HiddenLevers Scenario Creation

As described in [HiddenLevers Model Overview](#), HiddenLevers' core model uses a multilevel approach to find meaningful relationships between macro-economic indicators (levers) and investment assets. The model currently analyzes stocks, ETFs, ADRs, mutual funds, currencies, bonds, and options. Once these relationships are determined, HiddenLevers creates forward-looking scenarios which enable the projection of portfolio returns by using the model relationships.

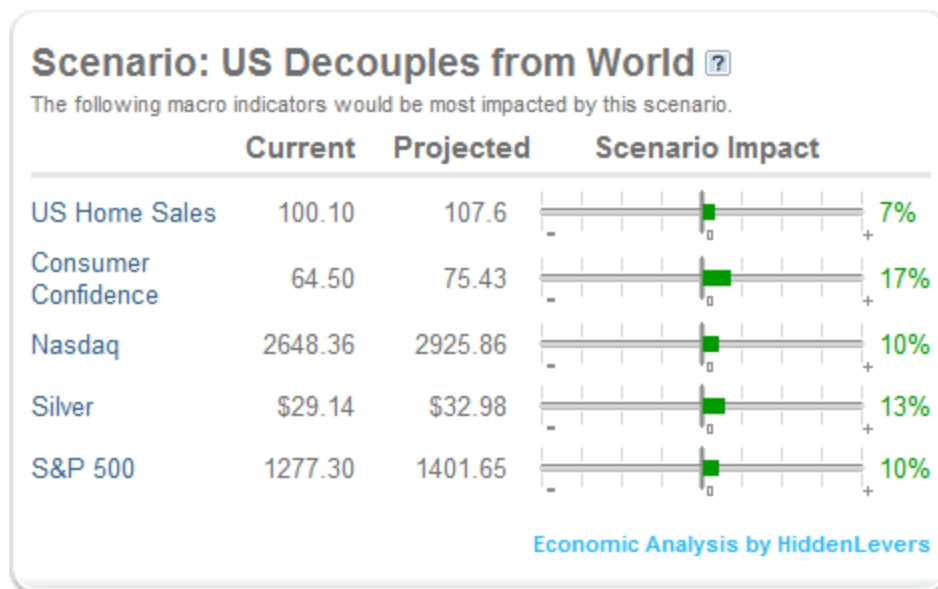**What is a HiddenLevers Scenario?**

Figure 1: A Scenario's Macro-Economic Impacts

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. For instance, a high inflation scenario might consist of upward movements in CPI, oil prices and other commodities prices, and an increase in interest rates (in addition to movements in other indicators). HiddenLevers uses multiple methodologies in creating forward-looking scenarios, which are detailed in sections 1-4 below. HiddenLevers also covers historical scenarios, which capture the historical movements of economic indicators during a specified historical economic event.

How does HiddenLevers create forward-looking scenarios?

Historical scenarios are constructed in a straightforward manner: HiddenLevers defines a historical scenario's start and end dates, and simply measures the peak-to-trough movements of each lever during that timeframe. Creating forward-looking scenarios is more complex, and involves multiple inputs. The scenario creation process is described further below.

1. Scenario Identification

HiddenLevers begins the scenario creation process by identifying candidate scenarios. Scenario ideas are generated from a variety of sources:

- Analyst/forecaster projections

- Current economic trends and news

- Scenarios are delineated which cover a range of outcomes within the following categories: Domestic, Global, Monetary, and Political. For instance, both an oil crash and oil spike scenario have been created to model major moves in oil prices, and both inflationary and deflationary scenarios have been created to cover monetary risks.

- Client suggestions

HiddenLevers currently has over 30 active forward-looking scenarios and 10 historical scenarios available. Users can always create their own scenarios in addition to those provided by HiddenLevers (or customize HL-provided scenarios), enabling users to model an endless range of macro-economic conditions.

2. Historical Analogues

Many forward-looking scenarios have similarities with past events, making historically analogous events a major source of information when creating new scenarios. In certain cases many historical reference points exist – over the last several decades there have been three major oil price spikes, for instance, providing considerable data from which to model future scenarios in which oil prices rise. In this case, the historical scenarios provide data on the magnitude and speed with which oil prices might rise, its potential impact on GDP and broader economic growth, and its impact on inflation trends.

Even for scenarios with less historical precedent, it is often possible to find scenarios which are instructive. While no Euro Zone nation has defaulted on its debt since being part of the Euro Zone, in the recent past both Russia and Argentina have experienced sovereign defaults. In both cases these nations defaulted on debt denominated in a currency outside their monetary control (USD in those cases) – just as Greece and other PIIGS nations now struggle with Euro-denominated debt.

In some instances, there is simply no good historical analogue for a scenario. Additional techniques described below help in the creation of scenarios without historical precedent.

3. Primary Lever Selection and Forecast

Most scenarios have a "primary" lever, a lever for which an initial assumption is made in the construction of the scenario. For instance, the idea that oil prices will rise is embedded in the definition of the Oil Price Spike scenario, and oil is the primary lever in this case. Similarly, the Euro is the primary lever in the various Euro Zone crisis scenarios that have been modeled, and CPI is the primary lever in both inflationary and deflationary scenarios.

While selection of the primary lever and even the direction of the forecast are often implicitly defined by the scenario, the magnitude of change in the lever is not. HiddenLevers uses both third-party analyst forecasts and technical analysis to assist in determining the primary lever change assumption for many scenarios.

3.1 Third-Party Analyst and Economist Projections

Where available, HiddenLevers reviews investment bank research, third-party analyst, and economists' projection for primary levers in certain scenarios. Numerous banks (including Goldman Sachs, JP Morgan, and Nomura) have at various times published research forecasting oil prices near $200 in an oil shock scenario. These kinds of forecasts are reviewed as HiddenLevers determines its own forecast for primary lever movements. We note that analyst projections are often in contradiction and rarely precisely on-target, but the research underlying their projections enables the HiddenLevers team to double-check its own assumptions.
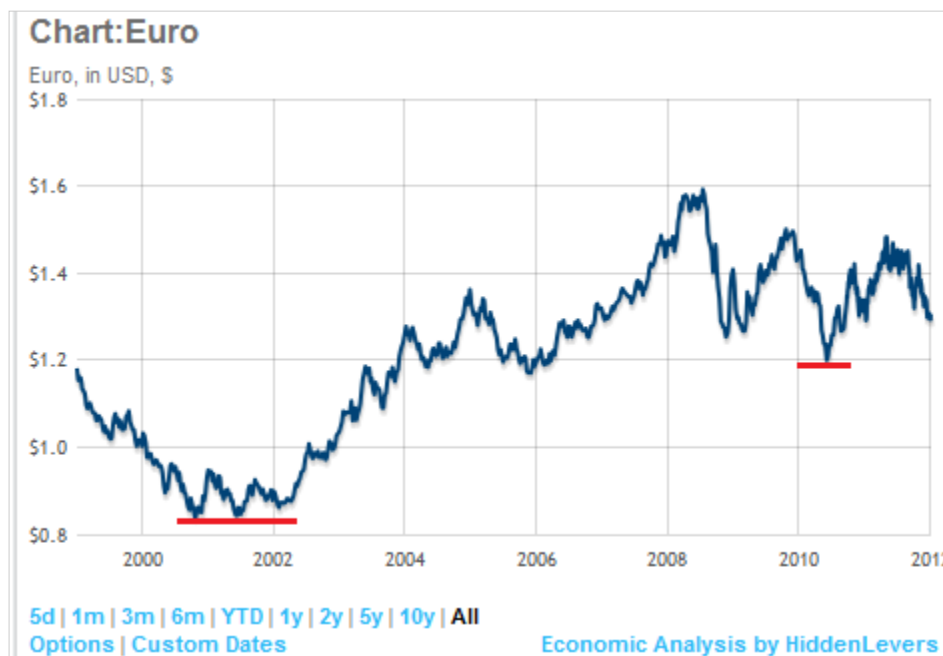
3.2 Technical Analysis of Levers

Figure 2: Euro Since Inception (key support levels in red)

Technical support and resistance levels are also used when making scenario-specific projections for individual levers. Figure 2 shows a chart of the Euro with key support levels at 1.20 and 0.87 USD highlighted. The psychological threshold at Euro-US Dollar parity forms another potential support level for consideration. These technical support levels were used to help form Euro projections in the three Euro Zone scenarios that HiddenLevers has modeled.

4. Correlations Between Levers

In addition to measuring the relationships between levers and investments, HiddenLevers measures the relationships between the economic levers themselves. Inter-lever correlations are then used to set the projected values of most secondary levers in forward-looking scenarios.

Correlation analysis is performed using a 2 year rolling timeframe to determine the correlation between all of the levers. As with lever-investment regression analysis, only statistically significant correlations are used in modeling. Once inter-lever correlations are determined, these are used in conjunction with primary (and other major) lever forecasts in order to determine how other levers move in a scenario.

Lever Correlation Examples:

- Commodities have all had a high degree of correlation in recent years, and so a scenario projecting rising oil prices would similarly project rising copper, aluminum, steel, and coal prices.

- Rising oil prices might not project rising natural gas prices, however, as oil and nat. gas have almost no correlation over the past few years.

- Since commodities have an inverse relationship with the value of USD, a rising USD scenario would show a rise in the USD lever coupled with falling prices for base metals, precious metals, oil, and other commodities.

- Rising jobless claims (unemployment) is correlated with a decrease in retail sales growth, in GDP, and in inflation.

5. HiddenLevers Scenarios are a Starting Point, not a Conclusion

HiddenLevers recognizes the inherent unpredictability of markets, and of future events in general. As a result we try to create a wide range of scenarios capturing both positive and negative outcomes for different economic events. In addition, we view our scenarios as constructed as a starting point for analysis – users will bring their own thought processes and knowledge to the table. As a result, **HiddenLevers makes it easy to modify scenario assumptions on-the-fly, and also makes it easy for users to save their own customized scenarios.**