Portfolio Stress Test

**Prepared For Macro E. Risk**

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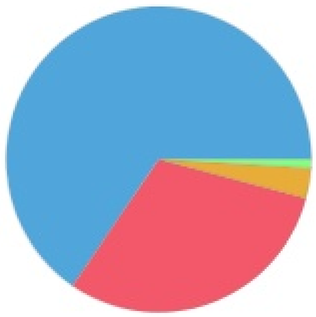
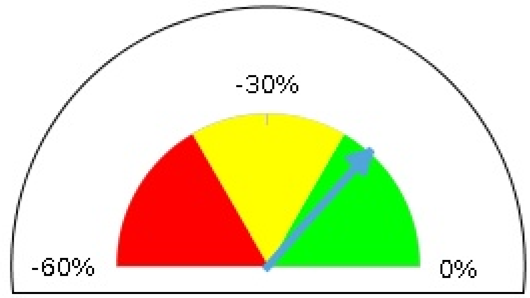
HiddenLevers | 72 Allen St 3rd Floor New York, NY 10002 | 800-277-4830

## Portfolio Holdings




## Potential Downside Risk




**The dial indicates potential downside risk across scenarios shown in this report.**

## Upside Scenarios

| Scenario: | Portfolio Return: |
|---|---|
| **Election 2016: Clinton / Gridlock**<br>What is the impact of a narrow Clinton win, where gridlock persists as Democrats control the Presidency but not Congress? | **1.8%** |

## Downside Scenarios

| Scenario: | Portfolio Return: |
|---|---|
| **S&P Valuation: 17 PE - Long Term Average**<br>What if the S&P 500 suffers a correction in valuation down to long term average levels (down to 17 CAPE)? | **-16.2%** |
| **S&P Valuation: 21 PE - Typical Recession**<br>What if the S&P 500 experiences a typical correction, bringing the CAPE multiple down by 20%, the average of the 1990 and 2003 recessions? | **-7.9%** |
| **Election 2016: Trump Victory**<br>What if Donald Trump wins the election, and the GOP takes control of all branches of the federal government? | **-4.1%** |
| **Election 2016: Clinton Landslide**<br>What if Hillary Clinton wins in a landslide, and Democrats take over Congress as well? | **-4.0%** |

# S&P Valuation: 17 PE - Long Term Average

**Description:**
What if the S&P 500 suffers a correction in valuation down to long term average levels (down to 17 CAPE)?

**Outcome:**
- The long term average CAPE multiple for the S&P 500 is around 17, compared to 27 at the mid-2016 highs.
- A decline of around 33% from those highs would be required to normalize the S&P 500 CAPE multiple
- This assumes only a modest rise in earnings, as the scenario would likely be accompanied by a broader economic slowdown

**Timeframe:**
1 Year

**Scenario Progress:**
11% Complete

| Macro Impact | Current | Projected | Change |
|---|---|---|---|
| 10Y UST Yield | 1.79% | 1.36% | -0.43% |
| CPI | 1.48% | 0.63% | -0.85% |
| EUR | $1.11 | $1 | -10.39% |
| Gold | $1303 /oz | $1268.9 | -2.62% |
| Oil | $44.15 /barrel | $32.8 | -25.7% |
| Retail Sales | 2.67% | 0.46% | -2.21% |
| S&P 500 | 2085.18 | 1,419.37 | -31.93% |
| Unemployment | 4.9% | 6.32% | +1.42% |
| US GDP Growth | 1.5% | -1.61% | -3.11% |
| US Home Prices | 188.23 (2000 = 100) | 163.01 | -13.4% |
| USD | 96.94 (Index Value) | 101.21 | +4.4% |

## Portfolio Impact

margin of error +/-2.05%. Total may include advisory fees

**Portfolio Totals:** **Current Value:** 100.00 **Value in Scenario:** 83.83 **Pct Change:** -16.2%

# S&P Valuation: 21 PE - Typical Recession

**Description:**
What if the S&P 500 experiences a typical correction, bringing the CAPE multiple down by 20%, the average of the 1990 and 2003 recessions?

**Outcome:**
- The S&P CAPE multiple dropped by 17% during the 1990 recession, and by 23% in 2003
- Today this kind of drop would lead to a CAPE around 21, and a market decline of around 20%

**Timeframe:**
1 Year

**Scenario Progress:**
19% Complete

## Macro Impact

| Macro Impact | Current | Projected | Change |
|---|---|---|---|
| 10Y UST Yield | 1.79% | 1.67% | -0.12% |
| CPI | 1.48% | 1.46% | -0.02% |
| EUR | $1.11 | $1.05 | -5.13% |
| Gold | $1303 /oz | $1311.8 | +0.67% |
| Oil | $44.15 /barrel | $37.99 | -13.94% |
| Retail Sales | 2.67% | 2.49% | -0.18% |
| S&P 500 | 2085.18 | 1,716.7 | -17.67% |
| Unemployment | 4.9% | 5.4% | +0.5% |
| US GDP Growth | 1.5% | 1.16% | -0.34% |
| US Home Prices | 188.23 (2000 = 100) | 176.75 | -6.1% |
| USD | 96.94 (Index Value) | 98.25 | +1.34% |

## Portfolio Impact

margin of error +/-2.27%. Total may include advisory fees

**Portfolio Totals:** **Current Value:** **100.00** **Value in Scenario:** **92.11** **Pct Change:** **-7.9%**



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## Election 2016: Trump Victory

**Description:**
What if Donald Trump wins the election, and the GOP takes control of all branches of the federal government?

**Outcome:**
- Downside market risk may be similar to Dewey-Truman 1948, when markets slid around 10%
- Protectionism and potential immigration shutdown could damage both domestic economy and multinational firms
- Healthcare sector may suffer uncertainty due to ACA repeal

**Timeframe:**
3 Months

**Scenario Progress:**
0% Complete

| Macro Impact | Current | Projected | Change |
|---|---|---|---|
| 10Y UST Yield | 1.79% | 1.6% | -0.19% |
| CPI | 1.48% | 1.49% | +0.01% |
| EUR | $1.11 | $1.15 | +3.42% |
| Gold | $1303 /oz | $1330.6 | +2.12% |
| Oil | $44.15 /barrel | $43.25 | -2.04% |
| Retail Sales | 2.67% | 2.38% | -0.29% |
| S&P 500 | 2085.18 | 1,914.2 | -8.2% |
| Unemployment | 4.9% | 5.11% | +0.21% |
| US GDP Growth | 1.5% | 1.08% | -0.42% |
| US Home Prices | 188.23 (2000 = 100) | 187.03 | -0.64% |
| USD | 96.94 (Index Value) | 91.98 | -5.12% |

## Portfolio Impact

margin of error +/-1.57%. Total may include advisory fees

**Portfolio Totals:** **Current Value: 100.00** **Value in Scenario: 95.90** **Pct Change: -4.1%**

# Election 2016: Clinton Landslide

**Description:**
What if Hillary Clinton wins in a landslide, and Democrats take over Congress as well?

**Outcome:**
- Clinton likely needs to win by a 10% margin if Democrats are to take the House as well.
- Further regulation of health care would become likely, with the public option and pharma price controls possible/
- Tax increases represent a risk for both high income earners and businesses

**Timeframe:**
3 Months

**Scenario Progress:**
0% Complete

## Macro Impact

| Macro Impact | Current | Projected | Change |
|---|---|---|---|
| 10Y UST Yield | 1.79% | 1.48% | -0.31% |
| CPI | 1.48% | 0.66% | -0.82% |
| EUR | $1.11 | $1.09 | -2.16% |
| Gold | $1303 /oz | $1322.2 | +1.47% |
| Oil | $44.15 /barrel | $40.98 | -7.18% |
| Retail Sales | 2.67% | 2.2% | -0.47% |
| S&P 500 | 2085.18 | 1,914.2 | -8.2% |
| Unemployment | 4.9% | 5% | +0.1% |
| US GDP Growth | 1.5% | 1.5% | +0% |
| US Home Prices | 188.23 (2000 = 100) | 188.23 | +0% |
| USD | 96.94 (Index Value) | 96.95 | +0% |

## Portfolio Impact

margin of error +/-1.64%. Total may include advisory fees

**Portfolio Totals:** **Current Value: 100.00** **Value in Scenario: 96.01** **Pct Change: -4.0%**

# Election 2016: Clinton / Gridlock

**Description:**
What is the impact of a narrow Clinton win, where gridlock persists as Democrats control the Presidency but not Congress?

**Outcome:**
- Prediction markets and forecasting models currently rank this the most likely outcome, so markets expect it.
- Since markets have trended down recently as Trump's chances have improved, US equities may see a small bounce if this outcome occurs.
- Any impact is likely to be short-lived as more powerful macro influences (like upcoming rate hikes) take precedence.

**Timeframe:**
3 Months

**Scenario Progress:**
0% Complete

## Macro Impact

| Macro Impact | Current | Projected | Change |
|---|---|---|---|
| 10Y UST Yield | 1.79% | 1.89% | +0.1% |
| CPI | 1.48% | 1.48% | +0% |
| EUR | $1.11 | $1.12 | +1.17% |
| Gold | $1303 /oz | $1335.88 | +2.52% |
| Oil | $44.15 /barrel | $46.13 | +4.48% |
| Retail Sales | 2.67% | 2.67% | +0% |
| S&P 500 | 2085.18 | 2,128.97 | +2.1% |
| Unemployment | 4.9% | 4.9% | +0% |
| US GDP Growth | 1.5% | 1.81% | +0.31% |
| US Home Prices | 188.23 (2000 = 100) | 188.23 | +0% |
| USD | 96.94 (Index Value) | 97.82 | +0.91% |

## Portfolio Impact

margin of error +/-1.13%. Total may include advisory fees

**Portfolio Totals:** **Current Value: 100.00** **Value in Scenario: 101.77** **Pct Change: 1.8%**

| | |
|---|---|
| **Fixed Income - Bonds** | **0.7%** |
| **Equities - Stocks** | **2.4%** |
| **Cash - Money Market** | **0.0%** |
| **Alternative - Alt** | **1.6%** |

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## Methodology Used to Generate this Report:

### Definitions:

**Lever** - HiddenLevers tracks different levers (economic indicators) like CPI, US GDP Growth, and oil prices, and uses movements in these levers to define economic scenarios.

**Macro Impact** - The macro impact section for each scenario shows the assumptions on how the economic levers will change if this scenario occurs. These lever movements drive the model of portfolio performance in the scenario.

**Scenario** - A scenario is a representation of a major macro-economic or geopolitical event which has the potential to impact investment returns. HiddenLevers models scenarios as a set of up-or-down movements in any of the economic indicators (levers) in the system.

**Scenario Progress -** Each scenario's progress is measured by the change in a key lever defined for the scenario. For example, an oil spike scenario might project that oil prices rise to $150/barrel. If oil prices rise toward that level, the scenario's progress will rise toward 100% (reached if prices hit $150/barrel). As scenario progress rises, the incremental impact of the scenario diminishes.

**Timeframe** - Each scenario is assumed to play out over the timeframe displayed. The portfolio return projections are the total return modeled over that timeframe, including dividends and interest.

### Method:

This report describes one or more potential scenarios, and shows the HiddenLevers-model based performance for the portfolio in each scenario. The steps below are performed to generate the projections:

**Scenario -> Levers -> Assets (Stocks etc) -> Portfolio Return**

A scenario pushes levers up or down, which in turn push assets up or down, which in turn impact a portfolio's modeled return in the scenario. As defined above, a scenario is modeled as a set of movements in the levers. Regression analysis is used to determine the historical (prior 10 year) relationship between each lever and each asset in the portfolio.

The model is then run 2500 times for each scenario/portfolio combination. In each iteration, the model projects the returns for each asset using the historical regression coefficients for each lever, and using the scenario assumptions on how each lever will change. The model varies the regression coefficients for each iteration using a normal distribution around their mean (similar to a Monte Carlo model's varying of expected returns across iterations), and aggregates the results of the 2500 iterations to find a mean portfolio return with a 95% confidence interval. The confidence interval is displayed on the report as "margin of error" for each scenario.

### Detailed Lever Definitions:

**10Y UST Yield:** The 10 year treasury yield is used as a benchmark to determine borrowing rates across the economy, including in the housing sector, as GSEs like Fannie and Freddie use the 10 year rate as a benchmark in determining wholesale mortgage rates.

**CPI:** Consumer Price Index (CPI-U) Annual Change. The US Inflation rate is measured by the Consumer Price Index, an index comprised by a basket of goods determined by the Bureau of Labor Statistics.

**EUR:** The current exchange rate of Euros to US Dollars, expressed in US Dollars.

**Gold:** The current price of gold as measured by the last daily settlement price of the COMEX front month gold contract.

**Oil:** The WTI (West Texas Intermediate) front-month oil contract is the most commonly used benchmark for the price of oil.

**Retail Sales:** Annual % change in nominal retail and food service sales, as measured by the US Census Bureau. Since consumer spending accounts for roughly two-thirds of the US economy, retail sales is considered among the most important US economic indicators.

**S&P 500:** The S&P 500® is widely regarded as the best single gauge of large-cap U.S. equities. There is over USD 7 trillion benchmarked to the index, with index assets comprising approximately USD 1.9 trillion of this total. The index includes 500 leading companies and captures approximately 80% coverage of available market capitalization.

**Unemployment:** The US Unemployment Rate (U-3), as calculated by the United States Bureau of Labor, which includes those who are unemployed and have actively looked for work within the last four weeks.

**US GDP Growth:** US GDP (Gross Domestic Product) is measured by the Bureau of Economic Analysis. Real GDP growth (annualized) is reported on each quarter by the BEA.

**US Home Prices:** The Case-Shiller index, which measures the values of homes in the twenty largest metros in the US relative to their value in 2000.

**USD:** The ICE U.S. Dollar Index (USDX) futures contract is a leading benchmark for the international value of the US dollar and the world's most widely-recognized traded currency index. In a single transaction the USDX enables market participants to monitor moves in the value of the US dollar relative to a basket of world currencies, as well as hedge their portfolios against the risk of a move in the dollar.

## Limitations and Assumptions:

This report describes one or more potential scenarios that may or may not occur. Each scenario discussed in this report is defined by the economic assumptions listed in the Macro Impact section of each scenario page.

HiddenLevers does not guarantee that any particular scenario will occur as modeled in this report. HiddenLevers uses historical analysis in the creation of this report, and past performance is not a guarantee of future results. The information contained in this report is not to be construed as advice and should not be confused as any sort of advice. Investors should consider this report as only a single factor in making their investment decision.

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