consumable Fuels	Phil Gresh, CFA	OW	\$66.92	\$93.00	7.1%	\$79,398	\$465	(1.4%)	(8.5%)	30.5%	1.7%
6	PPL CN	Pembina Pipeline Corp	Electric Utilities	Jeremy Tonet, CFA	OW	\$45.24	\$57.00	7.1%	\$17,193	\$75	0.4%	2.4%	1.6%	5.0%
7	PAGP US	Plains GP Holdings, L.P.	Oil Gas & Consumable Fuels	Jeremy Tonet, CFA	OW	\$21.64	\$31.00	7.1%	\$5,989	\$42	(0.9%)	(15.6%)	2.4%	5.5%
8	HAL US	Halliburton Co.	Energy Equipment & Services	Sean C Meakim, CFA	OW	\$31.44	\$57.00	7.1%	\$27,664	\$386	(9.9%)	(20.4%)	(28.4%)	2.3%
9	FTI US	TechnipFMC PLC	Energy Equipment & Services	Sean C Meakim, CFA	OW	\$23.51	\$39.00	7.1%	\$10,573	\$100	(11.3%)	(22.2%)	(18.7%)	na
10	LBRT US	Liberty Oilfield Services	Energy Equipment & Services	Sean C Meakim, CFA	OW	\$15.99	\$28.00	7.1%	\$1,121	\$18	(19.4%)	(16.0%)	na	na
11	MRO US	Marathon	Oil Gas & Consumable Fuels	Arun Jayaram	OW	\$16.82	\$26.00	7.1%	\$13,982	\$244	(7.6%)	(20.1%)	12.9%	na
12	APC US	Anadarko Petroleum	Oil Gas & Consumable Fuels	Arun Jayaram	OW	\$52.98	\$73.00	7.1%	\$26,717	\$288	(0.4%)	(17.2%)	9.0%	na
13	PXD US	Pioneer Natural Resources	Oil Gas & Consumable Fuels	Arun Jayaram	OW	\$145.68	\$184.00	7.1%	\$24,833	\$261	(0.8%)	(14.9%)	(6.8%)	na
14	CXO US	Concho Resources	Oil Gas & Consumable Fuels	Arun Jayaram	OW	\$128.41	\$173.00	7.1%	\$25,714	\$259	(9.0%)	(5.2%)	(7.7%)	na
								Median	\$12,277	\$106	(8.3%)	(16.6%)	(6.8%)	2.0%

Source: J.P. Morgan US Equity Strategy and Quantitative Research

SHORT J.P. Morgan Expensive Defensives Basket (JPAMEXDF <Index>)

Criteria Top 50 stocks from S&P 500 (excl. hard-to-borrow & M&A candidates) ranked on the following:

- 50% wt: High 'Low Vol Score' based on 12M realized volatility
- 50% wt: Low 'Value Score' based on a composite of fwd P/E, P/B and P/Sales
- Filter: Bottom 50%ile on Earnings Growth

Figure 137: Expensive Defensives Basket (JPAMEXDF <Index>)

Ticker	Company	Industry	Company Stats		Price Perf (%)		Criteria		Technicals				IBES Estimates		Valuation			
			Current Price	Market Cap	12-mos Change	YTD	Low Vol Z-Score	Value Z-Score	Short as % of Out	Avg Rating RSI 30Day	1 = Sell 5 = Buy	Stock LTM % MktCap	Sales Growth NTM	EPS Growth NTM	EV/ EBITDA LTM	P/E NTM	P/B	FCF Yield
ROL	Rollins, Inc.	Commercial Services & Sup	\$59.0	\$12,864	27%	27%	0.9	-1.9	4%	48	4.0	0.1%	8%	18%	35.3x	48.2x	17.5x	1.8%
LIN	Linde plc	Chemicals	\$156.0	\$85,954	1%	1%	1.4	-1.3	2%	47	3.7	0.0%	143%	2%	NA	23.3x	7.2x	4.3%
WM	Waste Management, Inc.	Commercial Services & Sup	\$92.9	\$39,591	13%	8%	1.9	-0.9	1%	57	4.2	2.0%	6%	13%	11.6x	21.0x	6.4x	5.1%
COG	Cabot Oil & Gas Corporation	Oil Gas & Consumable Fuel	\$25.2	\$10,870	-13%	-12%	1.4	-1.3	8%	54	3.7	6.0%	30%	118%	20.7x	14.6x	5.2x	1.6%
ECL	Ecolab Inc.	Chemicals	\$157.6	\$45,512	16%	17%	1.3	-1.3	2%	54	3.7	0.7%	6%	16%	17.9x	26.7x	5.7x	3.3%
ZTS	Zoetis, Inc. Class A	Pharmaceuticals	\$90.4	\$43,438	25%	25%	1.5	-1.1	1%	49	4.3	1.5%	9%	14%	22.7x	26.2x	20.5x	2.8%
SBAC	SBA Communications Corp. Cla	Equity Real Estate Investme	\$171.5	\$19,436	1%	5%	0.4	-2.1	2%	59	4.4	4.0%	8%	-to +	23.7x	103.5x	NA	3.7%
YUM	Yum! Brands, Inc.	Hotels Restaurants & Leisur	\$91.5	\$28,576	10%	12%	0.9	-1.6	1%	57	3.9	8.0%	-2%	2%	13.0x	24.1x	NA	3.5%
AON	Aon plc	Insurance	\$160.6	\$38,670	15%	20%	1.2	-1.3	1%	54	3.8	4.6%	5%	10%	18.7x	17.5x	9.1x	4.5%
RSG	Republic Services, Inc.	Commercial Services & Sup	\$75.5	\$24,512	16%	12%	1.8	-0.6	2%	55	3.7	3.4%	4%	13%	11.4x	23.1x	3.1x	5.5%
NEE	NexEra Energy, Inc.	Electric Utilities	\$182.7	\$87,301	16%	17%	1.0	-1.4	1%	59	4.4	—	18%	12%	18.4x	21.8x	2.5x	6.0%
ESS	Essex Property Trust Inc.	Equity Real Estate Investme	\$265.7	\$17,552	8%	10%	1.9	-0.5	1%	60	4.0	0.0%	4%	-13%	23.6x	53.7x	2.8x	5.2%
MCD	McDonald's Corporaton	Hotels Restaurants & Leisur	\$185.5	\$142,965	8%	8%	1.1	-1.3	1%	60	4.5	3.5%	-2%	8%	15.2x	22.5x	NA	3.6%
USB	U.S. Bancorp	Banks	\$52.3	\$84,586	-5%	-2%	1.8	-0.6	1%	47	3.4	3.2%	5%	11%	NA	12.0x	1.9x	9.5%
AIV	Apartment Investment and Mana	Equity Real Estate Investme	\$47.3	\$7,360	7%	8%	0.5	-1.8	2%	61	3.5	0.0%	-3%	-98%	19.5x	337.8x	3.7x	18.0%
APD	Air Products and Chemicals, Inc.	Chemicals	\$161.4	\$35,426	-1%	-2%	1.4	-0.9	1%	51	4.6	0.0%	8%	13%	12.8x	19.1x	3.3x	3.3%
FISV	Fiserv, Inc.	IT Services	\$76.1	\$30,312	16%	16%	1.5	-0.7	1%	46	3.5	4.8%	7%	19%	16.8x	21.6x	11.5x	5.0%
WMB	Williams Companies, Inc.	Oil Gas & Consumable Fuel	\$24.5	\$29,695	-16%	-20%	1.2	-1.0	3%	42	4.6	0.0%	6%	25%	19.3x	23.6x	1.9x	3.3%
KO	Coca-Cola Company	Beverages	\$49.4	\$210,187	8%	8%	1.2	-0.9	1%	57	4.1	1.0%	2%	8%	23.6x	22.2x	11.5x	0.7%
DIS	Walt Disney Company	Entertainment	\$114.3	\$170,200	9%	6%	1.7	-0.5	2%	50	4.0	2.1%	3%	2%	11.1x	15.9x	3.5x	6.6%
ARE	Alexandria Real Estate Equities	Equity Real Estate Investme	\$127.1	\$13,665	0%	-3%	2.0	0.0	5%	54	4.4	0.0%	14%	-45%	23.6x	55.4x	2.0x	6.0%
PPG	PPG Industries, Inc.	Chemicals	\$105.8	\$25,377	-9%	-9%	1.5	-0.6	3%	49	3.7	6.8%	3%	9%	12.5x	16.4x	5.1x	5.2%
HP	Helmerich & Payne, Inc.	Energy Equipment& Service	\$60.2	\$6,560	3%	-7%	1.1	-0.9	8%	46	3.4	0.1%	25%	1725%	12.5x	30.0x	1.5x	2.9%
AJG	Arthur J. Gallagher & Co.	Insurance	\$75.1	\$13,785	14%	19%	1.1	-0.9	1%	50	3.9	0.2%	3%	5%	15.6x	19.1x	3.0x	4.0%
UAA	Under Armour, Inc. Class A	Textiles Apparel & Luxury C	\$24.1	\$4,516	81%	67%	0.8	-1.1	19%	59	3.0	0.1%	5%	103%	78.9x	69.8x	5.4x	-2.1%
HON	Honeywell International Inc.	Industrial Conglomerats	\$141.6	\$104,795	-5%	-4%	1.2	-0.7	1%	42	4.4	3.7%	-13%	0%	16.2x	17.8x	5.7x	5.6%
UDR	UDR, Inc.	Equity Real Estate Investme	\$42.9	\$11,517	9%	11%	0.7	-1.2	2%	61	3.3	0.2%	6%	-44%	24.4x	110.9x	4.5x	5.7%
V	Visa Inc. Class A	IT Services	\$141.1	\$248,220	25%	24%	1.0	-0.9	2%	51	4.7	2.9%	14%	21%	22.9x	25.4x	10.9x	4.7%
MSFT	Microsoft Corporation	Software	\$109.2	\$838,166	30%	28%	1.1	-0.7	1%	51	4.7	1.4%	14%	13%	17.2x	23.0x	9.8x	1.6%
COST	Costco Wholesale Corporation	Food & Staples Retailing	\$233.2	\$102,190	26%	25%	1.4	-0.5	1%	53	4.2	0.5%	10%	12%	17.2x	29.2x	8.0x	2.1%
ORLY	O'Reilly Automotive, Inc.	Specialty Retail	\$340.4	\$27,268	44%	42%	0.8	-1.0	2%	50	4.3	5.6%	7%	16%	15.2x	19.1x	54.9x	4.1%
GPC	Genuine Parts Company	Distributors	\$101.1	\$14,830	9%	6%	1.7	-0.1	2%	52	2.8	0.0%	6%	9%	13.2x	16.9x	4.1x	5.9%
HLT	Hilton Worldwide Holdings Inc	Hotels Restaurants & Leisur	\$75.6	\$22,418	-3%	-5%	0.8	-1.1	3%	52	4.5	8.4%	8%	24%	17.7x	23.7x	39.1x	5.6%
AWK	American Water Works Compan	Water Utilities	\$97.3	\$17,576	6%	6%	0.1	-1.8	2%	64	3.9	0.3%	6%	7%	14.6x	27.4x	3.0x	-0.9%
MRK	Merck & Co., Inc.	Pharmaceuticals	\$78.4	\$203,792	42%	39%	1.4	-0.5	3%	64	4.5	2.4%	7%	10%	16.5x	16.6x	6.4x	5.2%
BA	Boeing Company	Aerospace & Defense	\$331.9	\$188,481	20%	13%	0.7	-1.1	1%	45	4.4	5.5%	9%	33%	16.5x	18.3x	NA	5.9%
LLY	Eli Lilly and Company	Pharmaceuticals	\$115.8	\$122,712	37%	37%	1.0	-0.7	1%	57	3.6	2.6%	2%	8%	24.9x	19.9x	9.4x	2.7%
HSY	Hershey Company	Food Products	\$108.1	\$16,133	-3%	-5%	1.1	-0.7	3%	55	2.8	1.2%	3%	10%	13.9x	19.2x	18.4x	5.1%
ADP	Automatic Data Processing, Inc.	IT Services	\$143.2	\$62,674	25%	22%	1.0	-0.7	1%	49	3.6	1.5%	8%	22%	22.2x	25.4x	13.4x	4.4%
CME	CME Group Inc. Class A	Capital Markets	\$189.0	\$67,626	26%	29%	0.3	-1.4	2%	56	3.9	0.1%	29%	19%	22.1x	25.7x	2.8x	3.3%
VZ	Verizon Communications Inc.	Diversified Telecommunicati	\$58.1	\$239,987	14%	10%	0.6	-1.2	1%	54	3.8	0.0%	1%	6%	7.6x	12.3x	4.4x	7.4%
KMI	Kinder Morgan Inc Class P	Oil Gas & Consumable Fuel	\$16.5	\$36,328	-4%	-9%	1.7	0.0	2%	43	4.5	0.7%	5%	23%	13.2x	15.8x	1.1x	4.0%
CINF	Cincinnati Financial Corporation	Insurance	\$80.6	\$13,109	8%	7%	1.0	-0.7	2%	55	2.7	1.1%	-1%	0%	NA	24.3x	1.6x	8.9%
XOM	Exxon Mobil Corporation	Oil Gas & Consumable Fuel	\$78.4	\$331,888	-6%	-6%	1.6	-0.2	1%	47	3.3	0.2%	21%	29%	10.5x	13.9x	1.7x	5.2%
PNR	Pentair plc	Machinery	\$40.3	\$6,993	-16%	-15%	1.3	-0.3	2%	44	3.2	7.2%	-24%	-17%	NA	15.8x	3.7x	5.9%
JNJ	Johnson & Johnson	Pharmaceuticals	\$145.9	\$391,327	5%	4%	1.2	-0.4	1%	58	3.8	0.7%	2%	8%	15.0x	16.9x	6.1x	2.7%
CMS	CMS Energy Corporation	Multi-Utilities	\$52.9	\$14,991	6%	12%	0.7	-0.9	3%	62	3.7	—	-2%	2%	11.2x	21.2x	3.2x	-1.1%
VAR	Varian Medical Systems, Inc.	Health Care Equipment& Su	\$120.8	\$11,010	8%	9%	0.8	-0.7	3%	55	3.2	1.7%	8%	9%	18.9x	25.1x	7.0x	2.8%
TSCO	Tractor Supply Company	Specialty Retail	\$92.4	\$11,275	35%	24%	0.9	-0.7	2%	53	3.9	3.0%	9%	14%	13.2x	19.7x	7.5x	3.9%
AEE	Ameren Corporation	Multi-Utilities	\$70.2	\$17,140	10%	19%	0.8	-0.7	2%	62	3.0	0.1%	2%	-6%	10.1x	21.4x	2.2x	-1.4%
Median			\$30,003		9%	9%	1.1	-0.9	1.8%	54	3.9	1.3%	6%	10%	16.7x	22.0x	5.2x	4.2%

Ranks range from 1 to 500 with 1 being the best. Source: J.P. Morgan US Equity Strategy and Quantitative Research

Appendix I:

Sector Performance

Figure 138: Large-Cap Performance — 2018 YTD so far Similar to 2015

S&P 500 Sectors and Industries

2015		2016		2017		Year-to-Date		Start of Bull Market	
Industry	%Chg	Industry	%Chg	Industry	%Chg	Industry	%Chg	Industry	%Chg
Internet & Catalog Retail	83%	Metals & Mining	51%	Internet & Catalog Retail	47%	Power Prcdrs/Energy Traders	43%	Internet & Catalog Retail	2773%
Construction Materials	35%	Construction Materials	44%	Personal Products	47%	Internet & Catalog Retail	42%	Real Estate Mngmnt & Dvlpmnt	1472%
Internet Software are & Svcs	33%	Construction & Engineering	32%	Life Sciences Tools & Svcs	44%	Communications Equipment	25%	Consumer Finance	848%
Building Products	24%	Road & Rail	32%	Computers & Peripherals	42%	Software	24%	Building Products	744%
Gas Utilities	17%	Machinery	30%	Health Care Technology	42%	Life Sciences Tools & Svcs	24%	Road & Rail	679%
Tobacco	17%	Energy Equipment & Svcs	28%	Internet Software are & Svcs	41%	Health Care Equip & Supplies	18%	Health Care Pvrdrs & Svcs	638%
Hotels Restaurants & Leisure	14%	Semiconductors	27%	Power Prcdrs/Energy Traders	39%	Health Care Pvr drs & Svcs	18%	Airlines	608%
Life Sciences Tools & Svcs	14%	Diversified Financial Svcs	26%	Machinery	39%	Road & Rail	14%	Computers & Peripherals	584%
Industrial Conglomerates	14%	Commercial Svcs & Supplies	23%	Software	39%	Pharmaceuticals	12%	Media	579%
Software	11%	Oil Gas & Consumable Fuels	23%	Aerospace & Defense	39%	IT Services	11%	Life Sciences Tools & Svcs	568%
Health Care Pvrdrs & Svcs	11%	Electronic Equip & Instruments	22%	Real Estate Mngmnt & Dvlpmnt	38%	Textiles/Apparel	9%	Software	565%
Personal Products	10%	Commercial Banks	21%	Auto Components	36%	Food & Staples Retailing	8%	Diversified Financial Svcs	537%
Food Products	10%	Trading Cos & Distributors	21%	Semiconductors	36%	Electric Utilities	6%	Specialty Retail	510%
Bev erages	9%	Air Freight & Logistics	21%	Road & Rail	33%	Diversified Consumer Svcs	6%	Health Care Technology	509%
Specialty Retail	8%	Containers & Packaging	18%	Electronic Equip & Instruments	33%	Multiline Retail	5%	Commercial Banks	503%
IT Services	5%	Diversified Telecom Svcs	18%	Health Care Equip & Supplies	30%	REITs	4%	Aerospace & Defense	487%
Biotechnology	5%	Consumer Finance	18%	Hotels Restaurants & Leisure	30%	Diversified Financial Svcs	4%	Household Durables	478%
Health Care Equip & Supplies	5%	Electrical Equipment	17%	IT Services	29%	Multi-Utilities	4%	Automobiles	450%
Pharmaceuticals	3%	Aerospace & Defense	16%	Health Care Pvr drs & Svcs	28%	Commercial Svcs & Supplies	4%	Auto Components	444%
Aerospace & Defense	3%	Communications Equipment	15%	Capital Markets	26%	Computers & Peripherals	3%	Machinery	419%
REITs	1%	Power Prcdrs/Energy Traders	15%	Electrical Equipment	24%	Hotels Restaurants & Leisure	3%	IT Serv ices	412%
Real Estate Mngmnt & Dvlpmnt	1%	Insurance	15%	Chemicals	24%	Media	2%	Hotels Restaurants & Leisure	403%
Leisure Equipment & Products	1%	Multi-Utilities	15%	Communications Equipment	23%	Specialty Retail	1%	Textiles/Apparel	403%
Insurance	0%	Media	14%	Trading Cos & Distributors	23%	S&P 500	1%	Semiconductors	385%
S&P 500	-1%	Computers & Peripherals	14%	Diversified Financial Svcs	21%	Beverages	0%	Insurance	372%
Diversified Consumer Svcs	-1%	Capital Markets	11%	Text tiles/Apparel	21%	Household Products	-1%	REITs	367%
Commercial Banks	-1%	Electric Utilities	11%	Commercial Banks	20%	Real Estate Mngmnt & Dvlpmnt	-2%	Biotechnology	363%
Household Durables	-1%	Tobacco	11%	Metals & Mining	20%	Biotechnology	-2%	Electronic Equip & Instruments	363%
Diversified Telecom Svcs	-2%	Airlines	10%	S&P 500	19%	Aerospace & Defense	-3%	Trading Cos & Distributors	331%
Semiconductors	-3%	S&P 500	10%	Commercial Svcs & Supplies	19%	Trading Cos & Distributors	-4%	Health Care Equip & Supplies	327%
Text tiles/Apparel	-3%	Distributors	9%	Specialty Retail	18%	Airlines	-5%	S&P 500	298%
Food & Staples Retailing	-3%	Internet & Catalog Retail	9%	Consumer Finance	18%	Leisure Equipment & Products	-6%	Containers & Packaging	286%
Auto Components	-5%	Software	9%	Biotechnology	17%	Personal Products	-7%	Distributors	266%
Multi-Utilities	-5%	IT Services	8%	Household Durables	17%	Diversified Telecom Svcs	-7%	Chemicals	264%
Commercial Svcs & Supplies	-5%	Food Products	8%	Containers & Packaging	17%	Semiconductors	-7%	Commercial Svcs & Supplies	248%
Media	-6%	Leisure Equipment & Products	8%	Air Freight & Logistics	16%	Oil Gas & Consumable Fuels	-8%	Power Prcdrs/Energy Traders	247%
Containers & Packaging	-6%	Chemicals	7%	Beverages	16%	Consumer Finance	-8%	Air Freight & Logistics	246%
Chemicals	-6%	Industrial Conglomerates	6%	Diversified Consumer Svcs	14%	Air Freight & Logistics	-9%	Electrical Equipment	243%
Diversified Financial Svcs	-7%	Building Products	6%	Insurance	14%	Insurance	-10%	Communications Equipment	243%
Health Care Technology	-7%	Household Durables	6%	Distributors	13%	Commercial Banks	-10%	Capital Markets	233%
Household Products	-7%	Internet Software are & Svcs	5%	Airlines	11%	Electrical Equipment	-10%	Pharmaceuticals	226%
Airlines	-8%	Health Care Equip & Supplies	5%	Food & Staples Retailing	11%	Chemicals	-10%	Personal Products	217%
Electronic Equip & Instruments	-8%	Health Care Pvrdrs & Svcs	3%	Household Products	11%	Electronic Equip & Instruments	-11%	Tobacco	213%
Automobiles	-9%	Hotels Restaurants & Leisure	2%	Tobacco	11%	Food Products	-11%	Multiline Retail	212%
Electric Utilities	-9%	Specialty Retail	2%	Pharmaceuticals	10%	Machinery	-12%	Beverages	209%
Capital Markets	-9%	Household Products	2%	Building Products	10%	Capital Markets	-13%	Food & Staples Retailing	203%
Computers & Peripherals	-11%	Multiline Retail	1%	Multi-Utilities	8%	Distributors	-13%	Multi-Utilities	199%
Multiline Retail	-13%	REITs	0%	Automobiles	8%	Containers & Packaging	-15%	Industrial Conglomerates	190%
Air Freight & Logistics	-13%	Bev erages	0%	Construction & Engineering	8%	Construction & Engineering	-17%	Construction Materials	181%
Communications Equipment	-14%	Automobiles	-3%	Media	7%	Construction Materials	-18%	Food Products	166%
Machinery	-17%	Food & Staples Retailing	-3%	Electric Utilities	7%	Building Products	-18%	Leisure Equipment & Products	140%
Electrical Equipment	-18%	Pharmaceuticals	-4%	REITs	7%	Health Care Technology	-19%	Household Products	129%
Distributors	-19%	Auto Components	-4%	Multiline Retail	5%	Automobiles	-20%	Electric Utilities	108%
Construction & Engineering	-20%	Life Sciences Tools & Svcs	-6%	Construction Materials	1%	Tobacco	-21%	Diversified Telecom Svcs	68%
Trading Cos & Distributors	-20%	Real Estate Mngmnt & Dvlpmnt	-9%	Oil Gas & Consumable Fuels	-1%	Metals & Mining	-22%	Construction & Engineering	59%
Consumer Finance	-21%	Biotechnology	-14%	Food Products	-2%	Auto Components	-22%	Oil Gas & Consumable Fuels	58%
Energy Equipment & Svcs	-22%	Text tiles/Apparel	-16%	Diversified Telecom Svcs	-6%	Industrial Conglomerates	-25%	Energy Equipment & Svcs	22%
Oil Gas & Consumable Fuels	-24%	Personal Products	-17%	Industrial Conglomerates	-11%	Household Durables	-30%	Metals & Mining	7%
Road & Rail	-31%	Health Care Technology	-21%	Leisure Equipment & Products	-15%	Energy Equipment & Sv cs	-34%	Diversified Consumer Svcs	-25%
Discretionary	8%	Energy	24%	Technology	37%	Health Care	12%	Discretionary	571%
Health Care	5%	Financials	20%	Materials	21%	Discretionary	7%	Technology	487%
Technology	4%	Telecom	18%	Discretionary	21%	Utilities	6%	Financials	405%
Staples	4%	Industrials	16%	Financials	20%	Technology	6%	Industrials	340%
S&P 500	-1%	Materials	14%	Health Care	20%	S&P 500	1%	Health Care	324%
Telecom	-2%	Utilities	12%	S&P 500	19%	Staples	-4%	S&P 500	298%
Financials	-3%	Technology	12%	Industrials	19%	Industrials	-8%	Materials	205%
Industrials	-5%	S&P 500	10%	Staples	10%	Financials	-9%	Staples	183%
Utilities	-8%	Discretionary	4%	Utilities	8%	Energy	-11%	Utilities	149%
Materials	-10%	Staples	3%	Energy	-4%	Telecom	-12%	Telecom	67%
Energy	-24%	Health Care	-4%	Telecom	-6%	Materials	-12%	Energy	53%

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research. As of 12/6/2018

Figure 139: Consumption Trend by Category

	% of Total Consumption																Avg monthly since 1950			
	1950-1959	1960-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Latest	Median	STDev	+/- STDev from Avg	
PERSONAL CONSUMPTION CATEGORIES:																				
Durable goods	15%	14.5%	14.6%	13.6%	12.8%	12.4%	10.5%	10.5%	10.8%	10.9%	10.9%	11.1%	10.5%	10.6%	10.5%	10.5%	13.6%	1.5%	-2.0	
Motor vehicles and parts	6%	6.1%	5.9%	5.7%	5.2%	4.5%	3.4%	3.4%	3.6%	3.7%	3.7%	3.8%	3.8%	3.7%	3.6%	3.6%	5.4%	1.0%	-1.8	
Furnishings and durable equipment	5%	4.6%	4.2%	3.5%	3.0%	2.9%	2.5%	2.4%	2.5%	2.5%	2.5%	2.5%	2.4%	2.4%	2.4%	2.4%	3.6%	1.1%	-1.1	
Recreational goods and vehicles	2%	2.4%	2.9%	2.8%	3.0%	3.4%	3.1%	3.0%	3.0%	3.1%	3.0%	3.0%	2.8%	2.8%	2.8%	2.9%	2.8%	0.5%	0.1	
Other durable goods	1%	1.4%	1.6%	1.6%	1.6%	1.6%	1.6%	1.7%	1.7%	1.7%	1.7%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%	0.1%	0.4	
Nondurable goods	42%	37.1%	33.1%	28.2%	23.9%	22.3%	22.5%	23.1%	23.1%	22.8%	22.5%	21.6%	20.8%	20.6%	20.7%	20.7%	30.5%	8.1%	-1.2	
Food and beverages (off-premises)	21%	16.9%	14.6%	11.4%	9.0%	7.7%	7.7%	7.8%	7.7%	7.5%	7.5%	7.3%	7.4%	7.2%	7.2%	7.2%	12.6%	5.2%	-1.1	
Clothing and footwear	9%	7.5%	6.5%	5.5%	4.7%	3.5%	3.1%	3.2%	3.2%	3.2%	3.2%	3.1%	2.9%	2.9%	2.8%	2.8%	5.6%	2.2%	-1.2	
Gasoline and other energy goods	5%	4.3%	4.5%	4.0%	2.7%	3.0%	3.3%	3.8%	3.8%	3.6%	3.4%	2.5%	2.2%	2.3%	2.5%	2.5%	4.1%	0.9%	-1.6	
Other nondurable goods	8%	8.4%	7.5%	7.3%	7.5%	8.0%	8.3%	8.4%	8.4%	8.4%	8.6%	8.7%	8.3%	8.2%	8.2%	8.2%	7.9%	0.4%	0.6	
Household Expenditures (for services)	44%	46.8%	50.7%	56.4%	61.2%	62.8%	64.3%	63.8%	63.5%	63.6%	63.9%	64.6%	65.6%	65.8%	65.7%	65.6%	58.3%	6.7%	1.1	
Housing and utilities	17%	17.2%	17.1%	18.4%	18.2%	18.1%	18.7%	18.3%	18.1%	18.1%	18.1%	18.1%	18.4%	18.4%	18.4%	18.3%	18.1%	0.6%	0.4	
Health care	5%	5.9%	8.6%	11.4%	14.1%	15.0%	16.6%	16.5%	16.6%	16.5%	16.4%	16.7%	17.0%	17.0%	17.0%	17.0%	12.4%	3.9%	1.2	
Transportation services	3%	2.8%	3.2%	3.2%	3.6%	3.3%	2.9%	2.9%	2.9%	2.9%	3.0%	3.0%	3.3%	3.3%	3.3%	3.2%	3.2%	0.3%	0.2	
Recreation services	2%	2.1%	2.3%	2.7%	3.6%	3.8%	3.8%	3.7%	3.8%	3.8%	3.8%	3.8%	4.0%	4.1%	4.0%	4.0%	3.0%	0.8%	1.3	
Food services and accommodations	6%	6.1%	6.7%	6.7%	6.4%	6.0%	6.1%	6.1%	6.2%	6.3%	6.4%	6.6%	6.8%	6.7%	6.8%	6.8%	6.3%	0.3%	1.7	
Financial services and insurance	4%	4.4%	5.2%	6.4%	7.4%	7.7%	7.5%	7.4%	7.1%	7.3%	7.5%	7.7%	7.7%	8.0%	8.0%	8.0%	6.7%	1.4%	1.0	
Other services	8%	8.3%	7.8%	7.6%	8.0%	8.7%	8.9%	8.8%	8.8%	8.7%	8.7%	8.7%	8.3%	8.3%	8.3%	8.3%	8.2%	0.5%	0.1	
Nonprofit Institutions	2%	1.6%	1.6%	1.8%	2.1%	2.6%	2.7%	2.6%	2.7%	2.7%	2.6%	2.7%	3.1%	3.0%	3.1%	3.2%	1.9%	0.5%	2.7	

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bureau of Economic Analysis. Note: Green if greater than last period, Red if less than last period.

Figure 140: Investment Trend by Category

	% of Total Private fixed investment																			Avg monthly since 1999				
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Latest	Median	STDev	+/- STDev from Avg	
PRIVATE FIXED INVESTMENT:																								
Structures	23%	23%	20%	18%	17%	16%	17%	20%	22%	22%	18%	17%	18%	17%	18%	17%	16%	16%	16%	16%	16%	18%	2.5%	-0.5
Commercial and health care	9%	9%	8%	7%	7%	6%	6%	7%	8%	6%	5%	4%	4%	4%	4%	5%	5%	5%	5%	5%	6%	1.7%	-0.8	
Manufacturing	2%	2%	1%	1%	1%	1%	1%	2%	2%	3%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%	0.5%	-0.7	
Power and communication	3%	3%	3%	3%	2%	2%	2%	3%	4%	5%	4%	3%	4%	3%	4%	3%	4%	3%	3%	3%	3%	0.6%	-0.2	
Mining exploration, shafts, and wells	3%	4%	3%	3%	3%	4%	4%	4%	4%	4%	4%	5%	5%	5%	5%	3%	2%	3%	4%	4%	4%	0.8%	0.1	
Other structures	4%	4%	4%	3%	3%	3%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	0.6%	-0.3	
Equipment	31%	31%	30%	30%	30%	31%	33%	34%	34%	32%	36%	39%	39%	39%	39%	39%	37%	38%	38%	38%	34%	3.7%	1.0	
Information processing equipment	8%	8%	8%	8%	8%	9%	9%	11%	12%	13%	14%	13%	13%	13%	12%	12%	14%	15%	15%	15%	12%	2.6%	1.4	
Industrial equipment	9%	8%	8%	8%	7%	7%	7%	8%	8%	8%	7%	8%	8%	8%	8%	7%	7%	7%	7%	7%	8%	0.5%	-0.8	
Transportation equipment	9%	8%	8%	7%	7%	8%	8%	8%	6%	3%	7%	8%	9%	10%	10%	11%	9%	8%	8%	8%	8%	1.6%	0.1	
Other equipment	7%	7%	8%	8%	8%	8%	8%	8%	8%	8%	9%	9%	9%	9%	9%	9%	7%	8%	8%	8%	8%	0.7%	-0.6	
Intellectual property products	18%	19%	19%	19%	19%	19%	19%	21%	23%	27%	27%	27%	25%	25%	24%	24%	27%	27%	27%	28%	24%	3.5%	1.0	
Software	8%	8%	8%	8%	9%	8%	9%	9%	11%	13%	12%	12%	12%	12%	12%	12%	11%	12%	13%	13%	11%	2.0%	0.8	
Research and development	8%	9%	9%	8%	8%	8%	8%	9%	10%	11%	11%	11%	10%	10%	10%	9%	13%	12%	12%	12%	9%	1.6%	1.9	
Entertainment, literary, and artistic originals	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	4%	3%	3%	3%	3%	3%	3%	2%	2%	2%	3%	0.3%	-1.1	
Residential	28%	28%	31%	33%	34%	33%	30%	25%	20%	19%	19%	18%	18%	19%	19%	20%	20%	19%	19%	18%	20%	5.9%	-0.3	
Structures	27%	28%	31%	32%	33%	33%	30%	25%	20%	19%	18%	17%	18%	19%	18%	20%	19%	19%	18%	18%	20%	5.9%	-0.3	
Equipment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.0%	1.8	
Residual	-1%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	-1%	-1%	-1%	0%	0.6%	-1.3	

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bureau of Economic Analysis. Note: Green if greater than last period, Red if less than last period.

Figure 141: Government Spending Trend by Category

	% of Total Private fixed investment																				Avg monthly since 1999			
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Latest	Median	STDev	STDev from Avg
Federal & State/Local Spending																								
Total: Consumption Expenditure	80%	80%	80%	79%	79%	79%	79%	79%	79%	79%	79%	79%	79%	80%	81%	81%	81%	81%	81%	80%	80%	80%	0.8%	0.8
Total: Gross investment	20%	20%	20%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	20%	19%	19%	19%	19%	19%	20%	20%	20%	0.8%	-0.8
Structures	12%	12%	12%	12%	12%	12%	11%	11%	11%	11%	10%	10%	10%	9%	9%	9%	9%	8%	9%	9%	9%	10%	1.5%	-1.0
Equipment	3%	3%	3%	3%	4%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%	5%	5%	5%	0.6%	0.2
Software	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	2%	2%	2%	1%	0.2%	3.2
Research and development	4%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	4%	4%	5%	0.3%	-1.2
Federal Portion:	33%	33%	33%	34%	35%	36%	37%	37%	37%	38%	39%	41%	41%	41%	40%	39%	39%	38%	38%	39%	39%	38%	2.7%	0.1
Consumption expenditures	26%	26%	26%	26%	27%	28%	28%	28%	28%	29%	30%	32%	32%	32%	31%	31%	30%	30%	30%	30%	30%	30%	2.0%	0.2
Structures	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	1%	0.2%	-1.5	
Equipment	2%	2%	2%	2%	2%	3%	3%	3%	3%	3%	3%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	0.6%	0.3	
Intellectual property products	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	0.3%	0.0	
National defense	21%	21%	20%	21%	22%	23%	24%	24%	24%	25%	26%	26%	27%	26%	25%	24%	23%	23%	23%	23%	23%	23%	1.9%	-0.1
Nondefense	12%	12%	12%	13%	13%	13%	13%	13%	13%	13%	14%	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%	14%	1.2%	1.5
State and Local Portion:	67%	68%	68%	67%	65%	64%	63%	63%	63%	62%	61%	59%	59%	59%	60%	61%	61%	62%	62%	61%	61%	62%	2.9%	-0.1
Residual	-1%	-1%	-1%	-1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.3%	0.0

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bureau of Economic Analysis. Note: Green if greater than last period, Red if less than last period.

Figure 142: Net Exports Trend by Category

	Net Exports (Exports less Imports) YoY of Change, \$'s in billions																					
Goods & Services	12/99	12/00	12/01	12/02	12/03	12/04	12/05	12/06	12/07	12/08	12/09	12/10	12/11	12/12	12/13	12/14	12/15	12/16	12/17	12/18	LTM	
Foods, feeds, and beverages	\$1.9	\$1	\$2	(\$1)	(\$1)	(\$6)	(\$10)	(\$10)	\$1	\$18	\$11	\$15	\$18	\$22	\$20	\$17	(\$1)	(\$1)	(\$6)	(\$0)	(\$5)	
Industrial supplies and materials	(\$78)	(\$133)	(\$120)	(\$115)	(\$147)	(\$214)	(\$297)	(\$334)	(\$332)	(\$412)	(\$176)	(\$222)	(\$280)	(\$252)	(\$194)	(\$175)	(\$75)	(\$54)	(\$55)	(\$28)	(\$50)	
Capital goods except automotive	\$15	\$9	\$23	\$6	(\$4)	(\$19)	(\$24)	(\$19)	(\$16)	(\$1)	\$17	(\$3)	(\$19)	(\$24)	(\$24)	(\$47)	(\$67)	(\$74)	(\$110)	(\$65)	(\$125)	
Automotive vehicles, parts, and engines	(\$103)	(\$115)	(\$113)	(\$124)	(\$129)	(\$138)	(\$140)	(\$149)	(\$137)	(\$112)	(\$77)	(\$114)	(\$122)	(\$152)	(\$157)	(\$170)	(\$198)	(\$201)	(\$202)	(\$100)	(\$202)	
Consumer goods except food and automotive	(\$163)	(\$195)	(\$199)	(\$227)	(\$249)	(\$275)	(\$298)	(\$319)	(\$334)	(\$325)	(\$281)	(\$320)	(\$341)	(\$338)	(\$345)	(\$360)	(\$399)	(\$392)	(\$407)	(\$219)	(\$426)	
Other general merchandise	(\$9)	(\$15)	(\$16)	(\$15)	(\$14)	(\$14)	(\$16)	(\$12)	(\$9)	(\$8)	(\$9)	(\$10)	(\$13)	(\$16)	(\$19)	(\$24)	(\$31)	(\$32)	(\$37)	(\$18)	(\$37)	
Netexports of goods under merchanting	\$0	\$0	\$0	\$1	\$1	\$2	\$1	\$1	\$2	\$1	\$1	\$0	\$1	\$1	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Nonmonetary gold	(\$1)	\$0	\$1	\$0	\$1	\$0	\$1	\$3	\$4	\$5	\$4	\$3	\$17	\$18	\$16	\$7	\$9	\$2	\$9	\$6	\$10	
Maintenance and repair services n.i.e.	\$3	\$2	\$4	\$4	\$3	\$3	\$4	\$3	\$4	\$4	\$6	\$7	\$6	\$9	\$11	\$14	\$14	\$16	\$18	\$10	\$19	
Transport	(\$6)	(\$12)	(\$12)	(\$10)	(\$16)	(\$21)	(\$23)	(\$21)	(\$13)	(\$9)	(\$2)	(\$3)	(\$2)	(\$1)	(\$4)	(\$3)	(\$9)	(\$12)	(\$13)	(\$7)	(\$13)	
Travel (for all purposes including education) /I/	\$33	\$34	\$26	\$22	\$18	\$18	\$21	\$21	\$30	\$41	\$38	\$50	\$61	\$61	\$79	\$86	\$91	\$83	\$76	\$36	\$74	
Insurance services	(\$6)	(\$8)	(\$13)	(\$18)	(\$19)	(\$22)	(\$21)	(\$30)	(\$37)	(\$46)	(\$49)	(\$47)	(\$41)	(\$39)	(\$37)	(\$34)	(\$32)	(\$33)	(\$33)	(\$10)	(\$26)	
Financial services	\$11	\$11	\$12	\$16	\$19	\$25	\$28	\$33	\$42	\$46	\$50	\$57	\$61	\$60	\$74	\$82	\$77	\$74	\$81	\$41	\$83	
Charges for the use of intellectual property n.i.e	\$34	\$35	\$33	\$34	\$38	\$43	\$49	\$59	\$71	\$73	\$67	\$75	\$87	\$86	\$89	\$88	\$85	\$78	\$77	\$40	\$78	
Telecommunications, computer, and information servk	(\$1)	(\$0)	\$0	\$1	\$1	\$1	(\$0)	(\$3)	(\$2)	(\$2)	(\$2)	(\$4)	(\$4)	(\$0)	(\$1)	(\$2)	(\$1)	\$1	\$2	\$2	\$3	
Other business services	\$17	\$16	\$19	\$19	\$19	\$21	\$22	\$20	\$27	\$25	\$27	\$30	\$29	\$33	\$31	\$34	\$37	\$44	\$50	\$25	\$49	
Governmentgoods and services n.i.e.	(\$6)	(\$5)	(\$7)	(\$11)	(\$14)	(\$14)	(\$11)	(\$8)	(\$6)	(\$9)	(\$10)	(\$11)	(\$7)	(\$5)	(\$3)	(\$4)	(\$0)	(\$3)	(\$3)	(\$2)	(\$3)	

Source: J.P. Morgan US Equity Strategy & Global Quantitative Research, Bureau of Economic Analysis. Note: Green if greater than last period, Red if less than last period.

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Stock Merger. If the acquirer is a member of the basket, then the weight allocated to the acquired will transfer to the surviving entity on the close of the last day it trades. If the acquirer is not a part of the basket, then proceeds (losses) from the acquired company will be redistributed to the surviving basket constituents based on the recalculated weighting on the close of its last trading day.

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Tender Offers and Share Buybacks. The company remains in the basket and its weight is adjusted according to the impact the tender/buyback has on the stock's market value.

Delisting/Insolvency/Bankruptcy. The company is removed from the basket as of the close of the last trading day, and the proceeds (losses) will be redistributed into remaining companies according to re-calculated weights of remaining companies in the basket. If a stock trades on "pink sheets" it will not be included in the basket.

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