



**SUNGARD** APT

## WHITEPAPER

*Increasing Transparency with Scenario Analysis –  
The Third Pillar of Risk Management*

## Increasing Transparency with Scenario Analysis – The Third Pillar of Risk Management

Though the rebound in the equities market helped appease anxious investors during 2009, the unprecedented series of events that marred the previous year will likely never be entirely forgotten. Nor will its culprits; among them, an extraordinary number of complex, opaque investment instruments and strategies, that unfortunately left far too many asset managers and their investors vulnerable to unforeseeable risks.

The reaction to the ongoing turbulence has been a need for improved monitoring of counter-party risk. Accordingly, anything that speaks to transparency and risk mitigation will remain front and center well into the future. While this is due in part to increased regulatory pressures, the reality is that once-bitten investors are now demanding the imposition of much stronger risk management measures. The enormous pressure being placed on asset managers by their customers to increase risk management capabilities has dramatically altered the marketplace psychology; indeed, it is the institutional investors who are now calling the shots.

A few short years ago, investors might ask an asset manager, “How many winning stocks have you picked over the last decade?”. Today the question is more likely to be, “What kind of safeguards do you have?”

According to a recent study by State Street Corp., institutional investors continue to place great emphasis on transparency: Five out of six institutions (84 percent) expect hedge funds to increase their exposure of positions and nearly half (49 percent) would like more frequent reporting from their hedge fund managers. At present, only 19 percent say they currently receive some level of consistent transparency across hedge fund holdings.

Asset managers understand that superior risk management is key to their future success.

Not surprisingly, many continue to place great emphasis on the kind of processes that will allow them to boost transparency while mitigating risk in order to stay competitive. As part of this quest, fund managers will require even greater assistance from third-party service providers than ever before. As one manager recently observed, “Using an outsourced solution has been more the rule than the exception for some time now, however, we’ve seen an expansion of this trend since the start of the crisis.”

In response, leading providers of risk analytics have been compelled to develop tools and information services that are robust enough to withstand the challenges of a rapidly changing global marketplace. Going forward, these vendors must be able to fully support asset management customers in their quest to heighten risk management responsiveness; covering areas ranging from trade affirmation and confirmation, to investment compliance and pricing and collateral management.

Tailored solutions for asset servicing, including the deployment of leading-edge risk management technologies, will allow asset managers to focus on the portfolio, rather than shoulder the burden of maintaining and upgrading analytics platforms.

### The APT Approach

Historically, risk products have addressed the needs of two distinct entities – the

banking world, as well as the buy-side/asset management arena. The boundaries have begun to blur in recent times, however, paving the way for an emerging breed of product capable of covering the risk management demands of a much wider range of customers.

Scenario analysis is an important capability of this new breed of products. Essentially it is a method that involves examining the short and medium-term market responses to the important events (shocks), which affect the securities markets. This is key so as to understand which factors provided an adequate explanation for these shocks, and, most importantly, how to design forward-looking scenarios (or “stress tests”) in order to minimize the impact of future shocks.

This is one of the key capabilities found within APT – a broad, multi-asset class solution that provides its users with the means to put risk at the centre of the investment management decision process. Offered in either deployed or hosted form, APT provides a variety of different factor models. These models are constructed to provide both robust and unbiased forecasts of markets risk, as well as providing a flexible framework that allows users to decompose such risk according to exposures to a very broad range of **explanatory factors**.

This process can be split into what risk managers may think of as the three “pillars” of risk management: risk measures, risk attribution, and last, but not least, scenario analysis; that is, using historical and forward-looking data in order to mitigate risk on an ongoing basis.

A distinguishing feature of APT’s **scenario analysis** methodology is the use of “shocked” markets (as opposed to normal market environments) as a modeling template. This allows managers to view an expected loss under a scenario, and also provides detailed risk attribution as well. This ability to analyze and learn from a wide range of “shocked” models gives managers a level of depth and flexibility that is an essential part of the risk management process.

## APT on Board

The onset of the credit crisis prompted asset managers to thoroughly reassess their risk management capabilities. Along the way, a number of questions were asked, including: Is Value-at-Risk (VaR) a reliable enough risk measurement tool? What about parametric-type models that include various forms of distributional assumptions? At the same time, managers began to ponder the merits of APT; many, in fact, already had APT as an established solution and had simply not yet taken advantage of its full functionality.

Thus, part of the initial challenge was ensuring that APT was being used in the most efficient manner possible. In many instances, risk managers had sidestepped the all important third pillar; many had been relying exclusively on normal-market risk modeling under the assumption that shocked-market analysis was of lesser importance. Not surprisingly, in the wake of the credit crisis many have gradually begun to understand the benefits of employing much more plausible scenario modeling.

Given the number of variables that have contributed to the upheaval within the global financial markets over the past several years, it is simply not enough to limit one’s risk expectations to a conventional set of possible scenarios, such as a 200-point drop on the S&P, or a 50-basis point rise in interest rates. Hence, replacing arbitrary scenarios with a diverse menu of economically plausible scenarios based on tested explanatory factors is key to the success of scenario analysis as a risk management strategy.

## It’s the Scatter That Matters

What have market participants learned since the start of the crisis? More importantly, how can they use the lessons of the past to help them tread safely in today’s dramatically altered environment?

In addition to using pre-built scenarios based on current market factors, APT customers may

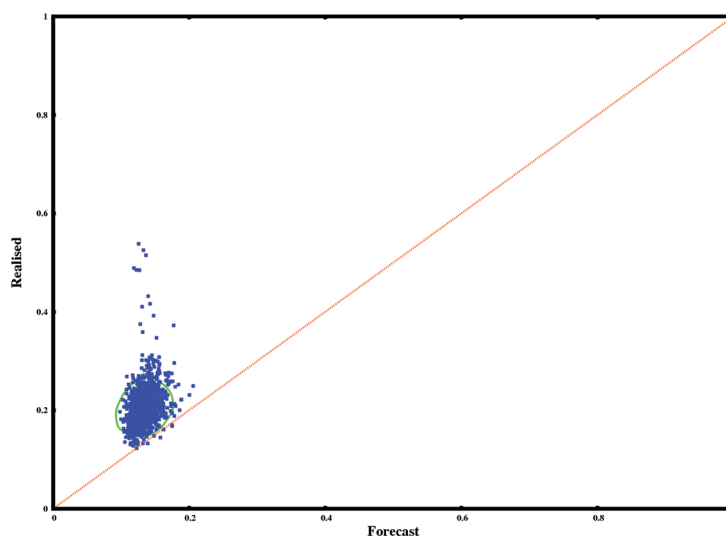
replay any number of “shocked market” scenarios from the recent past in an effort to gain insight into how their portfolios might fare under similar crisis circumstances. Scatter charts of these **historical scenarios (HS)** allows users to clearly see the level of movement and contraction around the trend line, reflecting the sudden increase in uncertainty as each crisis unfolds.

As an example, APT researchers have demonstrated a significant evolution of the explanatory factors that best describe each phase of the development of the 2007/08 market crisis. In early 2008, the most important shocks were to sector-specific factors such as financials, whereas after April 2008 the emphasis shifted towards global macro-economic factors. Understanding these dynamics would have helped risk managers design much more relevant scenario analyses for their own portfolios during the crisis.

As we saw during 2008, major blow-ups frequently occur in rapid succession and with very little warning. Because of this, APT historical scenarios may be constructed over a relatively concise 13-week timeline, which makes it easier to compare individual events within a protracted crisis, while also facilitating quarter-by-quarter comparisons.

### Using Economic Factors

The underlying APT model is **economically motivated** – that is, unlike pure simulation approaches, scenario analysis in APT takes into account any number of user-defined economic factors. Whereas purely statistical models do not provide very much intuition into the nature of systematic risk, an economically motivated



Above: A scatter chart depicting the first few signs of dislocation within the mortgage markets, mid-summer 2007. “Normal” market scenarios are shown in a tight cluster above the red diagonal line; by contrast, “shocked” market forecasts lie far above that line.

model allows the customer to make educated guesses about the future.

For example, the risks that developed in the wake of the current crisis have been largely macro in nature, affecting nearly every segment of the global asset market. Since the explanatory factors in scenario analysis are economically based – that is, making use of tangibles such as the price of fuel, the direction of interest rates, or the narrowing of LIBOR spreads – economists, rather than statisticians, can help determine the company’s business strategies. Having the ability to work with these macro factors in order to determine areas of near and longer-term risk is crucial to the development of an effective risk management program.

### A Customized Approach

Simulations that fail to take into account the nuances of a specific investors’ strategy are of limited value, hence, **flexibility** is a big part of what makes scenario analysis a useful tool. Different economists will want to focus on their own particular area of expertise.

Therefore, having a number of explanatory factors built into the APT economic model,

and constructing the model in such a manner that each factor can work in correlation to one another under different scenarios – makes it possible for firms to customize and experiment using various scenario assumptions. For instance, a company may select oil as the variant of greatest concern, while others might focus on credit spreads, inflation or any number of other potential trouble spots. Once the manager decides which variant they would like to have “shocked,” the model then shows the relationship between the impacted factor and all of the other possible factors involved.

In other words, though the economic variables may differ from one firm to the next, a well-configured APT model will allow each user to understand the “crossover” effect of all factors that have been determined to be most likely to impact the markets. This flexibility, coupled with the economic power of the model, further increases the relevance of APT’s shock-based scenarios for a wide range of users.

### Boosting Confidence

Only a few short years ago, investors might size up a prospective asset manager by asking, “How many winning stocks have you picked over the last decade?” Today the question is more likely to be, “What kind of safeguards do you have?” Thus, having the kind of robust strategy in place that serves as a defense mechanism against unforeseeable future shocks speaks volumes for the quality of the company. Particularly at a time when investors are actively seeking these kinds of risk-mitigating attributes, making effective use of the APT model and plausible scenario analysis can help to demonstrate best practice in risk management to potential customers.

### Future Shocks?

The default in Dubai, the downgrading of European sovereign wealth ratings, uncertainties over the near-term direction of the U.S. dollar and, of course, the continued instability of the world’s leading economies all underscore the potential for further shocks to the financial system. Assuming we are

not fully recovered just yet, any company that continues to operate without a shocked market model in place could be in for a rude awakening. Hence, the time is ripe for risk managers to take all necessary precautions. Using APT’s scenario analysis approach, managers have a highly versatile, factor-based method for plotting near and long-term strategies, using data that takes into account the entire realm of risk possibilities.

According to Aite Group, the market for buy-side analytics, which stood at approximately \$1.8bn at the start of 2009, is expected to reach some \$3.2bn by 2014.

Naturally, even the best risk protection cannot completely safeguard companies from incurring losses linked to unforeseeable market events. However, as Boston-based research provider Aite Group noted in its recent report “RISK Is Not Just a Four-Letter Word,” risk managers (as well as senior investment and enterprise managers) who are allowed to consider market risk from a number of different perspectives and approaches will have a basis on which to make investment, hedging, rebalancing or business decisions, that they believe will best protect their assets; not only from material losses, but also catastrophic “black swan” events.

Experts see demand for risk management products continuing to increase in the coming years. According to Aite Group, the market for buy-side analytics, which stood at approximately \$1.8bn at the start of 2009, is expected to reach some \$3.2bn by 2014. This presents a tremendous opportunity for well-placed risk analytics providers, particularly those whose solutions are both flexible and intuitive, easily implemented, as well as cost effective.

Scenario analysis fits this profile - a highly credible modeling tool that serves as a stepping-stone to more sophisticated forms of stress testing. With many firms already having APT deployed in house, reaping the benefits of that all-important third pillar of risk management is only a few steps away.

## **About SunGard's APT**

APT provides investment technology for a broad range of asset classes, countries and regions including data and software for understanding market risk, credit risk, liquidity risk and for portfolio construction and performance analysis. APT provides investors with statistical market risk models, performance and risk analytics and portfolio optimization and construction tools. APT's customers include institutional and retail asset managers, pension funds, private wealth managers, hedge funds, broker/dealers, prime brokers and proprietary traders.

[www.sungard.com/apt/learnmore](http://www.sungard.com/apt/learnmore)

## **About SunGard**

SunGard is one of the world's leading software and IT services companies. SunGard serves more than 25,000 customers in more than 70 countries.

SunGard provides software and processing solutions for financial services, higher education and the public sector. SunGard also provides disaster recovery services, managed IT services, information availability consulting services and business continuity management software.

With annual revenue exceeding \$5 billion, SunGard is ranked 435 on the Fortune 500 and is the largest privately held business software and services company on the Forbes list of private businesses. Based on information compiled by Datamonitor\*, SunGard is the third largest provider of business applications software after Oracle and SAP. Continuity, Insurance & Risk has recognized SunGard as service provider of the year an unprecedented six times.

\*January 2009 Technology Vendors Financial Database Tracker <http://www.datamonitor.com>

[www.sungard.com](http://www.sungard.com)

©2010 SunGard

SunGard, SunGard APT and the SunGard logo are trademarks or registered trademarks of SunGard Data Systems Inc. or its subsidiaries in the U.S. and other countries. All other trade names are trademarks or registered trademarks of their respective holders.