December 2017

Market Phase Cycle™ Investing Strategy

As we sing Auld Lang Syne – let us reflect on why this old bull market still has life

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As the world rings in to the new year in a few days, many will sing Auld Lang Syne. The lyrics ask if we should put the past behind us, or take the opportunity to remember the friendships that got us where we are today.

It is a perfect time to reflect on one old friend…the current bull market. It is approaching 7 years old (or even longer, depending on how you define the beginning of the bull)…

The phase "bull markets don't die of old age" has been written a lot of use in the past year, because of the age of this one. John Templeton's statement that, instead of old age, bull markets "die on euphoria" is relevant when reflecting on some investors concerns as we look to 2018. We are still far away from euphoria, by any definition:

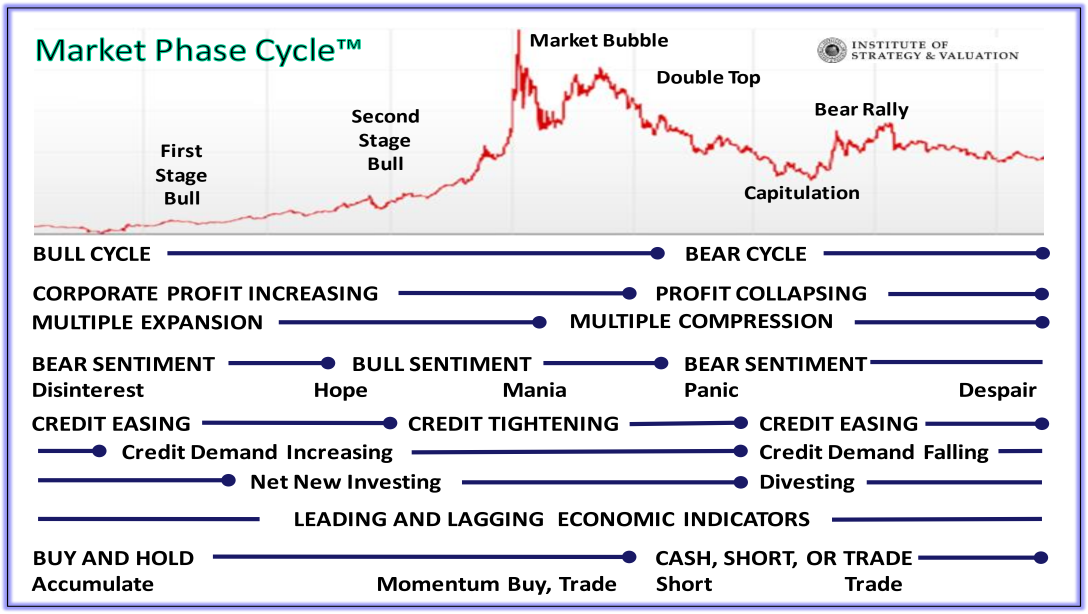
Equity market valuations do not appear euphoric. They do not appear to be pricing in the substantial boost in profitability that corporate tax cuts are about to deliver, let alone the significant potential for upside from any resumption in corporate investment.

Investor sentiment indicators are far from euphoric. Both short-term and intermediate-term also appear very muted

Credit market euphoria, the greatest signal of the impending death of a bull market, also appears far off. M&A and corporations taking on sizable short-term leverage to fuel growth, which could spell a crisis, remains a distant risk. While CDS levels remain tight, it is justified by fundamentals.

So instead of having fears of the year ahead, may we all enjoy the holidays and the new year, knowing we don't need to worry about this old friend leaving us as we ring in 2018.

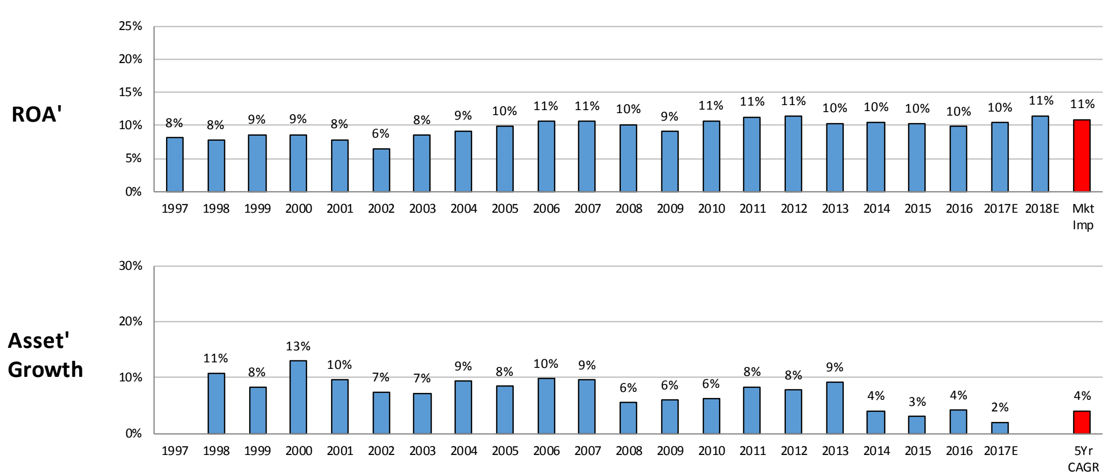
Market expectations for sustained ROA’ and growth limit upside



Business Profitability and Valuation

US corporate profitability is projected to improve to 11% levels by 2018, and could rise even higher with the current US tax plan. At current valuations, markets expect ROA’ to sustain at those levels, with growth remaining subdued at 3%-4% levels last seen in 2014. While ROA’ in 2016 declined to near 2009 levels, with analysts projecting a 2017 ROA’ recovery and positively trending economic statistics pointing to increasing growth, market expectations may be reasonable, to even low. Growth appears to be accelerating, based on earnings trends, which should help facilitate upside, as higher growth would warrant equity upside. Classic P/E is above median valuations based on the current low-but-rising inflation and low tax context, signaling the need for earnings growth forecasts, but with V/E’ off cycle highs, adjusted metrics show more reasonable valuations.

Exhibit 1: Markets expect both ROA’ and growth acceleration going forward



Source: Capital IQ, Valens Research Analysis

Data Date: 13-Dec-2017

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Growth is accelerating, investors may be under-invested

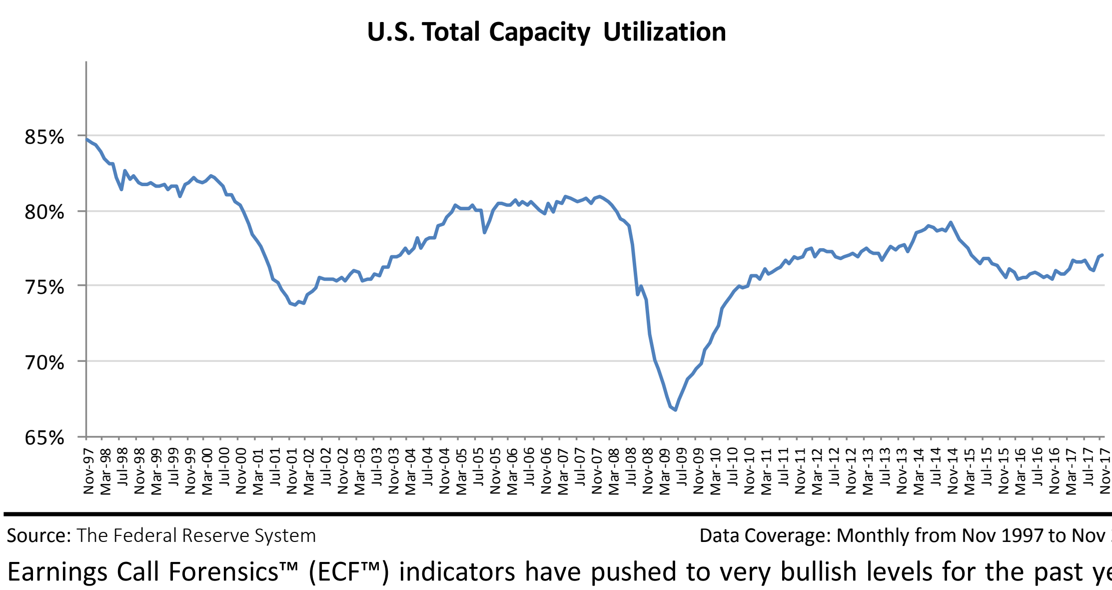
Even at elevated as-reported P/E levels, the acceleration in earnings growth may signal equity upside. This is because the combination of low tax rates, low interest rates, and low inflation rates bring down the real discount rate to a low 4.8%, supporting higher valuations.

Aging assets and a trend of recovery in capacity utilization could be catalysts for credit demand, considering signs of growth accelerating. Both metrics have been a source of headwinds for the market in the past few years, though capacity utilization has recently started to trend more favorably. If demand for credit grows and corporate investment growth picks up, the market would move further into the second stage of the bull market. Recent announcements by the new administration should be monitored to determine whether they will help fuel this potential kick-off.

Sentiment: Investors, Consumers, Institutions, and Management

Short and medium-term investor sentiment are highlighting that investor sentiment is overly pessimistic. Active investor equity allocation has fallen to low levels. Also, short interest levels have trended towards high-end-of-trend levels, showing investors are positioned more conservatively. Correlation remains low but off of recent trough levels. Short-term investor sentiment indicators are currently at levels that signal mostly passive positioning considering the current market environment, and medium-term investor cash balance growth points to potential dry powder on the sideline that could drive equity upside.

Exhibit 2: Capacity Utilization is rising –management may begin investing



Source: The Federal Reserve System

Data Coverage: Monthly from Nov 1997 to Nov 2017

Earnings Call Forensics™ (ECF™) indicators have pushed to very bullish levels for the past year, justifying the recent rally. The 3-month average ratio remains above levels seen in most of 2016, and management confidence has continued to build from October 2016 through September 2017 earnings calls, though the level fell in October. These signals initially came ahead of the election, and were confirmed in November, a sign of renewed management confidence to deploy capital. Also, throughout 2016 and 2017, management teams have been reducing their capital deployed towards share buybacks, a potential sign that management teams are beginning to look for opportunities to invest their net income into the business.

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Credit factors remain favorable, with no credit issues on the horizon

Corporate Credit Availability

Macro financial risk metrics remain low, and the yield curve remains positive. This indicates that the fundamentals for credit creation funding a bull market remain in place. Bank lending standards also are growing less restrictive, a positive for growth.

Corporate Credit Willingness

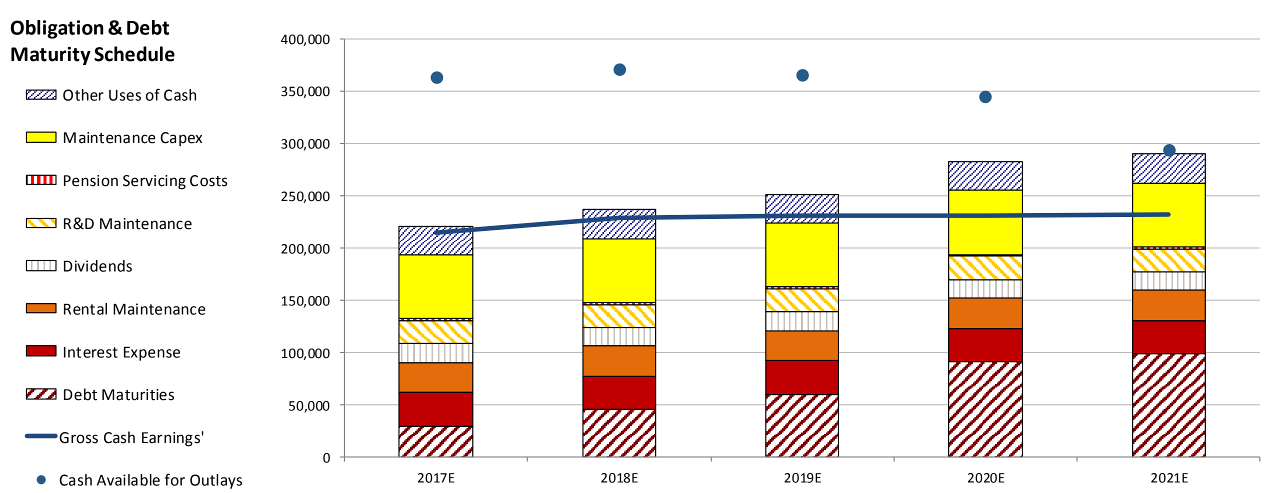
Credit lending standards to corporations remain favorable. The survey on lending standards has loosened for the last two quarters, signaling banks are again more willing to loan. This and other potentially early sign of concerns for credit tightening such as C&I loan charge-off rates have reversed prior negative trends. This appears to confirm that after the energy-related issues, credit supply may again be improving.

Last year's stabilization of proprietary aggregate CDS at low levels is a signal that credit markets are no longer indicating a negative shock and are no longer hindering equity discount rates. That said, there are growing divergences between CDS and iCDS levels in high yield and cross-over credit. Cross-over CDS is overstating credit risk currently however, after the recent move tighter in high yield CDS levels, high yield credit risk is being understated. In an environment when credit yields overall are widening due to an increase in the risk free rate, the underpricing of high yield credit risk should be monitored as it may be a sign of excessive credit market complacence.

Corporate Credit Worthiness

No market correction happens without a credit crisis. Valens' fundamental credit analysis highlights no near-term debt maturity headwalls for U.S. corporations that actively need refinancing. Debt maturities do not spike any time in the next five years for the S&P 500, and for the smaller S&P 1000 companies, while 2018 had previously been a year where there could be concerns, headwall risk has been pushed out another two years, further reducing risk.

Exhibit 3: There are no debt maturity headwalls that are a concern until 2020-2021



Source: Valens Research | Data Date: Dec 13, 2017

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The equity markets are in early Stage 2 of the Market Phase Cycle™

With corporate fundamentals not pointing to a refinancing headwall, the likelihood of a credit crisis that would lead to a sustained CDS spike and equity sell-off is muted. Aggregate corporate fundamentals have come off of near peak levels in terms of recovery rates and cash available to service debt, and coverage ratios have declined. While levels for all these fundamental indicators are off recent peaks, they still remain at robust and safe levels. Corporate balance sheets are extremely healthy, thereby limiting fundamental credit risk.

Corporate Credit Issuance / Usage

The positive trend in consumer and industrial loan growth continues to slow down as loan growth grew at less than 1% quarter-on-quarter, and has clearly slowed. However, corporate profitability at near-peak levels and limited capex spending imply that there are substantial cash flows available for servicing credit obligations. Increased M&A activity in 2014 and 2015 was a sign of growing interest in deploying capital for growth opportunities, though continued low Net-to-Gross PP&E ratios and slowing M&A signal that growth is not likely to deplete cash flows for handling obligations in the near term. This indicates that the risk that increased capex spending would reduce cash flows for debt servicing is limited.

Government Policy and Intervention

Even after several rate hikes in 2017, both short-term Fed policy and long-term interest rates support capital expansion. Additionally, a low inflation environment and a stable capital gains tax rate are accommodative of multiples going forward. To confirm this, after a period of rising inflation over the last year, inflation rates have begun to moderate again year-on-year. This should be supportive of valuations.

In Conclusion

Equity markets are pricing in continued ROA' improvements and modest growth. However, several factors, including improving economic indicators around growth, management's growing confidence in investing in growth, inflationary trends, and the government's potential actions on infrastructure and taxes, may signal that growth is accelerating, justifying potential for market valuation upside.

Corporate credit fundamentals remain robust, substantially limiting the risk of a credit crunch. Also, with developed market bond yields remaining at low and negative levels, the rotation of investments into equities can fuel continued multiple expansion and equity upside for a sustainable period of time.

Investor sentiment has moved to conservative levels. Short-term sentiment indicators, including active management equity allocation, and medium-term indicators, including short interest and margin balances, have all declined to levels that signal elevated focus on risk from investors, pointing to substantially reduced risk of sentiment driven investment volatility.

Current valuations signal potential for upside with fundamentals accelerating. Also, the lack of negative credit signals in the near term limit market downside. Sentiment indicators point to investors being under-allocated to equities, meaning any positive momentum is likely to push markets higher. Signs that growth is returning provide catalysts as the market is in the second stage of the bull market. This is strongly supported by Valens' proprietary indicators, aggregate signals, and our monitoring of traditional indicators within the Market Phase Cycle™ framework.

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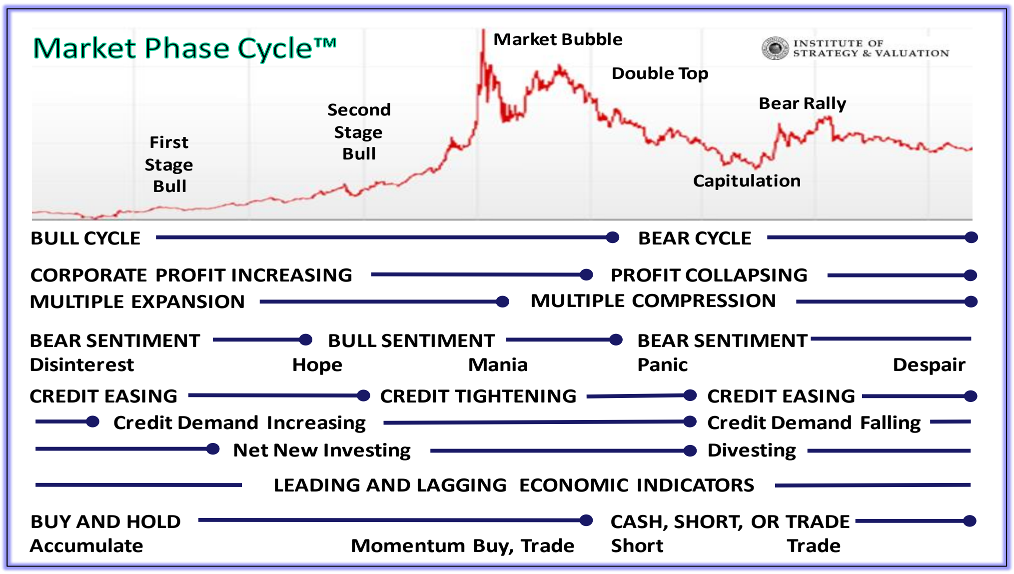
Market Phase Cycle™



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Business Profitability and Valuation

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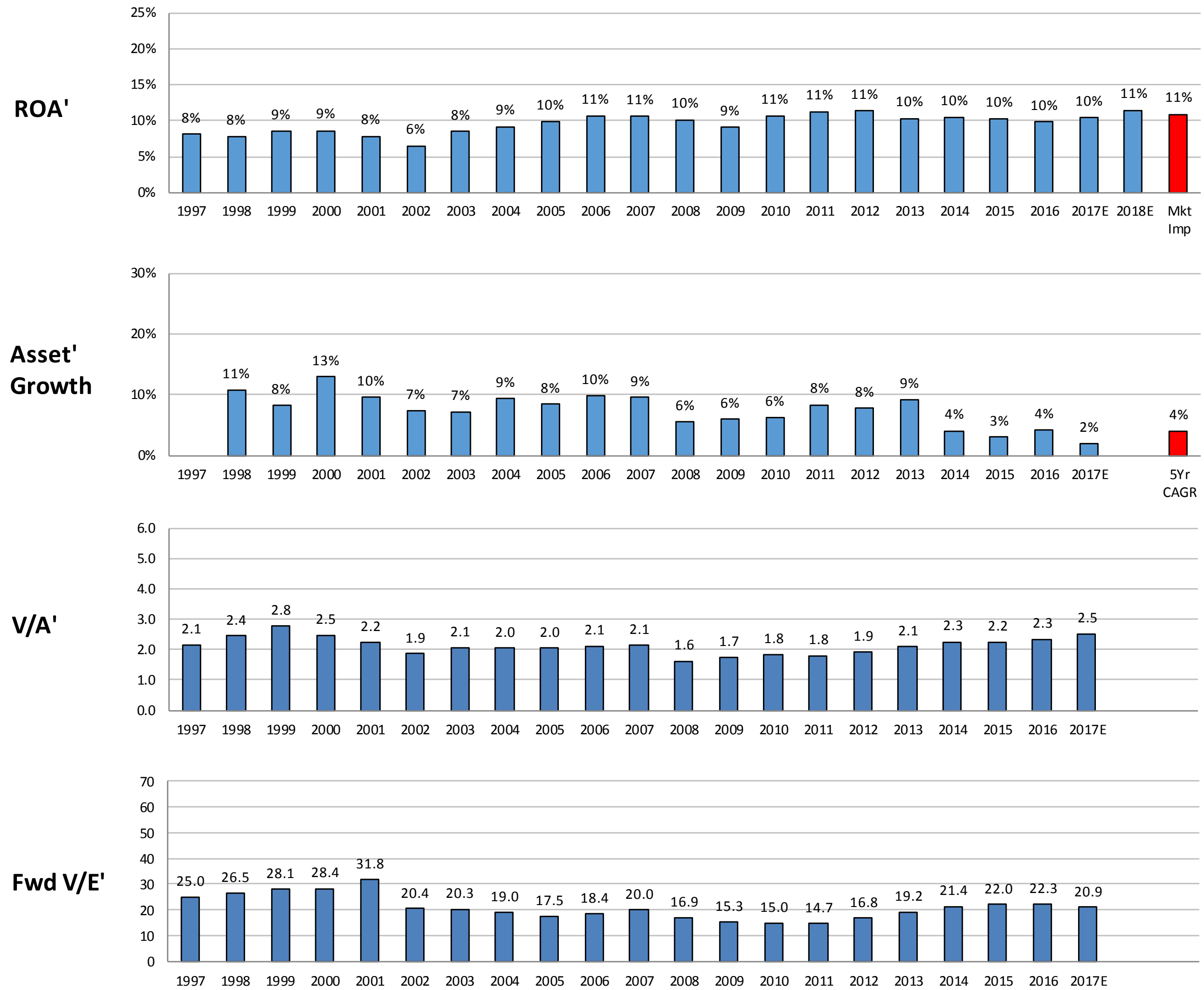
Macro Environment: U.S. Aggregate Performance and Valuation Prime™

Performance and Valuation Prime™ Analysis
2,425 U.S. companies (non-financial)



Source: Capital IQ, Valens Research Analysis | Data Date: As of 14-Dec-2017

ROA' is projected to remain steady at 10% in 2017, and rise to 11% levels going forward, with current market expectations for ROA' to maintain that 11% levels, and Asset' growth remaining around 4%. Considering ROA' and growth trends and expectations, U.S. markets are fully valued, though if growth accelerates, there could be equity upside.

- This analysis uses UAFRS adjusted ROA (ROA') and adjusted Asset growth (Asset' Growth) for aggregate analysis, using the data from the Valens Research application, which gives an improved view of corporate profitability after taking into account both automatic and manual adjustments
- U.S. corporate profitability had been improving on a cyclical basis over the past 20 years, rising from peaks of 9% to 10%-11% levels in 2011-2014. Analysts expect ROA' to re-engage in 2017-2018, returning to 2011-2012 levels. Markets are also pricing this in, expecting ROA' to recover to 10% levels assuming a 4.8% discount rate (down from prior assumptions of a 6% discount rate)
- Asset' growth has been subdued for the past three years, at well below historical averages. Markets expect growth to remain low going forward, below longer-term historic rates. As management teams gain more confidence and potential government actions help fuel growth, this may be too pessimistic
- While market expectations are for growth to accelerate, UAFRS adjusted P/E (V/E') has actually declined in the last year, from 22x to 21x, showing expectations have not run ahead of fundamentals

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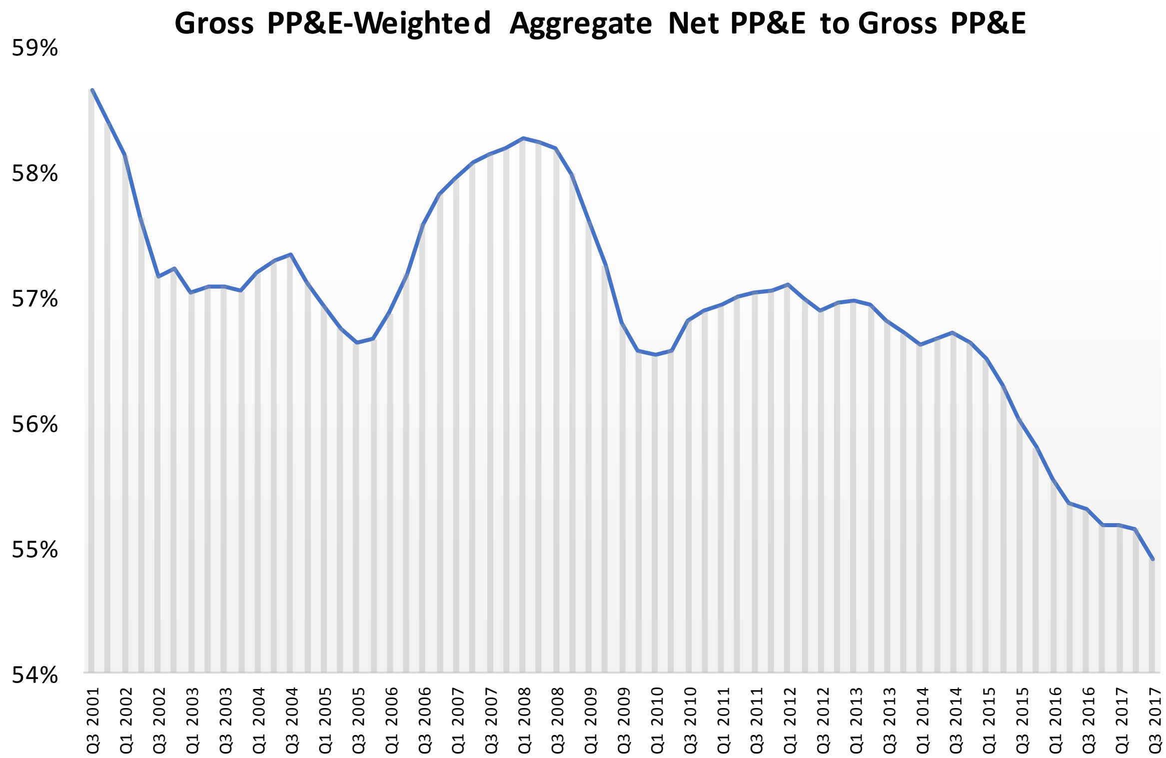
Macro Environment: Aggregate Net/Gross PP&E



All S&P 1500 constituents, weighted by Gross PP&E
Source: Valens Research Analysis

Data Coverage: Quarterly from Q3 2001 to Q3 2017

- Following Aggregate Net/Gross PP&E over time can be a good test to understand when companies have been "milking" their balance sheets or ramping up investment in the face of expected growth opportunities
- When Net/Gross PP&E ratios dramatically rise (as they did in 2005-2007), it means that management teams are aggressively investing in their assets to drive growth. When Net/Gross PP&E falls, management teams are instead deferring maintenance capex and managing cash flows
- The Net/Gross PP&E ratio bottomed out at 56.8% in 2010, with companies beginning to spend on necessary maintenance capex. Firms appear to have rebuilt Net/Gross PP&E levels to more normal levels until the middle of 2013. In 2013, companies were reluctant to further expand spending on maintenance capex, with Net/Gross PP&E levels declining for the year
- In 2014, incremental capex spending initially started climbing, though it has subsequently fallen dramatically. Capital spending is likely to continue to be limited in the near term until management teams begin to invest in growth
- The Net/Gross PP&E ratio has experienced continuous declines since Q3 2014, and currently stands at a 15-year low. This may be a sign that management teams have not been committed to investing in growth. With Net/Gross PP&E ratios now at multi-year lows, this may also be a catalyst for increased spending, as firms will need to spend on maintenance capex to keep fixed assets at current capacity and production levels

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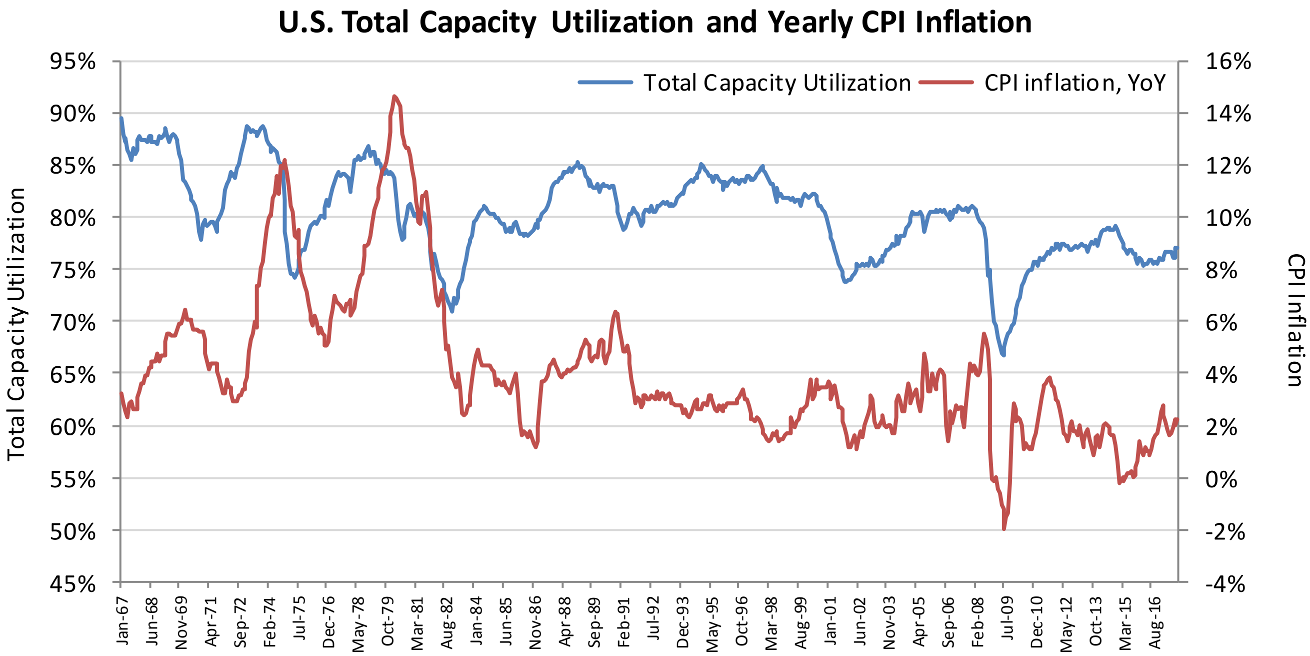
U.S. Total Capacity Utilization



Source: The Federal Reserve System, Valens Research Analysis

Data Coverage: Monthly from Jan-1967 to Nov-2017

- The U.S. Total Capacity Utilization (TCU) rate is used to determine how much slack is currently in the system in terms of capacity to increase volumes without spending on capex. The Fed uses this metric to see whether there is room to grow the economy without causing inflationary pressures. A TCU rate exceeding 85% is thought to be inflationary

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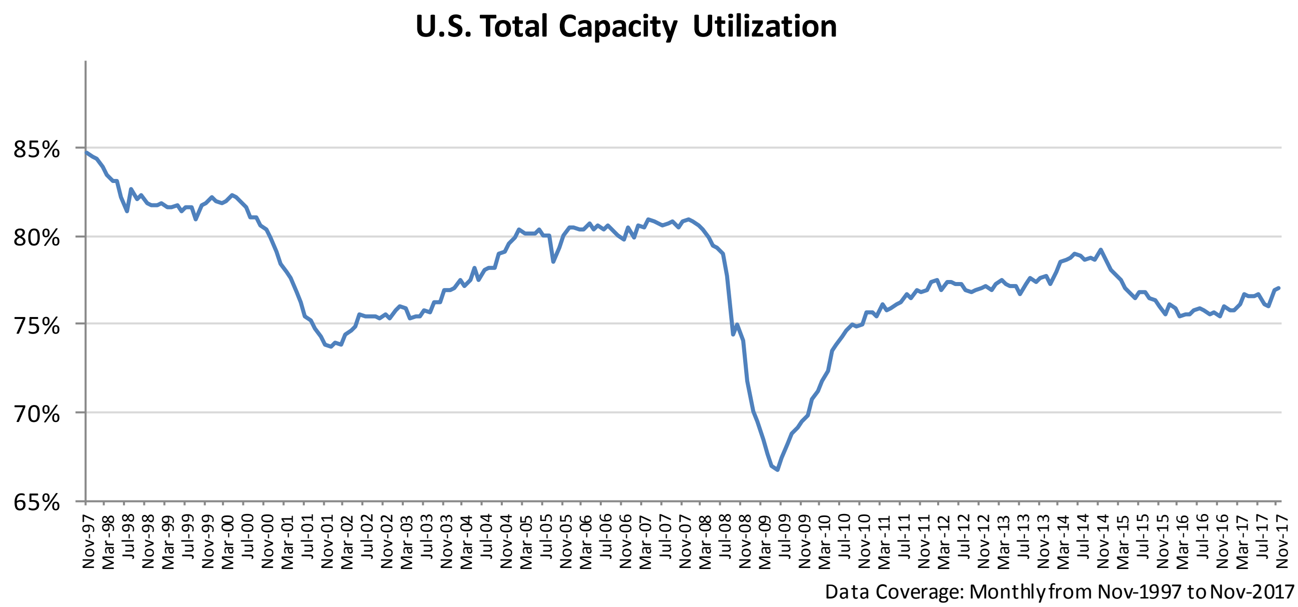

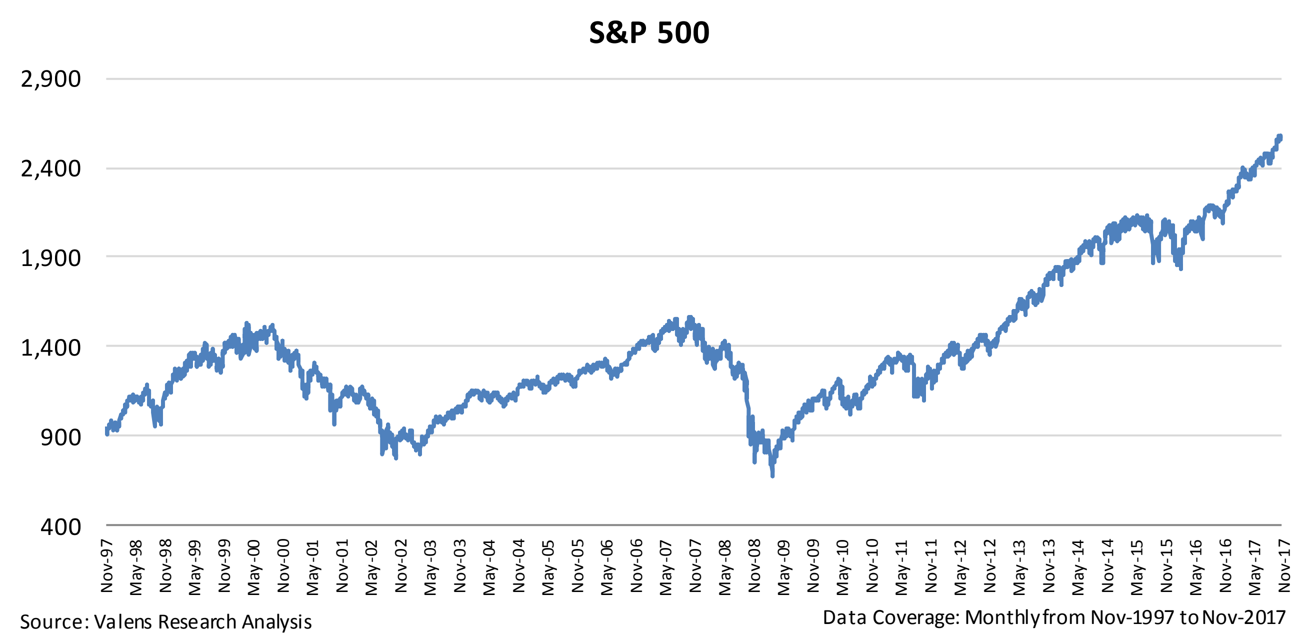

Source: Valens Research Analysis

- During the 2008-2009 recession, capacity utilization fell to historically low levels. It improved back towards pre-recession levels, nearly having breached 80% in 2014. This improvement appeared to be a signal that investment would need to pick up in order to capitalize on the growing demand in the economy. Starting in January 2015, capacity utilization began falling through 2016, reducing the need for capex, likely because of weakness in the energy sector and related demand in particular. However, recently capacity utilization rates have again begun recovering, in particular in late 2017
- Total capacity utilization has risen from the lower end of the recent range, having stabilized above 75%, and trending towards 80%, potentially signaling renewed reason for capex in the intermediate term

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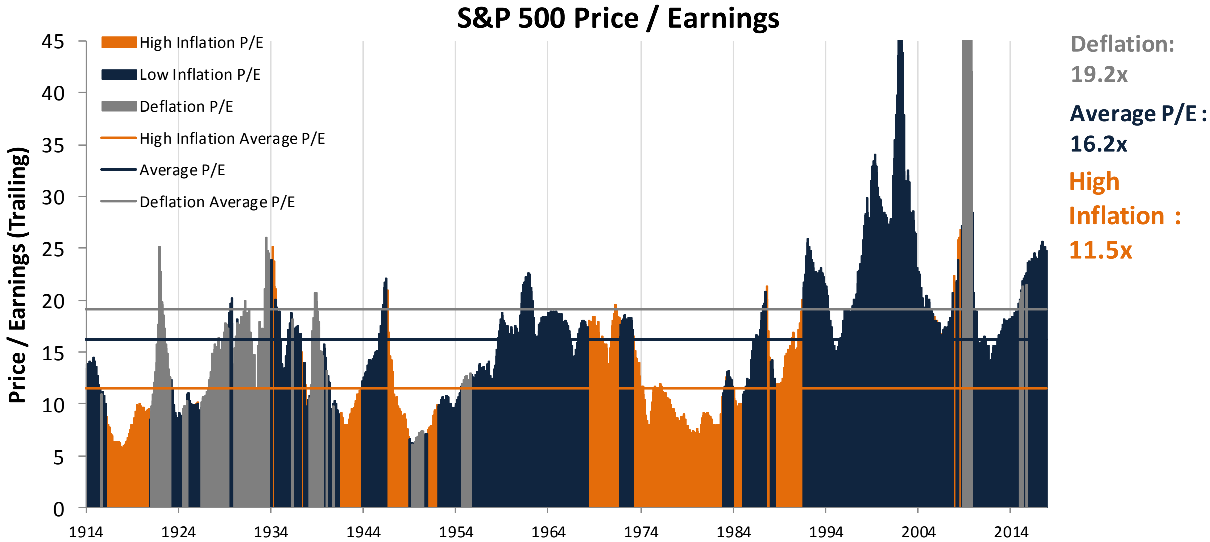
Inflation and Capital Gains Taxes



Source: Capital IQ, Irrational Exuberance by Robert Shiller, Valens Research Analysis   Data Coverage: Yearly from 1914 to 2017

Inflation	Dividend and Capital Gains Tax	Years	Average P/E
>4%	Low Tax	5	13.5x
	High Tax	26	11.2x
0%-4%	Low Tax	24	20.1x
	High Tax	32	16.3x
<0%	Low Tax	9	22.3x
	High Tax	5	12.4x

Data Coverage: Average from 1914 to 2017

- The U.S. is currently in a low (but rising) inflation environment, coupled with low dividends and capital gains tax rates relative to historical rates that are likely to persist. The market's current average trailing as-reported earnings multiple of 25.0x is above median valuations, assuming low inflation and low tax rates. Valuations are trading at a premium based on the current market context, approaching levels not seen other than in the tech bubble of the late 1990s. If EPS growth does not continue to show the material reacceleration that it is currently showing through Q3 2017, valuations will remain expensive, increasing downside risk
- Forward P/E of 19.0x, assuming earnings growth continues and the market does not appreciate, is slightly below the average valuations for the current market context. This highlights that even with earnings growth, upside is limited

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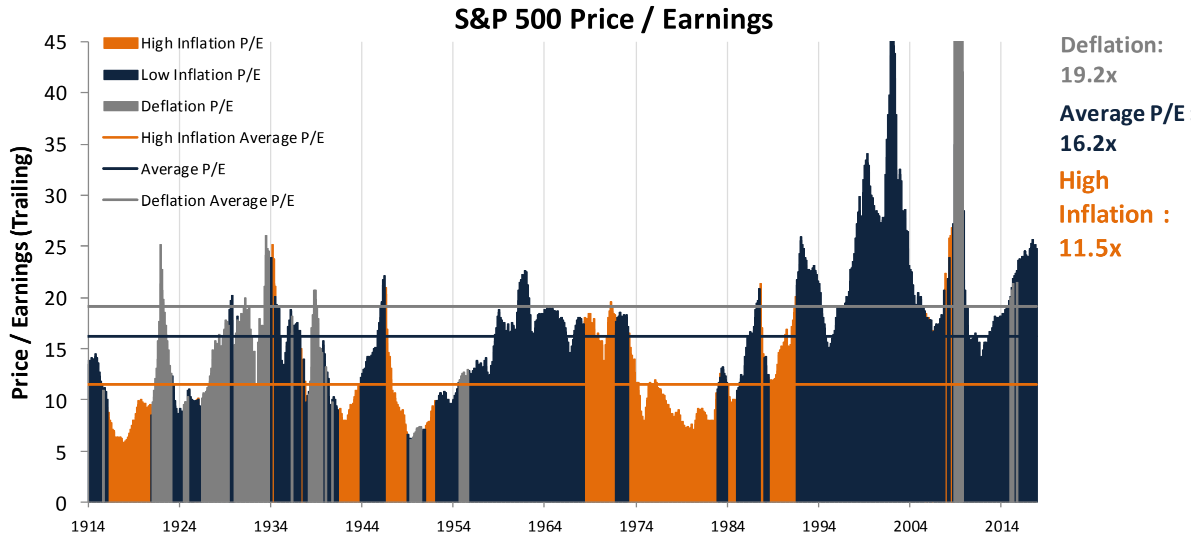
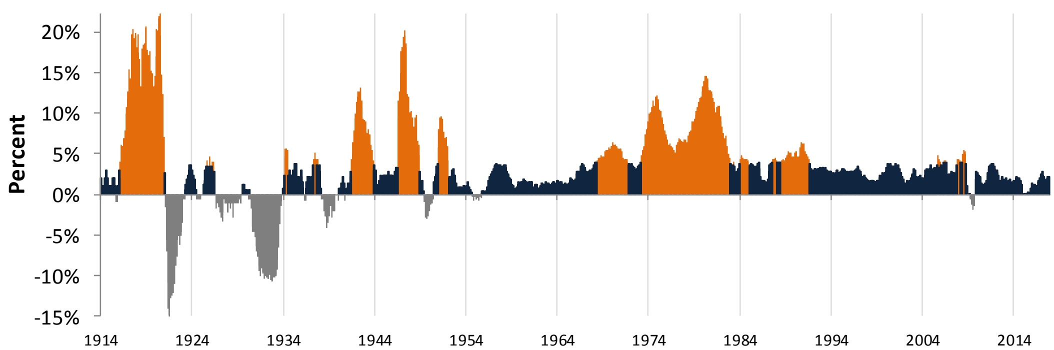
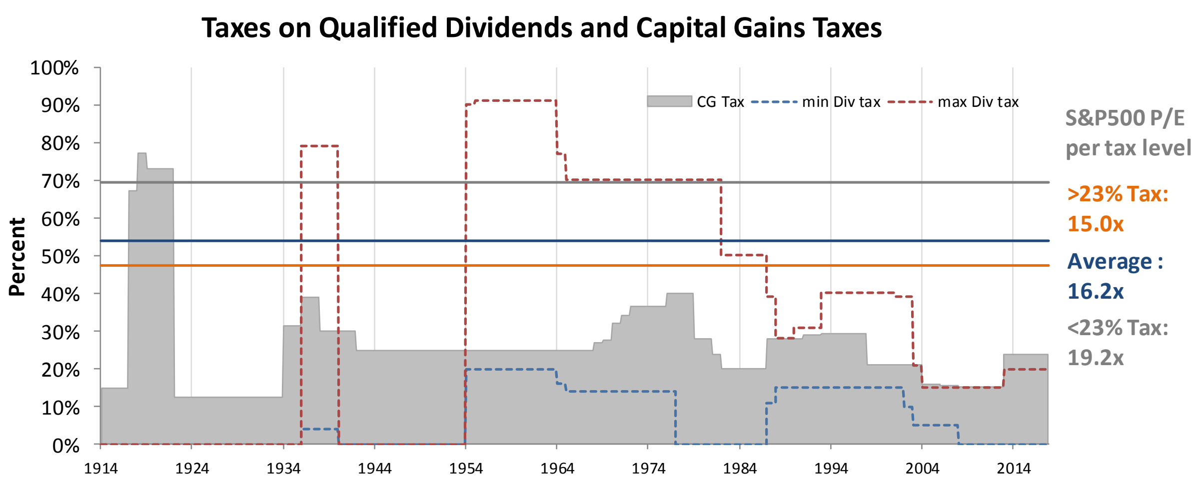
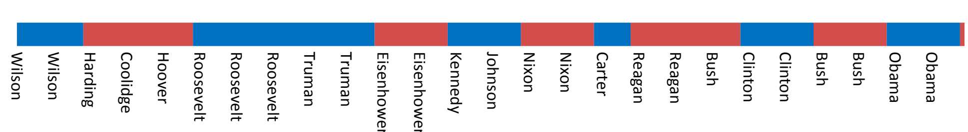






Source: U.S. Department Of Labor Bureau of Labor Statistics, taxfoundation.org, Valens Research Analysis

Data Coverage: Monthly from Jan-1914 to Nov-2017



Presidencies

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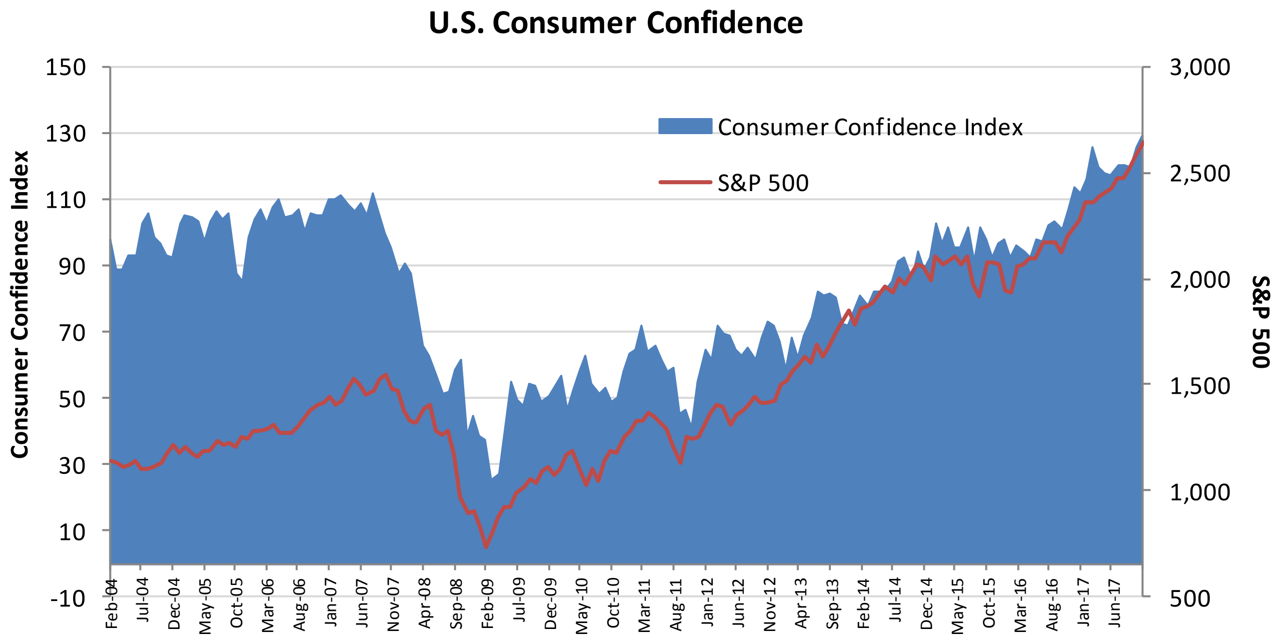
Consumer Confidence



Consumer Confidence Survey®
Source: The Conference Board

Data Coverage: Monthly from Feb-2004 to Nov-2017

- There is a strong relationship between the stock market and the consumer confidence index (CCI), as seen above. The CCI is a leading indicator of market movements because it is a general signal of consumer demand based on their perception of the current business and employment conditions, and their expectations for these conditions for the next six months. Movements in CCI also signal credit expansion, as demand for credit increases with consumer demand
- The Consumer Confidence Index increased in November 2017 to 129.5, compared to a revised 126.2 reading in October 2017. Consumer expectations for economic activity over the next six months increase to 113.3 this month from the prior month's 109.0. The Conference Board's survey showed that the proportion of consumers claiming jobs are "plentiful" increased to 37.1% from 36.7% in the previous month. Meanwhile, those who think jobs are "hard to get" increased to 17.1% from 16.9% in the previous month

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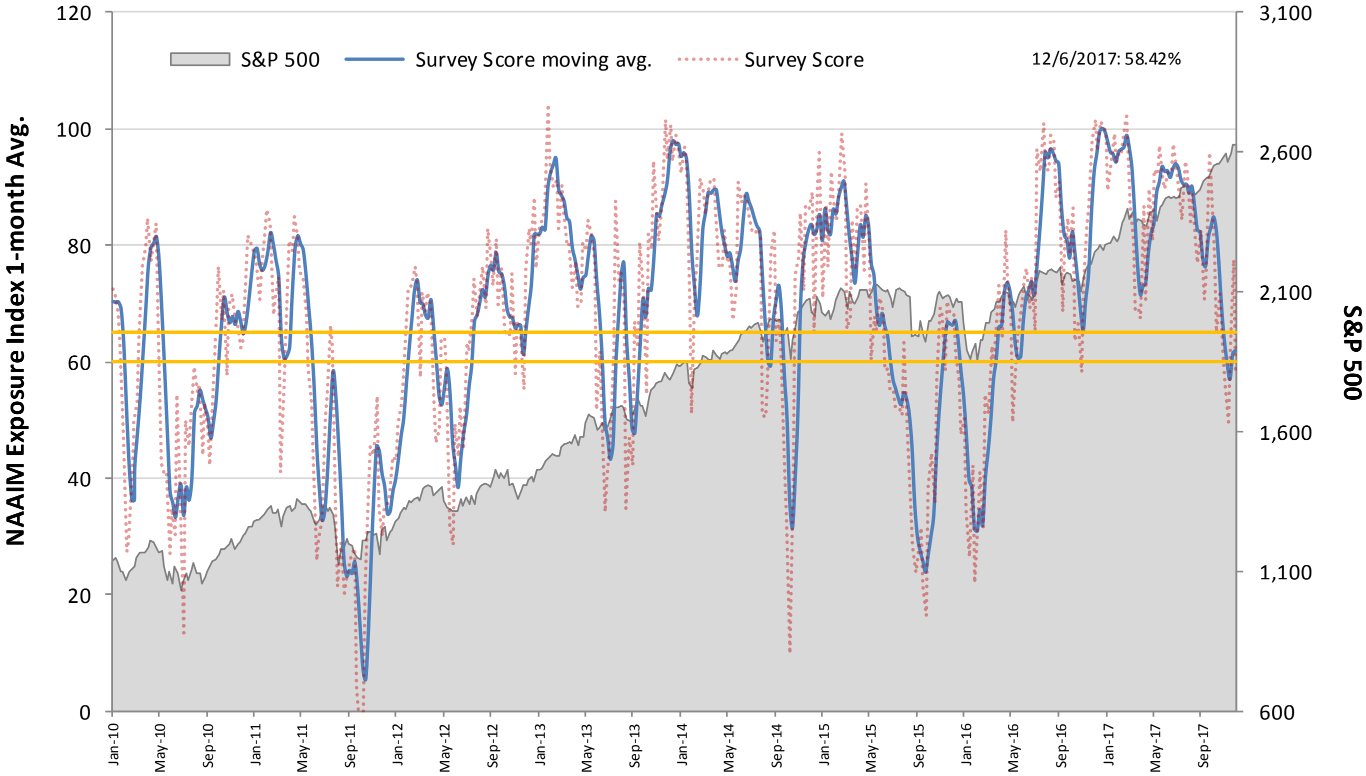
VALENS RESEARCH

Wall Street Sentiment: Equity Allocation Survey

Equity Allocation Survey and the S&P 500

Traditional Benchmark Equity Allocation: 60% to 65%



Source: National Association of Active Investment Managers

Data Coverage: Monthly from Jan-2010 to Dec-2017

- The National Association of Active Investment Managers member firms are asked each week to provide a number that represents their total overall equity exposure at the market close on a specific day of the week. Responses can vary widely from 200% leveraged Short, to 200% leveraged Long
- The traditional benchmark equity allocation falls between 60% to 65%. Equity allocation has been volatile these past two years, surging at times to 90% levels at its peak and down to nearly 10% levels at lows
- Early in 2016, equity allocation plunged back to the low end of levels while the market entered another correction, remaining there for much of the 1st quarter. Equity allocation recovered robustly until September. However, through October and early November, equity allocation levels declined into the election. After the election, equity allocation levels rose robustly, as markets reacted to discussions about infrastructure stimulus, tax cuts, and other growth creating initiatives. For the most part equity allocation levels remained elevated through the rest of 2017
- Equity allocation levels have fallen significantly recently and now are at the lower end of their range since the election, falling to sub-60% levels currently. This is a sign of investors growing substantially conservative in their positioning relative to the past year

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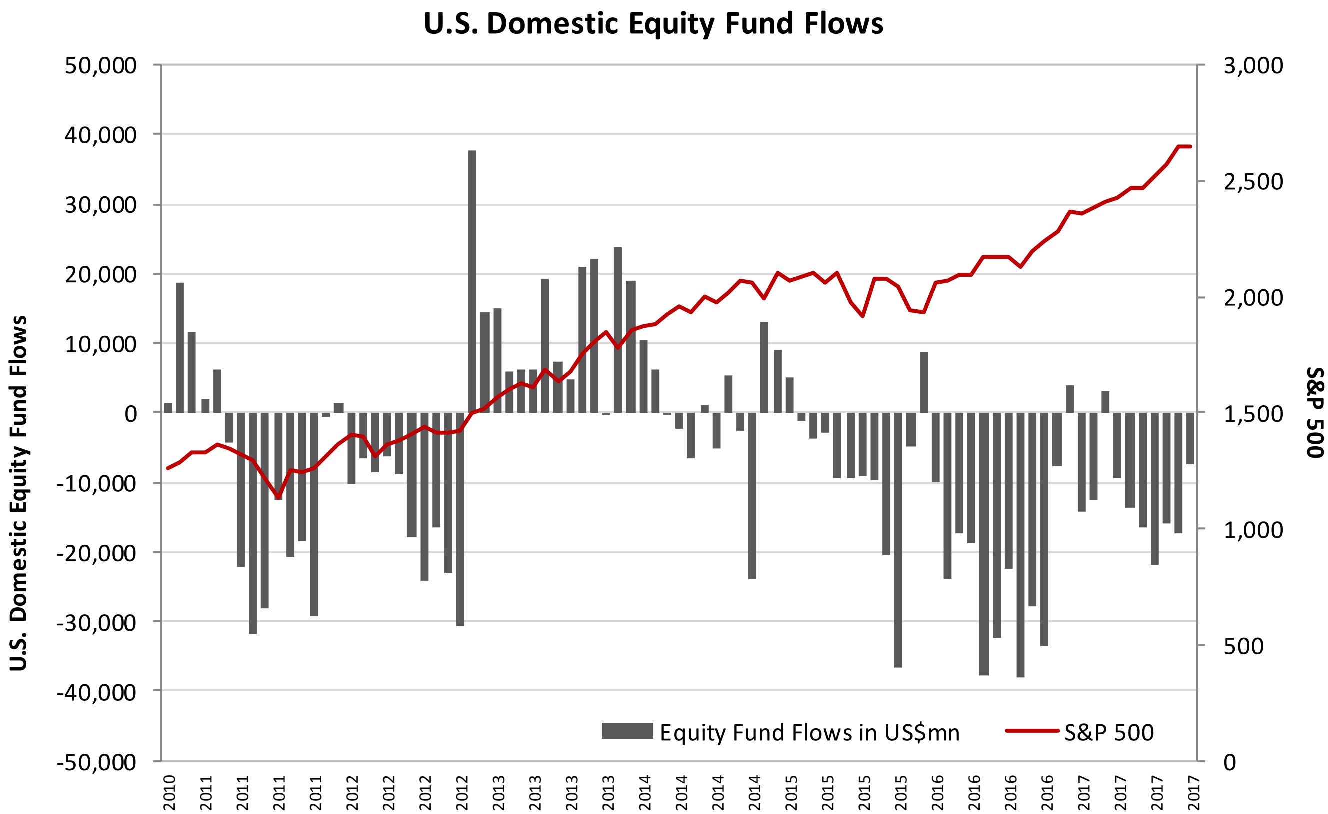
Investor Sentiment: Equity Fund Flows



Source: Investment Company Institute

Data Coverage: Monthly from Dec-2010 to Dec-2017

- The old adage of buying low and selling high is statistically far from investor reality. Data from the Investment Company Institute shows that historically, investors pull out from equities at times when stock prices are relatively discounted
- U.S. domestic equity funds suffered net outflows in each year except one (2013) since the global financial crisis of 2008
- Equity funds in the U.S. totaled a full-year outflow of $172.5bn in 2015, compared to an outflow of only $60.2bn in 2014. Furthermore, December garnered the second biggest monthly outflow in 2015, only behind July's $27.7bn net selling right before the U.S. equities market experienced a correction in August 2015
- During the first half of 2016, outflows totaled $83.7bn compared to $59.8bn in the same period of 2015. The global market rout during the beginning of the year led to investors in the U.S. equity markets fleeing to safe-haven assets
- Recently, fund outflows have remained elevated as the market rallied

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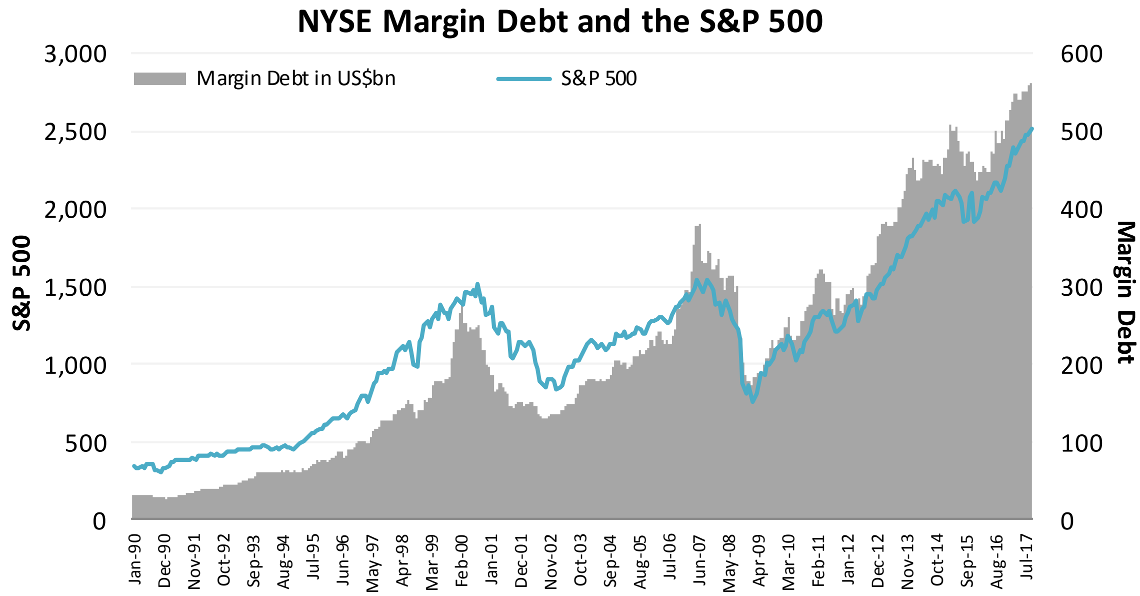

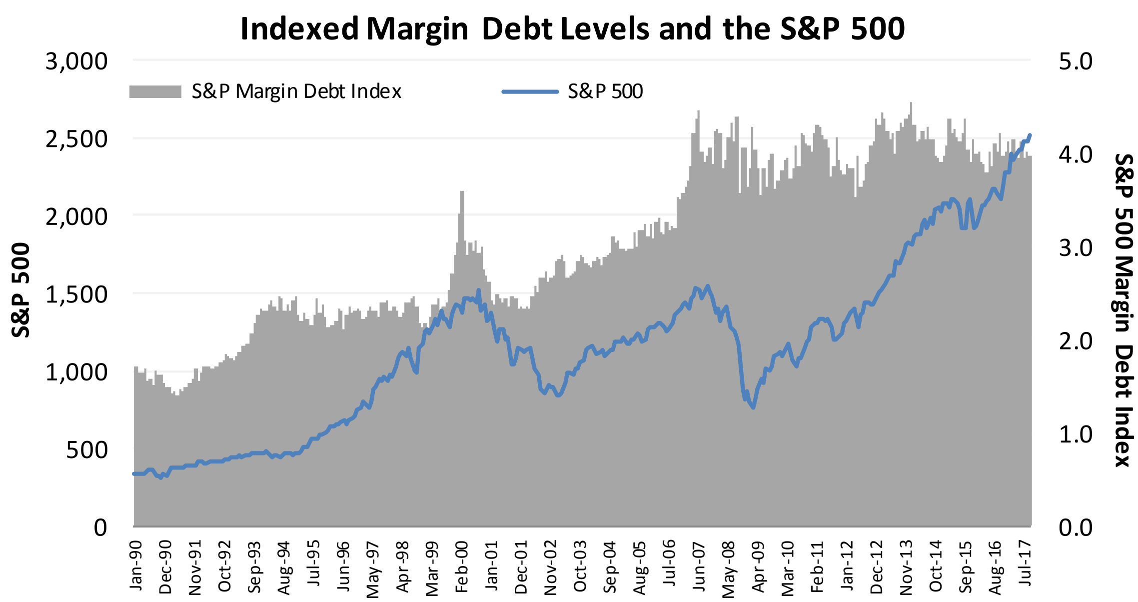

Source: New York Stock Exchange, Valens Research Analysis   Data Coverage: Monthly from Jan-1990 to Oct-2017

- In Q1 2017, margin debt returned to its highest level ever achieved, surpassing levels seen in April 2015. However, due to the high correlation and almost direct relationship between margin debt levels and the level of the S&P 500, it is prudent to deflate the margin debt data relative to the S&P 500 to gauge if margin debt is spiking higher independently of any S&P 500 increase
- While controlling for increases in the S&P 500, we see that the current relative levels of margin debt are not approaching new peaks, but are in line with where levels have been since 2007, and actually at the lower end of levels seen for most of the past 5 years

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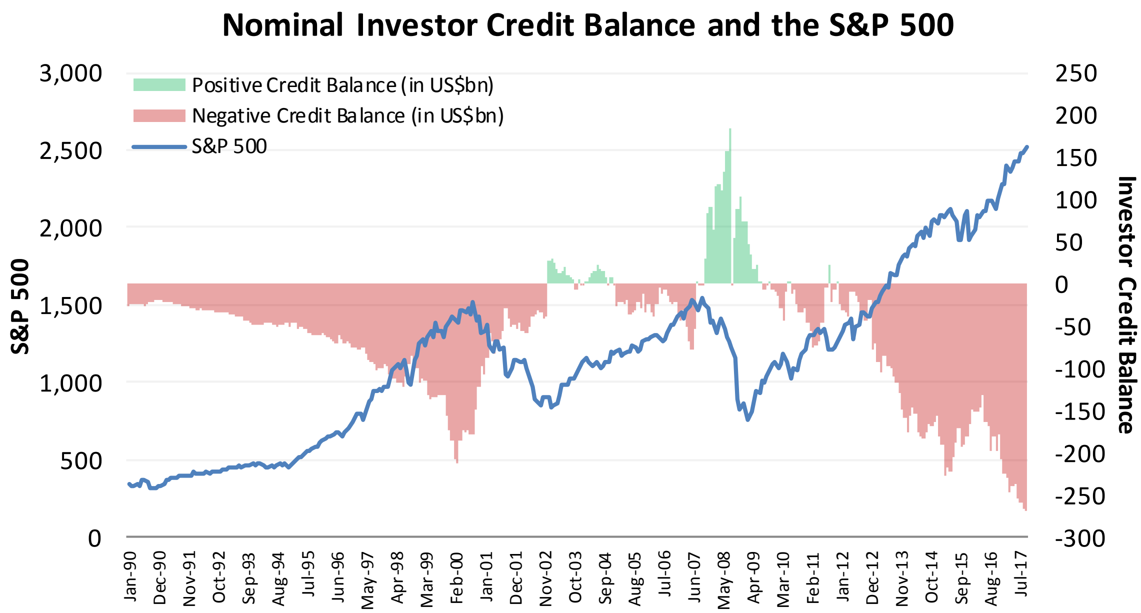
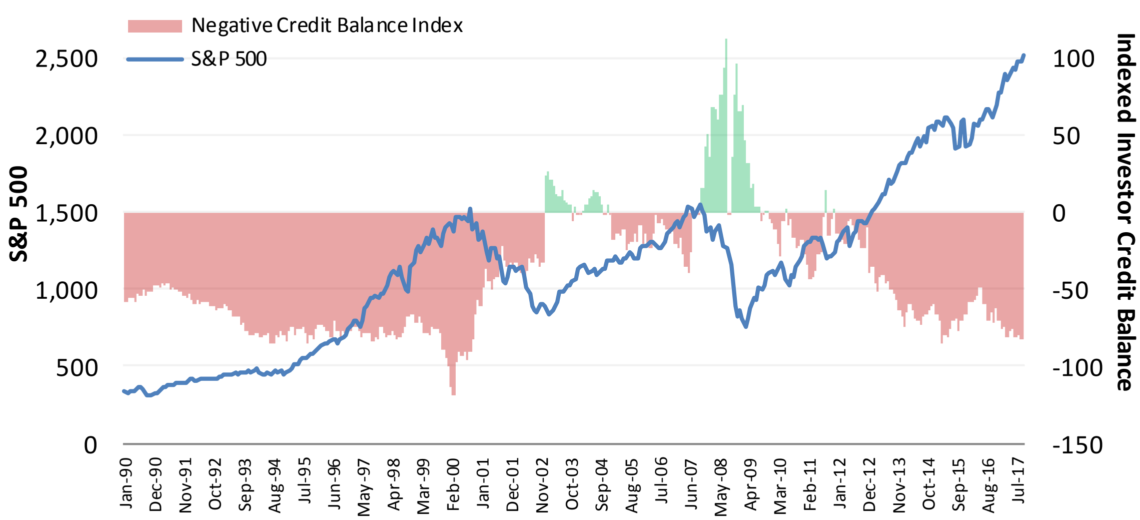
Investor Sentiment:
Investor Credit Balances





Source: New York Stock Exchange, Valens Research Analysis Data Coverage: Monthly from Jan-1990 to Oct-2017
Credit Balance as defined by Credit Balances in Margin Accounts plus Free Credit Cash Accounts minus Margin Debt

- Indexed Investor Credit Balances (Credit Balances in Margin Accounts + Free Credit Cash Accounts – Margin Debt) were at -82.20 as of October 2017 versus a low of -118 in March 2000. After reaching peaks not seen since 2000, Investor Credit Balances (both indexed and non-indexed) came in beginning in late 2015. Through the middle of 2017 they have moved wider, but they do not appear elevated relative to other similar periods
- Investor credit balances are currently flat at levels seen since late last year, in line with levels seen in late 2014 and in the 1994-1999 period

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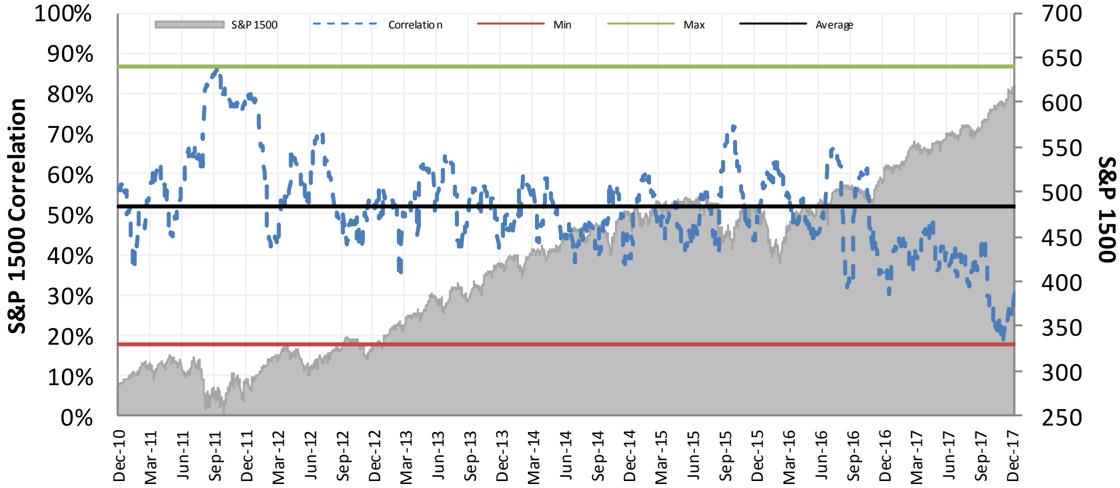
Correlation between the S&P 1500 and its constituents



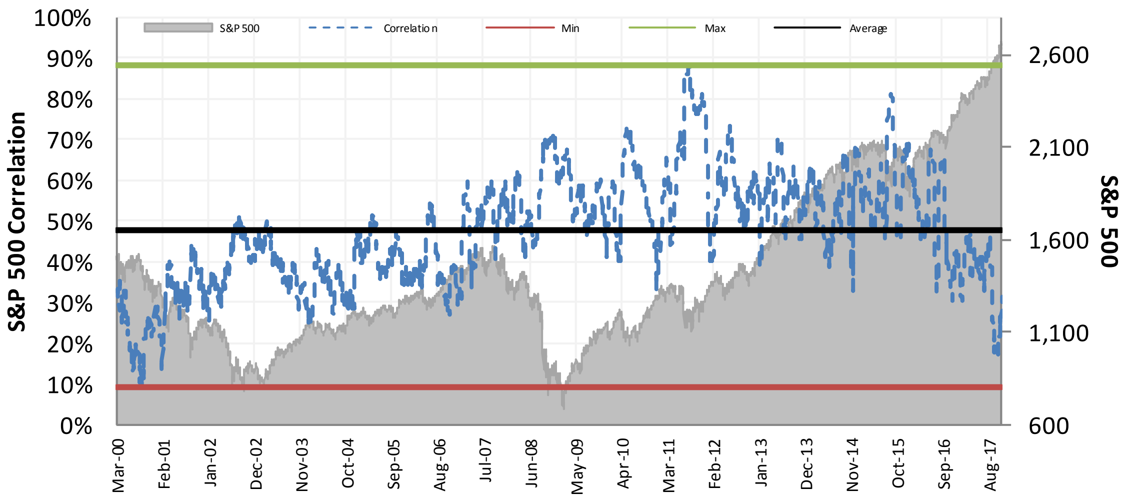
All S&P 1500 constituents, 30 Trading day correlation
Source: Capital IQ, Valens Research Analysis

Data Coverage: Daily from Dec-2010 to Dec-2017

The correlation between the S&P 1500 and its constituents have fallen dramatically below long-term levels but off lows from September-October 2017

- At 26.38%, correlation is below its six-year average of 52.2%, and is also below the 30%-45% range seen since the U.S. election in November 2016, but above the
- As of December 15, 2017, correlation between the S&P 1500 and its constituents increased by 4.4% WoW, increased by 10.5% MoM, and decreased by 5.7% YoY

Correlation between the S&P 500 and its constituents



All S&P 500 constituents, 30 Trading day correlation
Source: Capital IQ, Valens Research Analysis

Data Coverage: Daily from Mar-2000 to Dec-2017

- As of December 15, 2017, S&P 500 correlation increased by 5.31% WoW, increased by 10.7% MoM, and decreased by 7.7% YoY
- Correlation currently measures at 31.3%, below the long-term average of 47.6%

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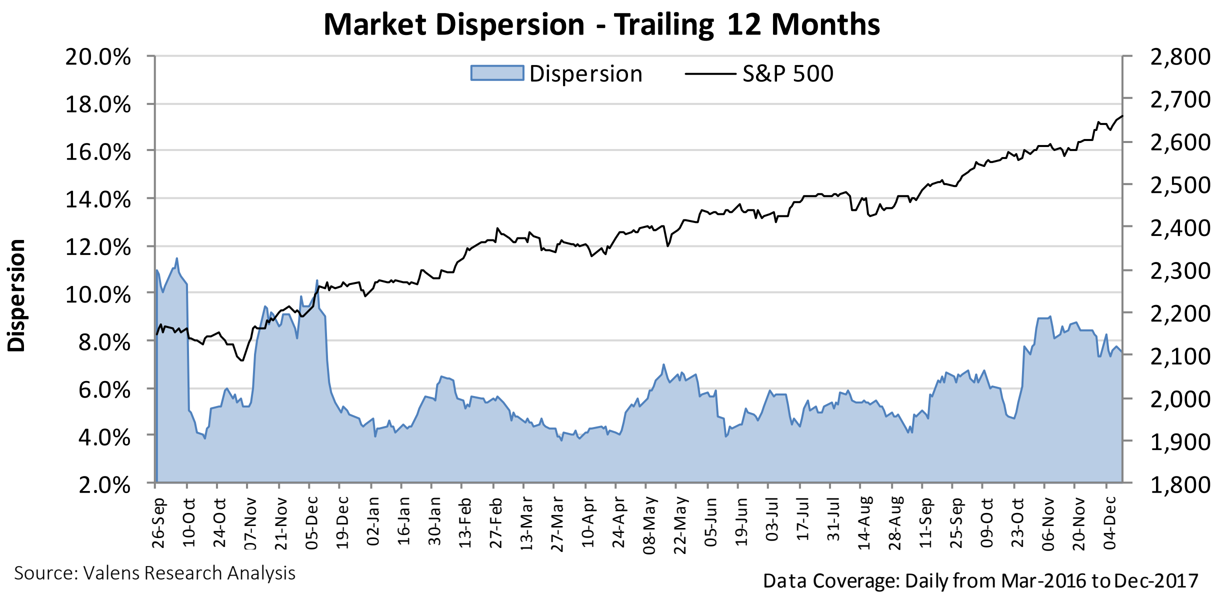
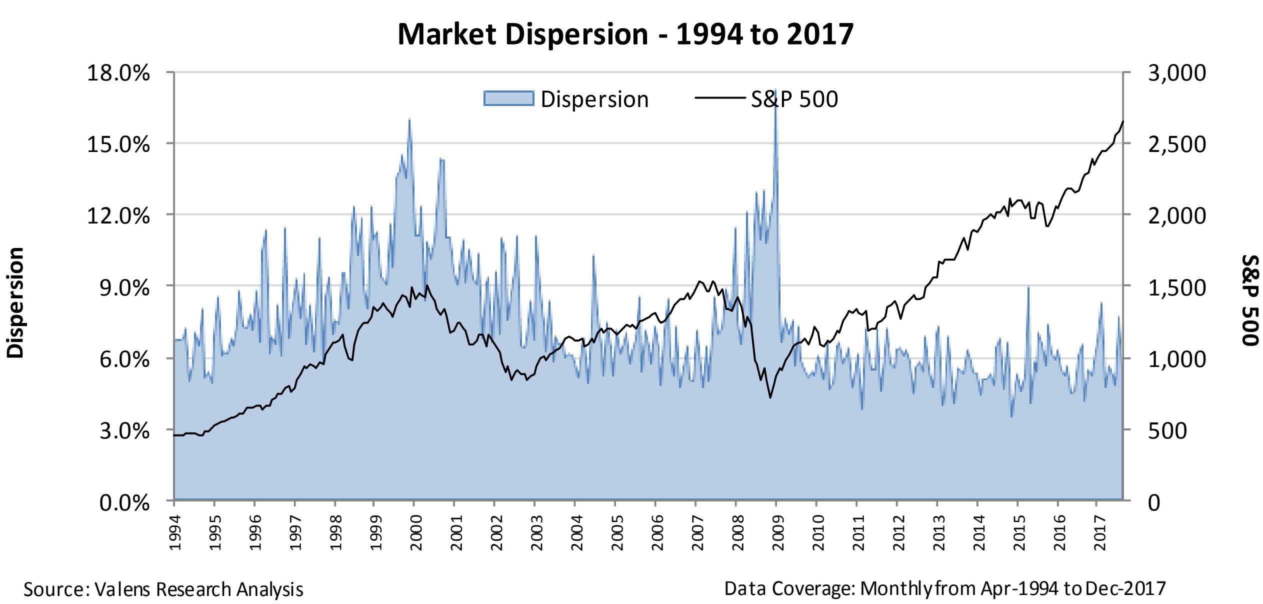
Investor Sentiment: Dispersion in Market Indices



- Dispersion, or cross-sectional portfolio volatility, measures diversity by quantifying how much the individual assets of an index perform differently compared to the average. Low dispersion periods signify that active investors would find it difficult to create a portfolio that would beat the index while high dispersion periods signify the potential for a wide range or spread of returns



- The sustained low dispersion environment the market has seen aside from the post-election period is a sign of a market that continues to be more challenging for alpha generating stock-picking. That being said, after a period of exceptionally subdued dispersion in March-April, recently dispersion has been growing again

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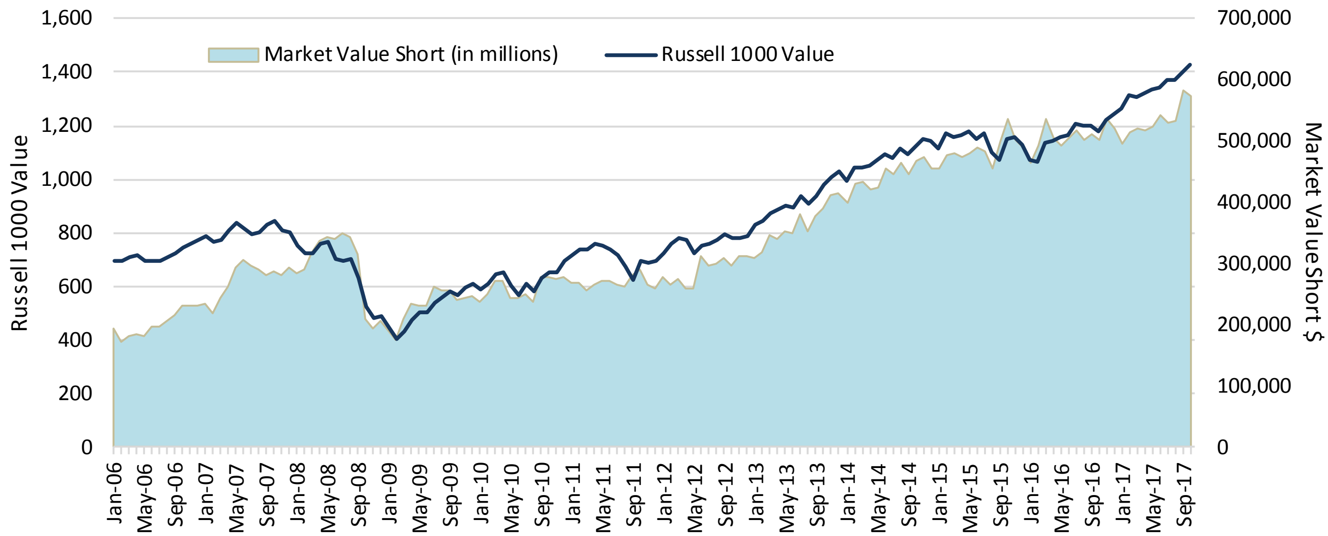
Investor Sentiment: Short Interest

Russell 1000 Market Value Short

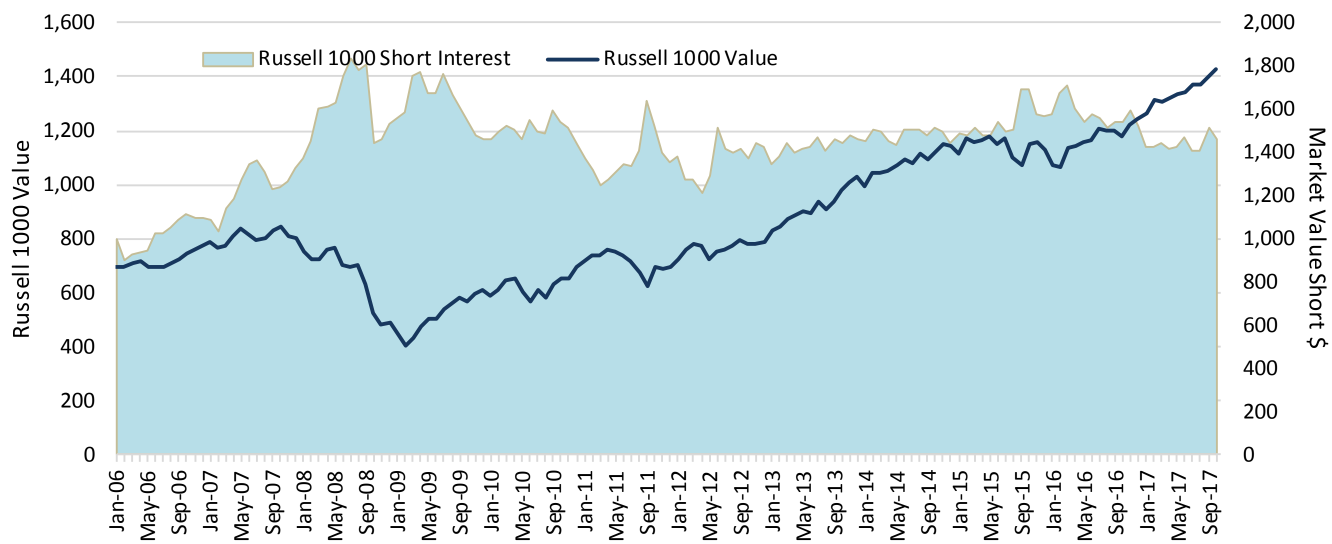


Source: Valens Research Analysis

Data Coverage: Monthly from Jan-2006 to Nov-2017

- Market Value Short steadily increased from April 2009 until late 2015. From a long-term perspective, the amount that investors are short is at high levels, though this is partially driven by higher equity prices
- Over the past year, Market Value Short levels have plateaued, and recently fallen, showing investors that are no longer growing more pessimistic

Russell 1000 Short Interest



Source: Valens Research Analysis

Data Coverage: Monthly from Jan-2006 to Nov-2017

- Short Interest highlights that when adjusted for higher equity prices, short interest had been relatively stable the last year after falling in late 2016, until the past two months, where it rose and then fell modestly again
- From 2012 through mid-2016, Short Interest levels were trending mostly higher. However since that period, the main trend in short interest levels have been down, signaling investors who are deploying more capital and less focused on downside risk

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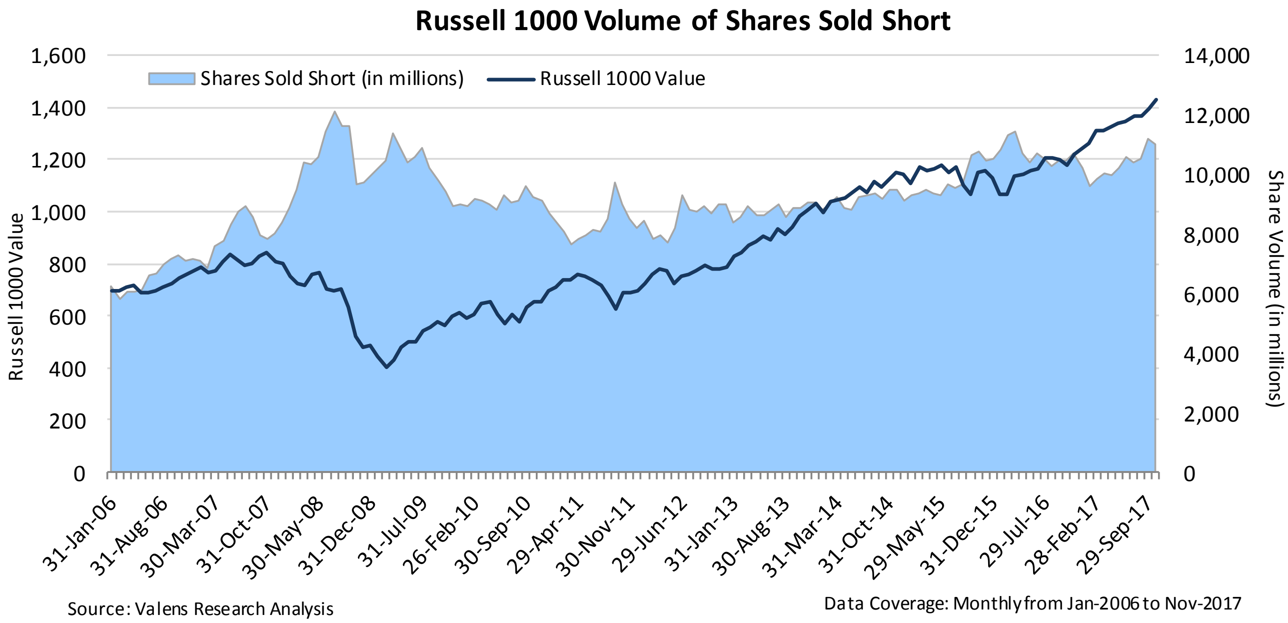
Investor Sentiment: Short Interest



- Total shares sold short in the Russell 1000 index had been rising steadily since 2011, with an accelerated increase to peak levels from the middle of 2015 to 12.8 billion shares in early 2016. These were at levels above any time including the 2008-2009 bear market period, a sign of substantial investor pessimism. However, the levels of shares sold short came significantly off of these highs through early 2017. Subsequently, shares short have been increasing, and they are now back to peak levels since 2015, signaling investor sentiment actually is more conservative

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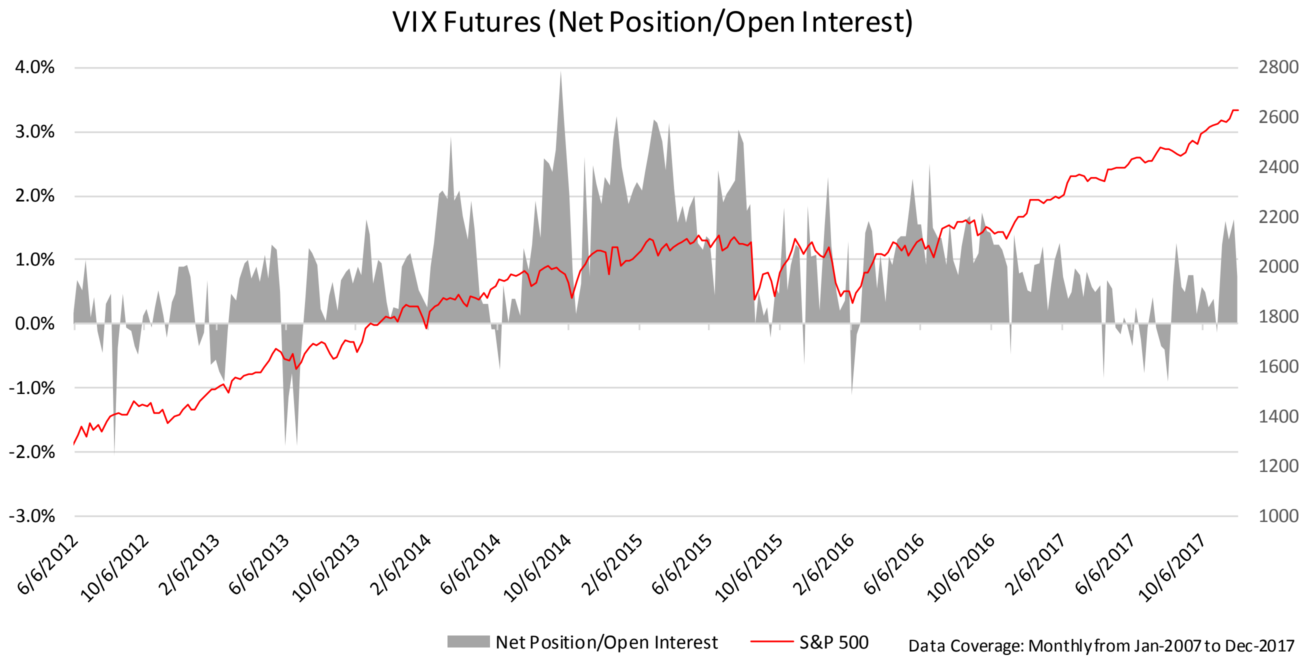
Investor Sentiment: Net Positions Held



Optimism among investors has been declining in the past year. Net short position in VIX futures are highest at the initial stage of the bull market, which means that investors were speculating on higher stock prices. While the S&P 500 is reaching new highs, the reduced optimism evidenced by net long positions in VIX futures may imply expectations for the market to remain range-bound without a catalyst for corporate earnings to improve. Interestingly, after net long positions approached cycle highs in 2014-2015, they subsequently came back down to lower levels, implying investor concern about risk was declining, however this trend has shifted in the past 2 months.

- During the two market corrections over the past year, net long positons held declined signifying that investors expect stock prices to increase, but there is less optimism compared to positions held in 2009. That being said, even as the market has continued to rally further in 2017, VIX positions flipped to a Net Short levels, signifying investors see lower volatility and equity upside going forward
- A net short position in VIX means that investors are heavily betting on higher stock prices while a net long position points to expectations for increased volatility and lower stock prices. Net long positions increased during the second half of 2014 and shortly after the market traded in a range-bound market
- Interest in volatility trading grew since the financial crisis in 2008. It is when investors started to appreciate volatility's negative correlation to both equity and commodity markets. The correlation between the VIX and the S&P 500 is about -0.8 which means that the VIX can sometimes diverge from movements in the S&P 500

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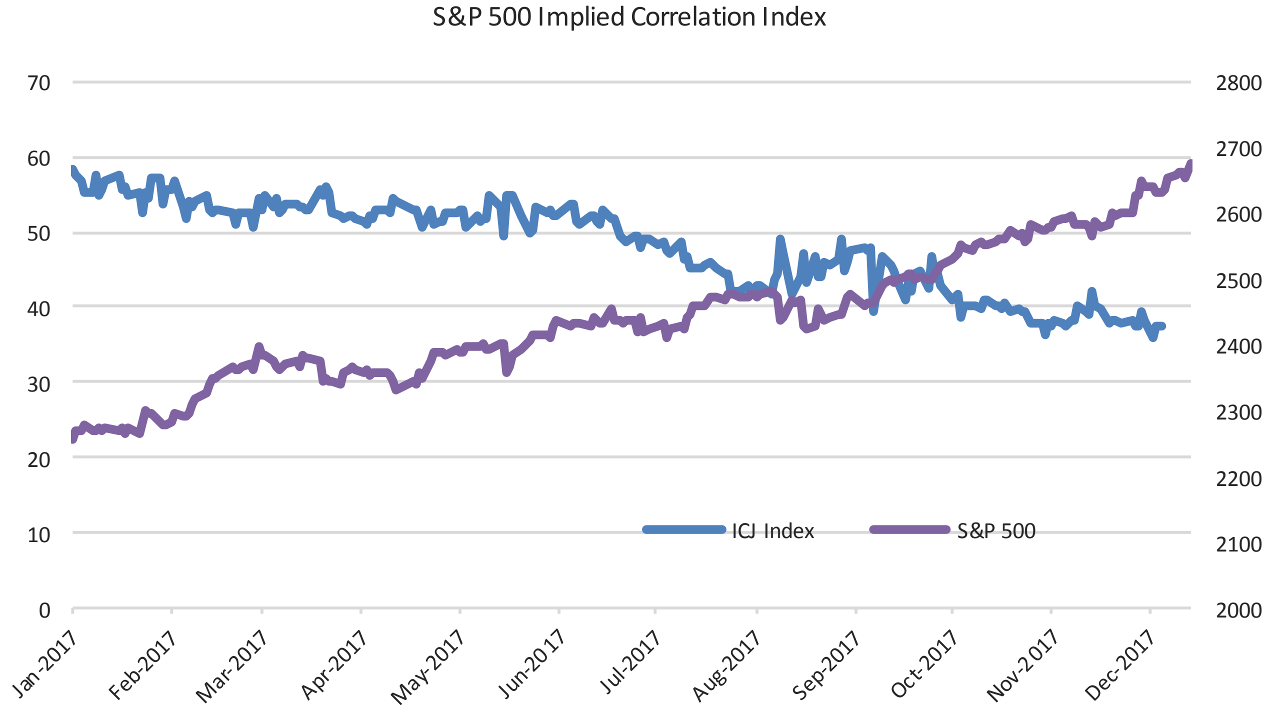
Investor Sentiment: Implied Correlation



Source: CBOE, Capital IQ

Data Coverage: Daily from Jan-2017 to Dec-2017

Year to date, the U.S. stock market has been moving at an upward trend while the ICJ (CBOE S&P 500 implied Correlation Index) January 2019 has been moving inversely. This opposing trend is signaling higher demand for risk

- The ICJ Index is one of the CBOE's Implied Correlation Index which uses the Option Prices of the S&P and the 50 largest companies in the S&P 500 Index
- When the implied Correlation Index declines, investor sentiments are positive and are perceived to be more inclined to take on risky investments. Inversely, when the index rises, this would indicate negative sentiments surrounding the U.S. stock market, potentially driving a sell off
- The ICJ Index declined by 37.3% year to date and by 12.6% on a month-to-month basis

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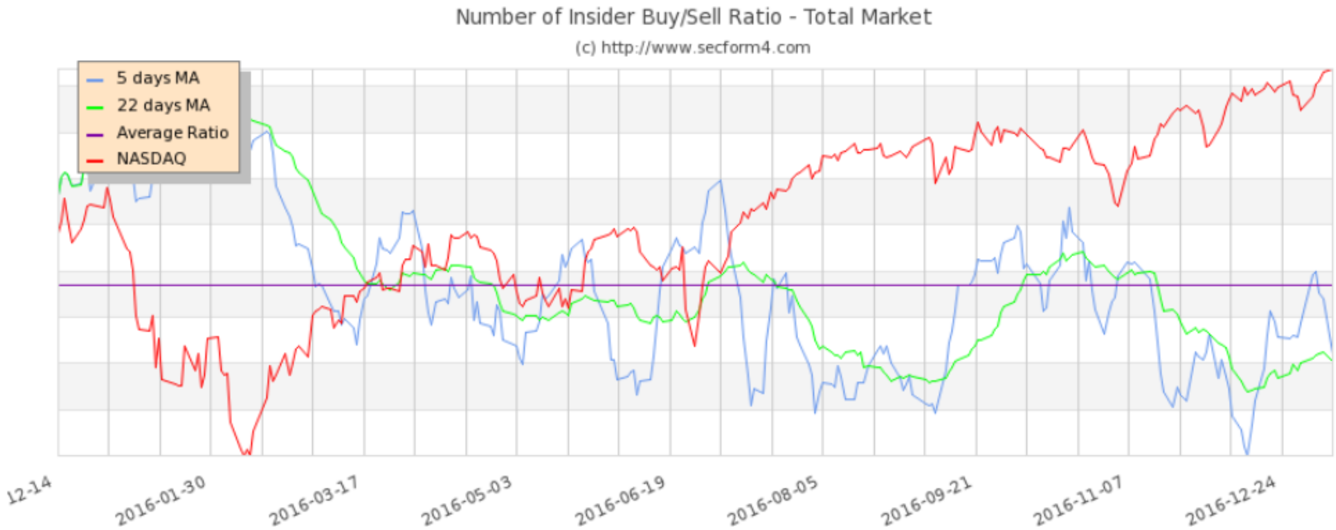
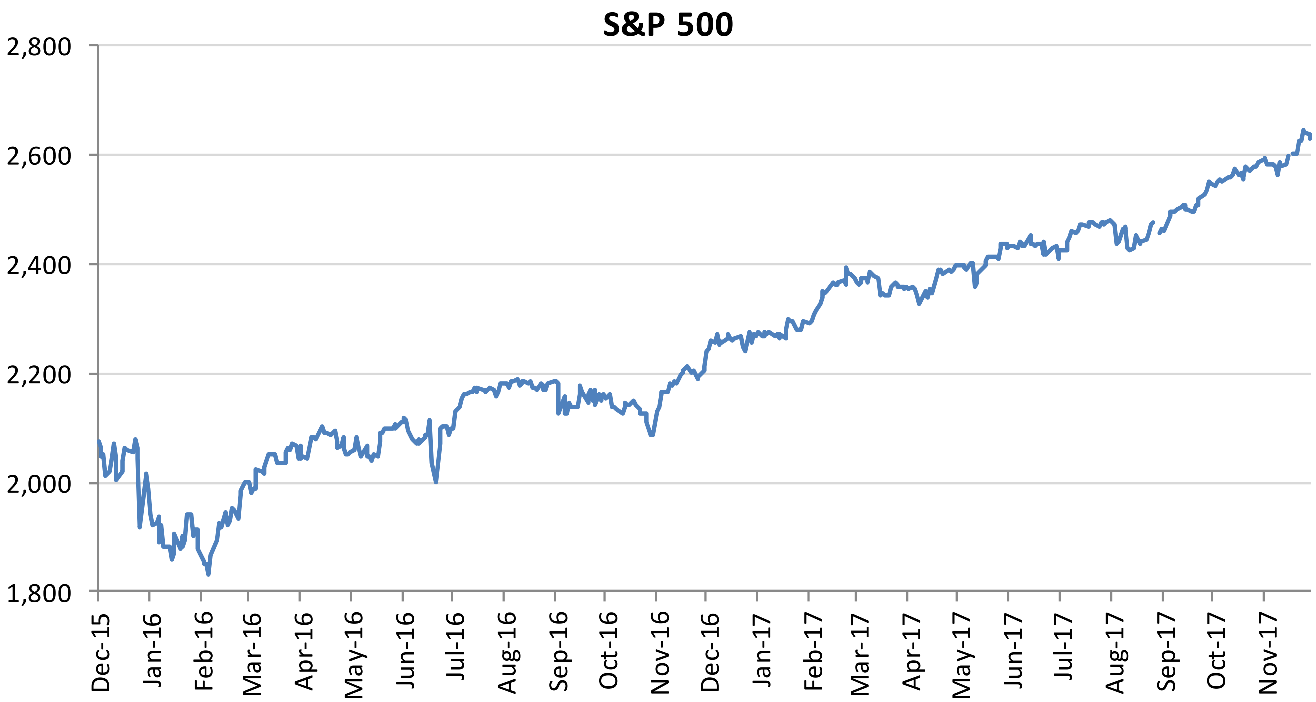
Management Sentiment: Insider Activity





Data Coverage: Daily from Dec-2015 to Dec-2017

- When the NASDAQ plunged into correction in early 2016, the five-day average insider buy/sell ratio surged, indicating that management teams were nonetheless confident. It is notable that during the past two market corrections, insiders continued to boost buying. This displays management teams' positive outlook, highlighting that while the stock market is under pressure, management teams do not appear concerned about their companies' underlying fundamentals
- As markets have pushed to all-time highs, insider buying has remained below longer-term trend levels. While markets are getting more confident about their outlook for companies, insiders, who tend to be value buyers, are stepping to the side

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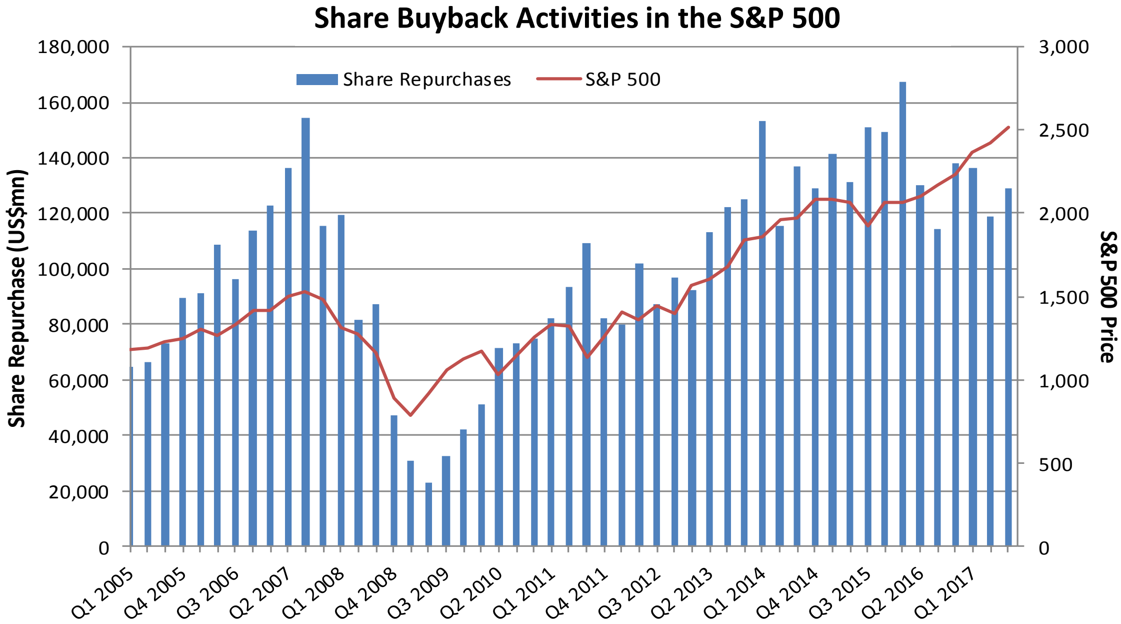
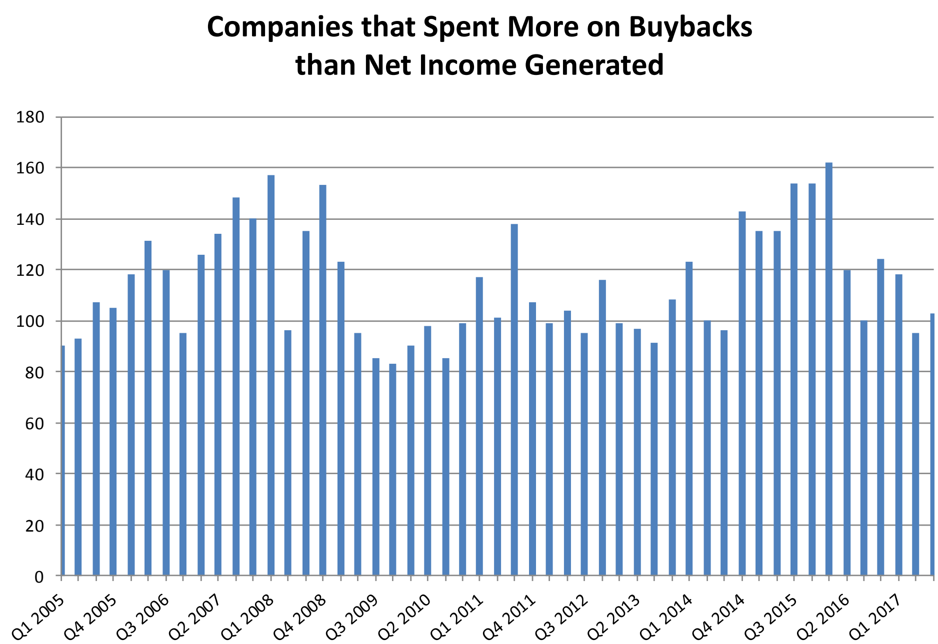


Source: Capital IQ, Valens Research Analysis
Data Coverage: Quarterly from Q1 2005 to Q3 2017

- Companies in the S&P 500 spent $130.0bn on share repurchases during Q3 2017, which represented an 13.4% increase year-over-year but a quarter-on-quarter increase of 9.2%. In 2015 alone, companies spent a record of $585bn on buybacks, a year-over-year increase of 6.4%. 2017 buyback levels are below where levels have averaged the last three years. This may be a sign that management teams are holding cash back to begin to invest going forward



Source: Capital IQ, Valens Research Analysis
Data Coverage: Quarterly from Q1 2005 to Q3 2017

- There are 103 companies in the S&P 500 with share buyback amounts in Q3 2017 larger than the net income they generated in the same period, up from 94 companies in the previous quarter, and well off from the over 160 companies that participated in excessive buybacks in Q3 2015 to Q1 2016

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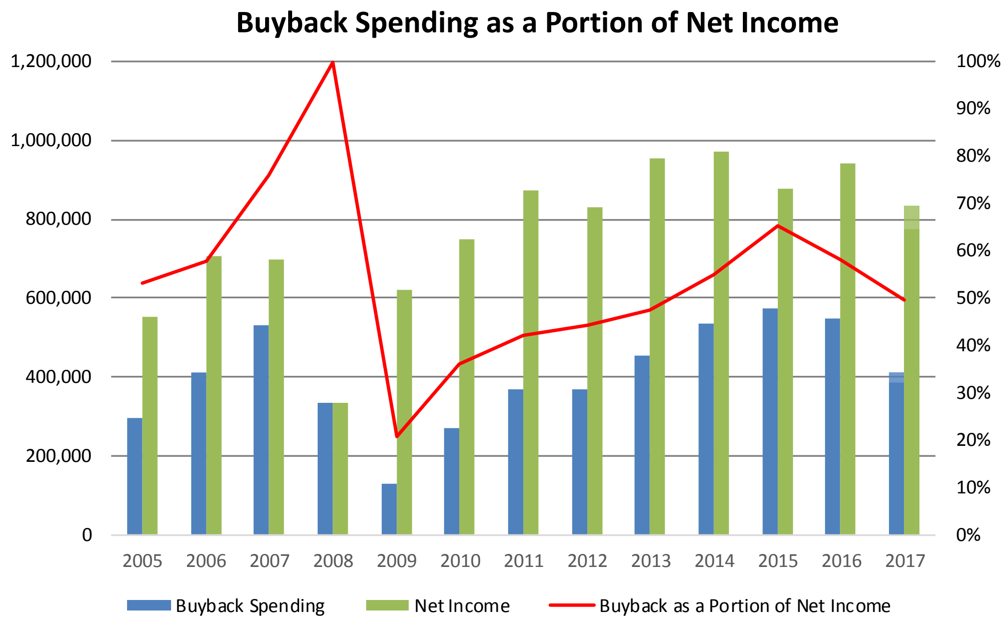
Management Sentiment: Buyback Activity



Source: Capital IQ, Valens Research Analysis — Data Coverage: Yearly from 2005 to 2017

Company buybacks generally indicate that management teams think that their shares are undervalued. However, companies that continue to boost buybacks in an environment of low earnings growth could also indicate that companies are running out of investment opportunities.

- Buyback spending makes up 59.5% of net income generated in 2016. Buyback spending in 2015 made up 66.1% of net income generated, close to levels seen in 2007, and marking the largest percentage since the recession of 2008, when buybacks made up 97.1% of net income
- While share repurchases in 2015 reached record levels, the rate of share buybacks declined in 2016 and continues to decline in 2017. In 2017, the rate of share buybacks has fallen to 50% of net income
- The substantial decline in share buybacks, when not driven by a decline in earnings also, is a sign that management teams are choosing to use their earnings in other ways, in particular around investing in growth

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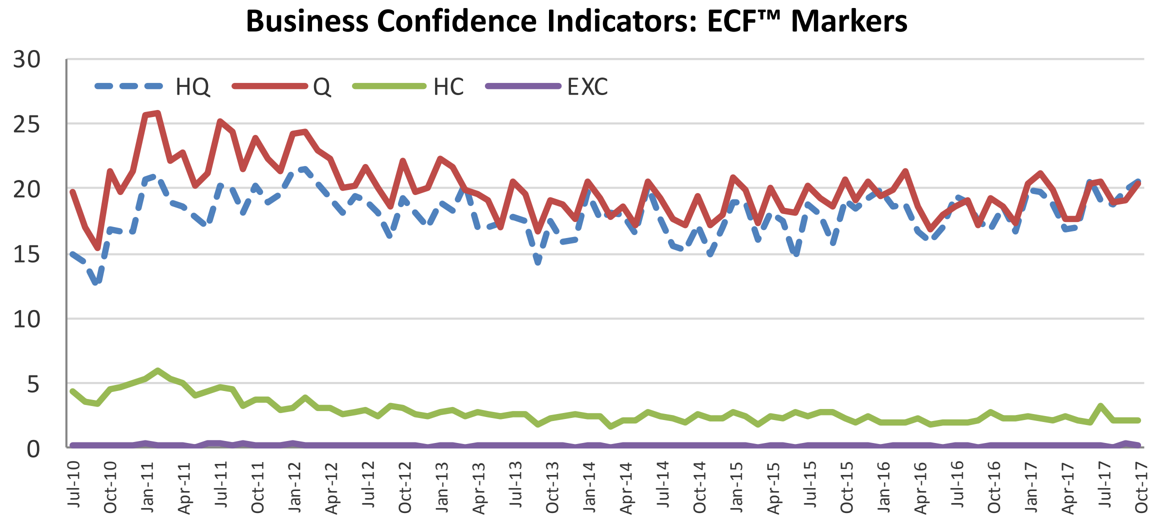
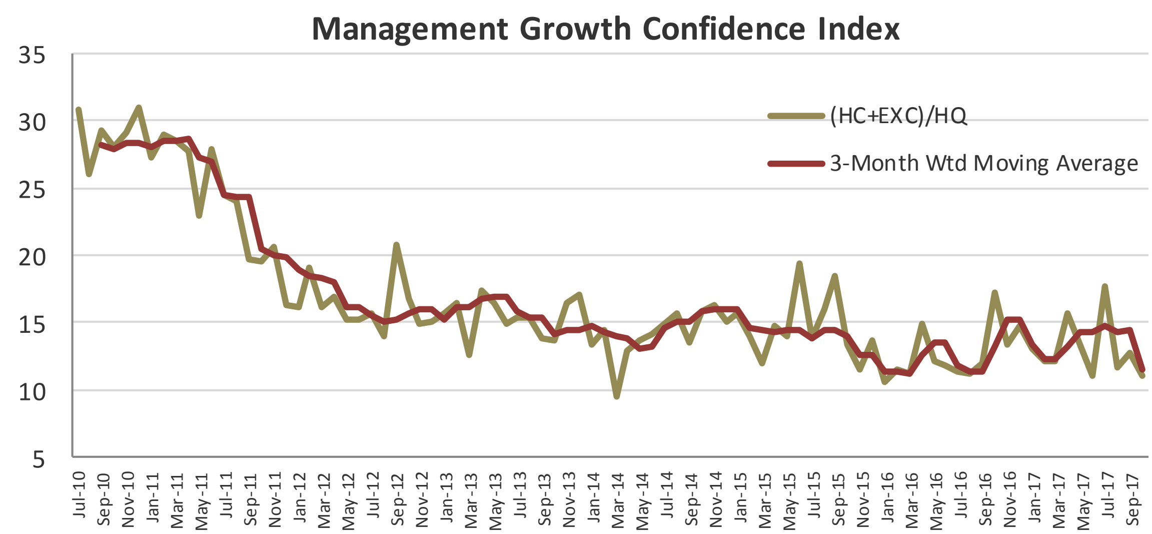
Management Sentiment: Aggregate ECF™



16,000+ total earnings calls from U.S. Corporates, sampled from all sectors
Source: Valens Research Analysis
Data Coverage: Monthly from Aug-2007 to Oct-2017



Source: Valens Research Analysis
Data Coverage: Monthly from Aug-2007 to Oct-2017

After months of subdued management confidence, a substantial increase in confidence markers since October 2016 appears to be a sign of more comfort with visibility post-election and openness to investing

- Management confidence levels appear to be trending positively. In October 2016, the Management Growth Confidence Index started to trend strongly positively for the first time in over a year, a signal confirmed in calls continuing through September 2017. With partial data for October, the ratio has declined in October, but the ratio is being monitored for a potential rebound. Assuming a rebound, this data point continues to point to management teams finally growing more confident about investing
- The largest positive inflections currently driving this improvement appear to be from the Consumer Discretionary, Financials, and Technology sectors, further signs that lending and consumption in the real economy might be showing signs of growth

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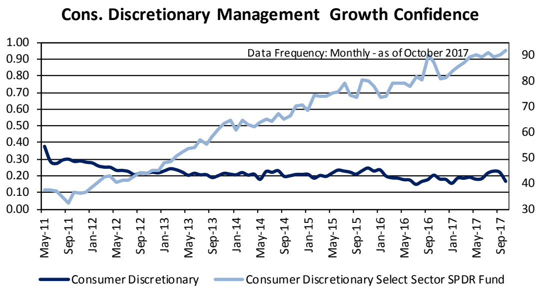
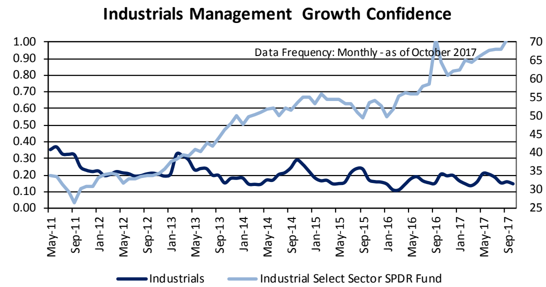
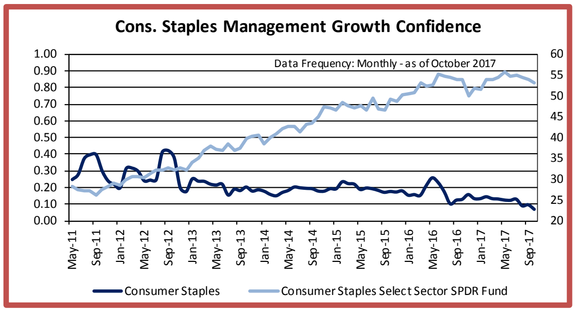
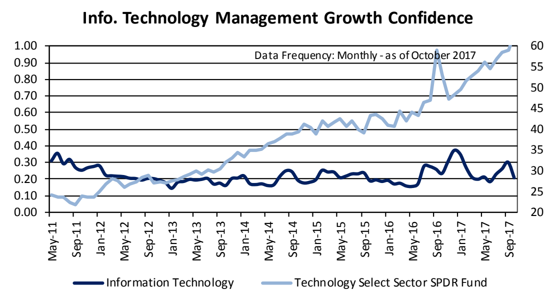
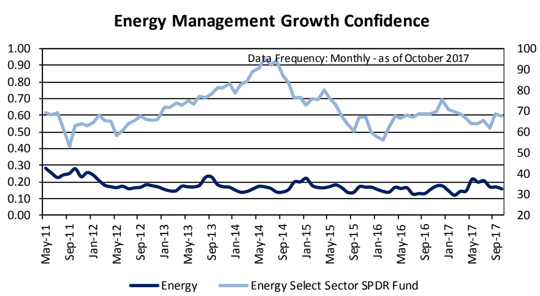
Management Sentiment:
Sector ECF™

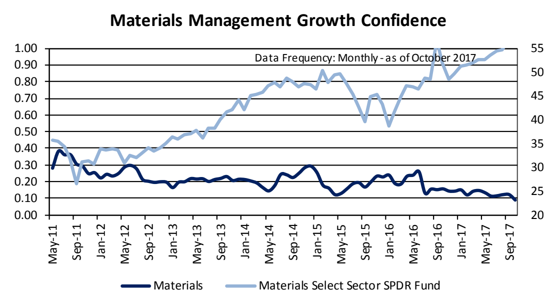


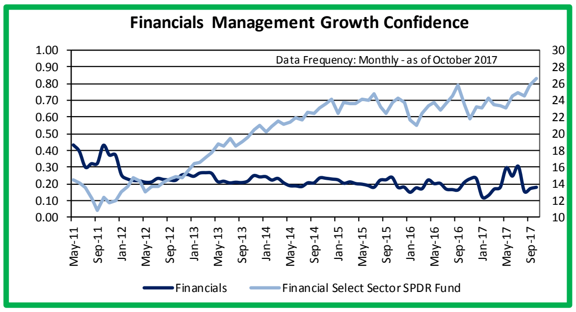


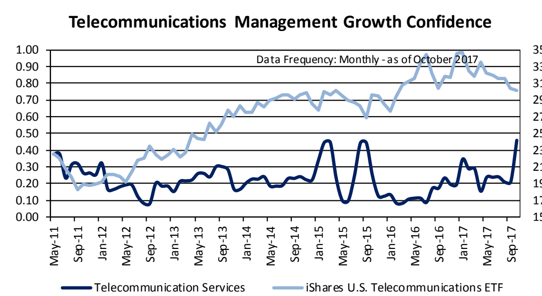


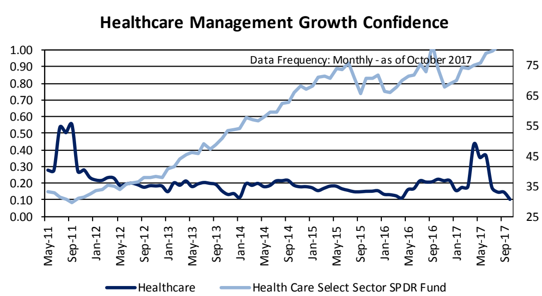


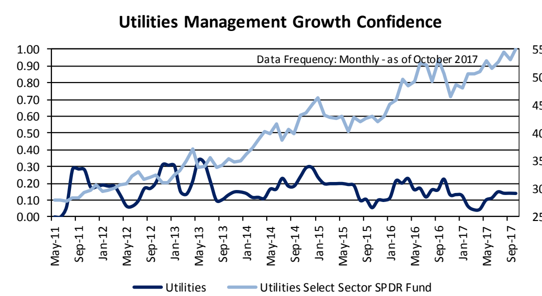












Source: Valens Research Analysis

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ECB President Draghi at the June 2017 ECB Press Conference

- Earnings Call Forensics™ of the June 2017 Press Conference highlighted concerns about their policy actions and inflation expectations
- President Draghi generated highly questionable markers when saying that the implementation of structural reforms needs to substantially step up to increase resilience, reduce structural unemployment, and boost productivity and potential output growth
- He appeared to be concerned about the effectiveness of their interest rate and asset purchase programs, particularly about their projected timeline for when they will be able to withdraw their monetary policy support
- He also appeared to be concerned about inflation remaining weak, and their expectation for this to continue for the following months
- Additionally, he may be concerned about the EU's economic expansion not translating into stronger inflation and wage growth. He may also be exaggerating their confidence that tail risks in terms of inflation have decreased
- Furthermore, he may be concerned about the unemployment rate and its downward pressure on wage growth. He may also be concerned about their ability to meet inflation targets being contingent on a decline in the unemployment rate

ECB President Draghi at the March 2017 ECB Press Conference

- President Draghi generated an excitement marker when talking about HICP inflation increasing to 2% in February, and was confident about wage growth as a key component to self-sustained inflation
- He appeared to be downplaying how favorably underlying inflation is trending and the growth prospects they are seeing
- However, he may be exaggerating how favorably European citizens and nations view the euro, and may be concerned about their ability to increase economic prosperity in the Eurozone
- Additionally, he appears concerned about their ability to hit estimated growth and inflation targets over the next three years, and may be exaggerating their commitment to effectively use all the instruments available within their mandate

ECB President Draghi at the December 2016 ECB Press Conference

- Earnings Call Forensics™ of the December Press Conference highlighted concerns about their asset purchase program, inflation expectations, and the political environment in the EU
- President Draghi generated highly confident markers when talking about the stimulative effect of a recovery in inflation expectations
- However, he generated highly questionable markers when saying that tapering has not been discussed, and when saying that the risk of deflation has largely disappeared
- Additionally, he generated highly questionable markers when talking about the uncertain political environment in the EU, and about recent developments in bank credit, particularly with Italian banks

ECB President Draghi at the September 2016 ECB Press Conference

- Earnings Call Forensics™ of the September Press Conference highlighted concerns about their asset purchase program and their macroeconomic outlook
- President Draghi generated multiple highly questionable markers when saying that their purchase program is intended to run until the Governing Council sees a sustained adjustment in the path of inflation consistent with its inflation aim, and when saying that their inflation expectations are subject to considerable volatility
- Furthermore, he generated highly questionable markers when talking about the year-on-year decrease in bank profits and the unemployment rate

Market Phase Cycle
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ECB President Draghi at the July 2016 ECB Press Conference

- Earnings Call Forensics™ of the July Press Conference highlighted concerns about their monetary and fiscal policy, bank solvency and lending standards, and the Brexit
- President Draghi generated highly questionable markers when saying that their monetary policy measures have been highly effective, and when saying that the fiscal stance in the euro area is expected to be mildly expansionary in 2016
- Additionally, he generated highly questionable markers when saying that they see more conservative lending behavior on the banking side, and when saying that the problem that they will have to address in the banking industry is the weak profitability ahead and not a problem of solvency
- Moreover, he generated a highly questionable marker when saying that Brexit did not seem to have any major impact on the inflation outlook

ECB President Draghi at the June 2016 ECB Press Conference

- Earnings Call Forensics™ of the June Press Conference highlighted concerns about the pace of economic recovery and about the effectiveness of their strategies and instruments
- President Draghi generated a highly confident marker when saying that economic recovery in the euro area continues to be dampened by subdued growth prospects in emerging markets, the necessary balance sheet adjustments in a number of sectors, and a sluggish pace of implementation of structural reforms.
- Moreover, he generated highly questionable markers when saying that economic recovery is gradually proceeding, and when saying that sustained employment gains and still relatively low oil prices provide additional support for households' real disposable income. He also generated highly questionable markers when saying that the Governing Council sees that the medium term for a return of inflation to their objective of an inflation rate of close to but below 2% is pretty long, and when discussing potential headwinds to recovery

ECB President Draghi at the April 2016 ECB Press Conference

- Earnings Call Forensics™ of the April Press Conference highlighted concerns about managing inflation, the effectiveness of their policies, and the pace of economic recovery
- ECB President Draghi generated highly questionable markers when discussing the ECB's monetary policy measures. He appears concerned about the effectiveness of their corporate bond purchasing program, and about their ability to effectively manage inflation going forward. Moreover, he appears to lack confidence in the effectiveness of their current policies and may be concerned about the potential effects of negative interest rates on consumers. He also appears to be downplaying the impact monetary policy has had on German Pension fund yields. Finally, he appears to be overstating the effect of recent initiatives in terms of their ability to combat market volatility
- ECB President Draghi generated highly questionable markers when discussing ECB's economic analysis. He appears concerned about the effect of fiscal policy on the Eurozone economy, and about various headwinds slowing the pace of recovery, including balance sheet adjustments in various sectors, structural reform delays, and emerging market weakness. Furthermore, he appears to lack confidence in their ability to manage inflation rates toward their 2% target going forward, and may be concerned about the potential effect of a Brexit from the Eurozone

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Fed Chair Janet Yellen at the June 2017 FOMC Press Conference

- Earnings Call Forensics™ of the June 2017 Press Conference highlighted concerns about inflation and unemployment, the rate of economic expansion, and their policy actions
- Fed Chair Yellen generated a highly confident marker when saying that they expect inflation to remain low in the near-term. Highly questionable markers also imply that she may be concerned about softer than expected core inflation readings. She may also be concerned about sustained low unemployment not resulting in an increase in inflation
- She may also may be concerned about their ability to hit their inflation targets, and may be concerned about growing sentiment that the Fed should raise their inflation target
- Additionally, she may be concerned about the rate of economic expansion, and about their preparedness for the possibility of an economic downturn
- Furthermore, she may be concerned about the effectiveness of their current policies, and may be concerned about the impact of their balance sheet reduction plans on the markets

Fed Chair Janet Yellen at the March 2017 FOMC Press Conference

- Chair Yellen appears concerned about the impact of fiscal policy on supply and demand in the economy, and may lack confidence in their ability to accurately predict the effect of balance sheet normalization actions
- Moreover, she may be exaggerating confidence that the longer-run neutral fed funds rate is close to 1%, and may be concerned about over or undershooting inflation targets
- Additionally, she may lack confidence in their outlook in terms of economic trajectory, which would be necessary to introduce accommodative monetary policy
- Furthermore, she appears concerned about a potential flight-to-safety pressuring the US dollar, and the subsequent impact on inflation and the country's trade balance
- She may be concerned about the sustainability of the stock market's current trajectory

Fed Chair Janet Yellen at the September 2016 FOMC Press Conference

- Earnings Call Forensics™ of the September Press Conference highlighted concerns about their macroeconomic outlook and their decision not to raise the federal funds rate
- Fed Chair Yellen generated highly confident markers when talking about the implications of upward pressures on inflation on their evaluation of the neutral funds rate
- However, she generated a highly questionable marker when saying that they do not see signs of leverage building up in the way that they saw in the run-up to the crisis
- Additionally, she generated a highly questionable marker when saying that dissenting opinions regarding their decision not to raise the federal funds rate represent a judgment that it is important to begin the process of raising rates immediately

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Fed Chair Janet Yellen at the June 2016 FOMC Press Conference

- Earnings Call Forensics™ of the June Press Conference revealed that Chairwoman Yellen appears concerned about inflation, global growth, and jobs
- Chairwoman Yellen generated highly confident markers when saying that the economic outlook is inherently uncertain. Furthermore, she generated highly questionable markers when saying that they will be carefully assessing data on the labor market and that if factors such as low energy prices and the appreciation of the dollar begin to dissipate, we would see inflation will move up. Moreover, she generated highly questionable markers when saying that negative cash flow is conceivable in a scenario where growth and inflation will surprise the Fed to the upside and that in considering the stance of the Fed's policy, they look at foreign rates and the prospects for growth in foreign economies

Fed Chair Janet Yellen at the March 2016 FOMC Press Conference

- Earnings Call Forensics™ of the March Press Conference revealed that Chairwoman Yellen appears confident about labor force improvement and their focus on economic data, but concerned about estimates for rate increases, wage growth, and energy markets
- Chairwoman Yellen generated highly confident markers when saying that the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data, and when saying the labor force participation rate has turned up noticeably since the fall, with more people working or actively looking for work
- However, she generated highly questionable markers when saying median projection for the federal funds rate will rise only gradually to 0.9% late this year and 1.9% next year, and when saying they will continue their policy of reinvesting proceeds from maturing Treasury securities until normalization of the level of the federal funds rate is well under way
- Finally, she generated highly questionable markers when saying consumer spending will slowly strengthen over time if oil prices stay low; however, a marked decline in oil drilling activity will depress investment spending and will result to substantial layoffs in the energy sector, and when saying if oil prices were to increase, that alone would not be something with great policy significance

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Government Policy and Intervention

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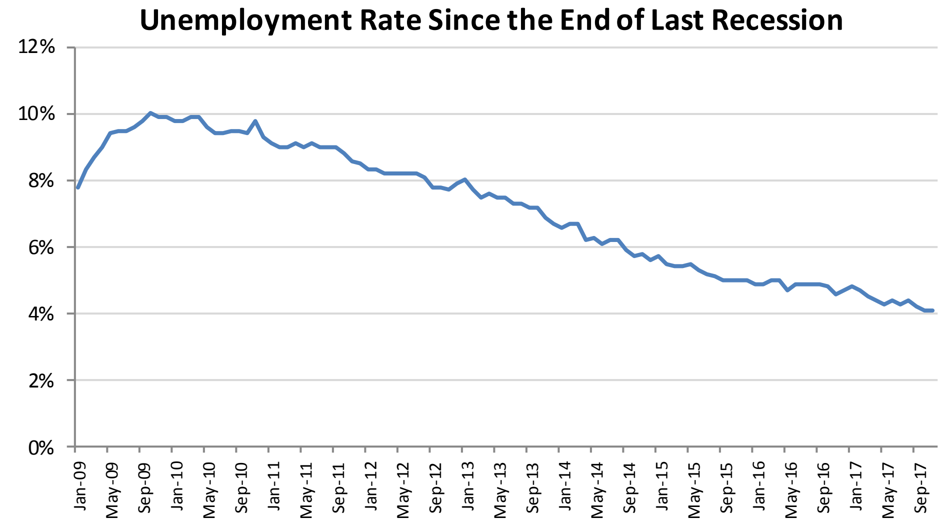
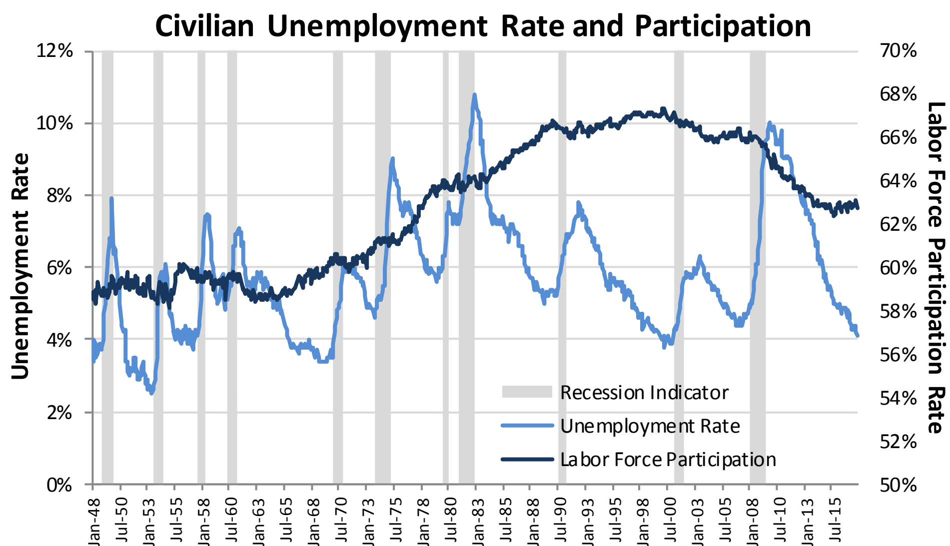
The Unemployment Rate



Source: The Federal Reserve System | Data Coverage: Monthly from Jan-2009 to Nov-2017



Source: The Federal Reserve System | Data Coverage: Monthly from Jan-1948 to Nov-2017

Unemployment rate remained at 4.1% in November from the October rate.

- Declining unemployment rates may be an indicator of an improving economy. However, low unemployment rates could also be a cautionary signal to the market as recessions typically occur shortly after the unemployment rate stabilizes at a low
- Recent data in October revealed that the participation rate remained the same as 62.7% from the previous month

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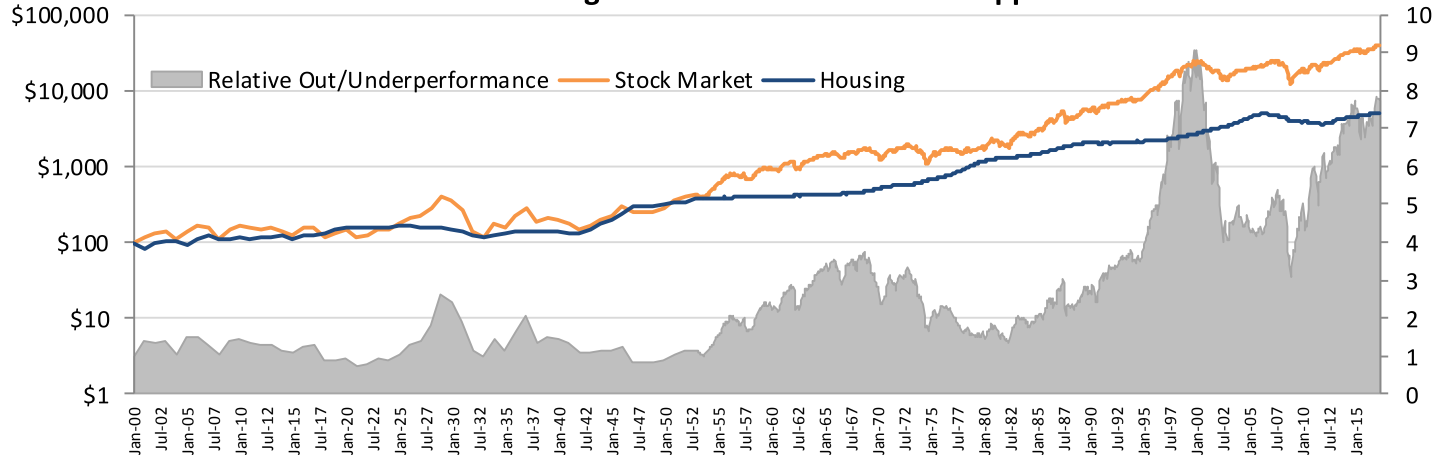
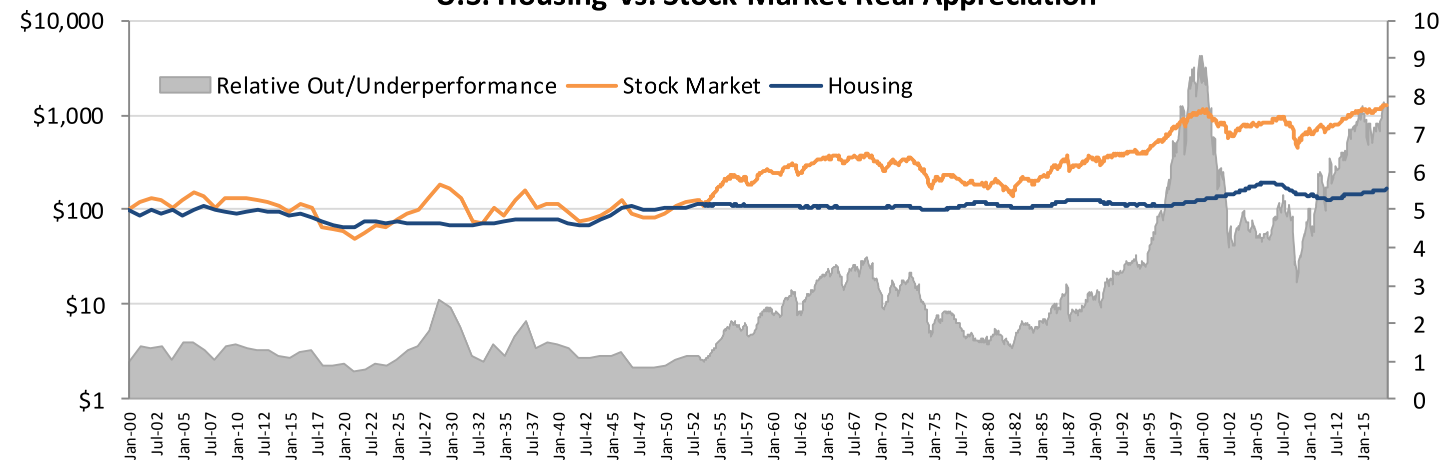
Housing Prices vs. the Dow Jones Industrial Average

U.S. Housing vs. Stock Market Nominal Appreciation



U.S. Housing vs. Stock Market Real Appreciation



Source: Federal Reserve System, Valens Research Analysis

Data Coverage: Monthly from Jan-1900 to Jul-2017

- In real terms, $100 invested in the U.S. housing market in 1900 would only have been worth $166 in 1900 dollars in 2017. Investing the same amount similarly in the stock market would have yielded a real return of $1,287 in 2017

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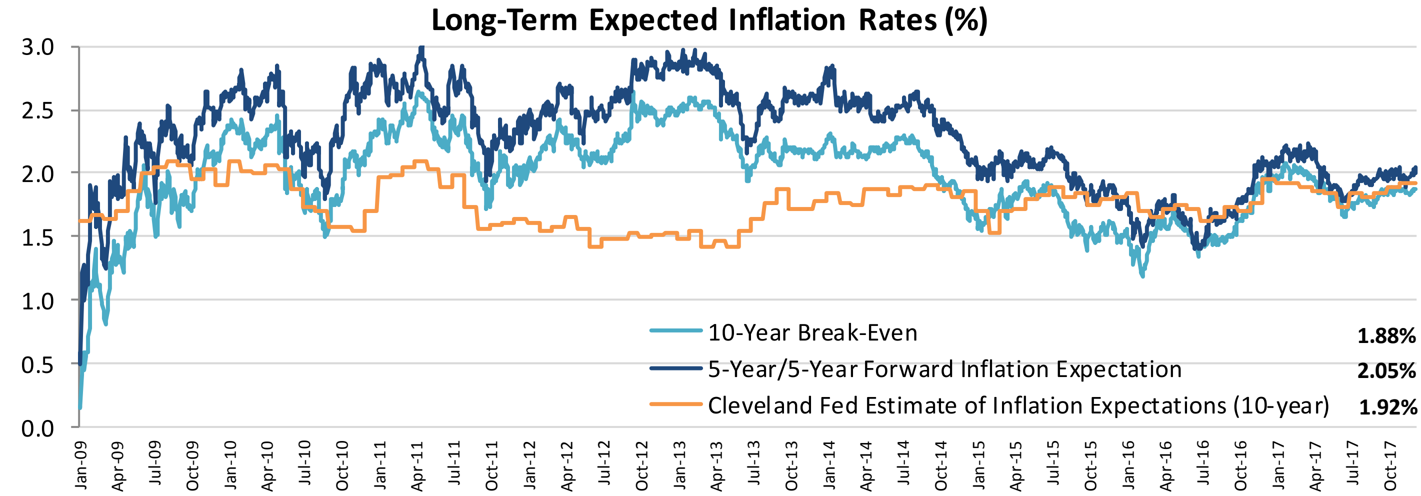
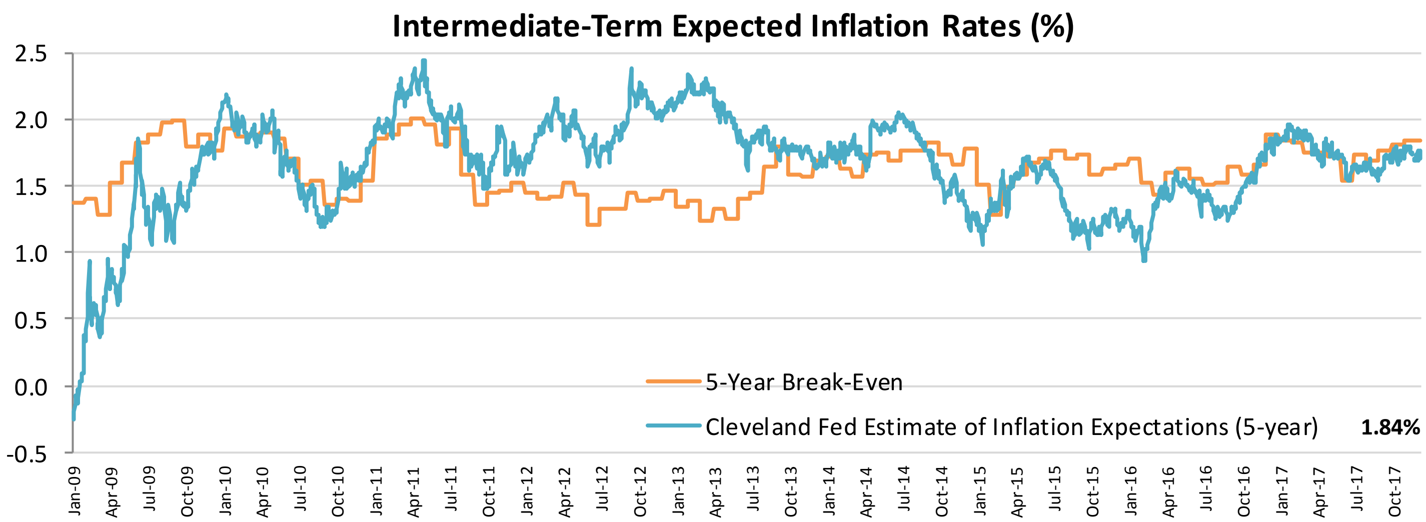
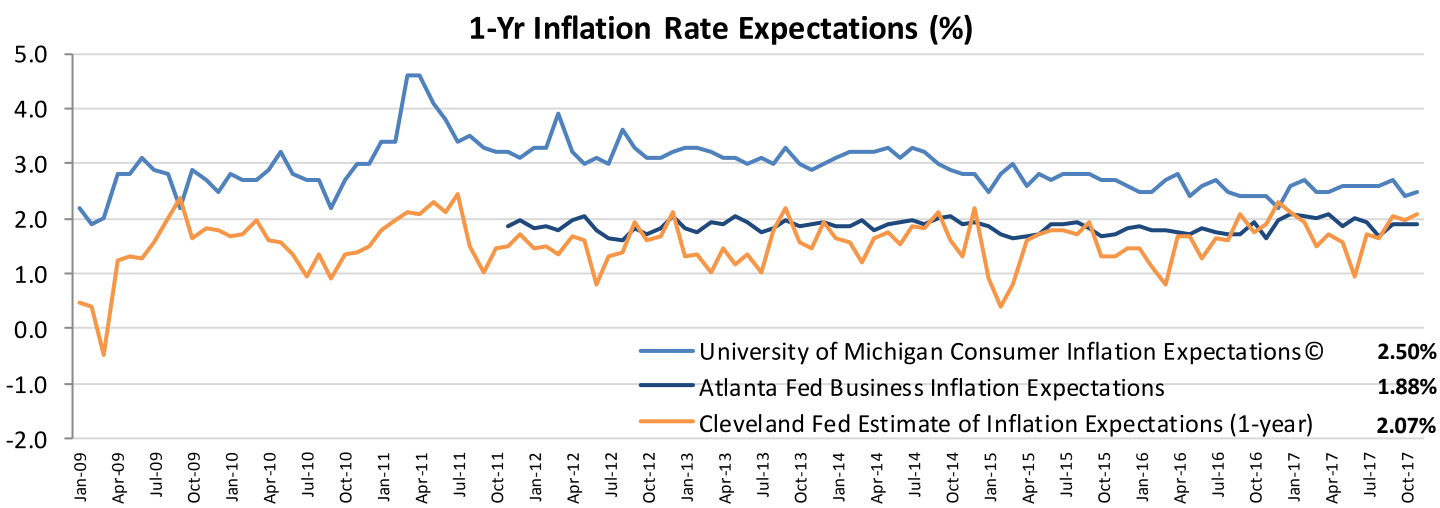
Inflation Sentiment: 10-Year, 5-Year, and 1-Year Inflation







Source: Capital IQ, Valens Research Analysis

Data Coverage: Monthly from Jan-2009 to Nov-2017

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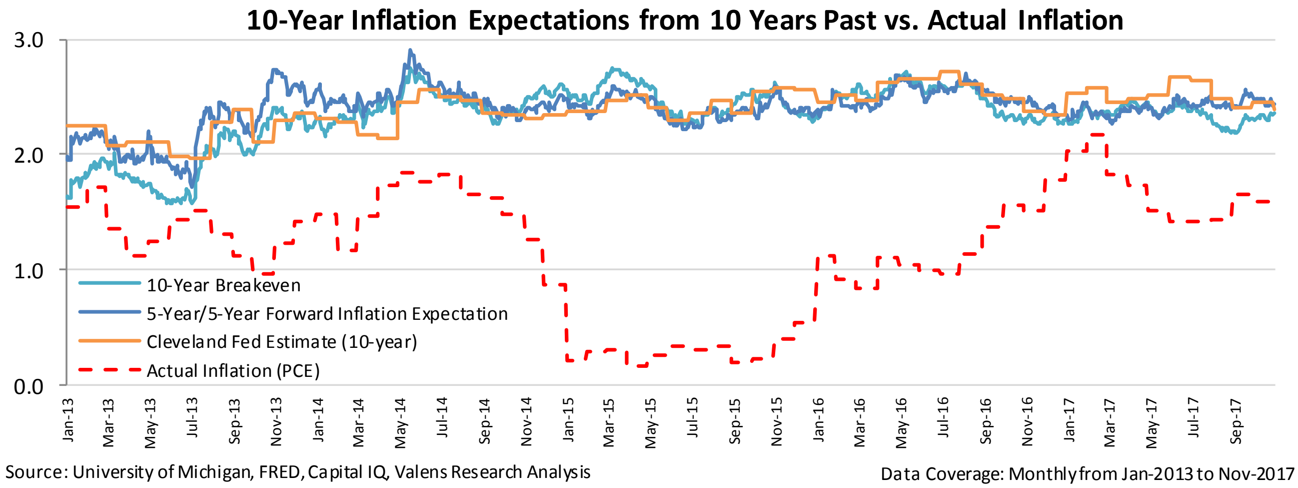
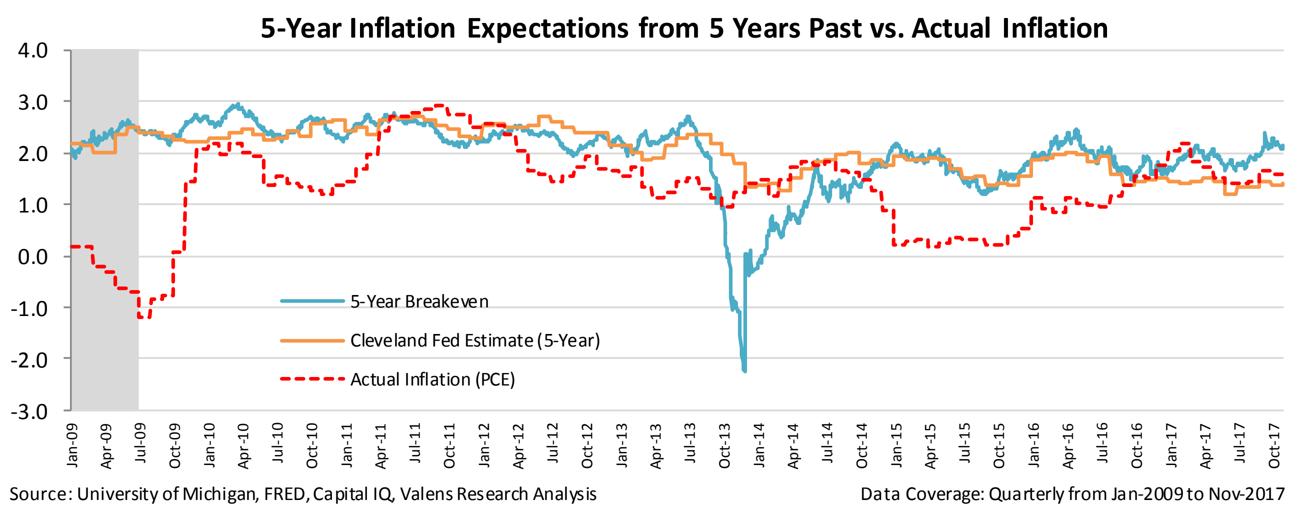
Inflation Tracker Precision



- After seeing inflation recover to +2% levels in early 2017, inflation has started moderating back towards 1.5% levels recently, limiting pressure on valuations
- Inflation expectations from the breakeven, FED-estimates, and 5yr/5yr inflation swaps can be tested for precision by taking the expectations from 10 years ago and comparing them to actual inflation today. In practice, the data shows that 10-year expectations yield imprecise estimates, with expectations from 2004 missing by almost a full percentage point
- The 10-year breakeven inflation rate represents the rate that would make the 10-year TIPS as attractive as (break even with) a nominal fixed-rate 10-year treasury, while the 5yr/5yr inflation swap represents a swap that would begin in five years and mature rate is the five years after, where fixed payments on a nominal amount are made by one party in exchange for an inflation-indexed rate on a nominal amount
- The Cleveland Fed Estimate uses a model that combines information from several sources: Blue Chip economic forecasts, the forecasts of the Survey of Professional Forecasters (SPF), and inflation swaps



- Inflation expectations from five years past seem more accurate than their 10-year counterparts. Barring the realization of tail risks, the Cleveland Fed Estimate seems to be accurate. Moreover, the 5-year breakeven (the Euro version being the ECB's preferred market-driven measure of medium-term inflation expectations) seems to be susceptible to market-induced volatility. The sharp breakdown in inflation for December 2012 as expected from December 2007 failed to materialize

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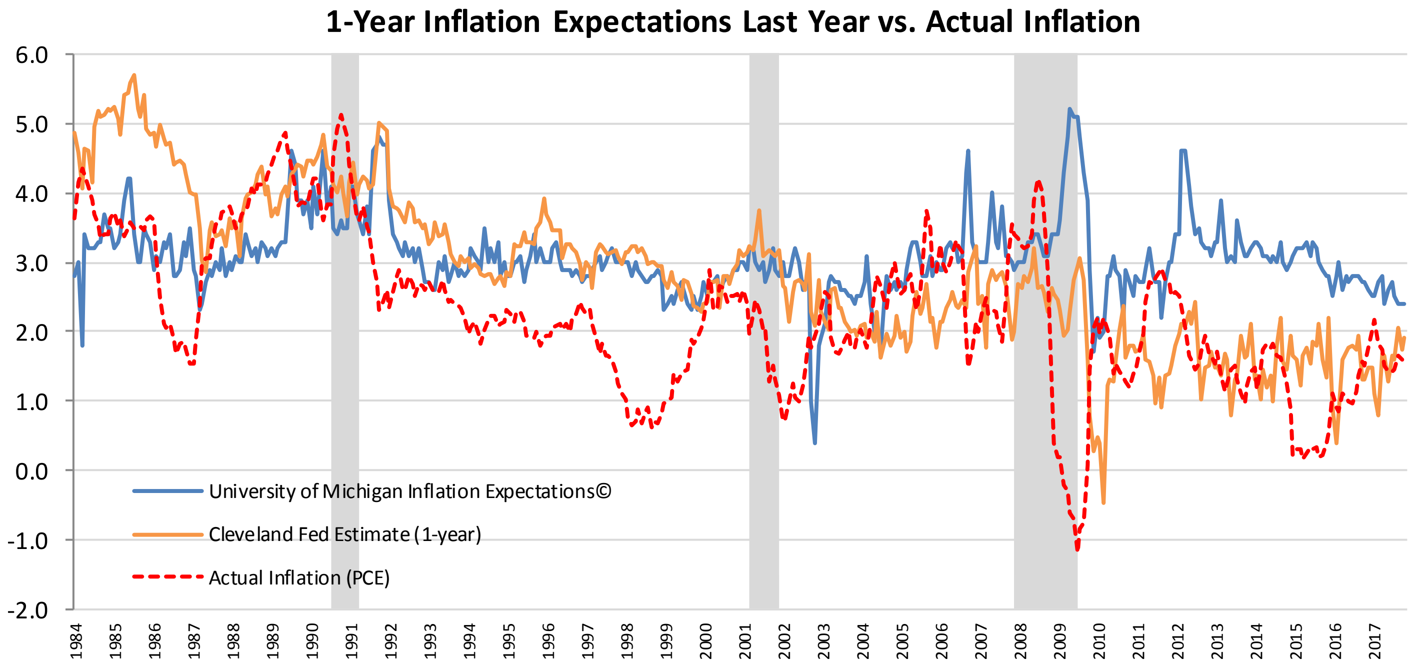
Tracking the Inflation Trackers



Source: University of Michigan, FRED, Capital IQ, Valens Research Analysis

Data Coverage: Monthly from Jan-1984 to Nov-2017

- The 1-year Inflation Expectation data goes back to 1984 and shows several recessionary periods. The University of Michigan Consumer Inflation Expectations measure comes from their Surveys of Consumers. None of the disinflationary pressures induced in recessions were expected by survey participants, as evidenced by the stable or even rising survey measures one year prior to each recession, though the measures reacted sharply in periods such as the start of the 2008 financial crisis. Moreover, Consumer Inflation Expectations seem to overestimate inflation in most periods

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Corporate Credit Availability

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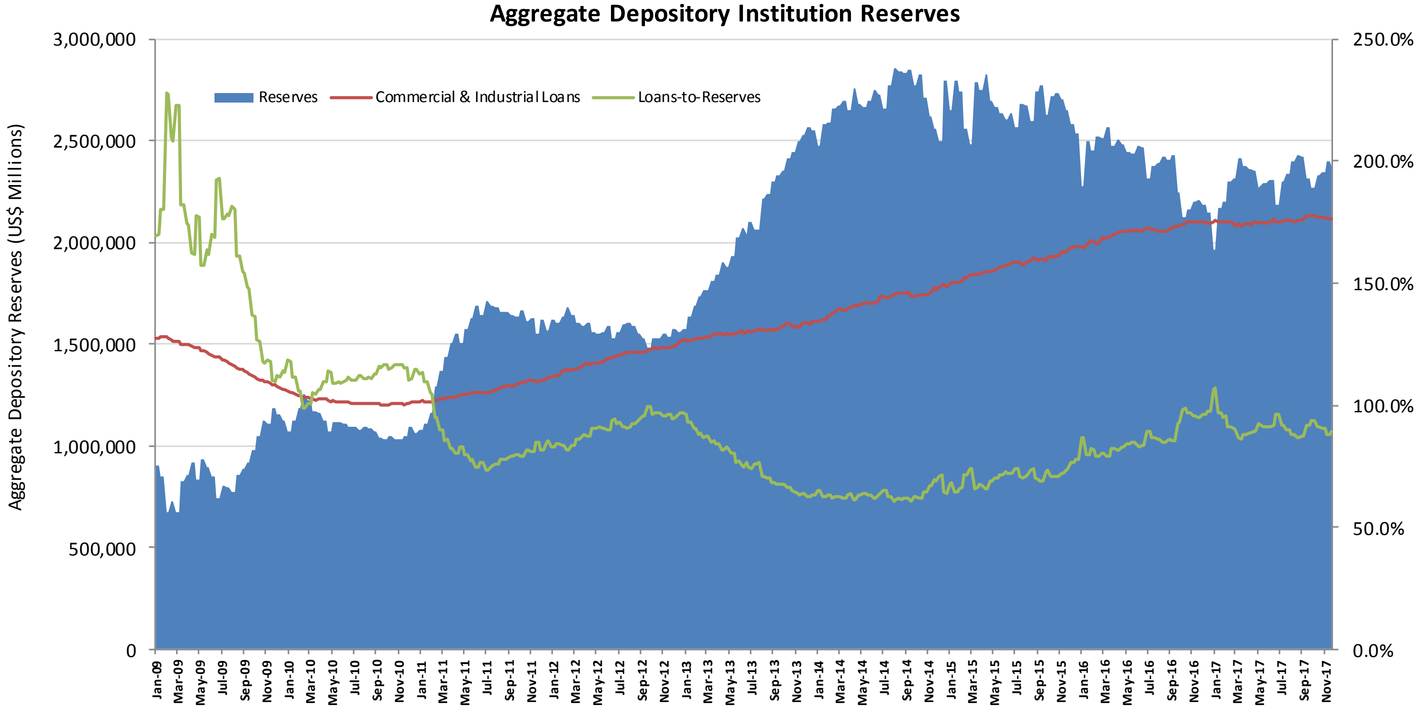
Reserves vs. Loans



Source: The Federal Reserve System

Data Coverage: Semi-monthly from Jan-2009 to Nov-2017

Risk-aversion hampered lending beginning in October 2008, as banks built up reserves in response to the recession. It was only in late February 2011 that lending reached an inflection and started increasing. The equity market turned bullish six months later.

- In October 2008, commercial banks cut down on their lending while the Fed started driving sizable reserves into bank assets in response to the recession. The decline in total loans continued until it reached its lowest point in September 2010. There was little loan growth and reserve growth in 2011
- It was only in late February 2011 that commercial banks slowly began lending once more, signaling the start of a potential equity bull market. Loan growth has picked up since then, climbing to as fast as 1.4% WoW in February 2012
- Loans-to-reserves ratio averaged 87% in 2016 compared to 71% in 2015. The rise of the ratio is a result of the continued momentum on lending, which averaged \$2.06 trillion in 2016 compared to \$1.89 trillion in 2015. Meanwhile, bank reserves demonstrated a minimal decrease, which averaged \$2.37 trillion in 2016 compared to \$2.67 trillion in 2015
- As of December 6, 2017, the loans-to-reserve ratio stands at 89.0% YTD

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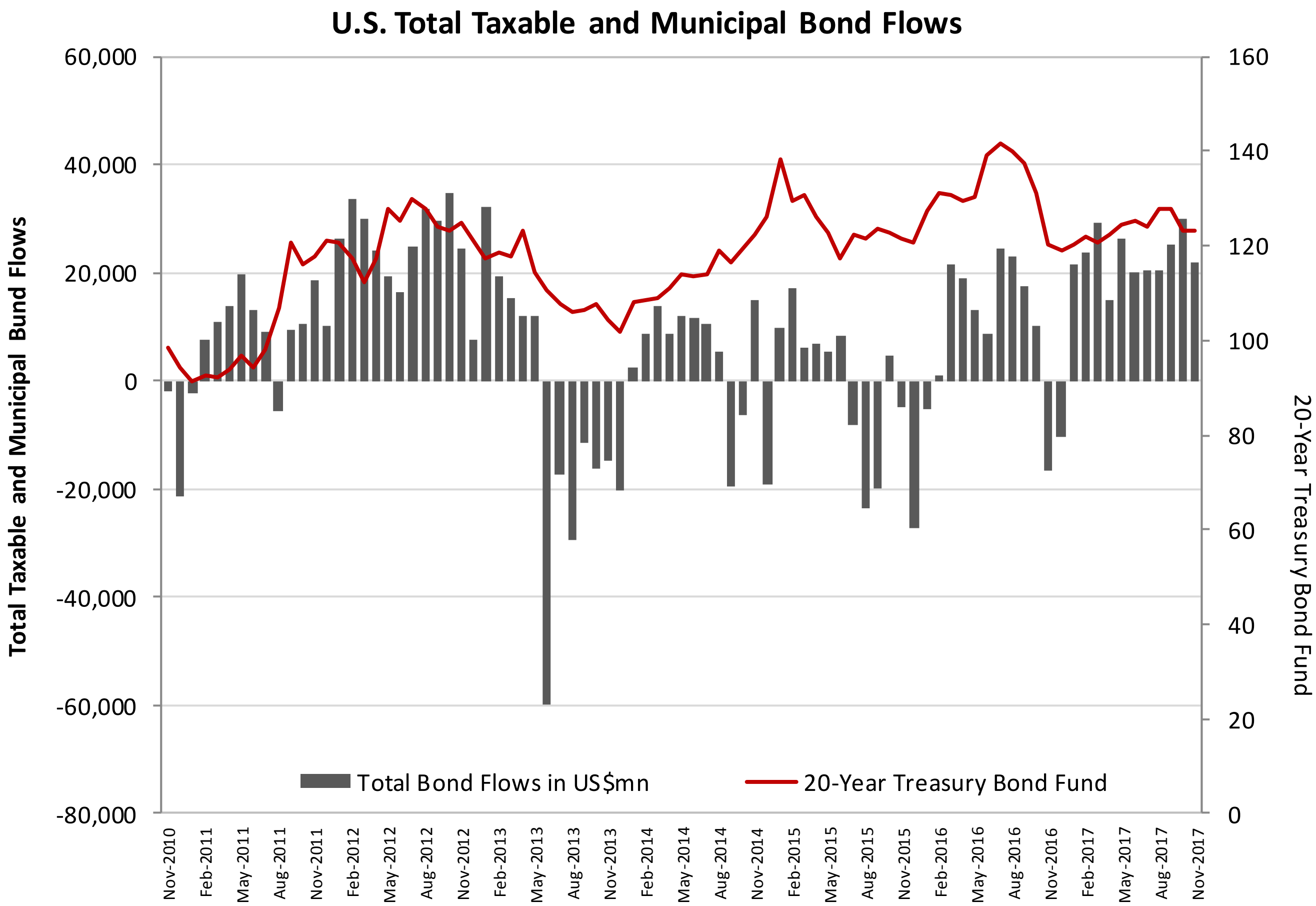
Investor Sentiment:
Total Bond Flows



Source: Investment Company Institute, Valens Research Analysis

Data Coverage: Monthly from Nov-2010 to Nov-2017

- Data from the Investment Company Institute shows that historically, investors typically redeem their bond holdings from mutual funds at times when the expected interest rate environment is unfavorable
- While there were massive withdrawals in September and December of 2014, net bond fund inflows remained positive at $35bn for the year, compared to an average $188bn of inflows for the five years prior
- Fund flows were robust in the first half of 2015, with $53.9bn of inflows. The third quarter, however, showed a series of outflows totaling $51.7bn, almost wiping out the inflows registered during the first half of 2015. The first month of the fourth quarter displayed signs of recovery from the recent massive outflows. However, while the Fed finally began the “normalization” of interest rates in December, net selling of U.S. bond funds for this period totaled $27.2bn, the largest monthly outflow for the year 2015
- Inflows since 2016 wiped out the prior outflows as investors flocked into safe havens, a potential sign that investors were not expecting interest rates to rise as fast as previously believed. Likewise, it may also reflect low sovereign yields in other parts of the globe

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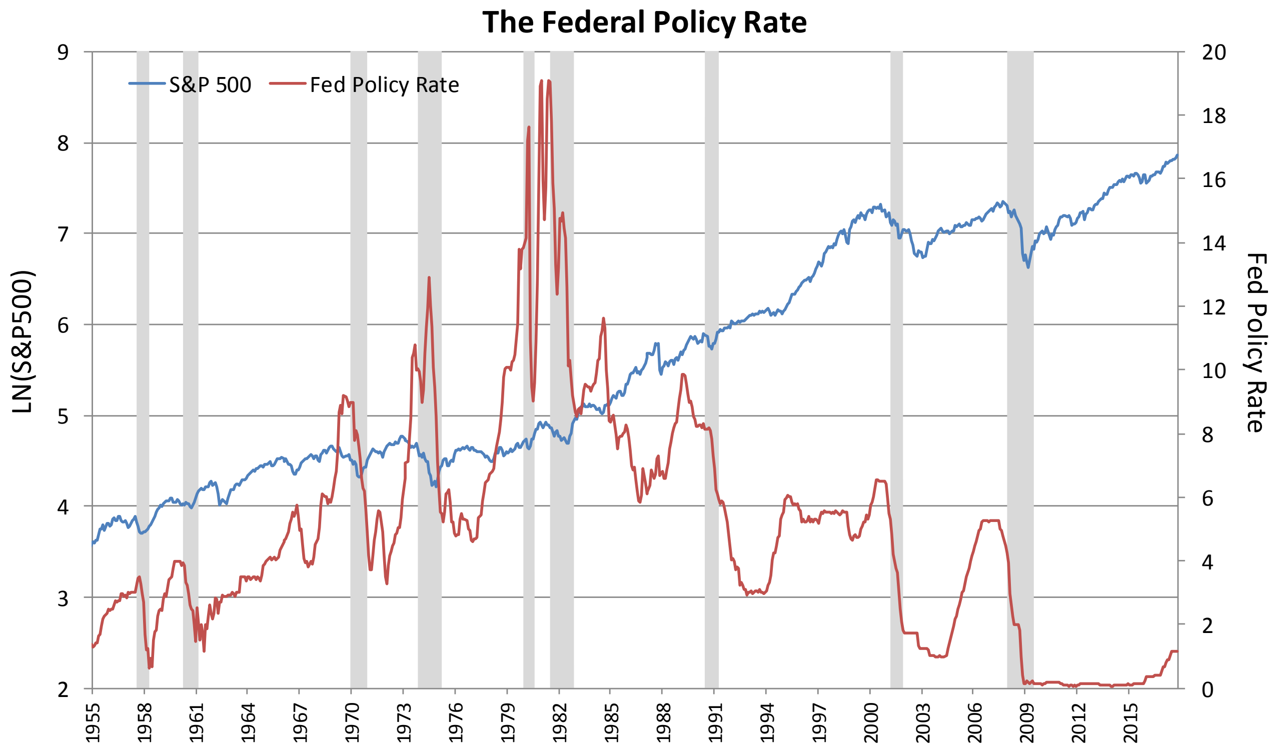
S&P 500 and the Federal Policy Rate



Source: Capital IQ, The Federal Reserve System

Data Coverage: Monthly from Jul-1954 to Nov-2017

- Both short-term Fed policy and long-term interest rates may support capital expansion as their low levels incentivize corporations to borrow at low market rates. Additionally, a low inflation environment and stable capital gains tax rate are accommodative of multiple expansion going forward. With the federal funds rate hike being a key focus for the markets, the Fed emphasized that they will remain accommodative for quite some time after the initial increase

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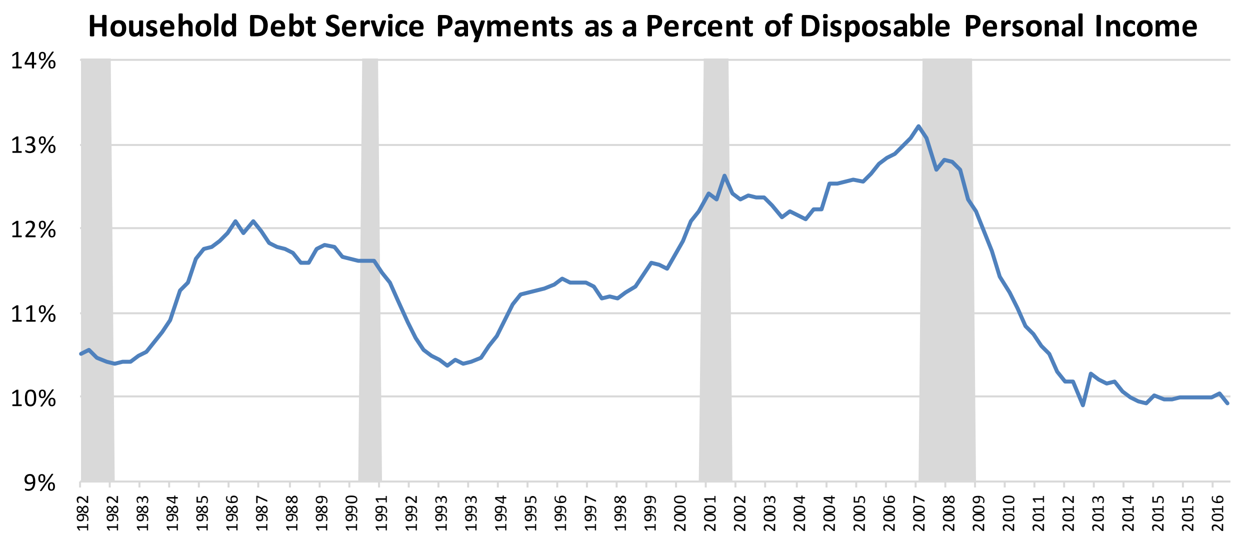
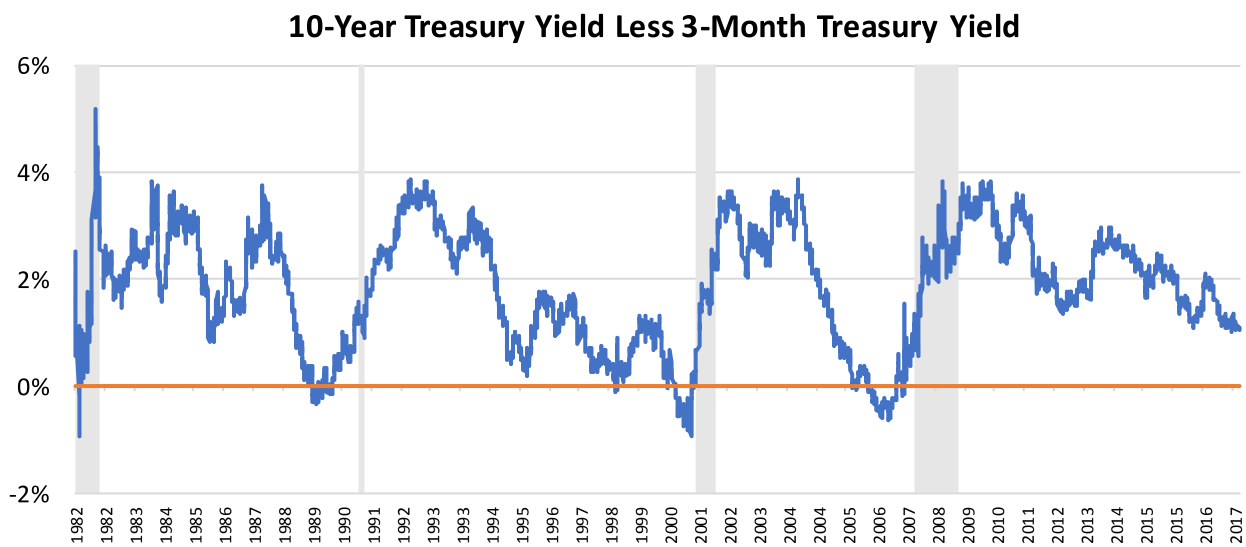
Household Debt Service Payments and Yield Curves





Source: The Federal Reserve System

Data Coverage: Daily from Jan-1982 to Dec-2017

- The Household Debt Service Payments measure is one of two parts of the household Debt Service Ratio (DSR), a ratio of total required household debt payments to disposable income. The household debt service payments measure consists of payments from revolving debt and types of closed-end debt. This is a useful yardstick of the household debt service burden, where lower burdens mean potentially higher levels of consumption from households who do not have to service their credit
- Household Debt Service Payments are at their lowest levels in 32 years. This is a positive both in terms of freed-up discretionary spending and the additional flexibility of those who hold those loans on their balance sheets

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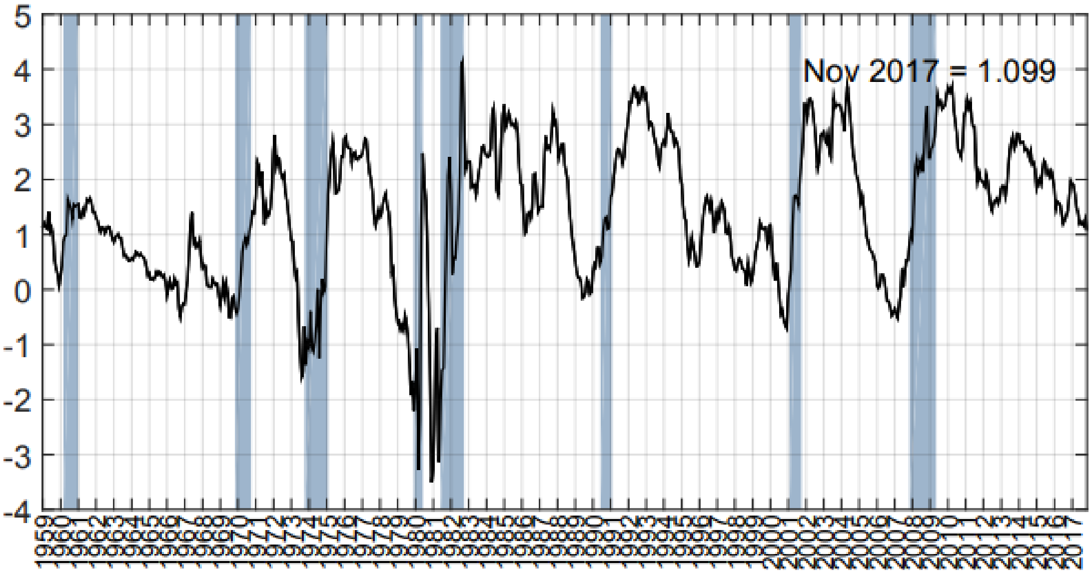
Inverted Yield Curves and Recessions

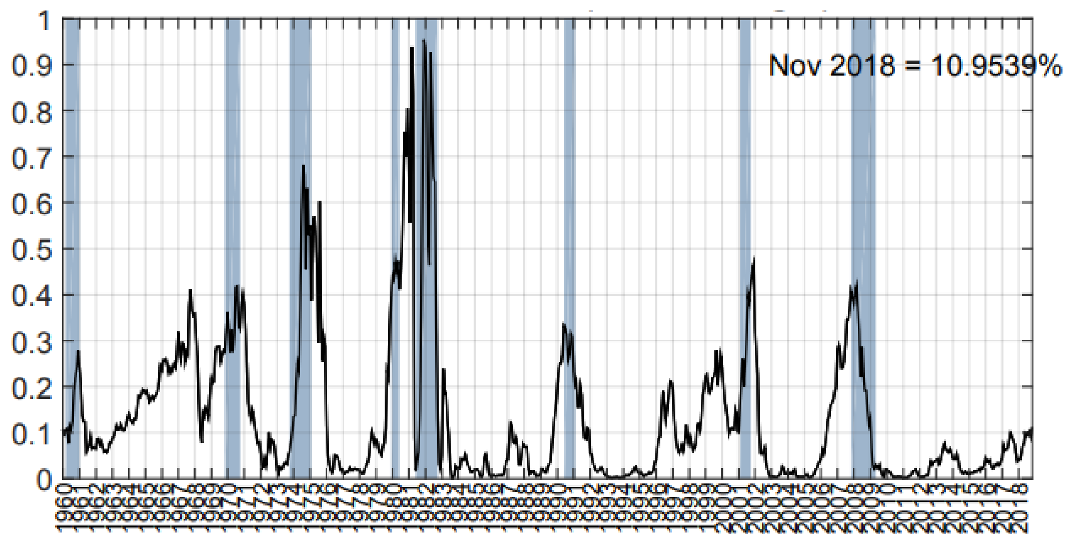
Treasury Spread: 10-Year Bond Rate minus 3-Month Bill Rate



Source: Federal Reserve Bank of New York

Data Coverage: Yearly from 1959 to 2017

Probability of U.S. Recession Predicted by Treasury Spread



Source: Federal Reserve Bank of New York

Data Coverage: Yearly from 1959 to 2018

The difference between long-term and short-term interest rates shows a negative relationship with real economic activity in ensuing periods.

- A yield curve inversion has preceded every recession on record. An interesting point to note – the apparent "false positive" generated in 1967 was a period when the U.S. economy experienced a credit crunch and a marked decline in industrial production, but was not classified by the NBER as a recession

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Corporate Credit Willingness

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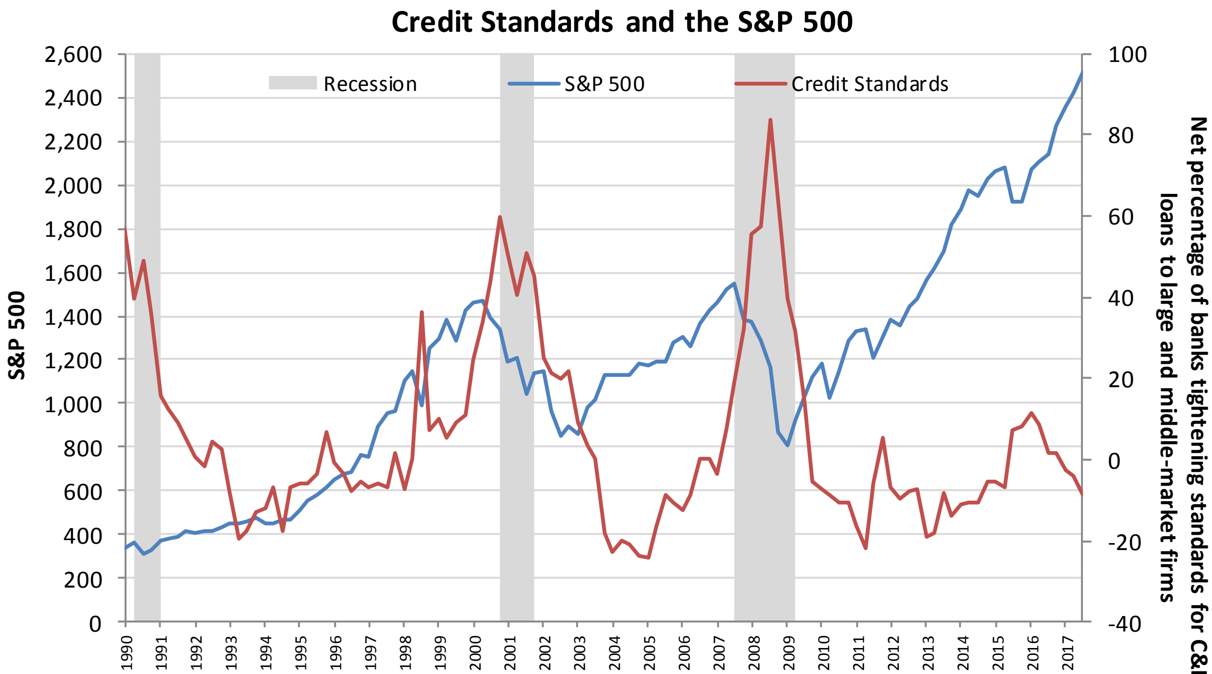
Credit Standards vs. S&P 500



Source: Senior Loan Officer Opinion Survey, U.S. Federal Reserve Board

Data Coverage: Quarterly from Q1 1990 to Q3 2017

Credit standards continues to ease modestly on commercial and industrial (C&I) loans and remained unchanged for most categories of commercial real estate (CRE) loans for large and middle-market borrowers in Q3 2017. Survey results decreased to -8.5% from -3.9% in the previous quarter. The most recent 3 quarters of easing is a positive signal for credit creation and for the market going forward.

- Among the domestic respondents that reportedly eased standards or terms on C&I loans over the past three months, more aggressive competition from other bank or nonbank lenders was by far the most emphasized reason for easing. In particular, a majority of banks reported that more aggressive competition was an important reason for easing, with almost five times as many banks identifying the reason as "very important" as any other reason
- For the months of April to July 2017, the Federal Reserve Board surveyed 76 domestic banks and 20 U.S. branches and agencies of foreign banks. The Senior Loan Officer Opinion Survey on Bank Lending Practices covered changes in the standards and terms of the banks' lending and the changes in the supply of and demand for bank loans to companies and households. The survey also contained special questions that asked respondents to describe the current level of lending standards at their bank, rather than changes in standards over the survey period
- A positive percentage in credit standards means that more banks have tightened their credit standards for approving applications for C&I loans or credit lines. Tightening occurs when there is increased economic uncertainty, and banks decide to limit the financing available to borrowers. The previous three recessions since 1990 have been accompanied by a tightening in credit standards
- A negative percentage in credit standards means that more banks have eased their credit standards for approving applications, mostly for C&I loans. This relaxing appears to be a signal for a growing economy and a bullish equity market where abundant financing is available

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Credit Standards

Credit Standards

Quarterly Survey Results

	Q4 2015		Q1 2016		Q2 2016		Q3 2016	
	Banks	Percent	Banks	Percent	Banks	Percent	Banks	Percent
Tightened considerably	1	1.4	2	2.9	0	0.0	0	0.0
Tightened somewhat	8	11.0	7	10.1	7	9.9	2	3.0
Remained basically unchanged	61	83.6	59	85.5	63	88.7	62	92.5
Eased somewhat	2	2.7	1	1.4	1	1.4	3	4.5
Eased considerably	1	1.4	0	0.0	0	0.0	0	0.0
Total	73	100	69	100	71	100	67	100
Credit standards		**8.2**		**8.7**		**8.5**		**-1.5**

Quarterly Survey Results

	Q4 2016		Q1 2017		Q2 2017		Q3 2017	
	Banks	Percent	Banks	Percent	Banks	Percent	Banks	Percent
Tightened considerably	0	0.0	0	0.0	0	0.0	0	0.0
Tightened somewhat	3	4.3	0	0.0	0	0.0	0	0.0
Remained basically unchanged	64	92.8	69	97.2	73	96.1	65	91.5
Eased somewhat	2	2.9	2	2.8	3	3.9	6	8.5
Eased considerably	0	0.0	0	0.0	0	0.0	0	0.0
Total	69	100	71	100	76	100	71	100
Credit standards		**1.4**		**-2.8**		**-3.9**		**-8.5**

Source: Senior Loan Officer Opinion Survey, U.S. Federal Reserve Board

Data Coverage: Q3 2015 to Q3 2017

- The Senior Loan Officer Opinion Survey is conducted such that the results will be available in time for the quarterly Federal Open Market Committee meetings. As of October 2017, 91.5% of respondents reported generally no change to their credit standards, while 8.5% reported easing standards overall and none tightened their standards
- **Demand for loans:** On balance, demand for C&I loans was little changed during Q3 2017. Furthermore, banks reported weaker demand for C&I loans from large and middle-market firms, alongside small firms, while banks reported that inquiries for C&I lines of credit had remained unchanged. Regarding the demand for CRE loans, a modest net fraction of banks reported weaker demand for all three major types of CRE loans
- **Levels of Lending Standards:** Domestic banks reportedly left C&I lending standards for large and middle-market firms and for small firms unchanged, on balance, in Q3 2017. However, terms on C&I loans became less restrictive, on balance, with specific loan terms all either easing or remaining basically unchanged. Specifically, a significant net percentage of banks reportedly narrowed spreads of loan rates over the cost of funds, while a moderate net share of banks reportedly increased the maximum size of credit lines and decreased the use of interest rate floors for large and middle-market firms. A modest net percentage of banks reported easing these terms to small firms as well. Besides a few other terms for large and middle-market firms that were modestly eased, other terms remained basically unchanged on net

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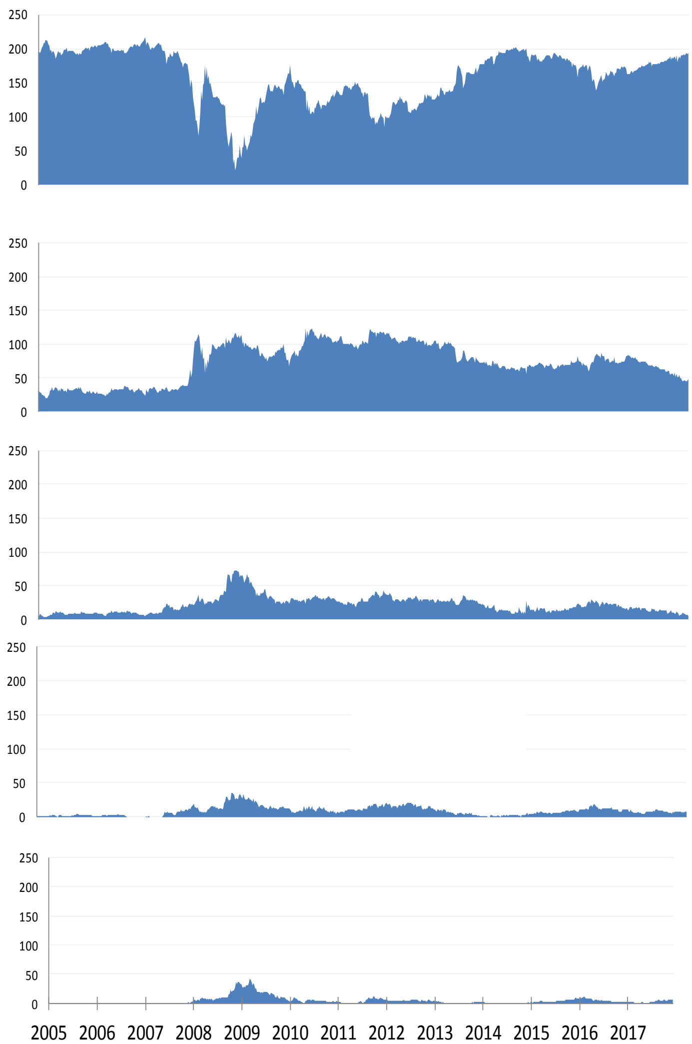
CDS: Movements in Credit Risk



	T - (Y-1)	T - (Q-1)	T - (M-1)	T - (W -1)	Total
<100 BPS	24	3	3	1	193
100 - 300 BPS	-29	-4	1	1	48
300 - 600 BPS	-13	-3	-3	-2	5
600 - 1000 BPS	2	1	0	0	7
1000+ BPS	3	2	-1	0	6

Source: Capital IQ, Valens Research Analysis

Data Coverage: Quarterly from Jan-2005 to Dec-2017

The cost of insuring against credit risk is now improving as the number of companies with access to sub 100bps CDS is rising.

- CDS bucket counts detail the historical distribution of corporate debt based on their perceived credit risk
- In 2008, the number of IG-rated companies significantly declined, recording a decade-low number of only 20 companies in that bucket in December 2008. Within six months, however, the number returned to its pre-recessionary level of around 100+ companies in the IG bucket
- 24 companies were added to the basket of IG-rated companies over the last year, while 3 companies were added over the last quarter. Year to date, the lowest total number of companies in this bucket was 174 from the month of March
- While the movement between CDS buckets was volatile over the past months and quarters, the number of IG-rated companies is still high and is at near pre-recession levels, representing a low-credit-risk environment

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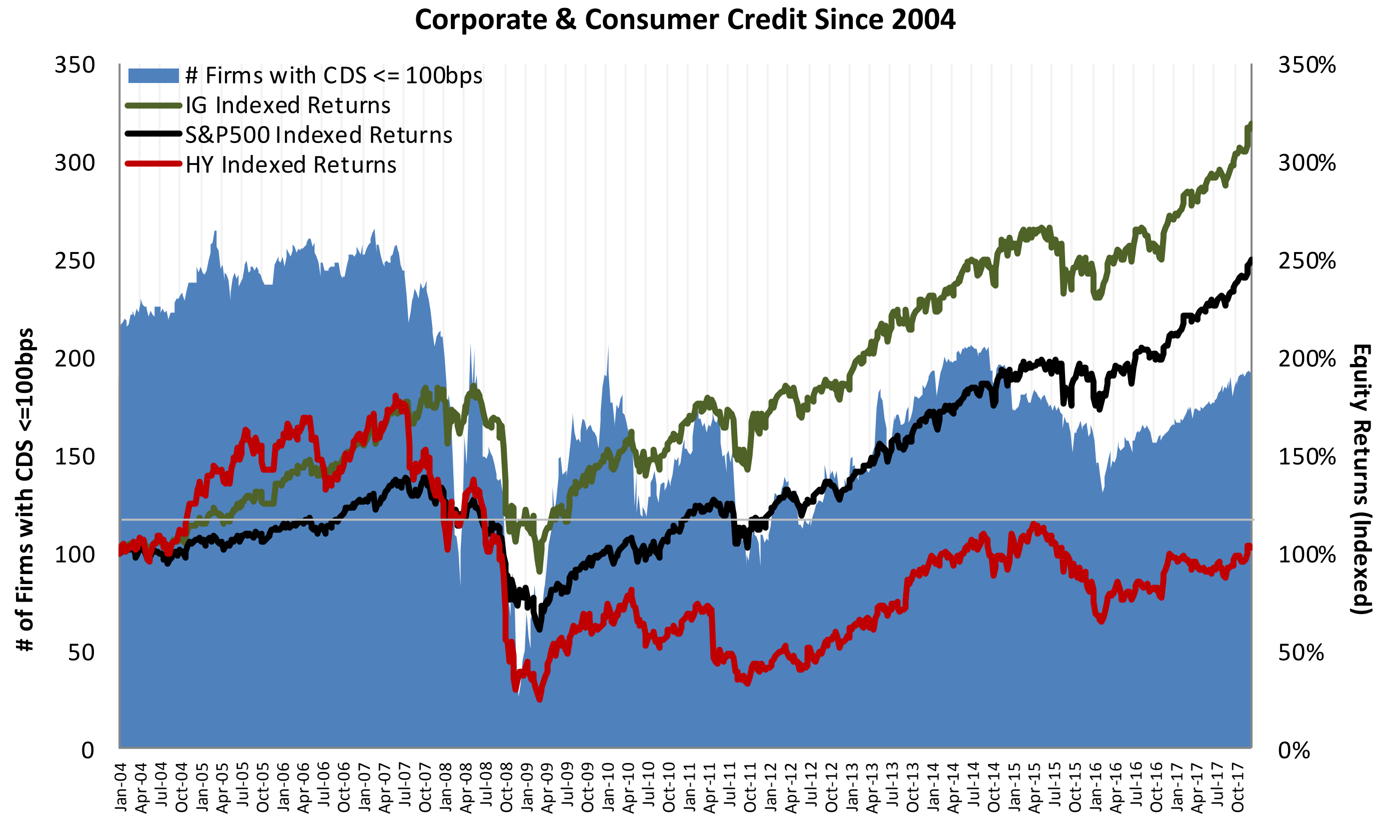
CDS:
Relationship Between IG CDS and S&P 500



Source: Capital IQ, Valens Research Analysis

Data Coverage: Weekly from Jan-2014 to Dec-2017

Specifically monitoring investment grade firms, the lion's share of the S&P 500, the credit market provides an early but short-term signal at the top of the equity market, before heading into a bear. However, going into a bull market, it is a lagging indicator.

- The chart above is a long-term indicator of the relationship between the number of firms with CDS less than or equal to 100bps and the returns for selected indices. The middle (black) line is the S&P 500. Over the past several years, there has been a strong relationship between movements in the S&P 500 and changes in the number of companies with high quality credit
- In late 2011, the number of companies with the highest quality (<=100bps) credit dramatically fell. The S&P 500 also corrected, though not as steeply, implying that the equity markets believed this was an overreaction. As the number of companies has again started to recover, equity markets have also recovered faster
- The number of companies with the highest quality (<=100bps) credit had fallen in 2015. Meanwhile, the number recovered to more normal levels in 2016. Yields moved in the same direction demonstrating their strong relationship

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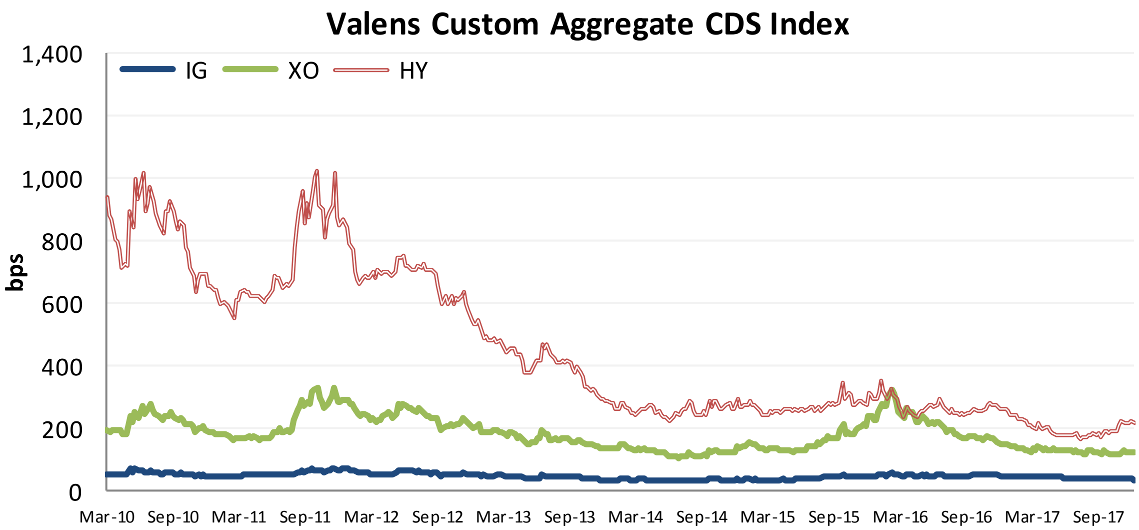
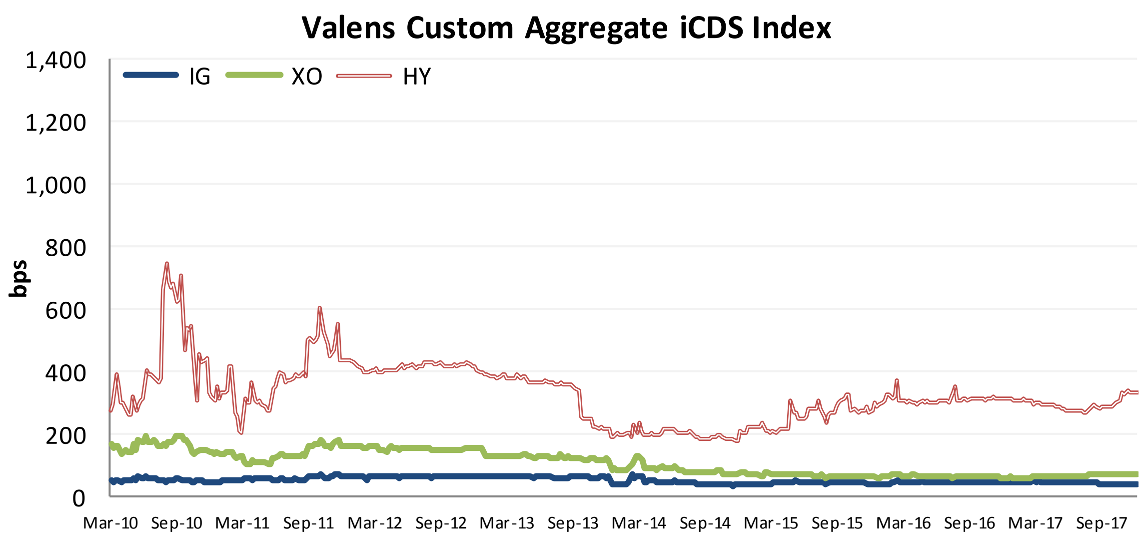
CDS:
Relationship Between iCDS and CDS





Source: Valens Research Analysis

Data Coverage: Weekly from Mar-2010 to Dec-2017

The Custom Aggregate CDS reflects that credit risk is substantially below the elevated risk as recently as 2012. Also, after the move wider in HY and XO iCDS and HY CDS in 2015, in 2016 and 2017 levels have come back in, representing a calming of credit market concerns. That being said, HY CDS levels are materially tighter than iCDS implies is warranted, a potential warning sign for credit market complacence

- While the Aggregate CDS Index shows the credit riskiness of companies as traded in the credit market, the Aggregate iCDS Index shows what the CDS should be
- After a period of high credit risk coming out of the 2008 crisis, the HY CDS dropped from 660bps in September 2012 to 390bps in just six months. Its further decline to 243bps in March 2014 emphasizes that the risk of default for companies is nowhere near the recessionary levels that the market once perceived
- HY iCDS generally increased in 2015, approaching 2013 levels and higher in comparison to levels maintained in 2014. This should be monitored, though HY iCDS still remains below recessionary levels
- In late February 2016, both the HY and XO CDS started to move back down. HY CDS has fallen to levels not seen in the past seven years, to levels not confirmed by iCDS levels. While levels have risen recently, the remain very safe. While IG CDS and iCDS are in line, XO CDS has remained wider than iCDS levels, and HY CDS has moved much tighter than iCDS levels warrant

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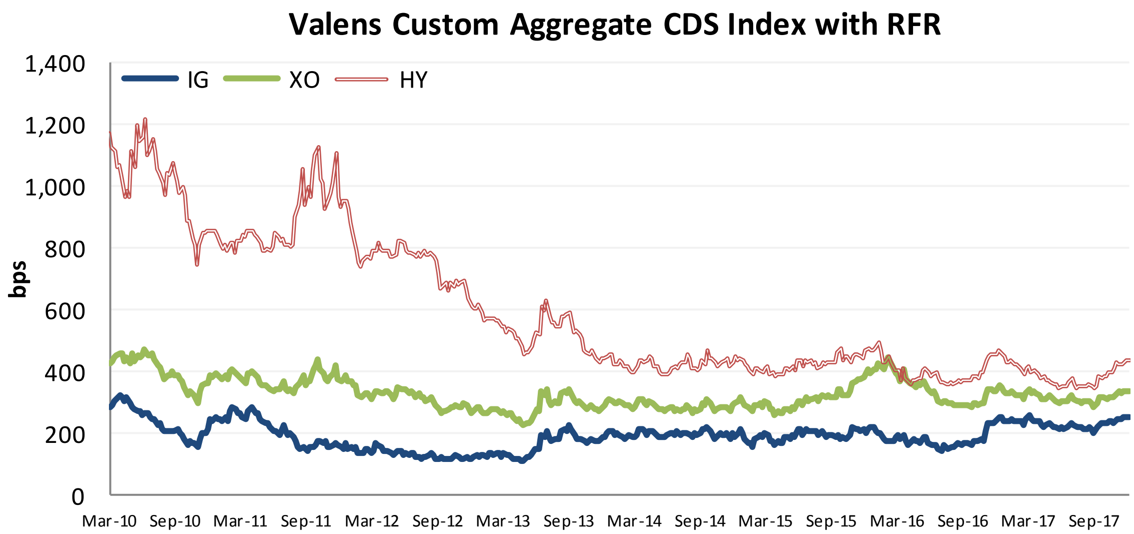
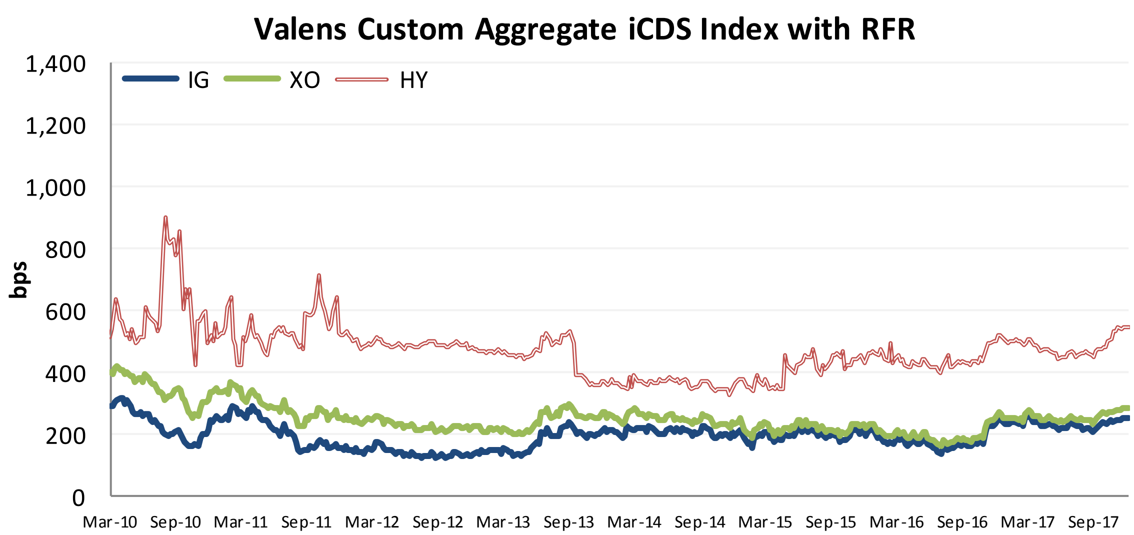
CDS:
Relationship Between iCDS and CDS





Source: Valens Research Analysis

Data Coverage: Weekly from Mar-2010 to Dec-2017

Custom Aggregate CDS + RFR shows the impact of the risk free rate on the total cost of debt for US corporations. This analysis shows that while HY and XO fell back to more reasonable levels of credit risk in 2016, due to a rising risk free rate since early November 2016, cost to borrow has been rising for IG in terms of CDS and for all tranches of credit risk in terms of iCDS.

- Accounting for the risk-free rate in the aggregate credit spreads, the cost of debt for companies is still near levels seen in early 2013
- After the election in early November, CDS index levels with the risk-free-rate have begun to rise, as concerns about higher interest rates due to more inflationary actions increase

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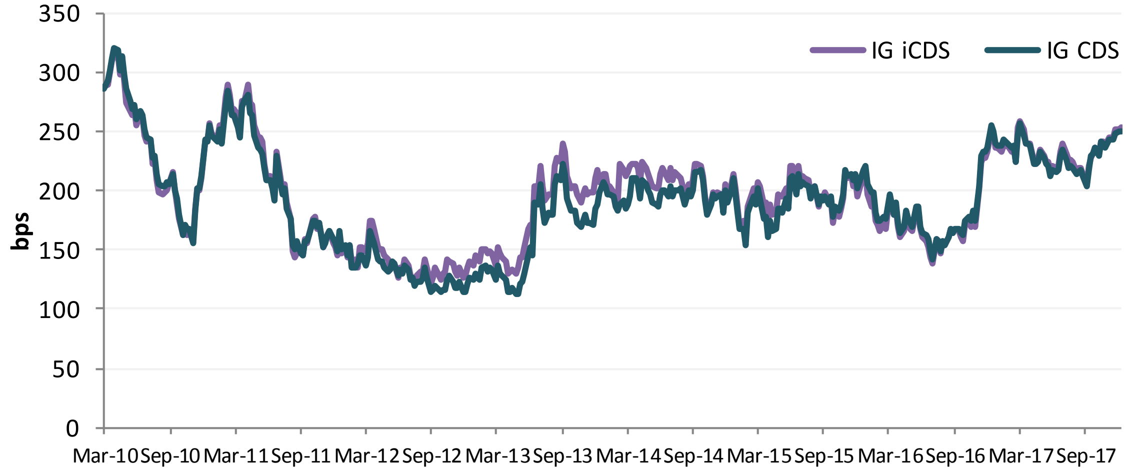
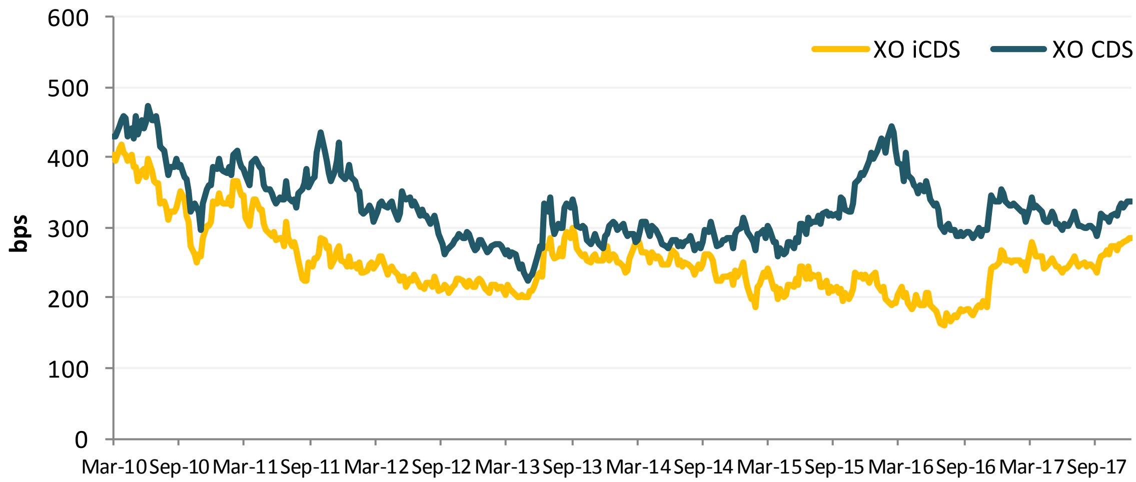
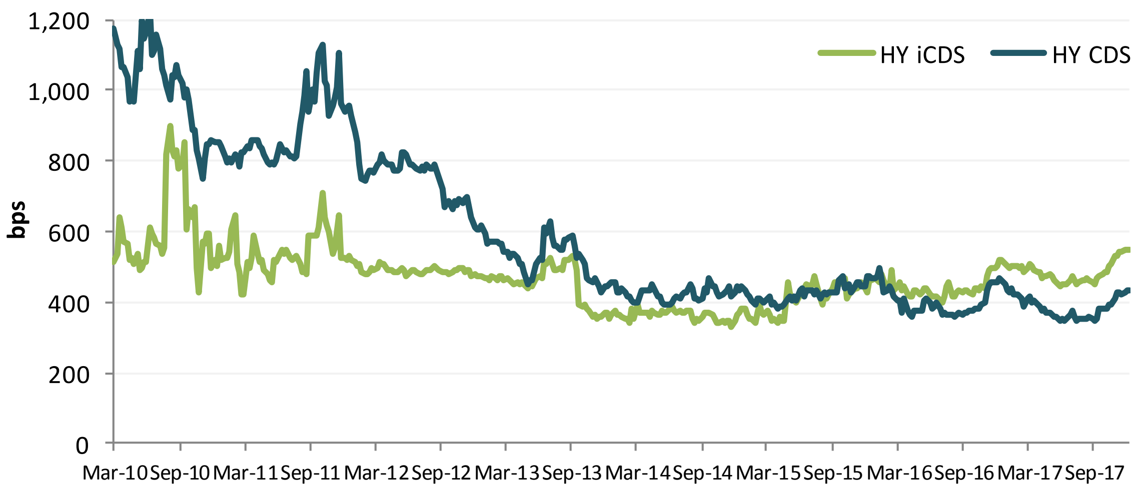
CDS:
Relationship of RFR-adjusted iCDS and CDS







Source: Valens Research Analysis

Data Coverage: Weekly from Mar-2010 to Dec-2017

Market Phase Cycle
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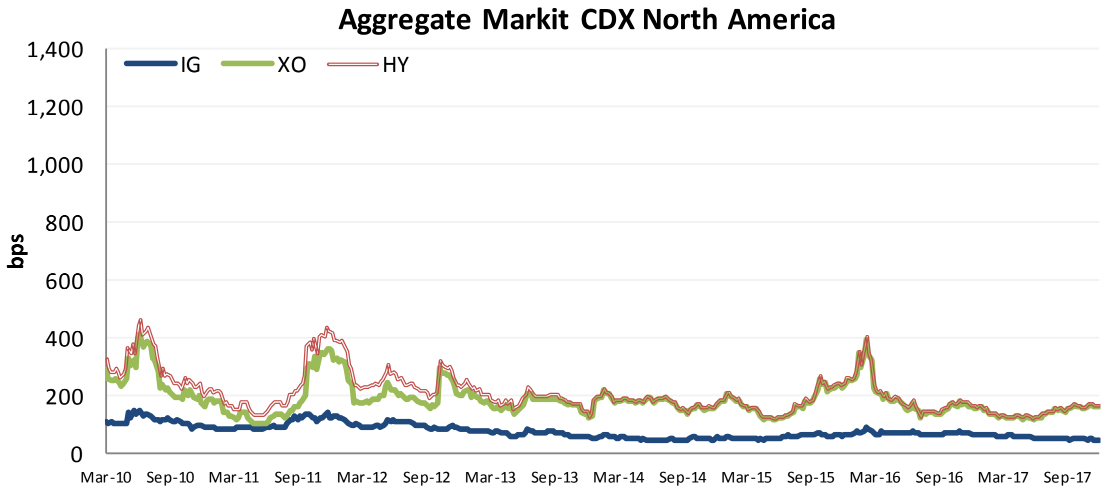

Source: Capital IQ, Valens Research

Data Coverage: Weekly from Mar-2010 to Dec-2017

Based on the Markit CDS indices, the overall credit quality and direction of the HY and XO baskets approached the peak levels of 2010 and 2011 in late 2015/early 2016, but has since moderated again.

- The indices are made up of entities with the most liquid assets in the CDS market, updated semi-annually and published by Markit North America. The Markit North American High Yield CDX Index is composed of 100 liquid North American entities with HY credit ratings trading in the CDS market while the Markit North American Investment Grade CDX Index is composed of 125 of the most liquid North American entities with IG credit ratings trading in the CDS market
- This index shows that HY credit markets approached more distressed levels in February 2016, though IG credits still remain safe, highlighting why market commentators were overstating credit risk earlier this year. Notably, trading volumes in the CDS market increased earlier this year, though they remain below the prime levels in 2008. This data point helps explain market concerns, though Valens' proprietary indices show that the risk being expressed here is overstated

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Corporate Credit Worthiness

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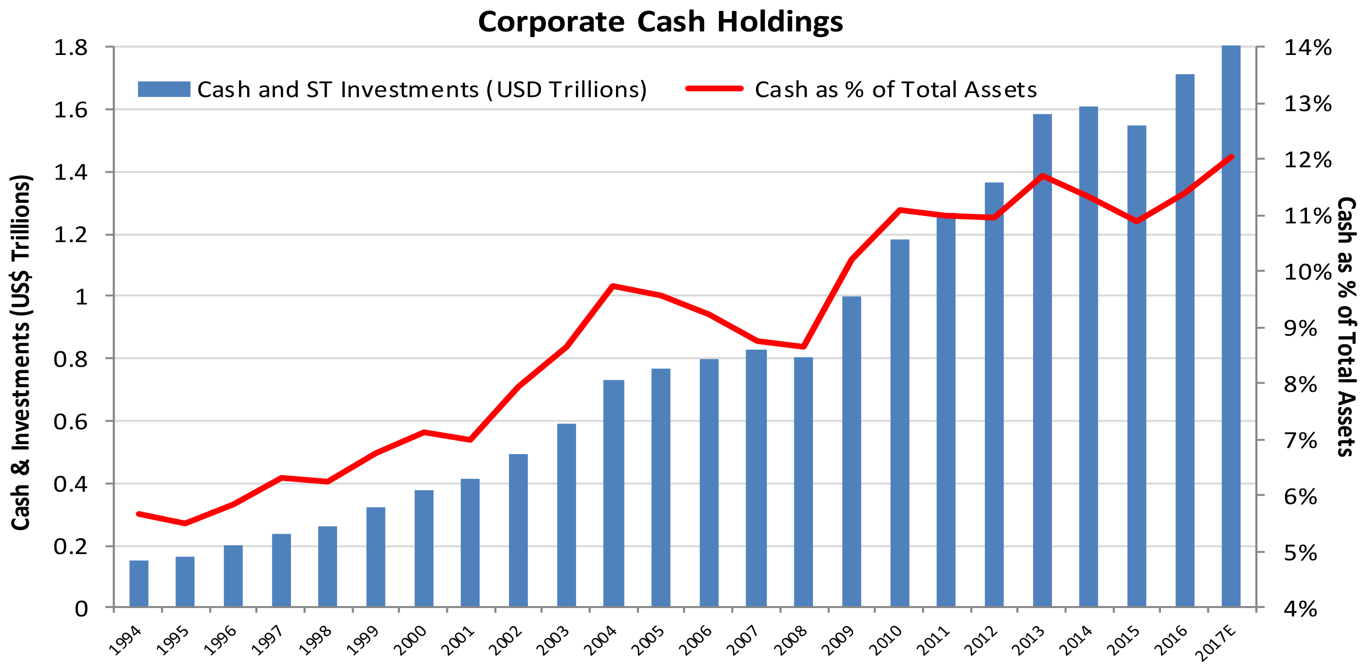
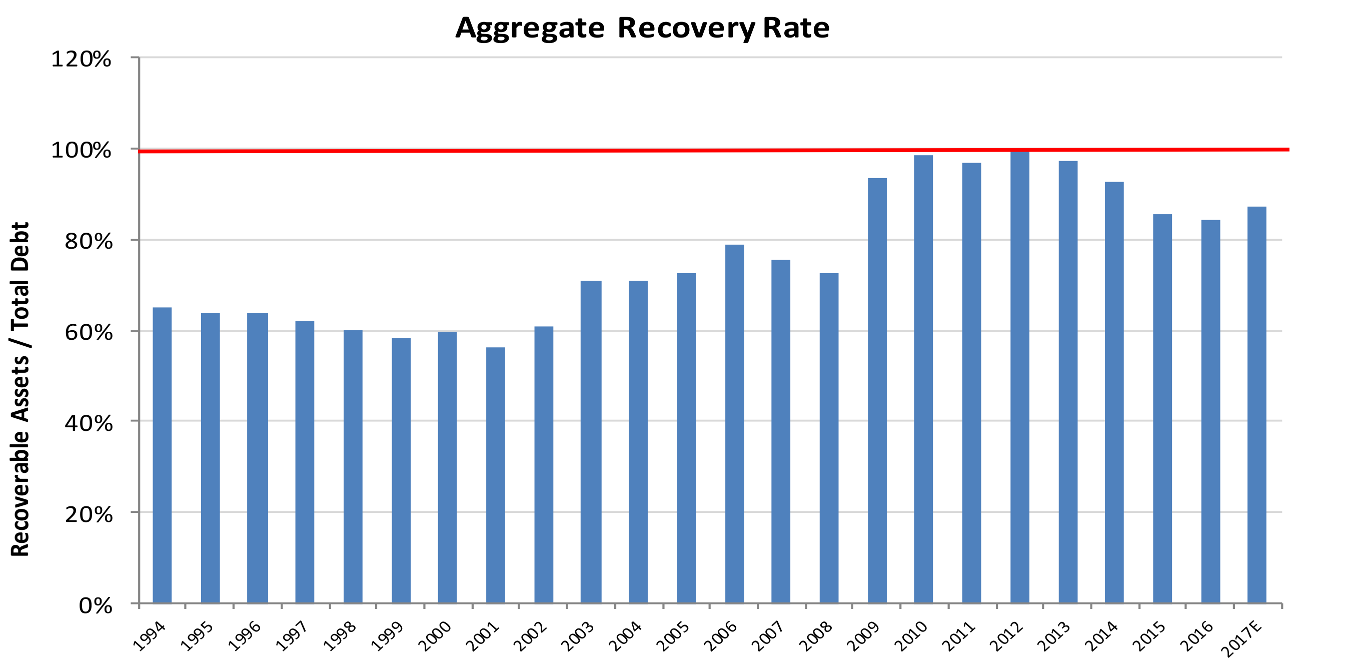
Corporate Credit:
Cash Holdings & Aggregate Recovery Rates



Source: Capital IQ, Valens Research Analysis
1,000 largest U.S. companies by market cap. each year (ex financials, utilities and insurance)
Cash includes short- and long-term marketable securities

Data Range: 1994 to 2017E



Source: Capital IQ, Valens Research Analysis
1,000 largest U.S. companies by market cap. (ex financials, utilities and insurance)
Recovery Rate as defined by
(1*Cash + 0.8*Total. Rec + 0.6*Inventory + 0.6*Other CA - 1*CL + 0.4*GPPE + 1*Other LT Investments) / Total Adjusted Debt

Data Range: 1994 to 2017E

- Total cash and cash equivalents reported on the balance sheets of non-farm, non-financial corporations reached a historical high in 2014. The Aggregate Recovery Rate shows firms' ability to cover debt payments using their current assets. After a steady decline, balance sheets appear to be improving in 2017

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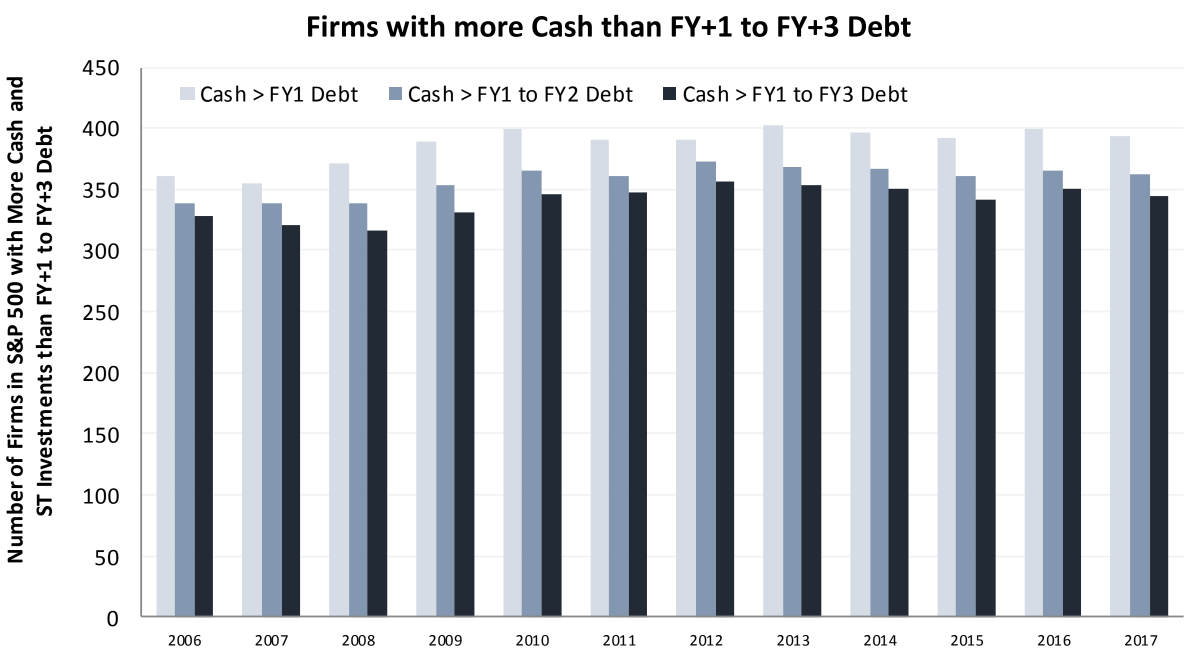
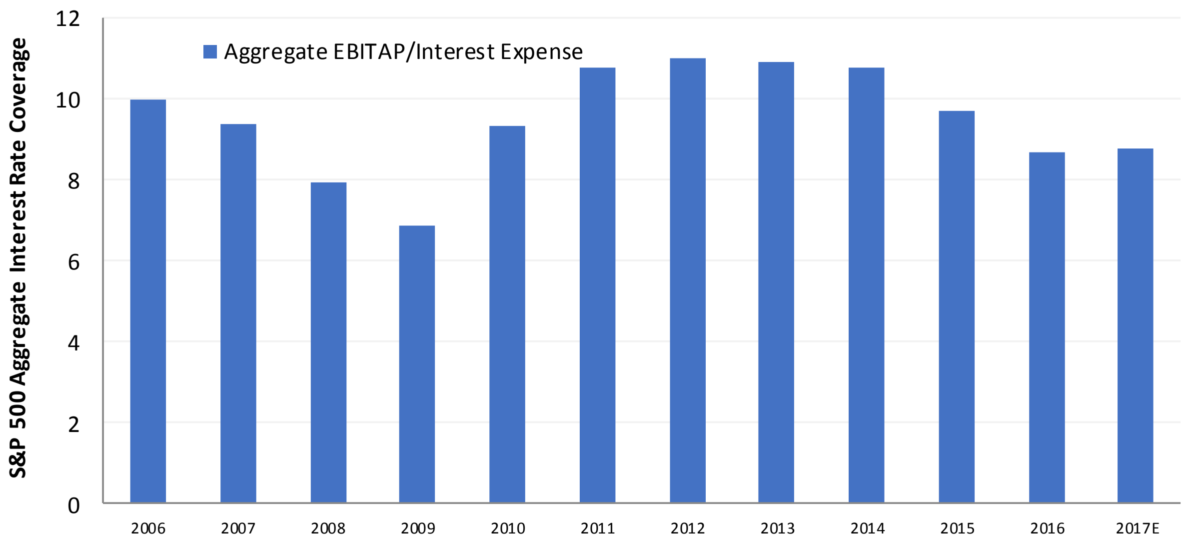
Corporate Credit:
Corporate Cash to Short-Term Debt





Source: Valens Research Analysis

Data Coverage: 12 years through Q3 2017

Cash levels relative to near-term debt maturities have been declining from 2010-2014 peaks but remain strong as seen by the FY2016 levels, limiting risk for a cash crunch. Also, while Interest Coverage ratios have declined since 2014, with strong cash levels, the risk of a cash crunch is limited.

- Firms in the S&P 500 have minimal liquidity concerns and are more capable of servicing short-term obligations
- A higher ratio means that companies are able to service their interest expenses, and are not as burdened by debt expense than if they had a lower ratio. Some of the rise in aggregate EBITAP/Interest coverage stems from the falling cost of interest. With all things equal, corporate debt interest rates should rise as the Fed begins to raise rates. However, this does not sidestep the fact that corporate credit is at its healthiest in decades

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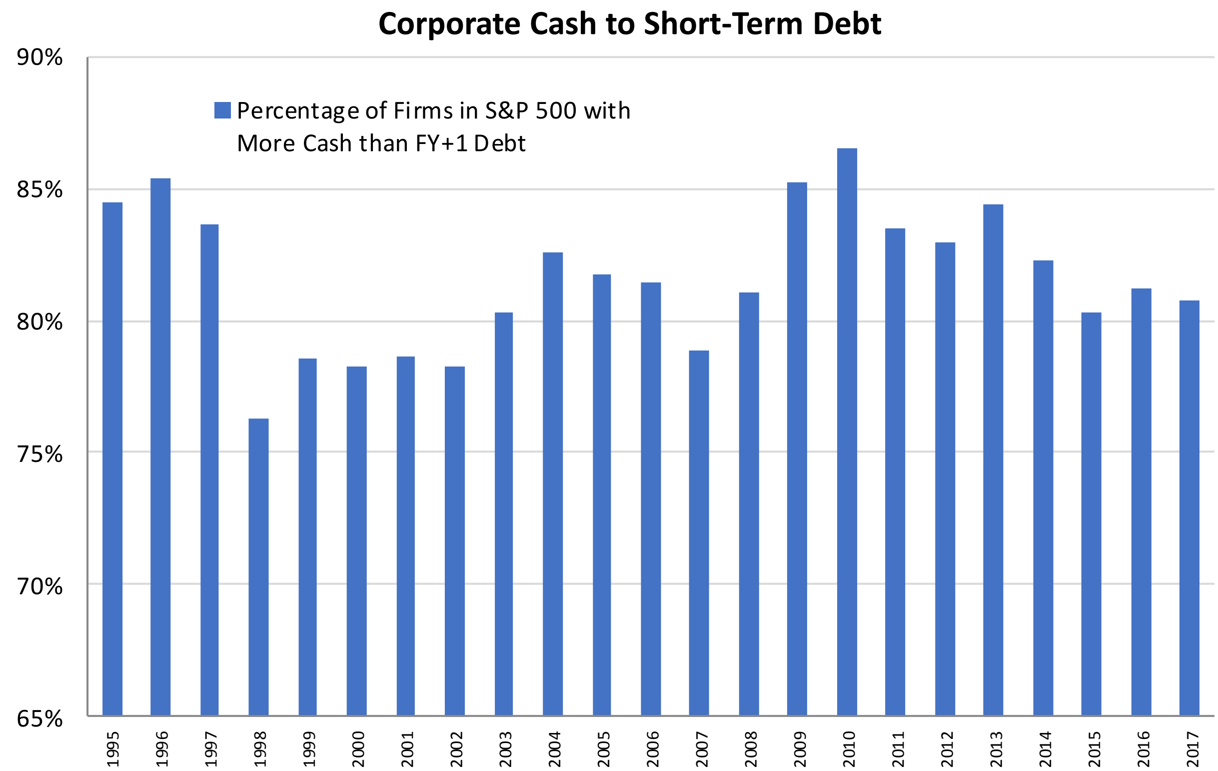
Corporate Credit:
Corporate Cash to Short-Term Debt



Source: Capital IQ, Valens Research Analysis

Data Coverage: Yearly from 1995 to 2017

Companies had high levels of Cash-to-ST-Debt after the global financial crisis hit in 2007. This shows that in the event of cash flow weakness, companies have enough cash to avoid a liquidity crunch. The ratio's decline from 2013 to 2015, however, may be a sign that management teams have begun to deploy capital in areas like M&A and share buybacks, even with limited capex spending.

- A significantly larger amount of cash compared to short-term debt in FY 2009 through 2012 suggests that corporate balance sheets are intact and that firms have the ability to cover debt in the event of a default
- The lower amount of cash from 2013 to 2015 suggests that between returning capital to shareholders, raising debt and deploying capital, management teams are beginning to use excess liquidity. However, these are still higher than the average levels before the recession, so the negative sentiment over default risk may be unwarranted

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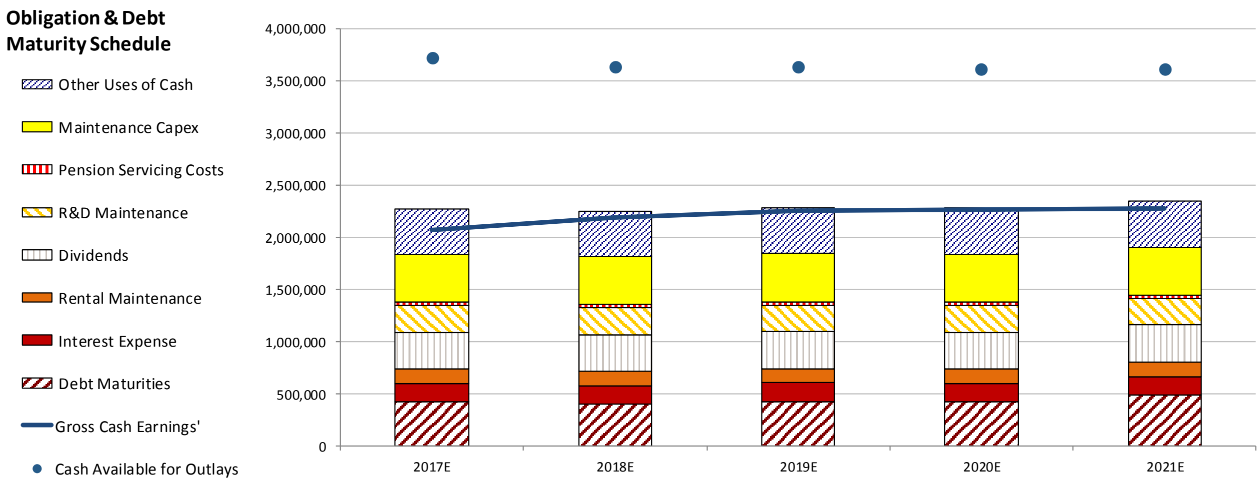
Aggregate CCFP for the entire S&P 1500 with outstanding debt (excluding Financials)

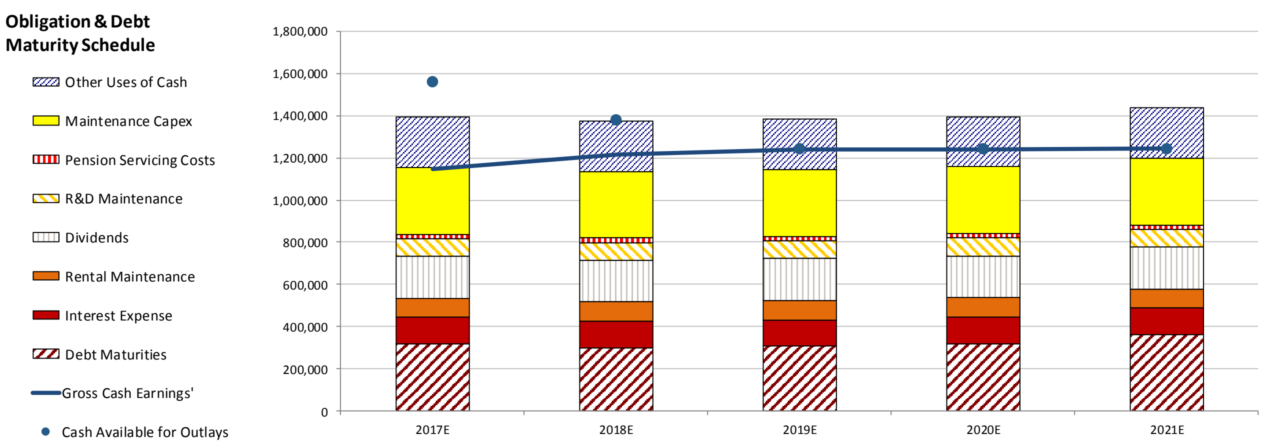


Source: Capital IQ, Valens Research Analysis

Data Date: As of 18-Dec-2017

- The S&P 1500 has no material debt maturity headwalls over the next five years that would cause concerns about refinancing risk. Debt maturities are relatively stable over the next several years, cash flows consistently match operating and debt obligations and forecasted share buybacks, and cash on hand levels offer a strong cushion on top of that. There appears to be no catalyst for credit destruction for the S&P 1500

Aggregate CCFP for the entire S&P 1500 with total debt greater than current cash on hand



Source: Capital IQ, Valens Research Analysis

Data Date: As of 18-Dec-2017

- The S&P 1500 firms with the weakest cash levels do not look as healthy as the entire S&P 1500. However, when looking at debt maturities and maintenance capex, cash flow exceed operating obligations each year for these 669 companies or 45% of the S&P 1500. It is only when forecasted discretionary share buybacks are included that cash flows fall below obligations
- This is the group that is naturally the most at risk of a cash crunch, and could have the biggest issues if they have a debt maturity headwall coming in the near term. If there was a group in this analysis that could be the catalyst for refinancing issues and/or a credit destruction, it would be this group; however, with the flexibility to reduce share buybacks, this does not appear to be a major risk

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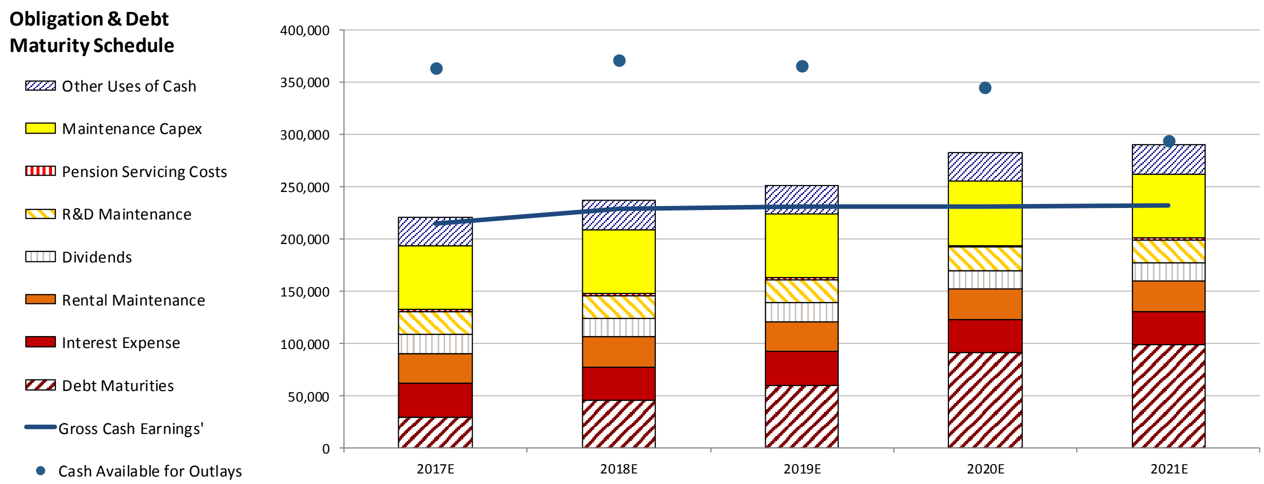
Aggregate CCFP for the entire S&P 1000 with outstanding debt (excluding Financials)



Source: Capital IQ, Valens Research Analysis Data Date: As of 13-Dec-2017

If the largest companies are removed from the analysis, new insights might be gained. Also, considering that the smaller companies in the S&P 1000 have less ability to access markets due to their smaller size, debt maturity headwalls for them are a likely larger issue than they are for the large-cap names that dominate the S&P 1500.

- It is somewhat expected that the S&P 1500, mostly composed of S&P 500 names when all the companies are aggregated, would not have material credit risk. Companies with larger market capitalization inherently have lower credit risk, and tend to have stronger cash flows, which drive their higher valuations
- When looking at the mid-cap and small-cap names in the S&P 1000, a debt maturity headwall emerges in 2020-2021. Debt service jumps materially and while cash flow exceed all obligations other than share buybacks in 2019, by 2021 companies will need to look to reduce obligations or refinance to avoid issues. However, this issue is still three years away and cash flow and cash on hand together are projected to handle all obligations until 2021 at the earliest. Also, importantly, this situation is an improvement to how fundamentals appeared earlier in 2017, when there still appeared to be a material debt maturity headwall lurking for 2018

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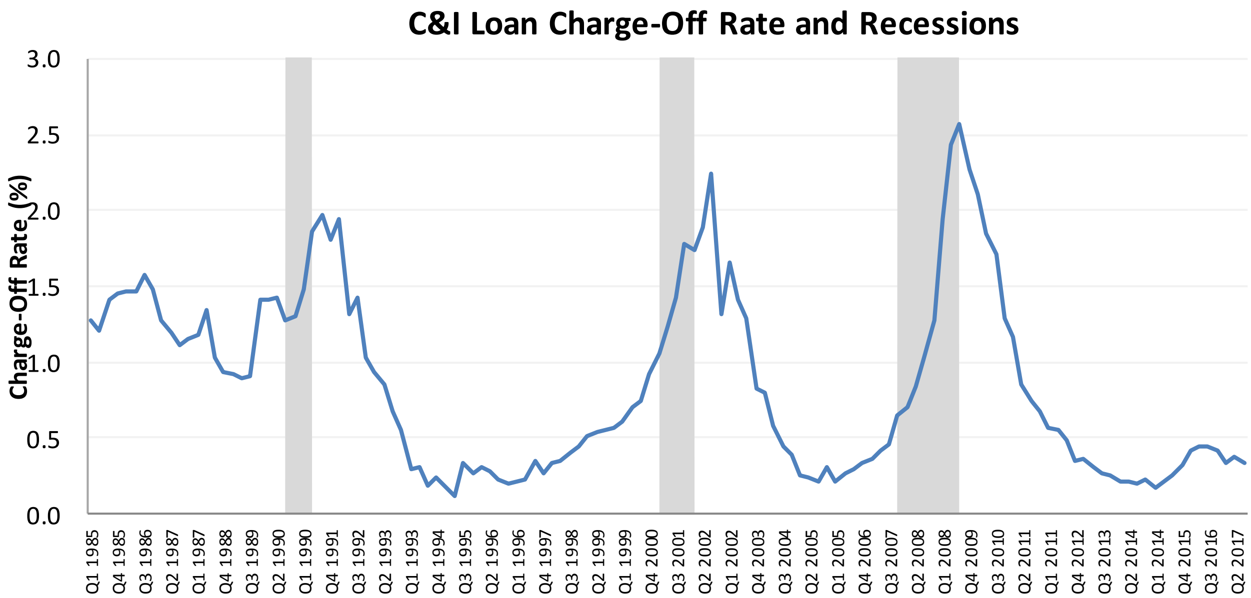
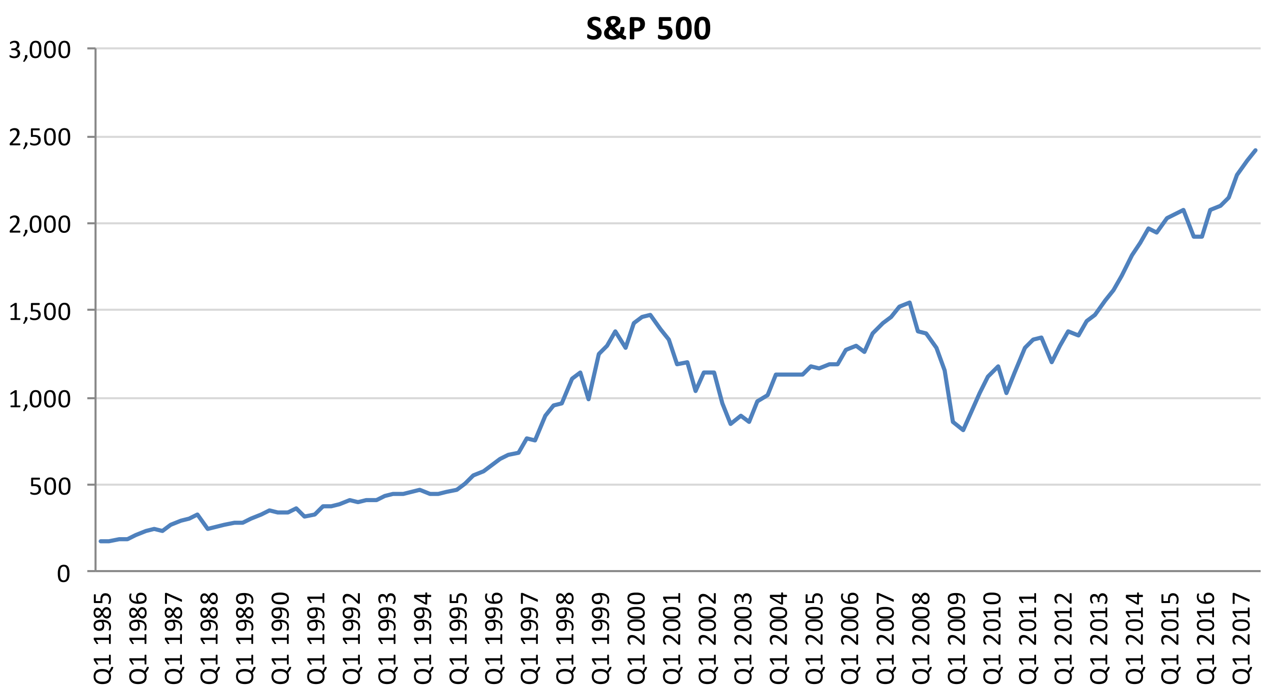
Credit Integrity:
Provisions for Losses and Bad Loan Charge-Offs





Source: Capital IQ, Valens Research Analysis

Data Coverage: Quarterly from Q1 1985 to Q3 2017

- Consumer and Industrial Loan Charge-offs appears to be a lagging indicator of recessions. Charge-offs due to C&I loans had been increasing, but recently this trend reversed to decline again. They remain at very low levels; however, a reversal of the recent declining trend could be a worrisome sign for the U.S. economy

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Corporate Credit Issuance/Usage

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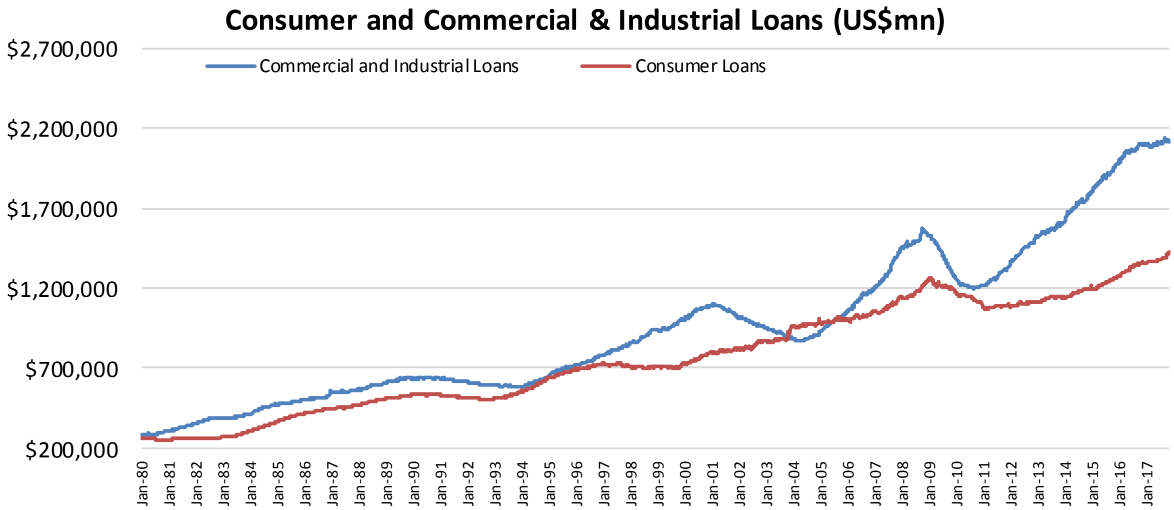
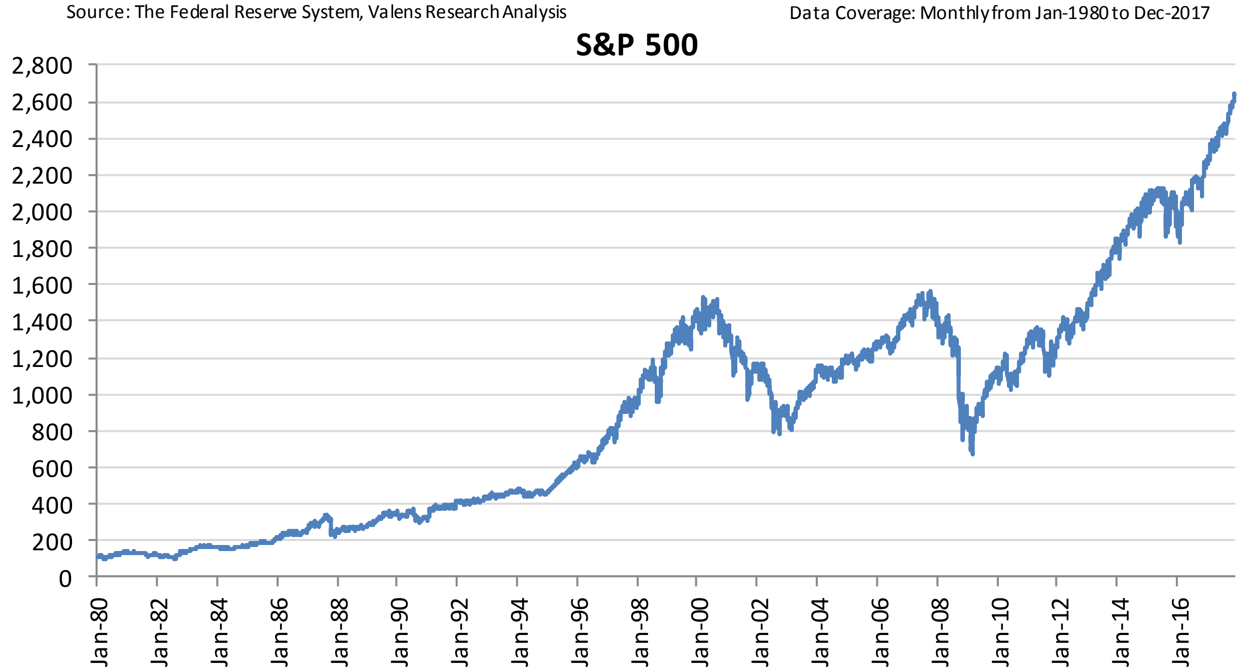
The Importance of Corporate & Consumer Credit



Source: The Federal Reserve System, Valens Research Analysis

Data Coverage: Monthly from Jan-1980 to Dec-2017



Source: Capital IQ, Valens Research Analysis

Data Coverage: Daily from Jan-1980 to Dec-2017

Commercial loan growth has staled recently. While this does not tend to be a valuable indicator heading into a recession, it should be monitored going forward.

- Commercial and industrial (C&I) loans are not clear indicators going into a bear cycle but are leading indicators going into a bull cycle. Recently, C&I loan growth has slowed, meaning it may no longer be an incremental tailwind to the bull market
- Looking at both charts, there appears to be some correlation between the trend in C&I loans and the S&P 500. Given how the U.S. economy relies heavily on credit, loans, and the banking system, one must be vigilant of these trends in the credit markets

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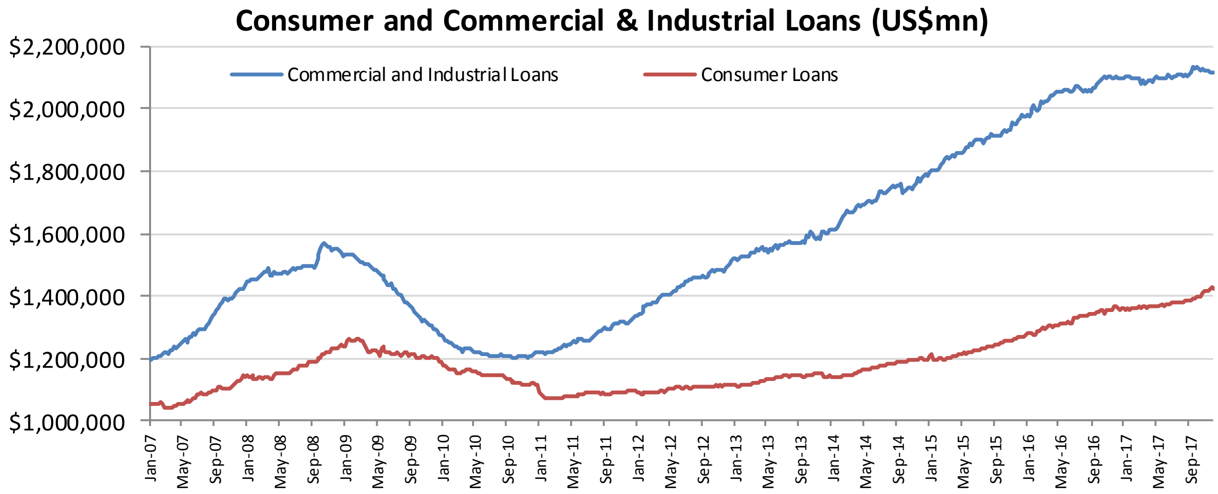
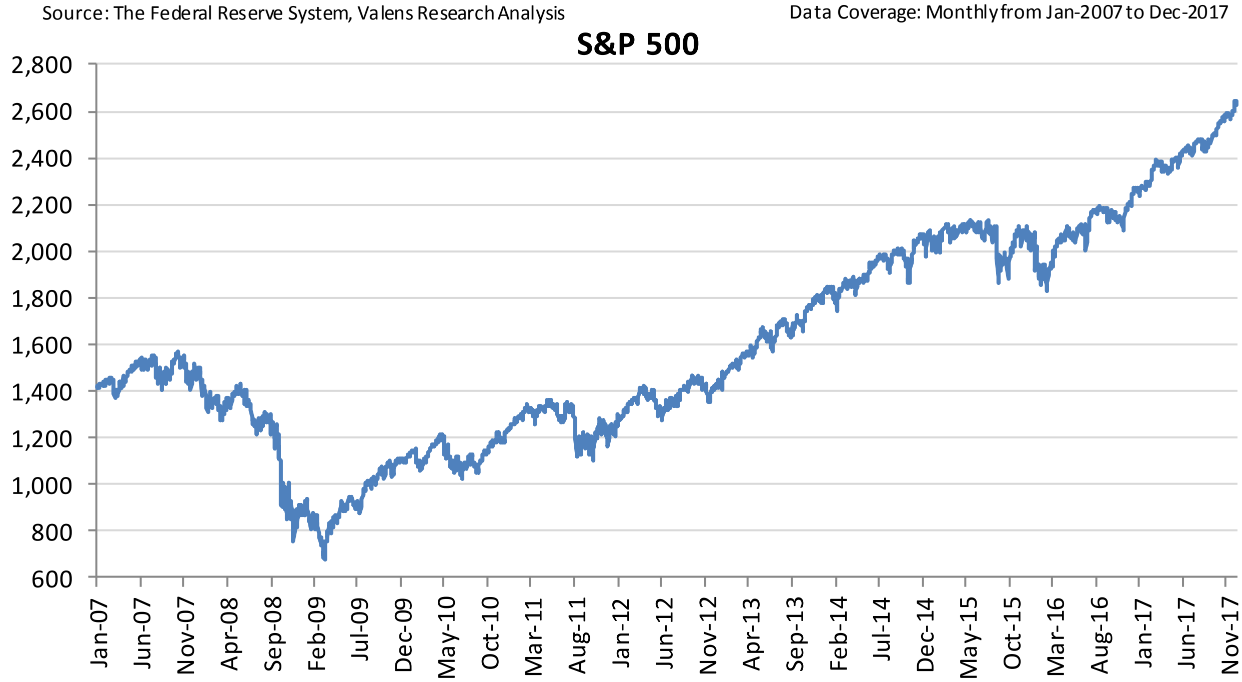
Corporate & Consumer Credit



Source: The Federal Reserve System, Valens Research Analysis

Data Coverage: Monthly from Jan-2007 to Dec-2017



Source: Capital IQ, Valens Research Analysis

Data Coverage: Daily from Jan-2007 to Dec-2017

These charts give a close-up view of the recent upturn in commercial credit, which rose 0.56% QoQ in Nov 2017.

- Commercial and industrial (C&I) loans are continuing its positive YoY trend in the last 36 months, however in the more recent period, growth has appeared to stall
- Consumer loans have slowly and steadily increased in the last six years. The steady increase implies that consumption spending is picking up. Most consumers seem to have improved financial positions and have recovered from the effects of the financial crisis. Overall, this indicates that GDP may improve further if the momentum continues and if overall positive sentiment does not wane

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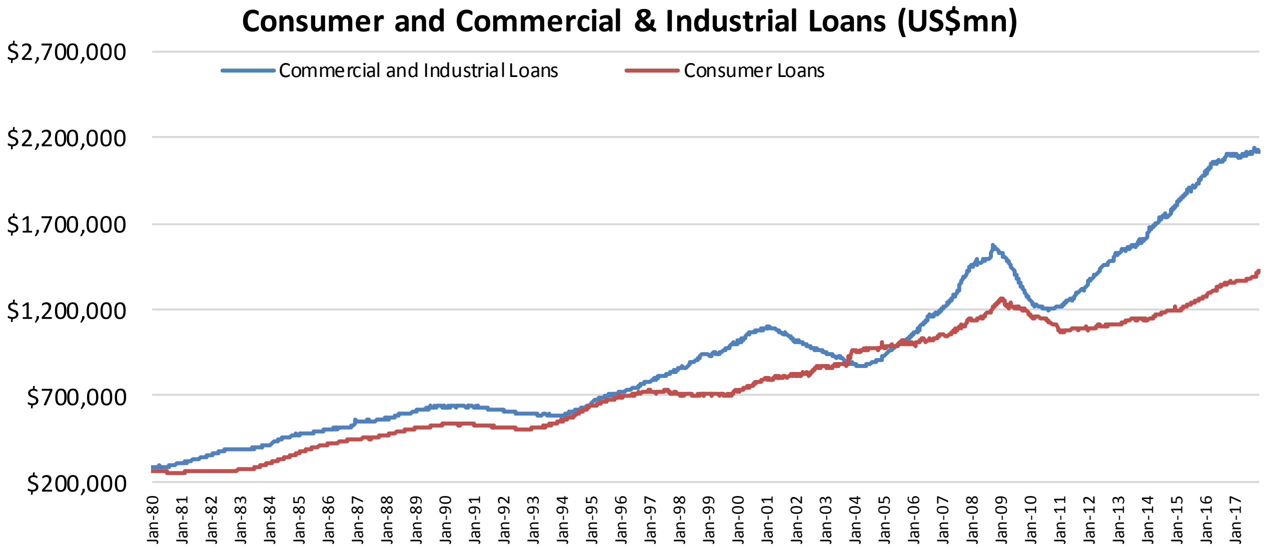
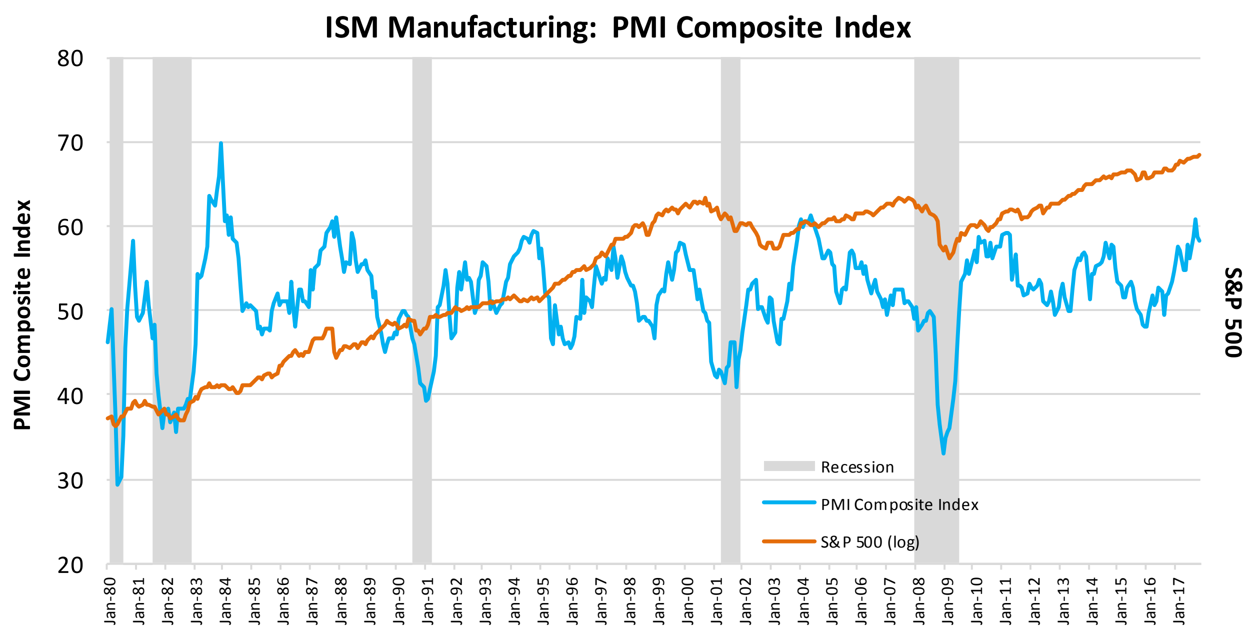


Source: The Federal Reserve System, Valens Research Analysis Data Coverage: Monthly from Jan-1980 to Dec-2017



Source: Institute for Supply Management, Valens Research Analysis Data Coverage: Monthly from Jan-1980 to Nov-2017

- The combination of high growth in C&I loans with a corresponding stagnation in manufacturing activity (above 50 levels, yet with declining peaks) seems to characterize most bull markets. The PMI composite index is highest in recoveries just after the end of the corresponding recessions and seems to be a concurrent leading indicator of recessions and turns in the market
- The index registered 58.2 in November 2017 from 58.7 in October 2017

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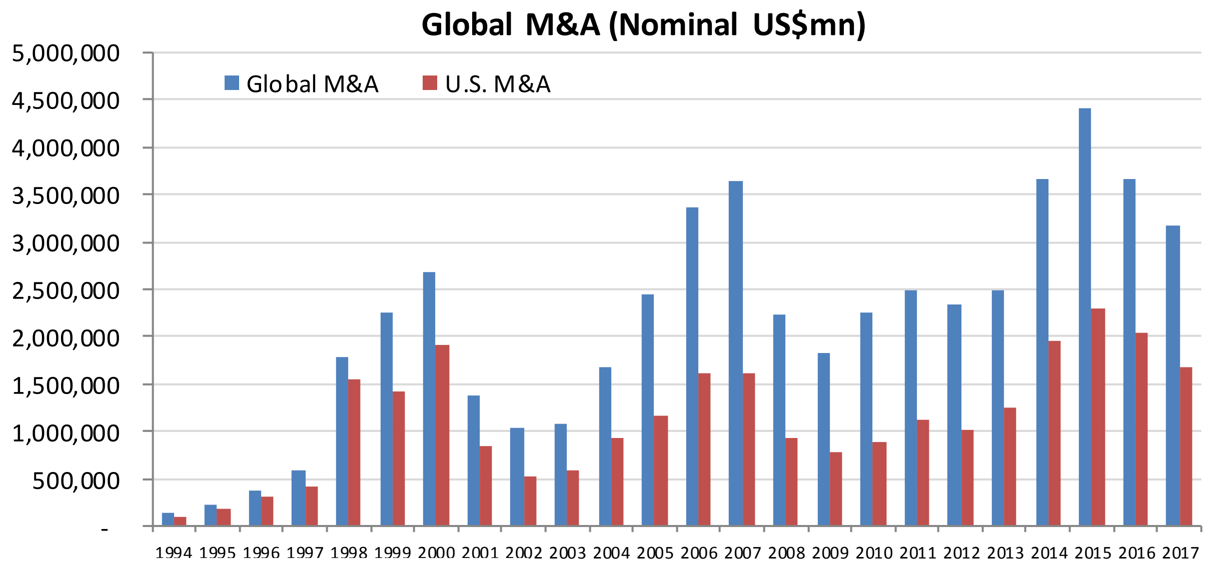
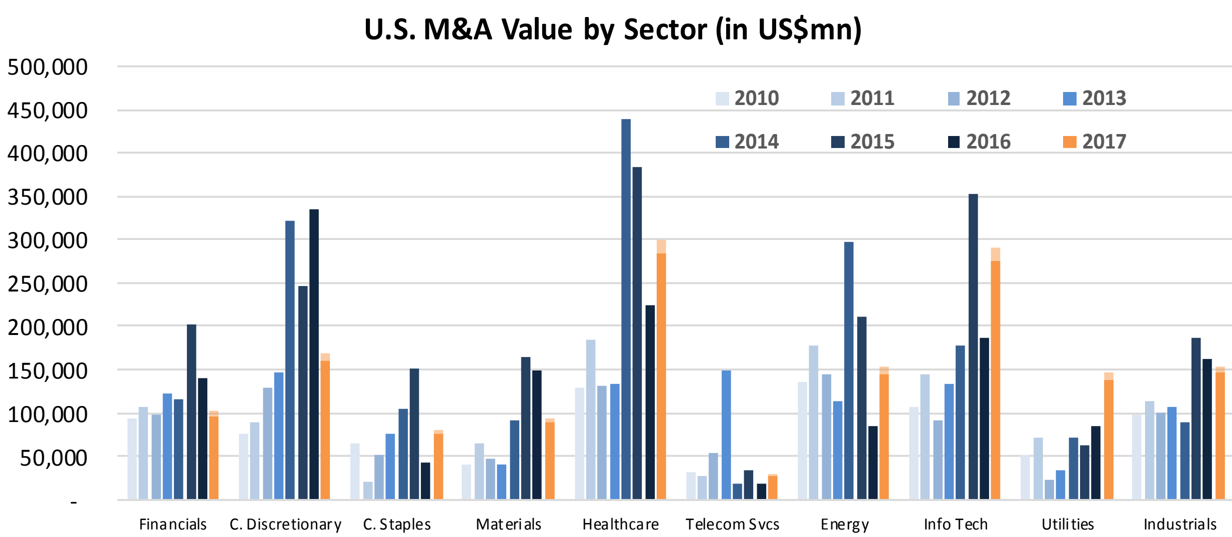
M&A and Private Equity Activity



Source: Capital IQ, Valens Research Analysis — Data: As of 13-Dec-2017



Source: Capital IQ, Valens Research Analysis — Data: As of 13-Dec-2017

2015 was the strongest year for deal-making to date. Worldwide M&A totaled $4.4tn in 2015, where 52% or $2.3tn came from U.S. deals. This appeared to be a sign of management teams seeking to deploy capital even as they cannot find organic growth opportunities. However, 2016 and 2017 have not keep pace with 2015 levels, and M&A rates continue to appear to be slowing.

- The strategic acquirer nature of the current acquisition environment is generally a sign of a transition into a growth market. When financial acquirers (i.e. PE firms) begin to take share in the acquisition market, it is a reason to be concerned, as this tends to be a contrarian indicator
- That being said, the deceleration in both U.S. and global M&A from 2015 levels signals a pause in willingness to deploy capital in this way

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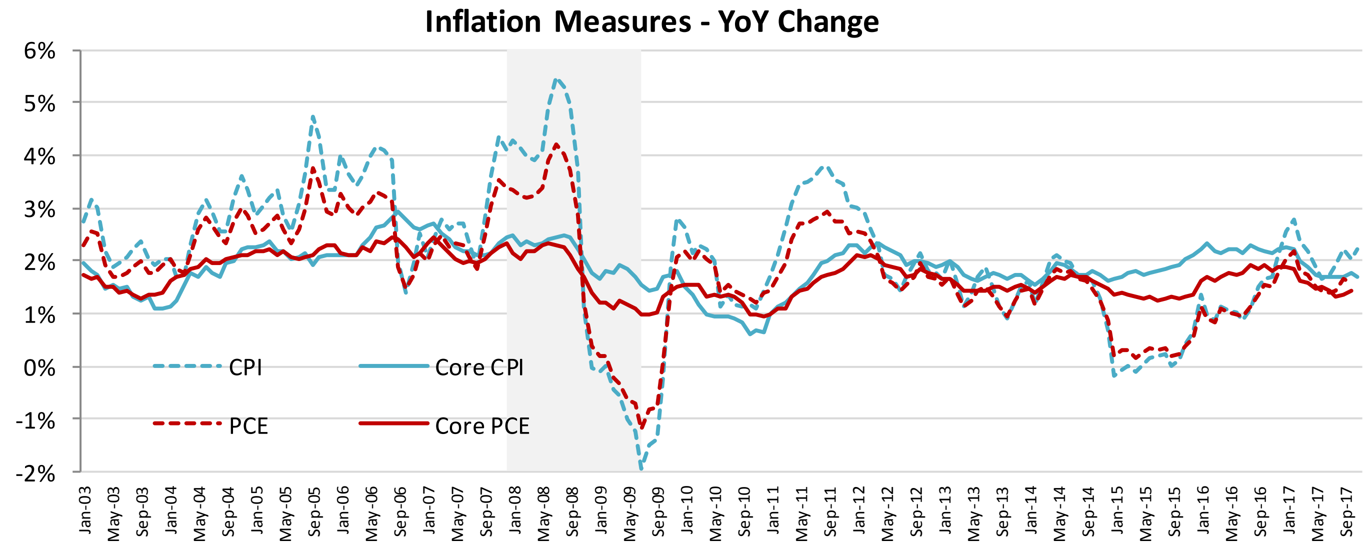
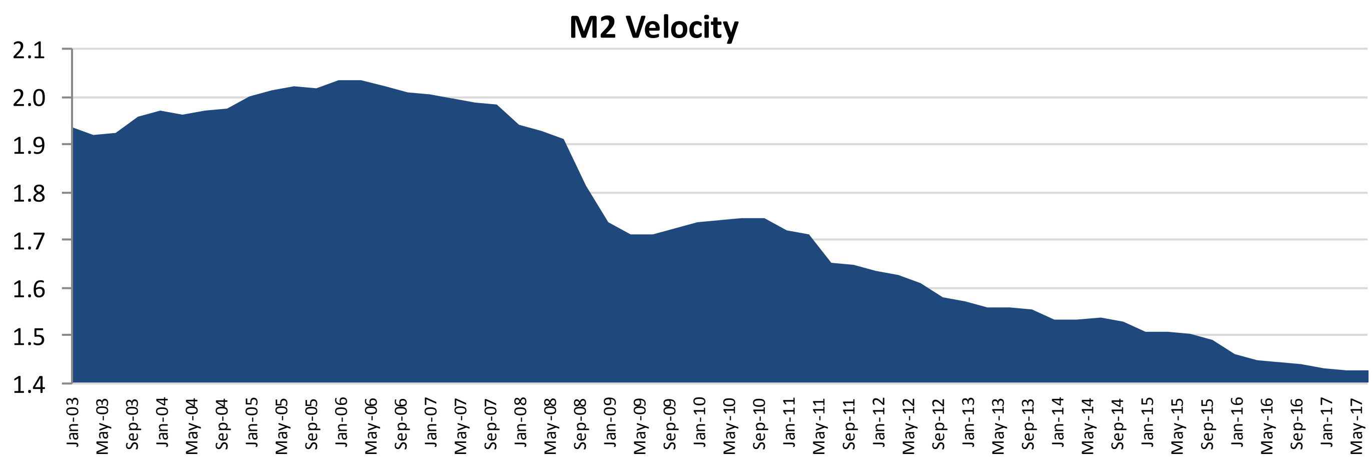
Historical Inflation and M2 Velocity





Source: The Federal Reserve System, Valens Research Analaysis — Data Coverage: Quarterly from Q1 1960 to Q3 2017

- Declining money velocity is characteristic of a period of recovery following a recession. Historically, money velocity would slow down with the increase in money supply in the economy. Once the recovery picks up, so will money velocity

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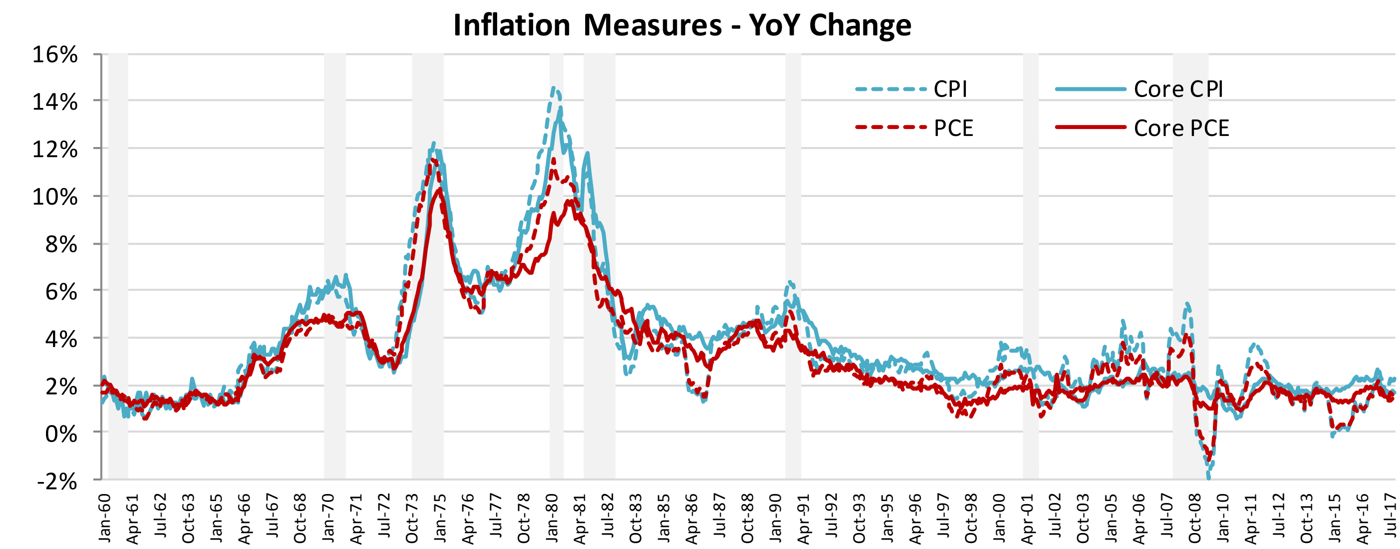
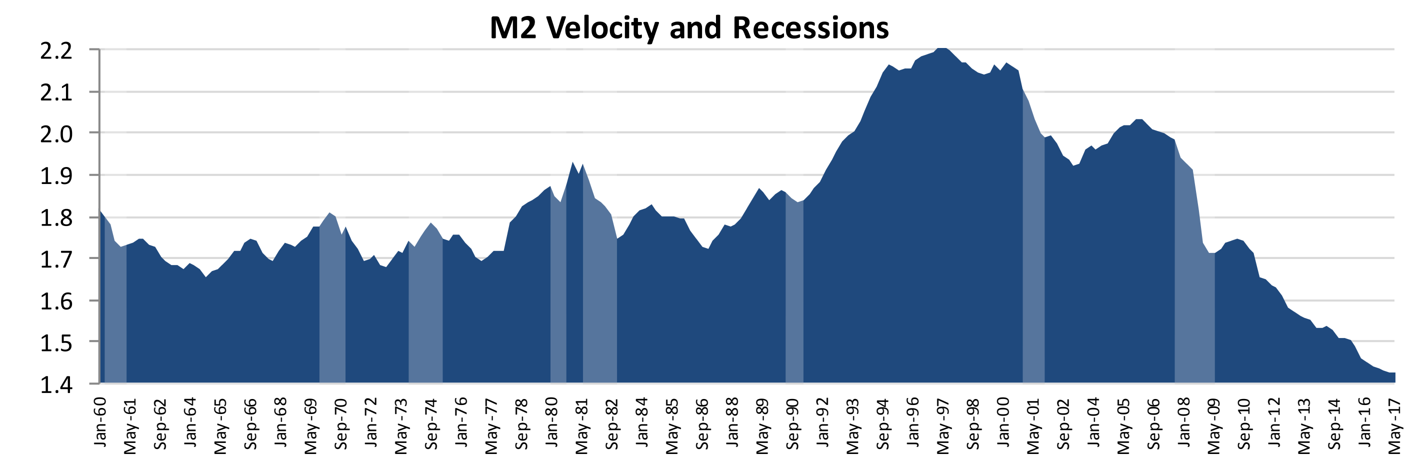
Historical Inflation and M2 Velocity





Source: The Federal Reserve System, Valens Research Analysis — Data Coverage: Quarterly from Q1 1960 to Q3 2017

Absent inflation or output growth, a decrease in money velocity is symptomatic of an increase in the money supply, currently brought about by the QE program.

- The increases in the Consumer Price Index have been relatively stable since 1983. The U.S. has not had a bout of severe inflation commonplace in the late ‘40s and the late ‘70s
- The U.S. Federal Reserve’s quantitative easing program increased the money supply in the U.S. economy, reducing the money velocity and keeping inflation at its lowest levels

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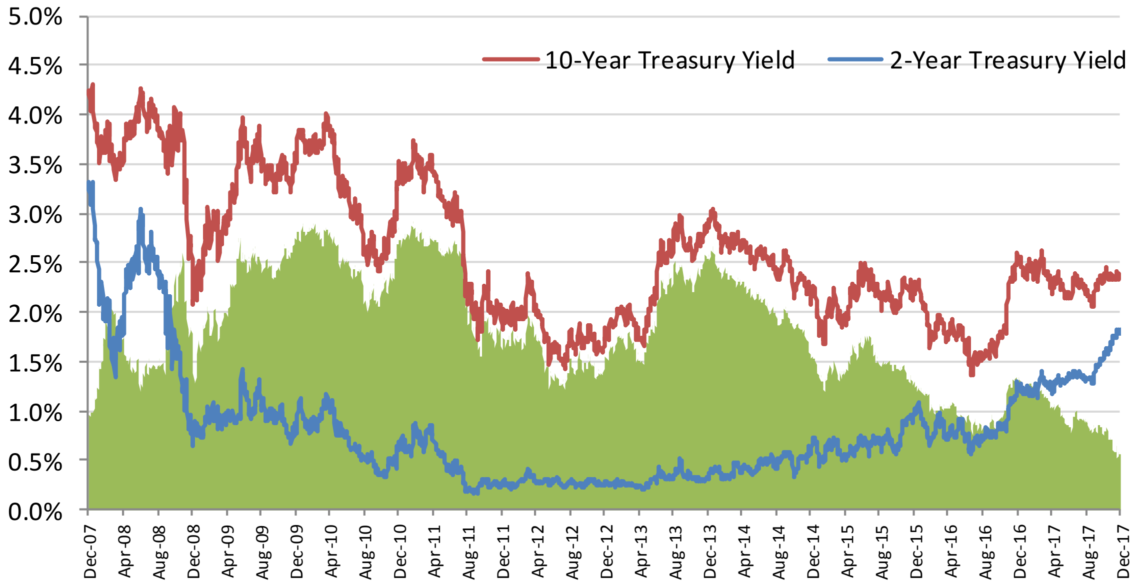
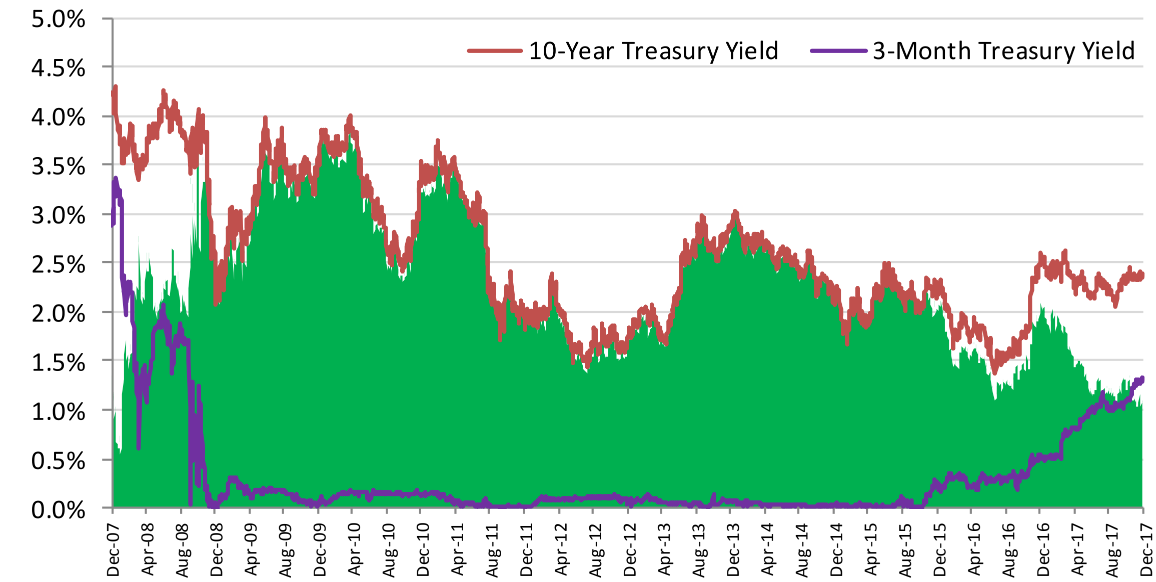
VALENS RESEARCH

3-Month, 2-Year, and 10-Year Treasury Yields: Ten Years Through May 10, 2017



Source: U.S. Federal Reserve   Data Coverage: Daily from Dec-2007 to Dec-2017



Source: U.S. Federal Reserve   Data Coverage: Daily from Dec-2007 to Dec-2017

Treasury spreads continue to decline, but remain materially positive, signaling limited risk for a recession, and continued positive economic growth. The recent rise in short-term rates is a sign of expectations for improvement in near-term economic conditions.

- Treasury yields refer to the total return on investment on the government debt obligations. An increase in yield means a decline in the value of the treasury note, bill, or bond, and vice versa
- The spread between the 2-year and 10-year yields moved wider in late 2016 and early 2017 after having contracted to its narrowest since 2007. Since the rate hike in December 2015, the short-term yields showed more sensitivity to changes in the Fed-funds rate. However, Longer-term yields have been declining since the November election rally, even while shorter-term rates have risen, signaling expectations for higher inflation and growth in the near-term.
- As of December 14, 2017, the 10-Year Treasury is at 2.4% while the 2-Year Treasury Yield is at 1.8%.

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