A Forward Looking Discussion of Inflation and GDP on Key Portfolio Risk Factors and Strategy

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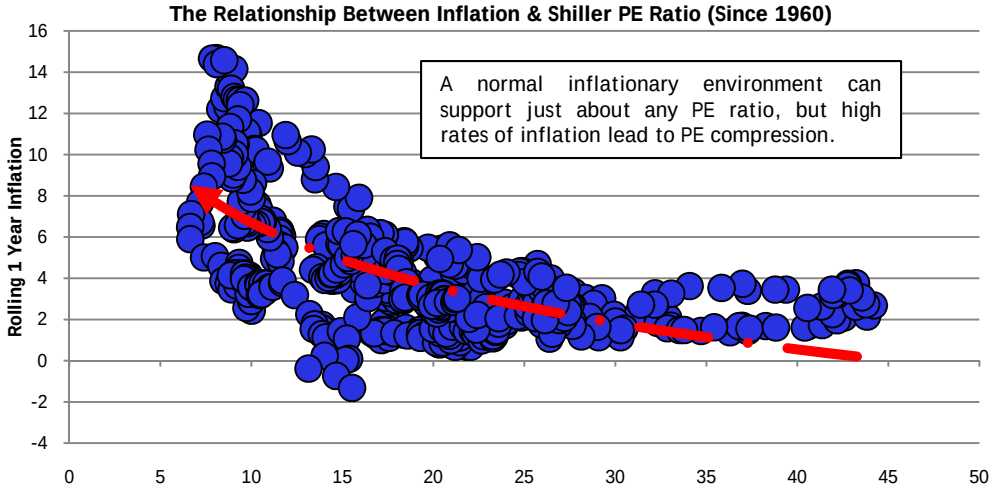
Overview

Why Analyze the Effects of GDP & Inflation?

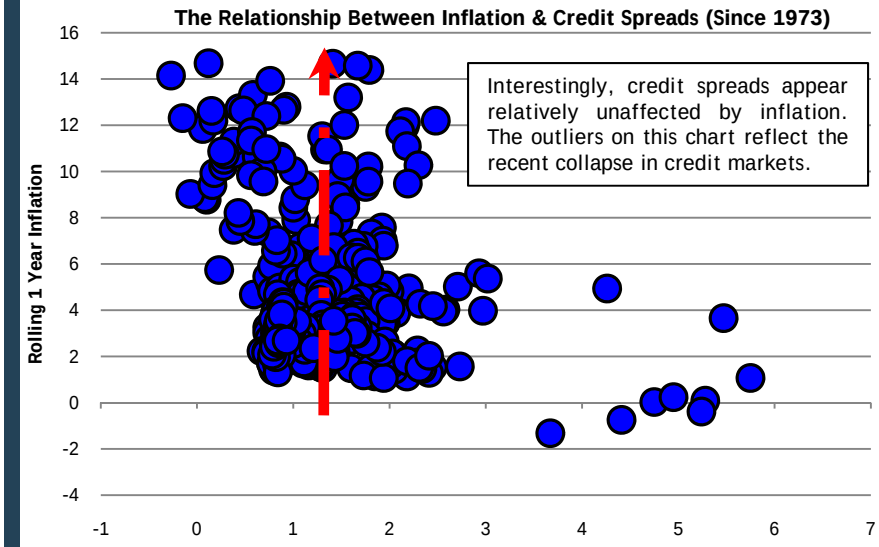
- Recent economic and political events have brought prospective inflation and GDP growth to the forefront of concerns amongst institutional investors.
- Such concerns are:
  - How will various rates of inflation affect asset classes and the total portfolio?
  - What will happen to portfolios if GDP growth is too low, too high, or zero?
  - How do these two factors combine to affect key portfolio risk factors such as PE ratios, interest rates, or credit spreads?
  - How will these risk factors affect portfolio returns?
  - What is the best course of action for portfolio design given various economic and capital markets scenarios?
- With these common questions in mind, the goal of this topical research is to discuss how key portfolio risk factors could be affected during various economic scenarios.
- We will also examine how various economic environments will affect prospective returns for equities and fixed income, as well as the composition of factors driving those returns over time.
- The goal of this research is to provide a better understanding of not only how certain economic scenarios may affect returns, but also where our forecasting efforts will be most useful.
- After reading this research, we believe the answers to these questions will be found. However we expect other questions to arise as a result.
- Most notably, investors are likely to question the likelihood of experiencing various economic scenarios such as stagflation or a high inflation economy.
- *We would ask you to wait for our September 2009 Quarterly Research Report, during which we will continue our in-depth analysis of macroeconomics and offer our opinions on the future of the US economy and capital markets conditions.*

Effects of Inflation on Key Portfolio Risk Factors

- When analyzing the potential effects of inflation on portfolio behavior, we must individually isolate and analyze key portfolio risk factors.
- These include PE ratios that drive equity risk, and risk free interest rates and credit spreads that drive fixed income.
- Moreover, these risk factors play a material role in many alternative investment strategies, mostly notably hedge funds which are generally perceived as functioning independent of major market forces. *(See appendix)*
- Analysis reveals some very simple conclusions. PE ratios are pushed lower by very high levels of inflation, risk free interest rates are pushed higher, and credit spreads are relatively unaffected.



Source: Yale/Shiller, Ibbotson, Wurts & Associates



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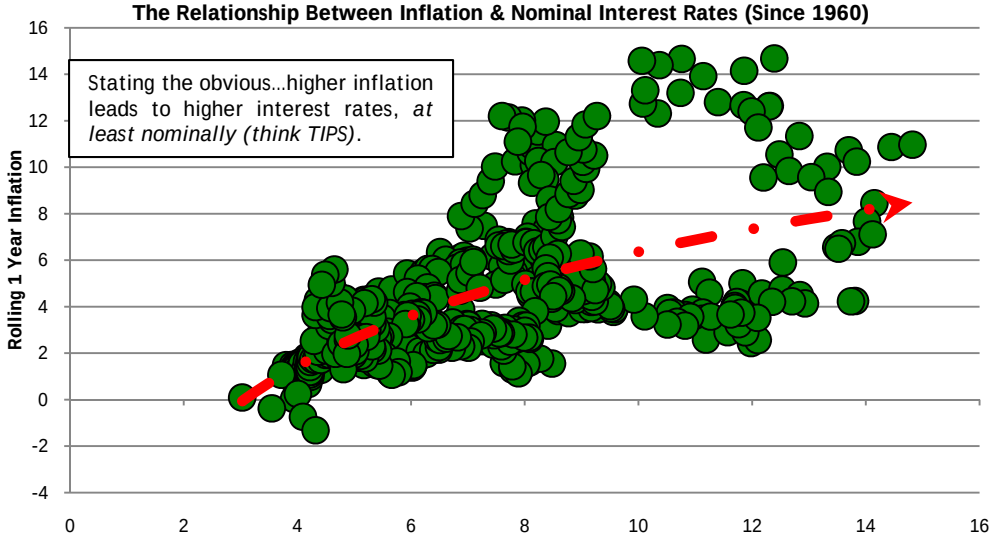
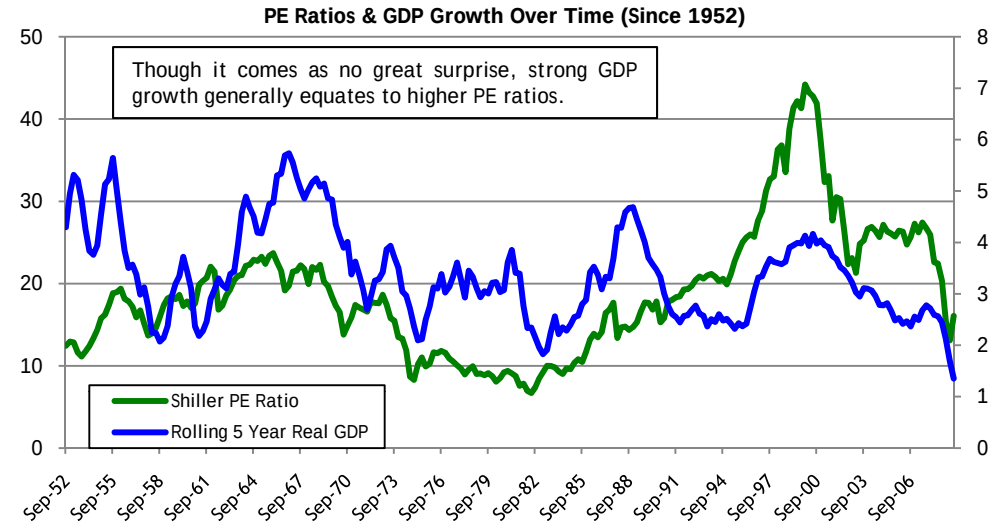


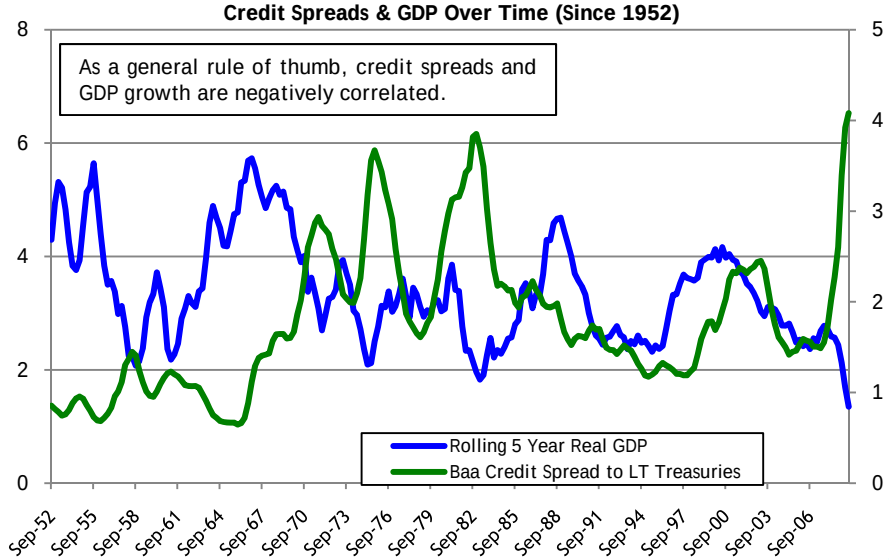
Source: Ibbotson, Wurts & Associates

Effects of *Real* GDP Growth on Key Risk Factors

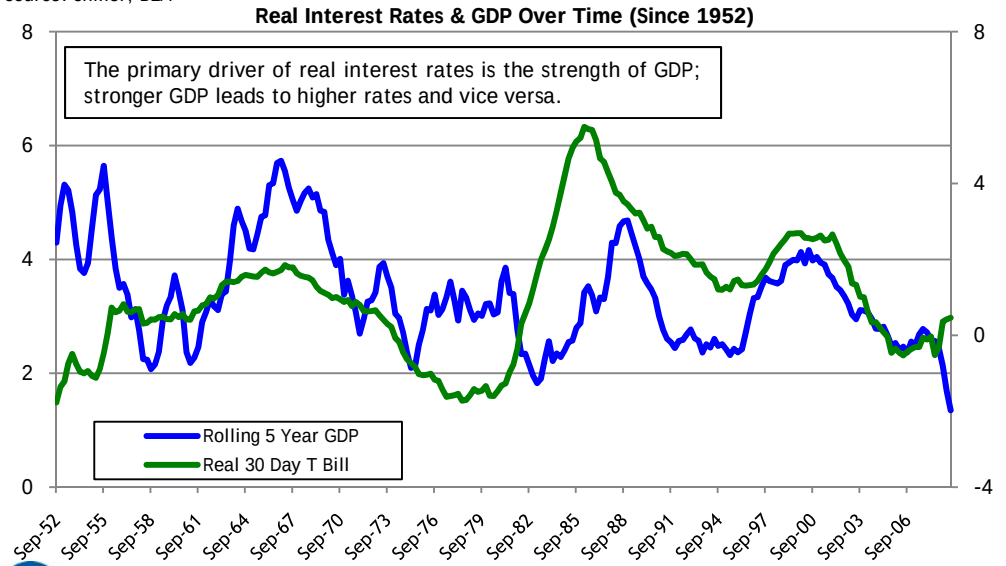
- As was the case on the previous page, it is important to dimension how macroeconomic variables affect portfolio risk factors.
- This page is dedicated to an analysis of GDP growth. Because GDP growth is intertwined with inflationary considerations, key risk factors are analyzed relative to real, as opposed to nominal growth.
- The conclusions are relatively straightforward and in line with economic theory.
- Strong GDP growth supports higher PE ratios as well as risk free interest rates. Also, credit spreads are inversely related to GDP growth.



Source: Shiller, BEA



Source: Moody's, BEA



Source: Ibbotson, BEA

Basic Assumptions for Scenario Analyses

The following are our basic scenarios to dimension the potential effects of varying rates of inflation and GDP growth on key portfolio risk factors and performance over the next five years.

Though there are literally an infinite number of possible scenarios, we believe these three basic scenarios serve to adequately demonstrate how broad asset classes may behave over the next five years.

Normal Environment

- A normal environment is characterized by historic average inflation of 2.5% and real GDP growth of 3%.
- Such an environment would be positive for PE ratios and credit spreads. Risk free rates should rise due to economic strength and increased inflation relative to recent periods.

Stagflation

- Stagflation is an economic environment when real GDP growth is essentially 0%, and inflation is generally higher than normal. For the purposes of this scenario we assume inflation of 3.5%.
- PE ratios and credit spreads should suffer due to economic weakness. Higher inflation will put upward pressure on risk free rates, but be offset somewhat by economic weakness.

High Inflation

- A high inflationary environment does not necessarily preclude real economic growth, at least not assuming a shift into hyper-inflationary conditions. Nonetheless, high inflation is generally bad for the economy. So we believe it reasonable to discount real GDP growth to 2% in the face of 5% inflation.
- PE ratios and credit spreads should improve, but reflect sub-optimal GDP growth. Risk free rates should rise noticeably due to higher inflation, with a minimal offset due to sub-optimal GDP growth.

Tables summarizing these scenarios and their associated economic and capital markets assumptions are on the following page.

Summary of Key Assumptions

Summary of GDP & Inflation Assumptions

	Real GDP/Earnings Growth	Inflation
Normal Environment	3.0	2.5
Stagflation	0.0	3.5
High Inflation	2.0	5.0

Summary of Key Risk Factors Asssumptions

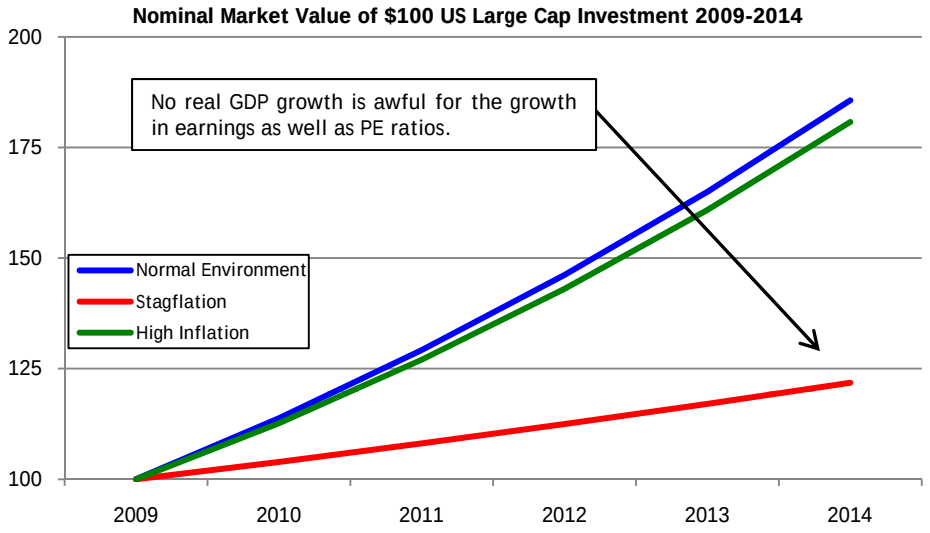
	Starting Levels - 2nd QTR '09			Year 5 Levels		
	Shiller PE	Barclays Treasury Index	Barclays Invest. Grade Credit Spread	Shiller PE	Barclays Treasury Index	Barclays Invest. Grade Credit Spread
Normal Environment	16	2.5	3.0	20	4.0	0.5
Stagflation	16	2.5	3.0	14	3.0	2.0
High Inflation	16	2.5	3.0	18	6.0	1.0

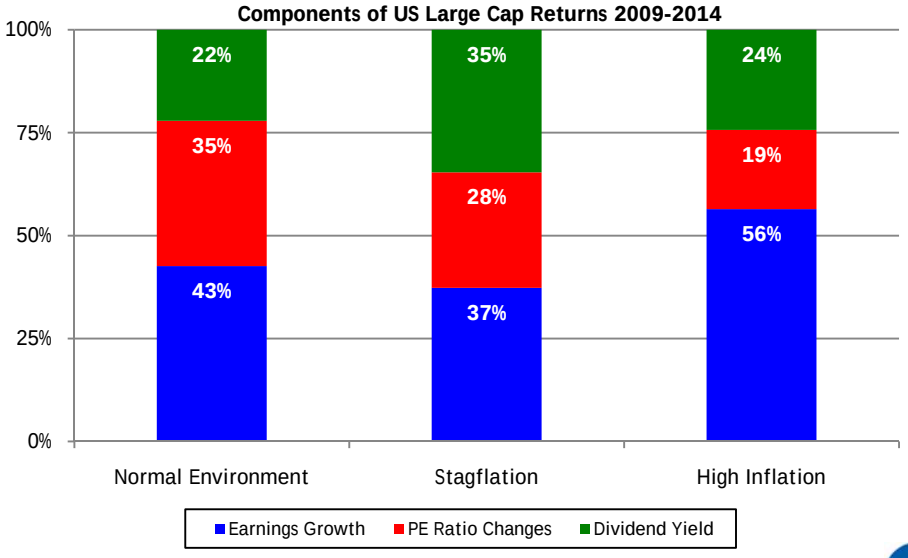
Notes

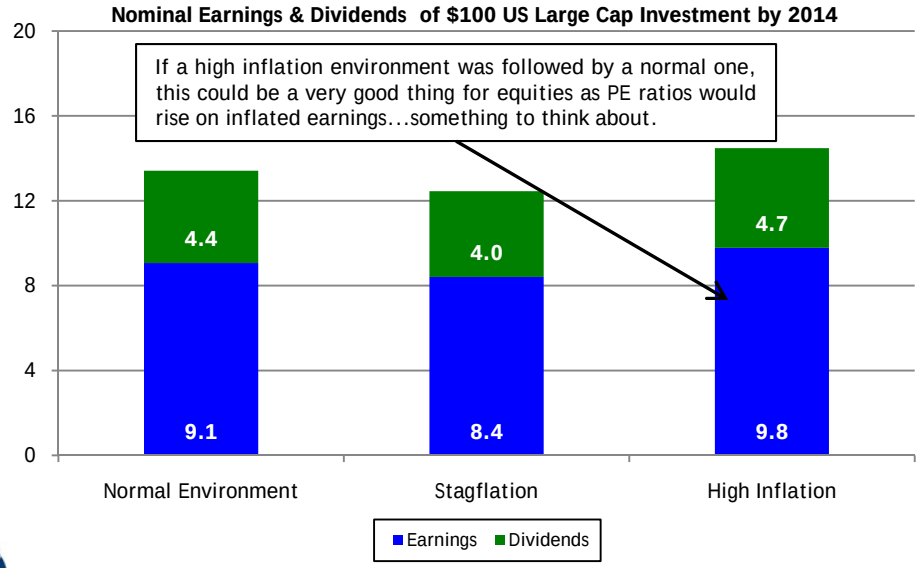
Normal Environment	PE's reflect normal/strong economy; risk free rates rise due to inflation and stronger economy; credit spreads reflect strong economy
Stagflation	PE's reflect weak economy; risk free rates rise due to inflation, but offset by economic weakness; credit spreads improve but still reflect economic weakness
High Inflation	PE's reflect sub-optimal GDP growth; risk free rates rise due to high inflation, but offset by slower GDP growth; credit spreads improve but still reflect sub-optimal GDP growth

Scenario Analysis for Equity Mandates

- Without a doubt, stagflation is the worst of the three possible scenarios due to the dual effect of no real earnings growth and the low PE ratios that result from economic weakness. On the other hand, the difference between a normal and high inflation environment is not all that bad.
- Although a high inflation/lower GDP growth environment will likely put downward pressure on PE ratios, nominal earnings growth should help compensate for these factors, assuming corporations can pass through higher costs to consumers.
- What is most interesting to note is the composition of equity returns during various scenarios. In the high inflation environment earnings dominate returns, in stagflation PE's and dividends dominate, and in a normal environment the factors contributing to returns are the most diverse.

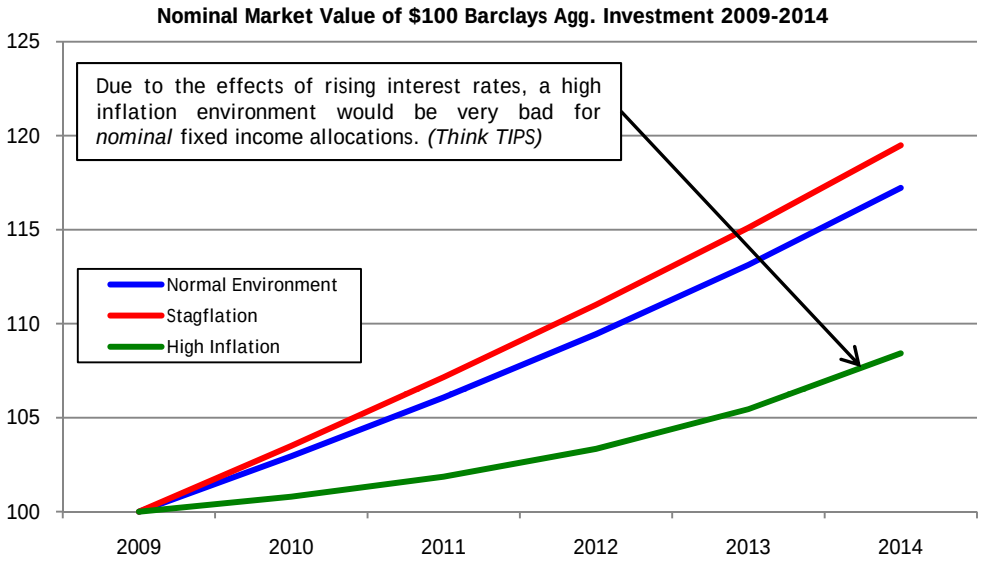


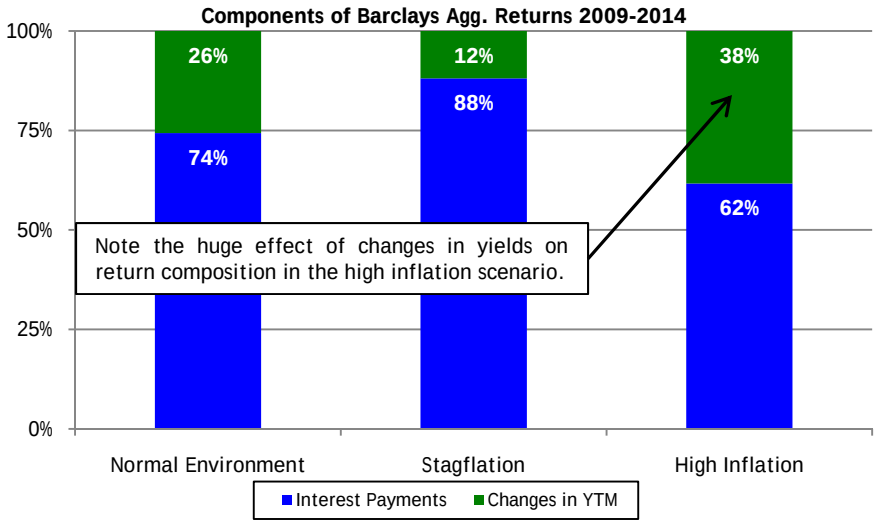


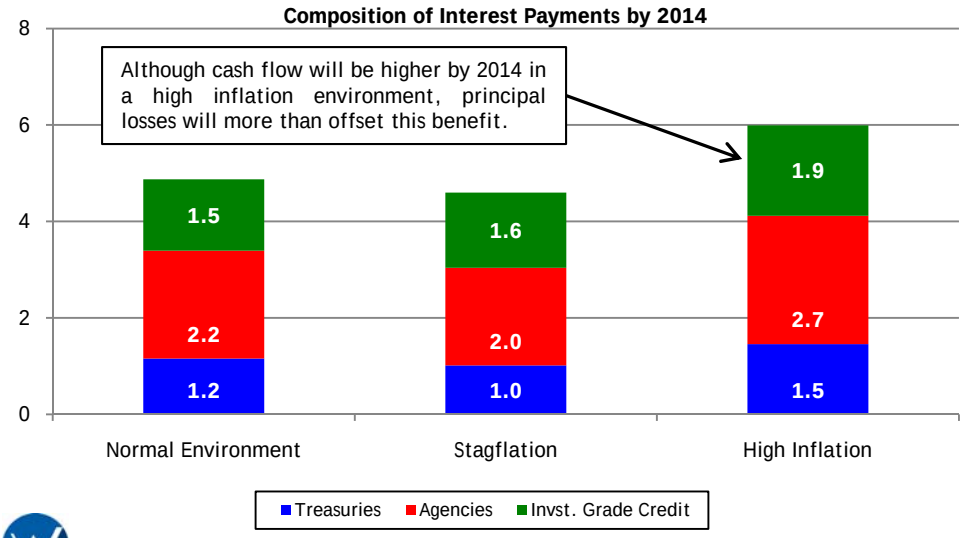


Scenario Analysis for Nominal Fixed Income Mandates

- As one would expect, nominal fixed income investments behave quite differently than equities during various economic scenarios. What is important to keep in mind is the results of such an analysis depend heavily on the starting point, which currently happens to be a recession alongside one of the worst credit environments in history.
- It is current circumstances that makes a high inflation environment the most threatening to nominal fixed income investors because not only will risk free rates rise, but credit spreads will not narrow enough to offset this increase due to weaker economic growth.
- Unlike equities, stagflation is a very good scenario because risk free rates will experience downward pressure as the economy remains weak on a real basis.

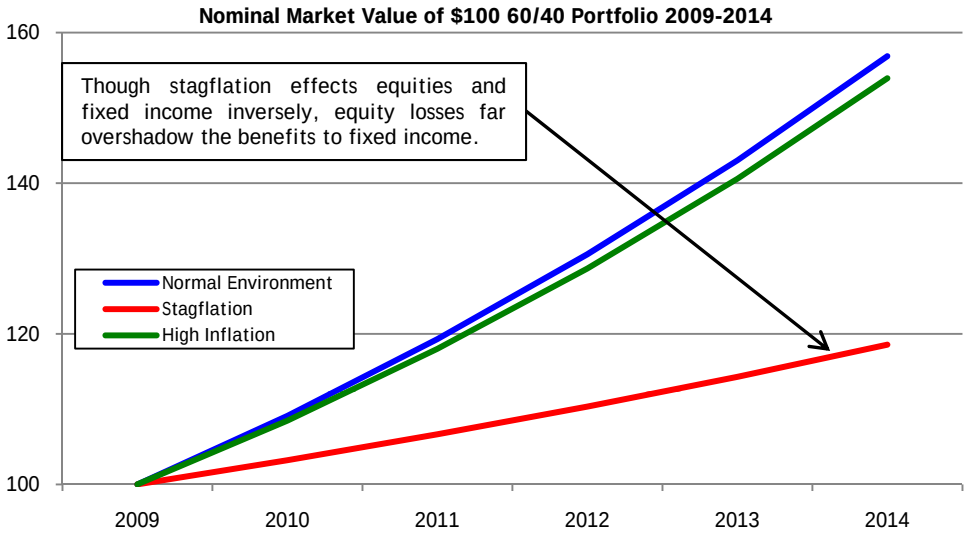


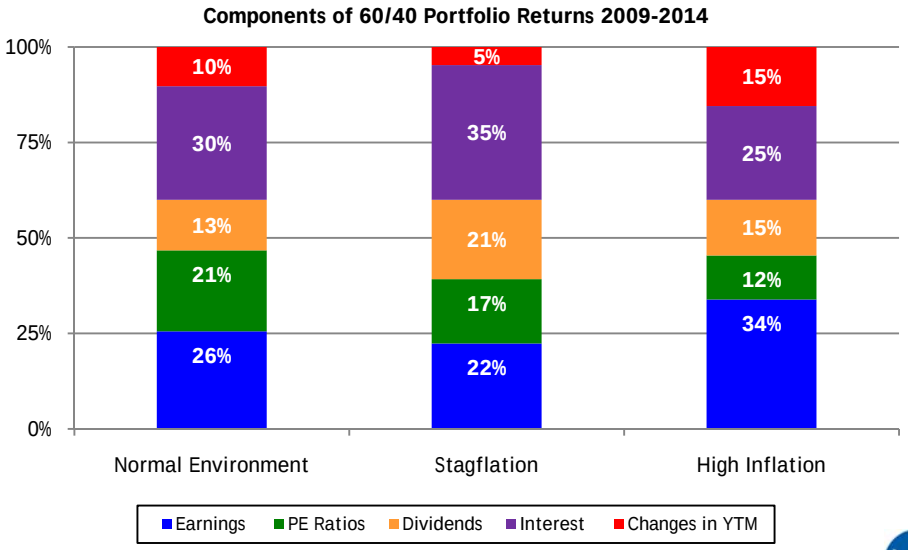


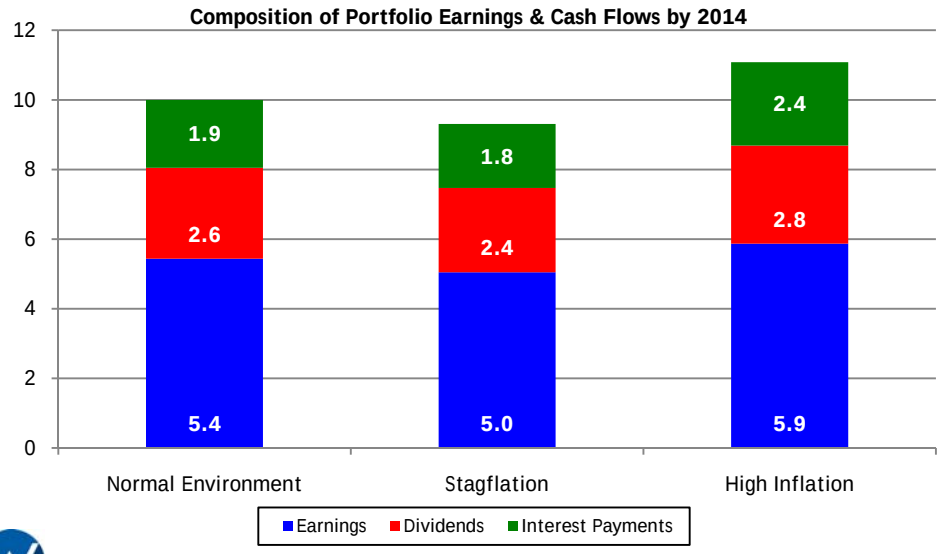


Scenario Analysis for a 60/40 Portfolio

- What is really fascinating about this sort of analysis is how things roll up to total portfolio behavior.
- For example, we saw stagflation was terrible for equities and great for fixed income, but for a 60/40 portfolio the overall effects is quite bad due to equity dominance.
- Also, it is interesting to see the changing contributions of key risk factors in various economic scenarios. In the high inflation environment, earnings, interest, and changes in yields dominate returns. During stagflation, interest and dividends dominate, and during a normal environment, risk factors are generally more diverse.
- Furthermore it is worth noting the relatively consistent contribution of key valuation ratios over time, with anywhere from 20%-30% of total returns being driven by such factors.







Strategic Implications on Portfolio Design

Stagflation

- Undeniably, in a stagflation environment fixed income is poised to provide far better risk adjusted returns than equities. If you are a strong believer in stagflation, then fixed income is the answer.
- Strategically within fixed income, credit based fixed income should be the most attractive given we are coming off one of the worst credit environments in history. This is because inflation tends to have little effect on credit spreads and given their current starting point, a little narrowing seems a reasonable assumption even in the face of weak economic growth.

High Inflation/Slower GDP

- In such an environment equities seems poised to provide the best risk adjusted returns, as nominal fixed income is very likely to come under severe pricing pressure due to rising yields. Even though PE ratios will suffer some due to weaker real economic growth, they should remain relatively stable unless a hyper-inflationary environment occurs.
- Moreover, should a high inflation environment be followed by a normal economic environment, this could be very good for equities due to higher potential PE ratios on top of inflated earnings.

Normal Environment/Overall Conclusions

- If you expect a normal environment, then do what you would normally do, which is to focus on valuation based analysis of risk and return expectations for various asset classes in relation to your unique portfolio goals.
- However, this is not to imply valuations only matter during normal times, as this analysis demonstrates valuations are a significant component of returns regardless of the economic environment.
- Furthermore, this analysis serves to show the potential impact of large changes in real GDP on asset class returns, not only through its contribution to earnings growth, but vis-à-vis the psychological effects on PE ratios and interest rates.
- This is an extremely valuable conclusion to draw in that GDP forecasts are most useful when determining broad swings in economic activity, as opposed to fine tuning economic forecasts in the hopes of adding value.
- The fact of the matter is subtle variations in GDP growth have very little to do with the returns over such a short time frame for diversified portfolios, and that broadly determining the course of economic activity is the far more valuable activity.

Please see next page.

How to Apply This Research to Your Portfolio

Wurts & Associates Clientele

As a complement to our existing mean variance optimization capabilities, Wurts & Associates has recently developed proprietary asset allocation software to dimension the effects of multitudes of capital markets and economic scenarios on asset class and total portfolio returns, as well as key drivers of return, risk, and cash flows.

This new tool was born out of our desire to provide our clientele with the most advanced, but easily understood tools to dimension potential returns and risk in any asset allocation or potential capital markets environment.

The charts shown within this presentation illustrate a small portion of our software and can be easily adapted to your specific portfolio. Our consulting staff is more than happy to utilize this new resource for our full retainer consulting clientele.

We firmly believe better understanding leads to better portfolio decisions.

Prospective Clientele

If you are among the many institutional investors that receive our research, and see the value in our unique approach to analysis of capital markets and portfolio design, we welcome your inquiry or request for proposal (RFP).

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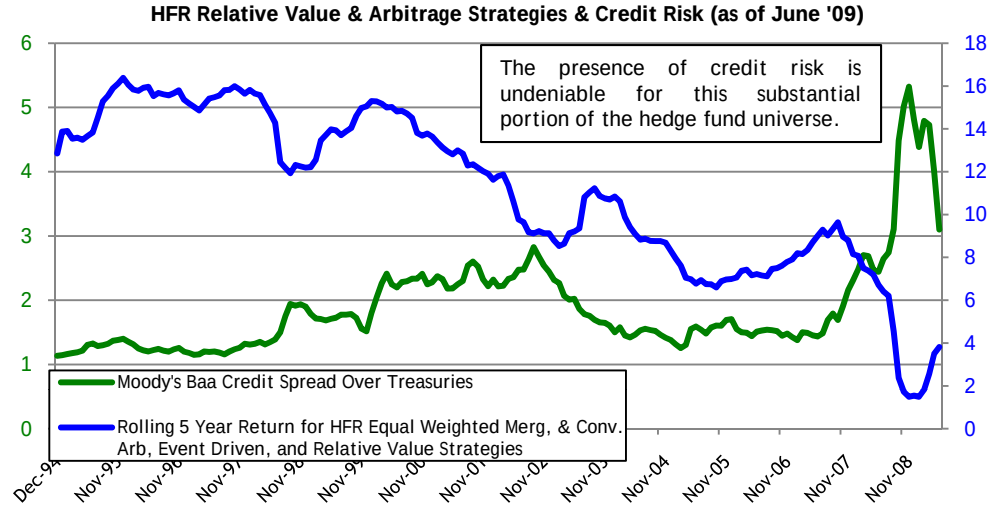
Appendix

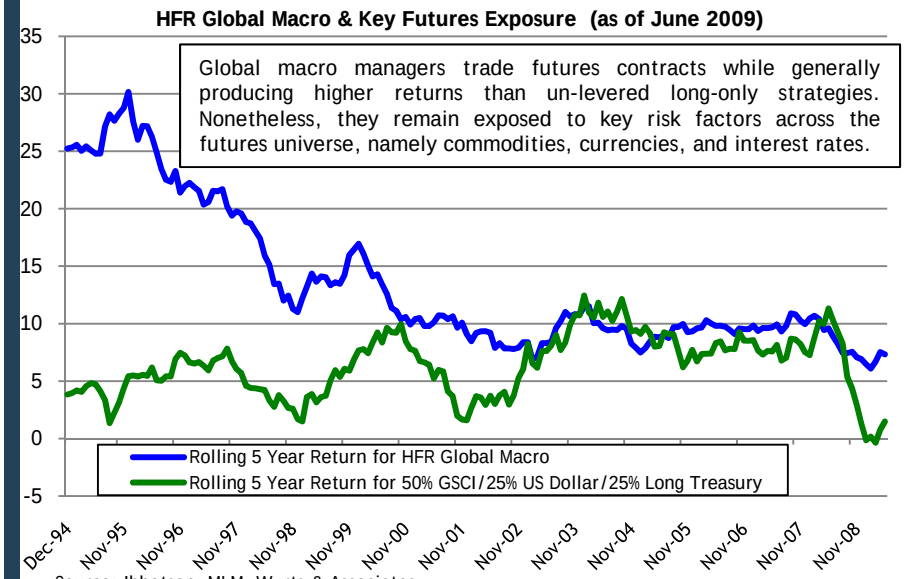
Some Interesting Thoughts on Hedge Funds

Translating Key Risk Factors to Hedge Fund Allocations

- Contrary to popular perceptions, hedge funds do indeed have exposure to key portfolio risk factors. Suggestions to the contrary are based primarily on statistical analysis of correlations to key market benchmarks that are not representative of underlying hedge fund strategies.
- Most notable is the fact most hedge funds use leverage in some form or another, or remain partially exposed to market forces as is the case with equity neutral or long/short equity strategies.
- Regardless of the specifics of the hedge fund strategy, investors must at the very least be aware of their exposures to key portfolio risk factors through hedge funds for total portfolio risk modeling purposes.



Source: HFR, Ibbotson, Wurts & Associates



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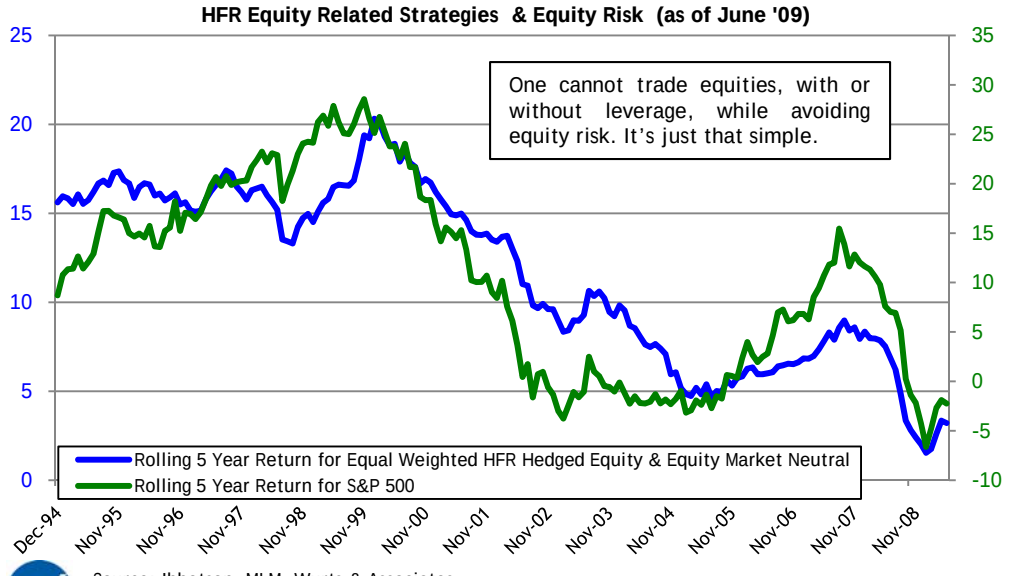

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