Endgame

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Investors Should Be Concerned

Bull markets have come and gone. No market cycle has lasted forever and the current cycle is likely to be no different. The market turmoil experienced in early February may be a warning of what's to come. Although each market cycle peak and trough has come with its own unique set of circumstances and flashpoints, history suggests their attributes and trajectories follow similar patterns. Consequently, the investment implications at different points in market cycles have tended to follow similar patterns, and performance across and within asset classes is consistent within each phase of those cycles.

There are many ways to measure market cycles and at PhaseCapital we have our own, the Market Cycle Indicator (MCI) which we will detail in the next section of this paper. We believe our MCI provides insight into what the capital markets will be like over the foreseeable future. The MCI has been deteriorating throughout 2017 and 2018, and based on current readings, we think investors should be concerned (Exhibit1, next page).

Current U.S. economic data suggests a continued robust economy with increasing PMI, full employment and GDP that's modest by historical standards, but exceeding expectations. The MCI suggests otherwise (Exhibit 1). Despite the rosy economic backdrop, it signals that something more ominous lies ahead judging from its sharp deviation from PMI and other economic indicators. This divergence between MCI and PMI is similar to what we observed in 1999-2000 and 2005-2006 periods. History shows that economic cycles exhibit fairly consistent symptoms leading up to a recession, starting with a hot labor market, strong PMI and a monetary policy stance that progresses from loose to tight in response. During past cycles when the MCI and PMI (and other macroeconomic indicators) have converged, it has spelled trouble for financial markets.

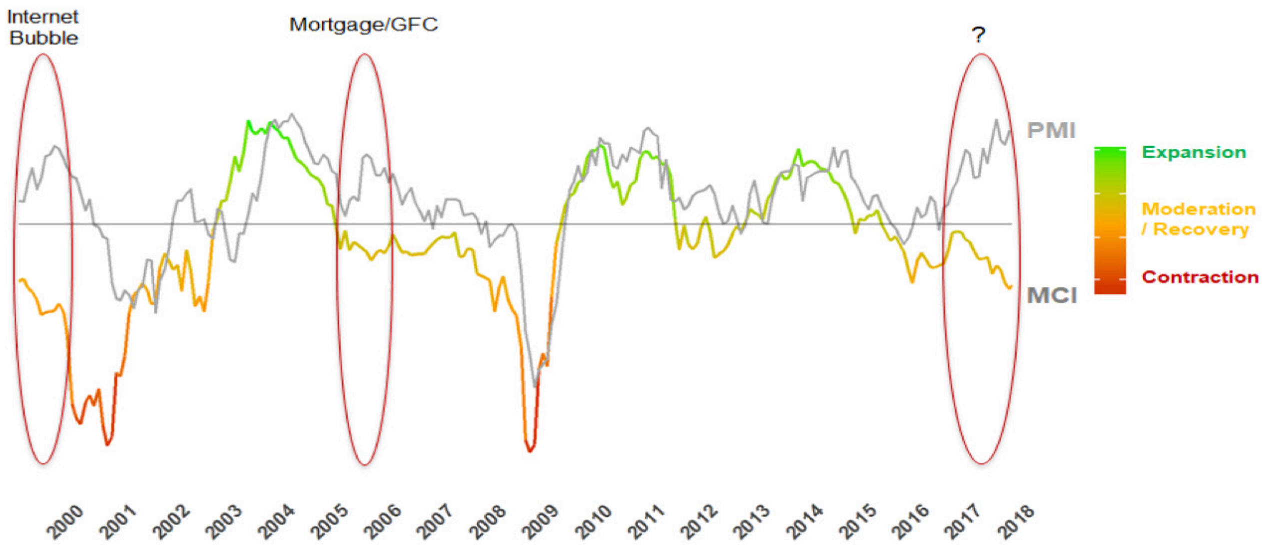

Exhibit 1: Phase Market Cycle Indicator (MCI) vs. ISM PMI
(Source: Bloomberg/PhaseCapital)

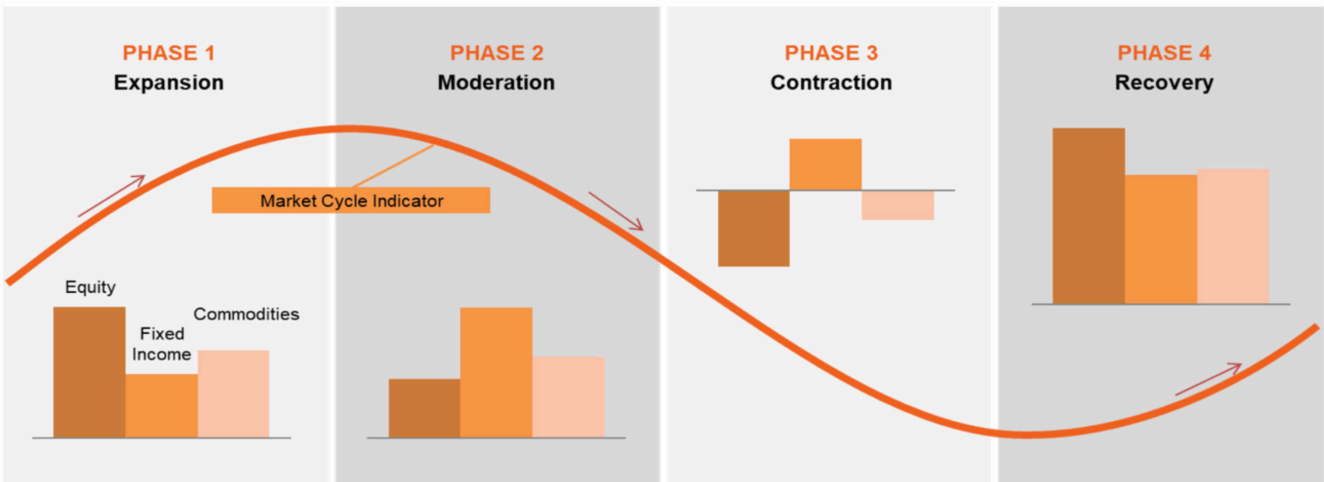

Exhibit 2: MCI – The Market Cycle Indicator
(Source: PhaseCapital)

It's easy to dismiss a single indicator in isolation. However, the MCI coupled with an array of other evidence suggests investors could face difficult markets in the near future. In the pages that follow, we will provide further insight into the MCI and present evidence which points to markets entering a late cycle phase. We believe investors should prepare for higher volatility, resetting risk premiums and the potential for significant drawdowns.

PhaseCapital's Market Cycle Indicator (MCI)

PhaseCapital employs a macro framework aimed at predicting turning points in the market cycle. Our objective is to determine which stage of the cycle we are in, and to predict the likelihood of transitioning to a new regime. We are long-term investors biased toward being long risk assets (equity and credit) over assets like government bonds, to earn economic growth risk premium. This framework is designed to be agnostic to short-term fluctuations in equity prices or credit spreads. Instead, we are interested in avoiding "the end of the market cycle", what we call the Contraction stage, a regime in which we believe equity/credit markets are likely to experience large and persistent drawdowns.

While the world is full of indicators to measure market cycles, our research finds that the slope of the yield curve and credit spreads are among the most reliable leading indicators to gauge credit conditions, liquidity and volatility. We have integrated these measures into our Market Cycle Indicator (Exhibit 2). The output of the MCI provides us with what we believe are clear signals of current financial conditions and a reasonable indication of what the capital markets will be like over the next 12-18 months.

Exhibit 2 displays the MCI through a full cycle along with an indication of the historical returns of equity, fixed income and commodities for the past 35 years in each of the phases. The level of the MCI recommends the risk profile we believe should be adopted in portfolios, while the direction of the MCI suggests the types of strategies we believe work best during transition.

The attributes of each phase are as follows:

Phase I (Expansion): Credit spreads are generally narrowing and volatility declining. Our view is that Phase I is a good environment to take risk, and riskier assets, such as equity and credit, generally outperform. We emphasize higher-beta industries, strategies and securities in this phase.

Phase II (Moderation): More modest environment for risk asset returns. With credit spreads reverting towards more normal levels and yield curves flattening, our portfolio strategies will tend to transition from exploiting equity growth and credit spread compression to exploiting "carry" during this phase. We think Phase II also lends itself to relative value strategies, long-short strategies with limited directional bias, as dispersion tends to increase during this phase.

Phase III (Contraction): Often marked by high volatility, credit spread widening, and negative excess returns for risk assets, with crises often occurring in this phase. A low level of overall portfolio risk and short positions are typically our approach in Phase III.

Phase IV (Recovery): The "recovery from crisis" phase. While volatility is often still relatively high, higher-beta assets and securities have typically outperformed during the Recovery phase. Increased portfolio risk budgets and barbelled strategies that capture a decrease in the dispersion in pricing of risky assets, are often effective.

The current bull market run is in its ninth year. The MCI has entered the Moderation phase. After a prolonged period of excesses, we are beginning to see many characteristics that have previously indicated a late-cycle market, where euphoric investor behavior coincides with peaking economic growth, tightening of monetary policy and a pickup in inflation. We believe the time is ideal for investors to consider the ***Endgame.*** In the context of the macro framework outlined above, the balance of this paper will touch on the specific late-cycle characteristics that the U.S. economy is exhibiting, build up a number of investment theses and discuss the management of macro risk exposures.

U.S Market Heading Towards Late-Cycle Phase

While U.S. economic growth is expected to remain solid for the foreseeable future, the bond market seems to believe the potential for increased growth is limited, and a growth decline is likely on the horizon as evidenced by the continued flattening of the U.S. yield curve. The slope of the yield curve offers a simple way to gauge market expectations for interest rates and, by extension, offers a way to gauge economic prospects. As shown in Exhibit 3, every recession in the past 60 years was preceded by an inverted yield curve.

On December 18, the spread between the 10-year Treasury yield and the 2-year Treasury yield fell to 51.4 basis points, the lowest since October 31, 2007. We checked all nine cycles of the past 60 years and examined the duration between the times the 2-year and 10-year yield spread fell through that level and the date when the yield curve slope flattened to zero:

Start	Flatten to Zero	Recession	#Months to Invert	#Months Invert to Recession
6/30/1955	4/30/1956	9/1/1957	10.0	16.0
8/31/1958	8/31/1959	5/1/1960	12.0	8.0
7/31/1963	12/31/1965	1/1/1970	29.0	48.0
12/31/1972	2/28/1973	12/1/1973	2.0	9.0
1/5/1978	8/17/1978	1/1/1980	7.5	16.7
8/18/1980	9/11/1980	7/1/1981	0.8	9.8
9/2/1988	12/14/1988	7/1/1990	3.4	18.8
2/6/1997	5/26/1998	3/1/2001	15.8	33.7
5/6/2005	12/27/2005	12/1/2007	7.8	23.5
		Median	7.8	16.7

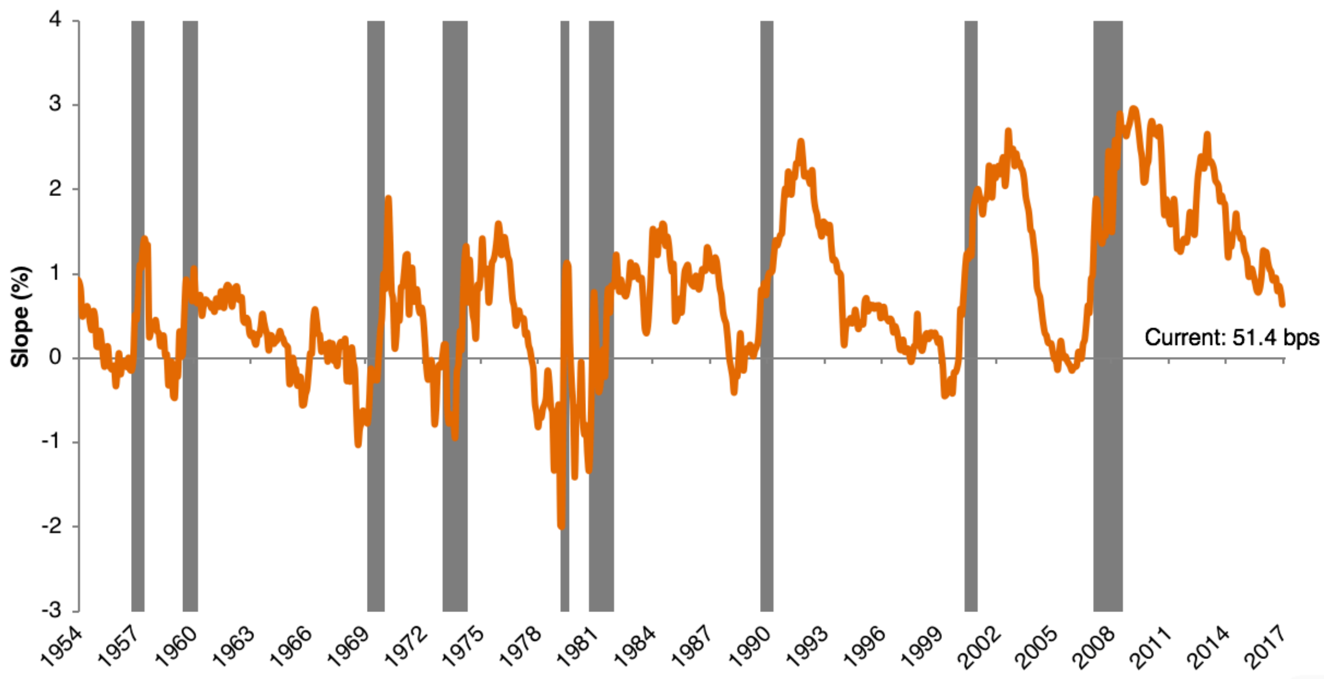

Exhibit 3: 2Yr – 10Yr Treasury Slope and U.S. Recessions
(Source: Bloomberg)

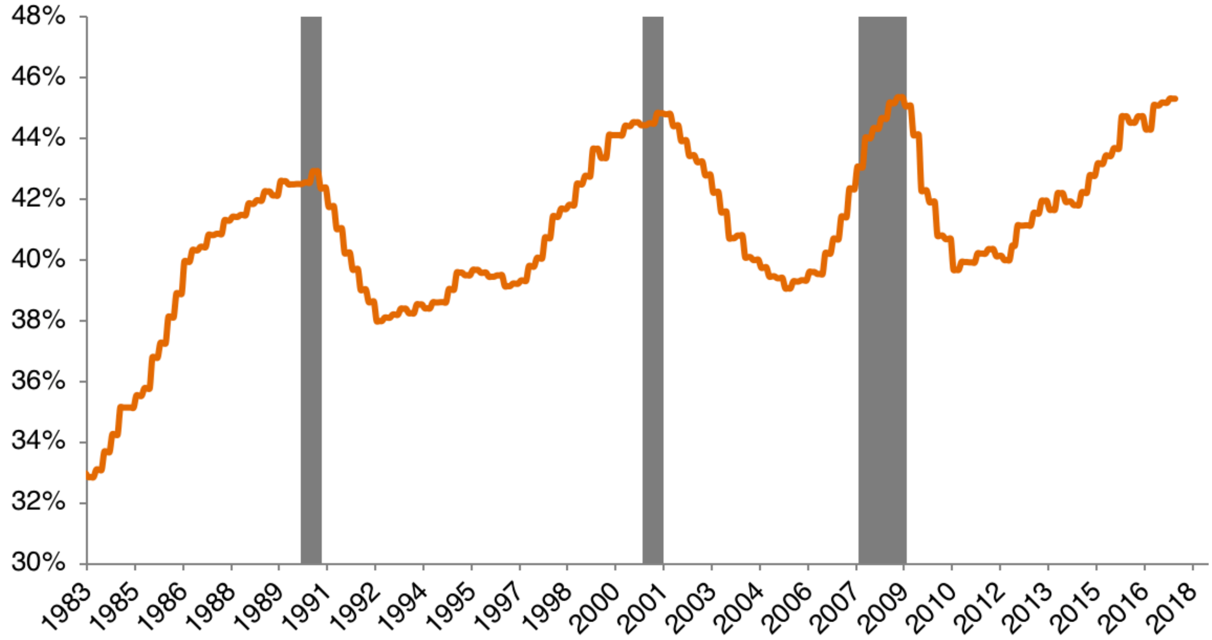

Exhibit 4: U.S. Nonfinancial Corporate Debt-to-GDP and U.S. Recessions
(Source: Bloomberg)

During 8 of the 9 cycles, the yield curve entered a "bear flattening" period from this point forward, where short-term interest rates are increasing at a faster rate than long-term interest rates, and the yield curve flattens as short-term and long-term rates converge. In most cases, the U.S. yield curve inverted within the next 12 months.

Expectations are beginning to build for the Fed to step up its pace of rate hikes as inflation shows signs of emerging and unemployment at the lowest rate in decades. The Fed has raised interest rates three times in 2017 and is set for at least three more hikes in 2018, leaving two-year notes at the highest yields since 2008. Meanwhile, demand from overseas investors, insurers and pension funds have kept 10-year yields near their March 2017 highs. Historically, the peak yield on the 10-year Treasury should roughly approximate the Fed's "terminal rate" - the final level where the funds rate settles. If history is any guide, we are likely to see the yield curve continue the current bear flattening trend, and perhaps even invert in 2018 if the Fed delivers the promised hikes. It's true that the Fed has been raising interest rates since 2015 and had engaged in tapering for two years before that. Yet these actions did little to tighten financial conditions, particularly when the ECB and BOJ continued to print money. Today, our view is that the bear flattening shows the Fed's tightening policy is effective and liquidity is being drained from credit and money markets.

On the credit side, U.S. corporate debt-to-GDP is near previous peaks (Exhibit 4). It appears, sooner or later, that the expansion of credit will come to an end. Credit is the life blood of the economy and credit expansion drives business cycles. During an expansion of credit, asset prices are bid up by those with access to leveraged capital. This asset price inflation can then cause a speculative price "bubble" to develop. The upswing in new money creation also increases the money supply for real goods and services, thereby stimulating economic activity and fostering growth in national income and employment. When buyers' funds are exhausted, asset price declines can occur in markets that benefited from the expansion of credit. The ripple effects are many, from insolvency, bankruptcy, and foreclosure all the way to threatening the profitability and solvency of the banking system itself in extreme cases. Ultimately, this results in a contraction of credit as lenders attempt to protect themselves from losses.

As the MCI, yield curve and credit markets indicate, the business cycle is maturing in the U.S. and these trends suggest recent tax reform is insufficient to prolong the business cycle. The real question is, are we at a turning point in the market cycle? We think the evidence suggests that we are at an inflection point, and in the following section, we will present evidence and offer suggestions on how investment portfolios might be repositioned as a result.

Common Late-Cycle Symptoms and Investment Opportunities

Market cycles vary in intensity and duration. However, the economic and financial conditions at different points in the cycle have historically remained remarkably consistent. The late cycle phase, what we call Moderation, is characterized by the deceleration of growth that precedes Contraction: inventories build, corporate profit margins fall and interest rates rise. Inflation will also increase due to tight labor markets and high capacity utilization. Equity valuations are typically expensive, leading to moderate returns and higher downside risks. The term "late-cycle strategies" has resurfaced in the financial press of late. The term refers to the types of investments that tend to outperform later in the business cycle. We discuss a few of these in the pages that follow.

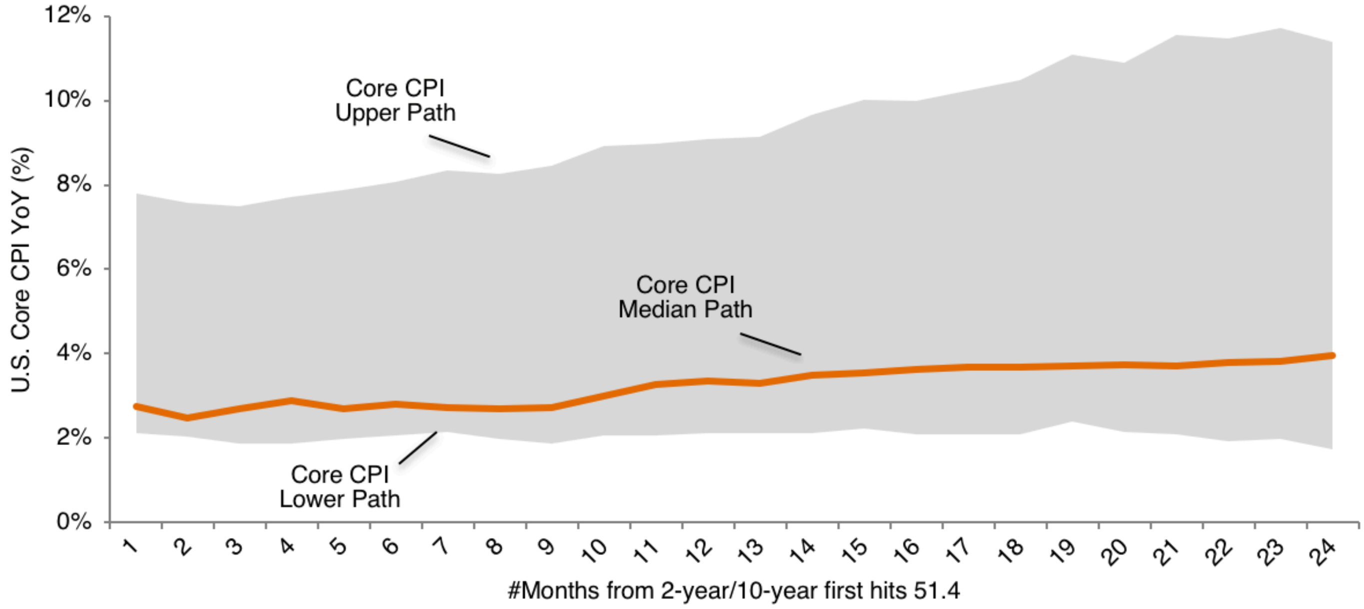

Exhibit 5: Inflation Path during Late Cycles
(Source: Bloomberg)

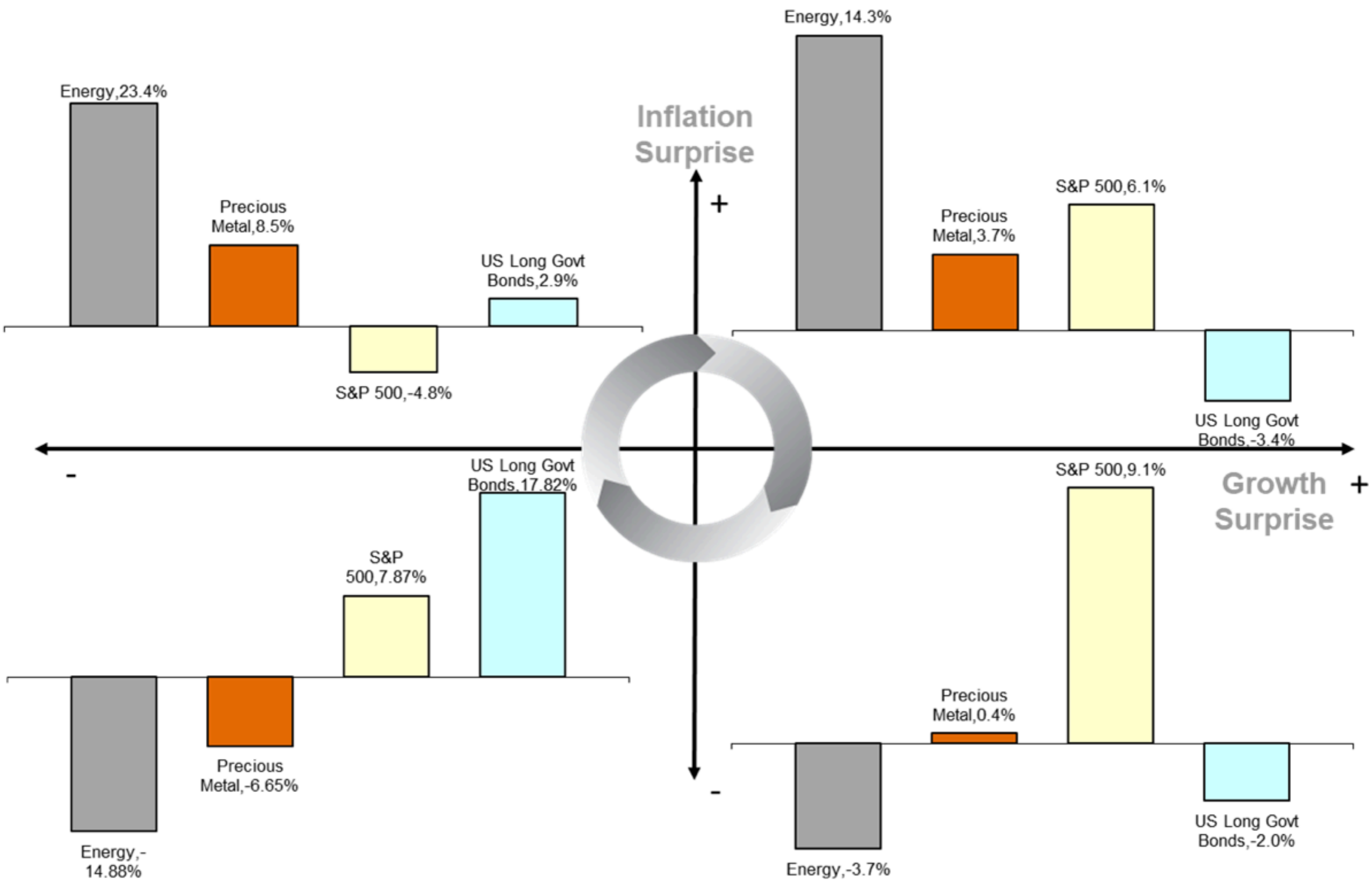

Exhibit 6: Asset Performance (Excess Return over 3month T-Bill) 1971-2017
(Source: Fed, Ibbotson, and Bloomberg)

Rising Inflation

As the business cycle matures, tight labor markets typically lead to demands for higher wages. In addition, resource utilization may approach full capacity and demand for materials such as copper, steel and energy tends to outpace supply. As a result, a common characteristic of late-stage business cycles is rising inflation. Over the past nine business cycles, when the slope of the yield curve fell through 51.4 bps, U.S. core inflation tended to increase steadily (Exhibit 5, previous page). Moreover, there has been a clear asymmetry to the path of realized core inflation over the nine cycles.

Other signs of rising prices emanate from the weakening dollar, which raises the cost of imports, and gains in key commodities, such as oil, are also regarded as potential threats. Inflation poses a threat to bond investors because it erodes the purchasing power of fixed coupon payments. Rising expectations for inflation have helped prompt selling in bonds in recent months. Inflation is a process that occurs when the purchasing value of cash declines. When inflation rises, it tends to drive up the price of oil, gold, silver, corn, soybeans, wheat and all other commodities.

As shown in (Exhibit 6, previous page) when U.S. quarterly inflation surprised to the upside (relative to Philadelphia Fed Survey of Professional Forecasters), energy and precious metal spot prices have performed well. We find a similar relationship between inflation surprise and other commodities. Interestingly, commodities have performed even better when U.S. quarterly GDP growth surprised to the downside. Although the inflation itself definitely has had a direct impact on the price of commodities, we believe other factors may also come into play. For example, inflation pressures may also prompt the Federal Reserve to raise interest rates if economic growth is robust. Higher interest rates tempers economic growth and limits the upside potential of commodity prices. Our view is that the best time for buying commodities is in the presence of both high inflation and an uncertain domestic economic outlook – typical of a late-cycle market.

We believe that the recovery in commodity prices that started in early 2016 and paused in 2017 is likely to continue in 2018. Underlying supply and demand imbalances are increasingly positive in key energy, metals and select agricultural markets. Importantly, the structural outlook for the dollar looks increasingly weak, while global inflation has likely bottomed.

Higher inflation can also help drive superior performance from energy and materials sectors, the profitability levels of which are dictated by commodity prices in the short term. Utilities, telecommunications and consumer staples stocks can gain the attention of forward-looking investors, who begin moving toward less cyclically sensitive sectors and strong dividends. Lean years require strong financial health, so interest rate coverage, debt-to-capital and the current ratio gain added importance. Dividend yield should also become more important as demand for growth stocks wanes.

Asynchronous Global Business Cycle

The past year was the first since 2010 where the performance of the global economy exceeded consensus expectations amid a pickup in manufacturing and trade, rising confidence, favorable global financial conditions, and stabilizing commodity prices (Exhibit 7). While growth remains weak in many countries, and inflation remains below target in most advanced economies, market participants are now expecting the global upswing in manufacturing activity to strengthen further, and the global economic expansion is projected to carry forward its current momentum into 2018. Broadly speaking, while it seems the U.S. has entered a more mature late stage of the business cycle, Eurozone economies seem to be mid-cycle, where business and consumer confidence, and access to credit have all continued to improve. China, Japan and many emerging countries seem to be in the early stages of improving business conditions, as global demand for goods has increased.

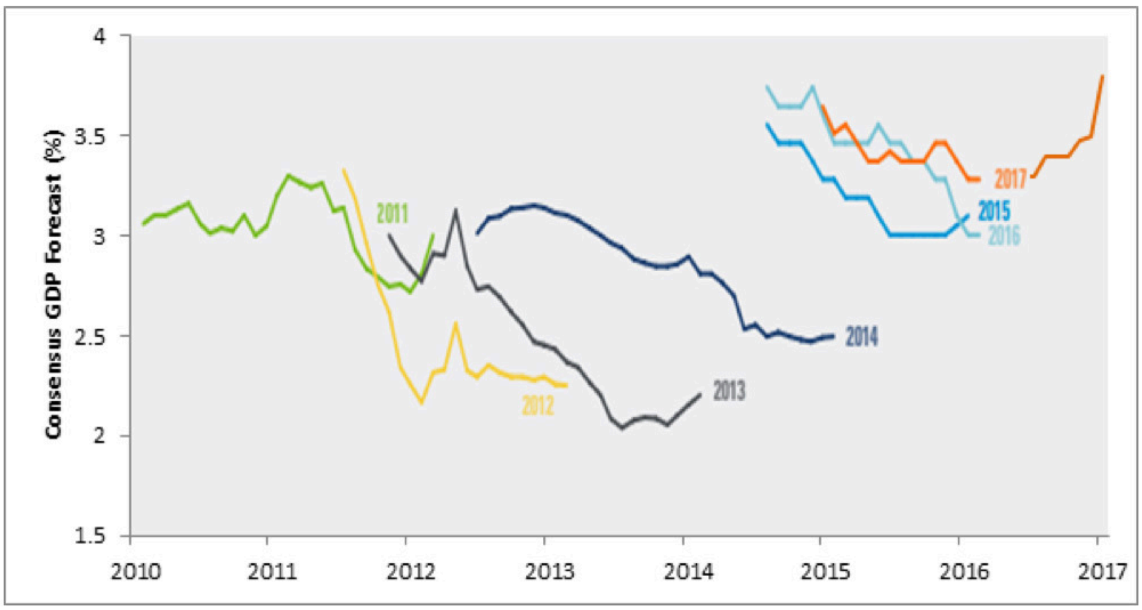

Exhibit 7: Global Growth Estimates Consistently Revised Lower Except 2017
(Source: LPL Research, Bloomberg)

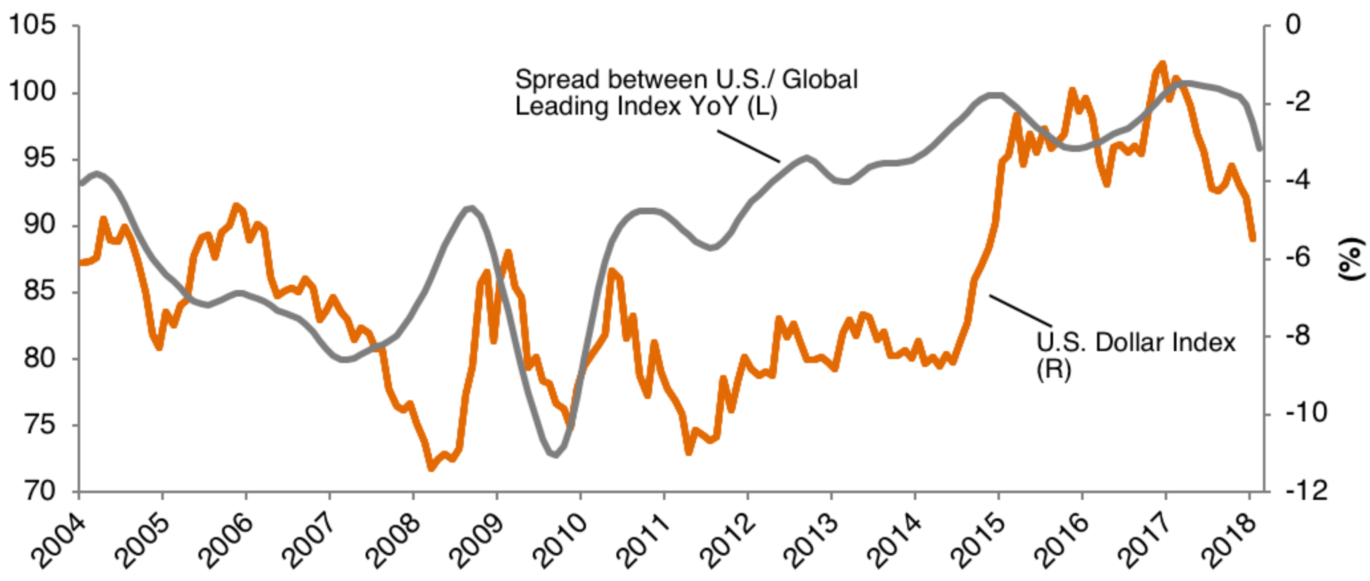

Exhibit 8: Spread between U.S./Global Leading Index YoY vs. US Dollar Index
(Source: OECD & Bloomberg)

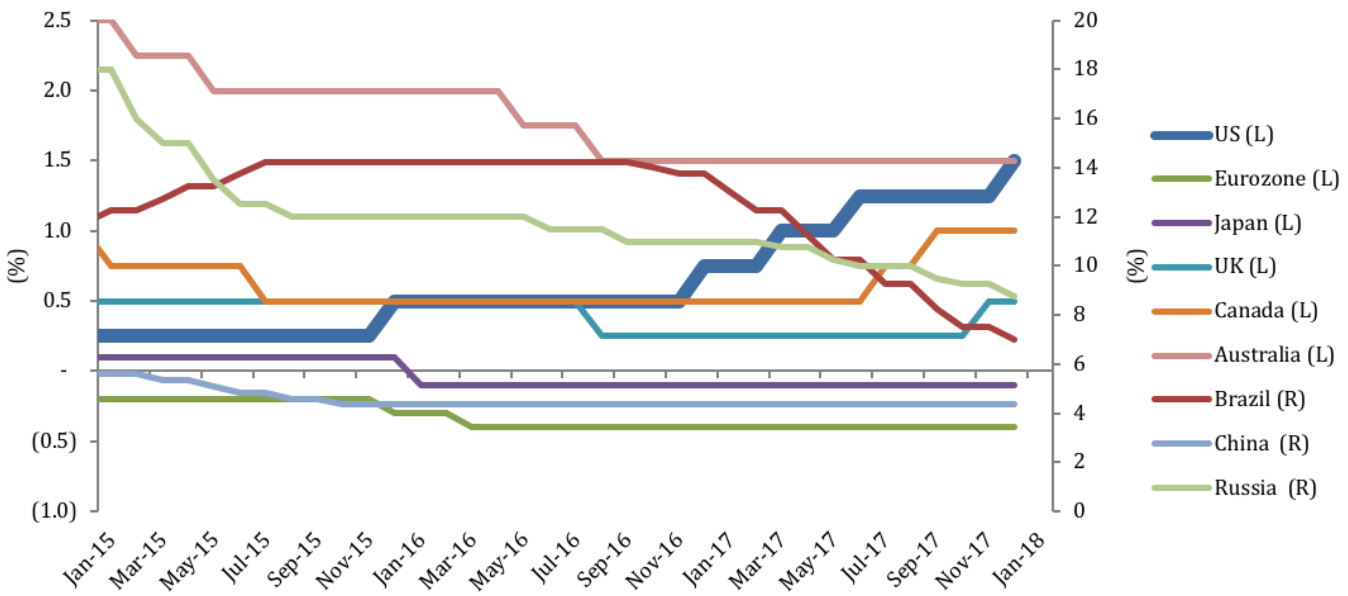

Exhibit 9: Diverging Central Bank Policy Rates
(Source: Bloomberg)

As shown in Exhibit 8, when global economic growth is expected to outperform the U.S., the U.S. dollar typically declines. One year since the inauguration of President Trump, the U.S. dollar has fallen sharply, by over 12%, against all major and emerging-market counterparts. Combined with recent evidence showing rising inflation and commodity prices, investors have reignited bets that the global reflation trade will take hold in 2018, dimming the greenback's appeal relative to currencies of faster-growing economies. There is probably more pain ahead for the dollar in 2018 as investors anticipate more capital flowing into other economies, despite the repatriation of overseas cash due to the recent tax reform.

We expect asynchronous business cycles to mean that countries will require different monetary policies. In contrast to the Fed's monetary policy tightening path, other major central banks have largely stayed on hold, and some have even embarked on further easing which has exacerbated monetary policy divergence (Exhibit 9).

In the first meeting of 2018, the Federal Reserve maintained its forecast for three hikes in 2018 with a notable upgrade to its economic outlook. Current economic conditions suggest that the number of hikes is more likely to increase then decrease. Consequently, investors will likely be discouraged from speculating on U.S. stock prices and set their sights on foreign markets where economic expansions are younger than in the U.S. and monetary policy more accommodative. Since the data series became available in 1969, the MSCI World Index has outperformed the S&P 500 in five of the six bear flattening periods.

Start	Flatten to Zero	S&P 500	MSCI World
12/31/1972	2/28/1973	-4.96%	0.92%
1/5/1978	8/17/1978	12.45%	17.45%
8/18/1980	9/11/1980	3.98%	4.98%
9/2/1988	12/14/1988	1.32%	10.31%
2/6/1997	5/26/1998	43.30%	30.57%
5/6/2005	12/27/2005	8.58%	11.98%

(Source: Bloomberg)

Since 2008, the U.S. market has outperformed international markets in both absolute and risk-adjusted terms by a large margin (Exhibit10).

Now, after underperforming the U.S. market for a decade, international stocks look more attractively priced on a variety of valuation measures. Coupled with superior growth prospects and stimulative monetary policy, an allocation to international stocks seems warranted.

Diverging Credit Markets

As the economic cycle advances, we will likely start to observe an increase in corporate leverage accompanied by rising corporate defaults, as well as declining recovery rates. We think this is especially true of the current growth cycle, which is one of the longest on record, having begun in March 2009. As we discussed earlier, after years of debt accumulation in the system, U.S. corporate leverage has exceeded the peak level of previous cycles. Moreover, our research suggests companies are finding it increasingly challenging to continue trimming costs or improve profit margins. Economic growth is perceived to be on track, business leaders' confidence is high, and the economy is showing all the signs of gaining momentum in the near term. Under these conditions, companies will likely start to favor external growth and engage in mergers and acquisitions, further expanding already stretched balance sheets.

High leverage increases the vulnerability of the corporate sector to external shocks, such as slowing economic growth or tighter lending standards. Those shocks can trigger a significant and persistent widening of credit spreads. When credit spreads widen, the prices of corporate bonds fall (assuming there is no change in Treasury yields) as investors price in greater risk by demanding a higher yield. These conditions can eventually result in rating downgrades, rising default rates and credit contraction.

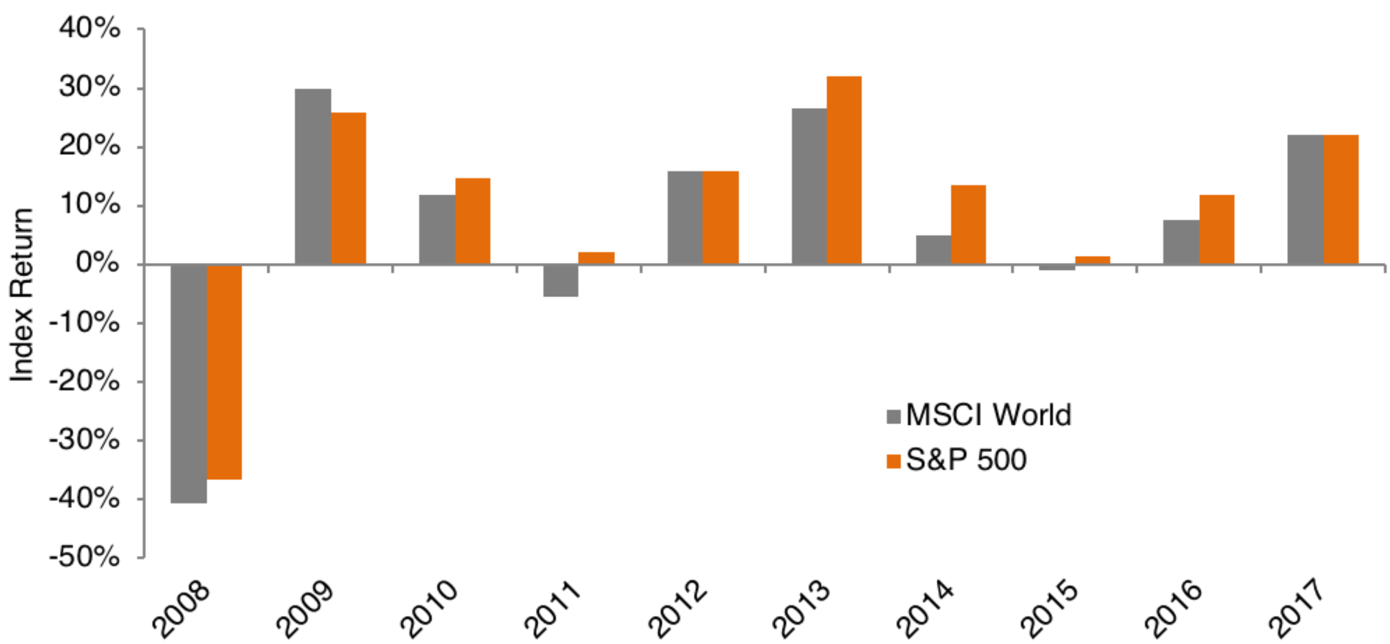

Exhibit 10: S&P 500 vs. MSCI World Historical Performance
(Source: Bloomberg)

As shown in (Exhibit11), credit spreads often begin to widen long before equities hit the peak of the cycle. The most glaring examples of this are between 1998 and 2002, and from mid-2007 through 2008, credit spreads widened sharply several quarters ahead of actual credit events. In this phase of the market cycle, high yield bonds often substantially underperform higher quality credit (Exhibit 12) and domestic credit markets usually underperform other asset classes, such as emerging market local-currency debt.

Accordingly, rotating from domestic high yield credit to emerging markets local debt seems a sensible idea in light of higher yields, superior economic and credit backdrop, and supportive currency dynamics in light of the falling U.S. dollar.

Increasing Downside Volatility and Tail Risks

On February 5, the CBOE Volatility Index posted its largest one day increase ever. For many investors, the rout in markets in early February 2018 may have come as a bit of a shock or at least a timely reminder that share prices can go down as well as up. We

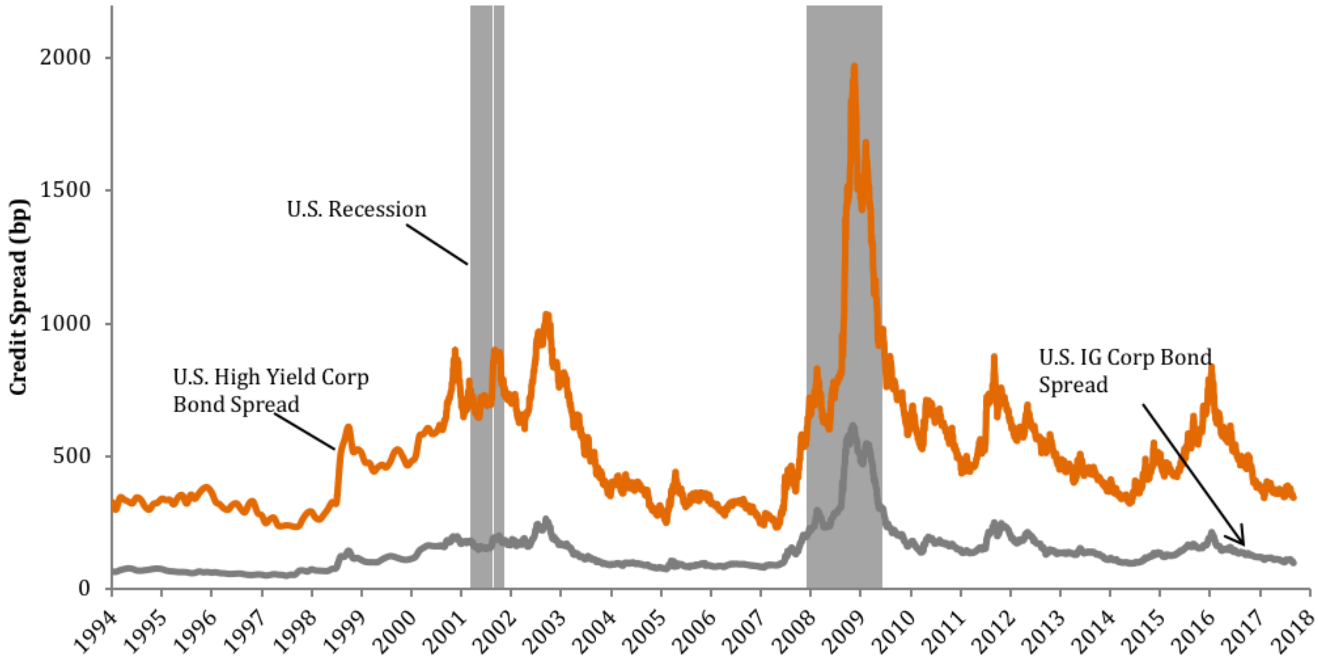

Exhibit 11: Credit Spreads Widen Ahead of Economic Downturns
(Source: Bloomberg)

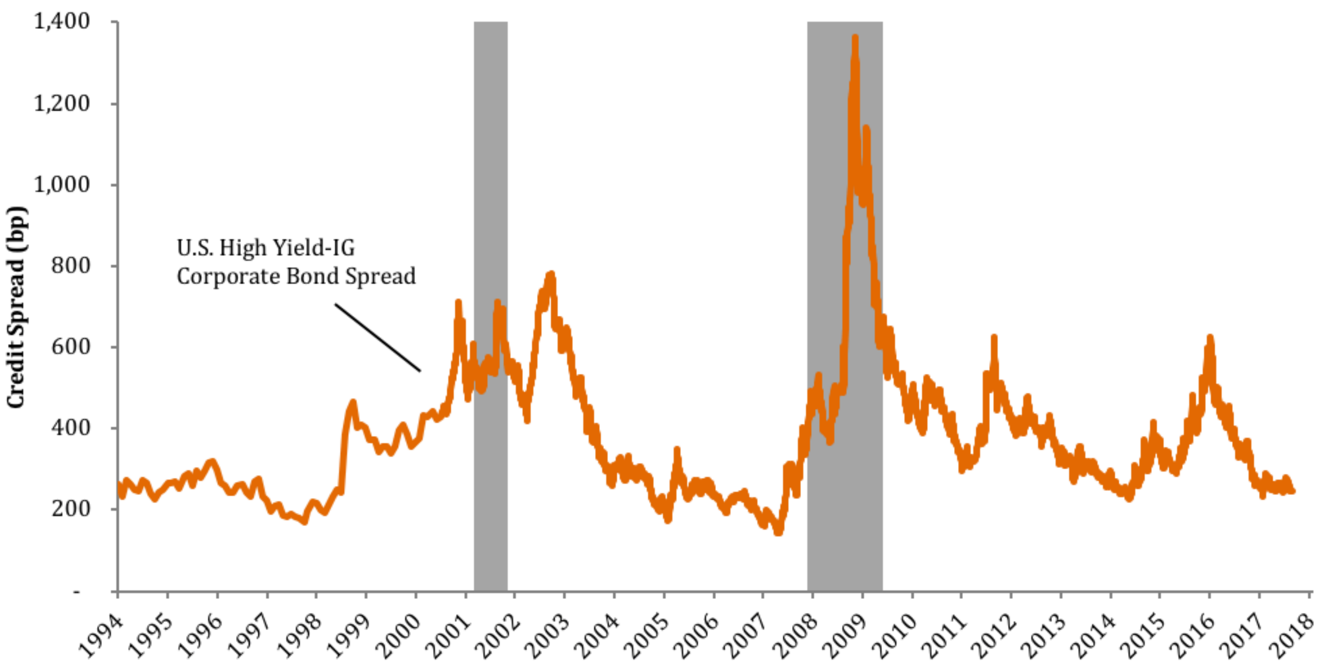

Exhibit 12: Credit Spreads Decompress Before and During Economic Downtur
(Source: Bloomberg)

believe today's late-cycle conditions place even greater importance on risk management.

At PhaseCapital, we don't equate risk as volatility. Volatility is the degree of variation of an asset's return from its mean return. We define risk as the likelihood of permanent loss of capital. It is normal and healthy for markets to experience corrections, whereby the S&P Index loses ~10% of its value or more. These corrections help to shake out some of the more speculative players and bring share prices back to their fundamental values.

At PhaseCapital, we strive to avoid large losses which interrupt compounding returns and can take many years to recover (Exhibit 13).

Recent data shows U.S. investors are overwhelmingly holding U.S. stocks at a time when they look expensive. The cyclically adjusted P/E (CAPE), a valuation measure created by economist Robert Shiller, now stands at 32.56, a level only exceeded during the 2000 tech bubble and higher than the 1929 mania (Exhibit 14).

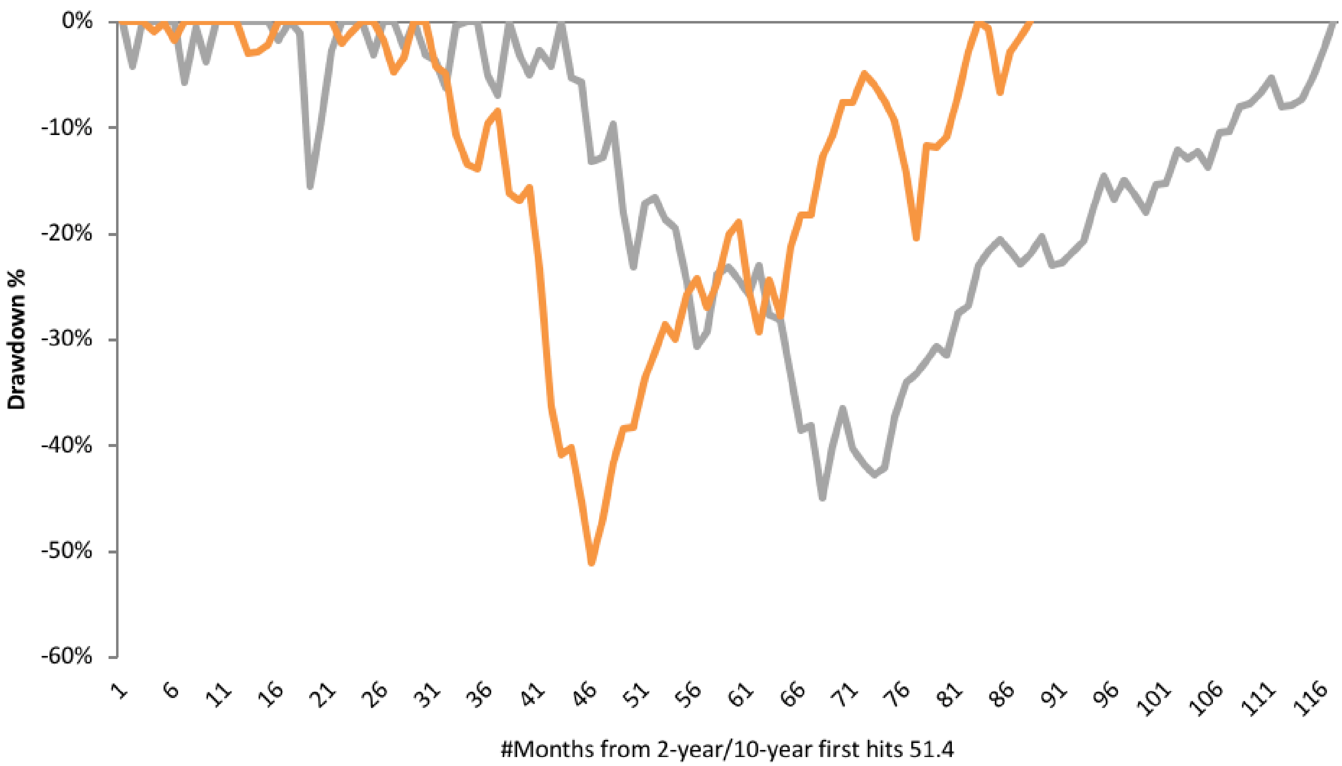

Exhibit 13: Peak-to-trough drawdowns of the past two downturns
(Source: Bloomberg)

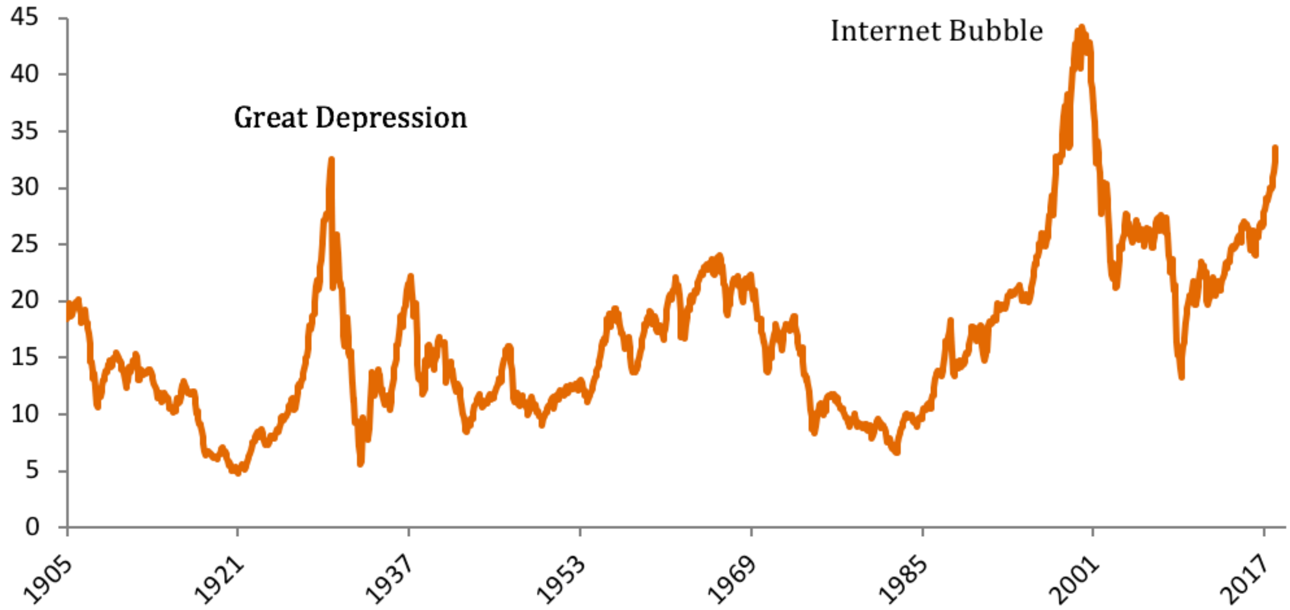

Exhibit 14: CAPE / Shiller PE
(Source: Robert Shiller, Yale University)

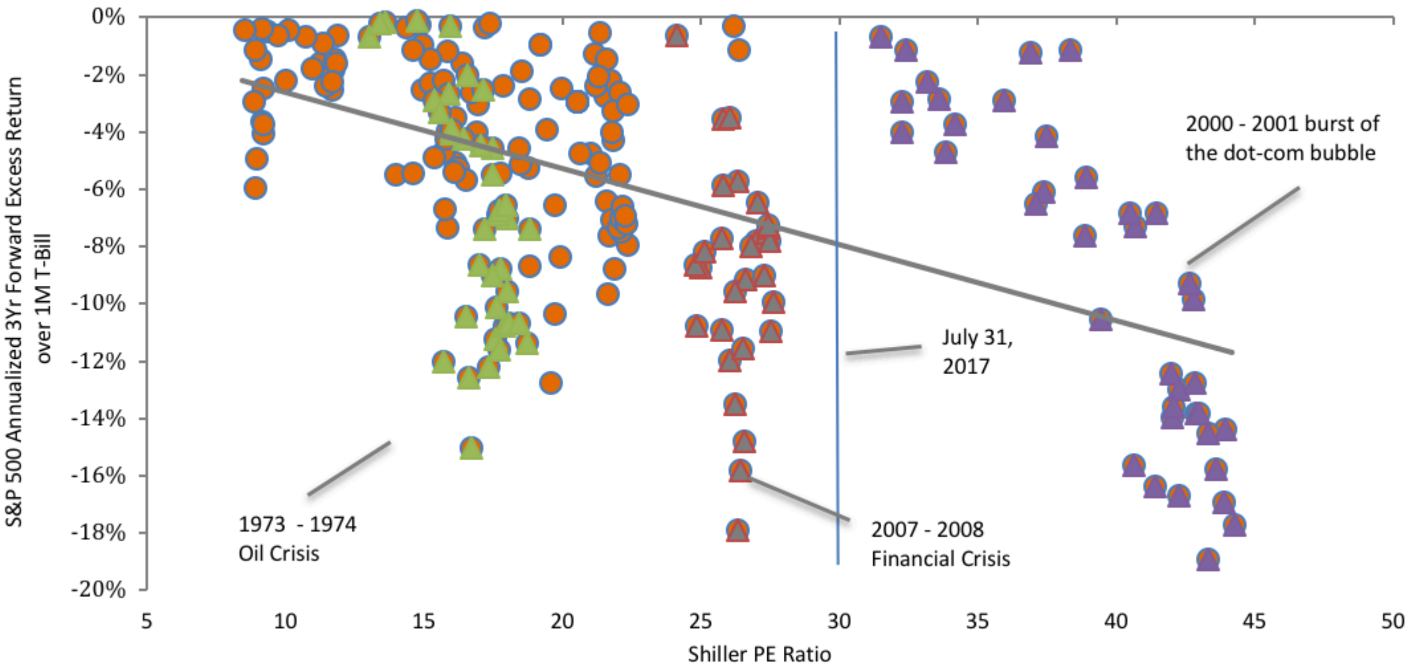

Exhibit 15: Shiller PE Ratio vs Historical 3Yr Drawdowns of S&P 500
(Source: Bloomberg)

Our research shows that high valuations have no predictive ability as to the timing of market drawdowns. However, it can indicate the severity of the potential loss if the market cycle turns. In Exhibit 15, we plot all the observations where the 3-year forward return on the S&P 500 is lower than the 1-month T-Bill since 1934 and the starting level of the Shiller PE ratio when the downturn begins.

Exhibit 15 indicates that the maximum peak-to-trough loss of each bear market cycle is closely related to the level of market valuation. Anecdotally, when valuation surpasses today's levels, the market has tended to experience large losses during the next downturn. We expect that high volatility in core financial assets will persist for the foreseeable future. As a result, we recommend investors seek low cost hedges in their portfolios to protect against large losses. Valuations may remain elevated for an extended period, but as we learned in February 2018, volatility could resurface and a significant correction could occur at any moment.

Conclusion

We expect the U.S. economy to continue to exhibit classic late cycle characteristics in 2018, with deteriorating liquidity, rising inflation and increasing dispersion in credit markets. Our models continue to implement the asset allocation adjustments recommended above, and we think all investors should consider similar changes in advance of the Endgame. Global markets will likely benefit more from the asynchronous global business cycle. Investors should consider rotating out of U.S. large cap into international equities; out of USD high yield bonds into EM local debt; selectively introduce commodities; and remain highly sensitive to bursting market bubbles and be dynamic in the face of them. Investors may also wish to selectively introduce low cost tail hedges into the portfolio.

General Disclaimers

Investments involve risk and include the potential for loss. Past results are not necessarily indicative of future results. Any indices referenced herein are generally not investable indices and are used for informational purposes only. References to indices herein are for informational and general comparative purposes only. There will be significant differences between such indices and the investment strategies discussed herein. For example, the investment strategies discussed herein do not contemplate investments in all (or any material portion) of the securities, industries or strategies represented by such indices. References to indices are not intended to suggest or otherwise imply that the investment strategies discussed herein will, or are likely to, achieve returns, volatility or other results similar to such indices. Indices do not reflect the result of management fees, performance-based allocations and other fees and expenses.

The content contained herein includes forward-looking statements, based on upon the current beliefs of PhaseCapital that are subject to risks and uncertainties. If underlying assumptions prove inaccurate or risks or other uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements.

Authors' Bios

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Michael Ning. Michael Ning joined PhaseCapital in November 2016 as the Chief Investment Officer. Previously, he was Senior Vice President and portfolio manager of First Eagle's Multi-Asset Absolute Return and Tail Hedge strategies. Prior to joining First Eagle in April 2013, Mr. Ning was Senior Vice President, Head of Credit Research, and portfolio manager for the Absolute Return Group at AllianceBernstein, managing70$bln Global Credit products, the Enhanced Alpha Global Macro Fund, Tail Hedge and Unconstrained Bond strategies. Before joining AllianceBernstein in 2004, Mr. Ning was a Senior Research Analyst at Citigroup. He has expertise in the research, development and management of trading strategies across global macro, equity, credit, rates and currencies. Mr. Ning received his PhD from Oxford University. He holds the Chartered Financial Analyst (CFA) designation.

Michael DePalma
PhaseCapital

Michael DePalma joined PhaseCapital in June 2016 as Chief Executive Officer. He previously worked at AB (formerly AllianceBernstein) where most recently Mr. DePalma was Senior Vice President and Chief Investment Officer for Quantitative Investment Strategies, AB's systematic multi-asset and alternatives business, as well as Director of Fixed Income Absolute Return. Prior to that, Mr. DePalma was Director of Fixed Income and FX quantitative research globally and portfolio manager for AB's quant-driven multi-strategy hedge fund. Early in his career, Mr. DePalma was part of the team that developed AB's Capital Markets Engine and Wealth Forecasting System, the technology at the core of all the asset allocation services delivered to clients. Mr. DePalma graduated with a B.S. from Northeastern University and a M.S. from New York University's Courant Institute of Mathematical Sciences.