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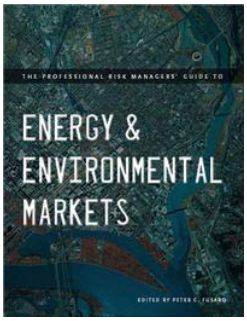
Summary of Selected Publications

Energy and Commodity Derivatives Trading and Risk Management
2005-2007 (March)

COMMODITIES NOW

the Risk DESK



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Dear Reader,

This document provides a summary of a series of articles written between January 2006 and March 2007 on various topics related to energy and commodity derivatives trading and risk management, including market, credit, operational, and enterprise risk.

The increasing presence of hedge funds and banks in the energy and commodity trading space is bringing significant changes as well as new challenges and opportunities.

At Black Swan Risk Advisors, we attempt to be at the leading edge in the research and applied fronts in order to provide valuable advisory and educational services to our clients.

Our partnership with OTC Legal LLC will allow us to offer our risk modeling and derivatives valuation services jointly with OTC Legal's expert services in negotiations of master agreements and supporting documentation for trading energy commodities, swaps, derivatives, and options.

We are looking forward to receiving your feedback, and if you are interested in more information regarding any of the articles in the document or the topics covered in them, please do not hesitate to contact us.

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Black Swan Risk Advisors, LLC is an independent advisory and educational services firm with a proprietary approach to the design, development, and validation of financial risk management programs to global financial, energy and commodity trading firms, asset management firms, and hedge funds.

OTC Legal LLC is a legal services company, providing support to energy and financial traders in the evolving industry of hedge funds, energy companies, and financial institutions. OTC Legal provides tax solutions for trading energy products across federal and state jurisdictions, and negotiations of master agreements and supporting documentation for trading energy commodities, swaps, derivatives, and options.

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Risk Management Best Practices for Investments in Energy and Commodity Markets

Carlos Blanco and J.R. Aragonés, Black Swan Risk Advisors, LLC

Intelligent Commodity Investing. New Strategies and Practical Insights for Informed Decision Making. RISK publications. 2007 en Till, H. y Eagleeye, J.

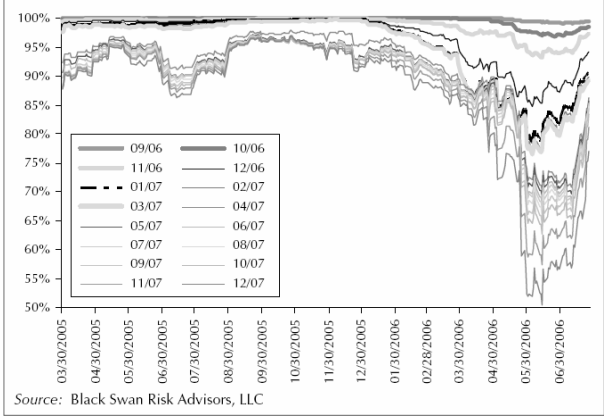
Summary

In this chapter, we explore some of the key risk-management issues related to investments in energy and commodity markets, from the point of view of both the investment and hedge fund managers and the investors in those funds.

We introduce an enterprise-wide risk management (EWRM) framework based on policies, methodologies and infrastructure, with particular emphasis on risk modelling and measurement issues related to energy and commodity markets.

Firms that implement a rigorous risk management process including sound business strategies, the use of coherent risk measures and a strong stress-testing programme, within an EWRM framework, are likely to have a competitive advantage and be able to weather the storm of adverse market conditions.

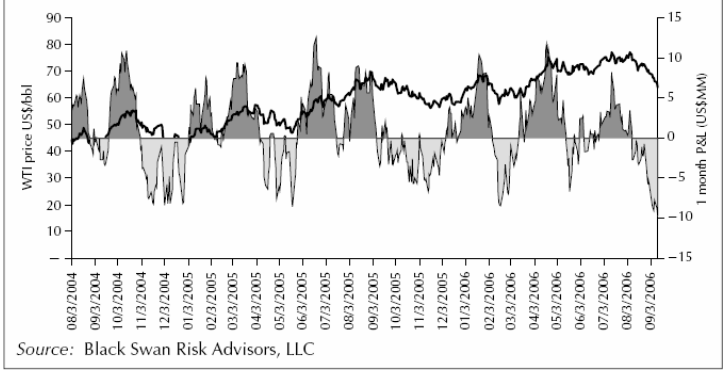
Figure 1 Forty-day moving correlation between Nymex natural-gas futures contract for delivery in August 2006 and subsequent contracts



Source: Black Swan Risk Advisors, LLC

It is also very clear that firms that do not implement best (or at least tolerably good) practice are much more likely to experience major financial problems. Being aware of best practices and striving to implement them are therefore keys not just to success, but to having good prospects of longer term survival.

Figure 2 Profit and losses for long 1,000 Nymex WTI futures position over one-month rolling periods



Source: Black Swan Risk Advisors, LLC

Energy and commodity markets are some of the most volatile markets in the world and firms operating in those markets should approach risk management with caution. Energy and commodity price behaviour as well as market dynamics differ from traditional financial markets, and risk models should reflect those differences.

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Assessing the Quality of Risk Management at Utilities and Energy Trading Firms

Carlos Blanco, Ph.D. Black Swan Risk Advisors
Robert Mark, Ph.D. Black Diamond Risk Enterprises
WorldPower. June 2007

Summary

At the heart of sound risk management practices is a deep awareness of the qualitative and quantitative aspects of risk management. Nowadays, it is unusual to hear that a utility or energy trading firm does not claim to have a superior risk management process in place. But the reality is that an in depth analysis of many operations may reveal a suboptimal and superficial risk management processes.

One of the frameworks that we have found to be successful in assessing the quality of risk management at utilities and power trading firms is based on examining the quality of a firm's Policies (P), Methodologies (M) and Infrastructure (I).

Energy Firms are exposed to a series of complex risks, such as those arising from the operation of physical assets, changes in the regulatory environment, and exposure to extreme events such as large market moves, natural catastrophes, and potential terrorist attacks against power plants and transmission networks.

We can classify uncertain events under three categories: expected events (e.g., events that resemble recent history), predictable surprises (events that may not resemble recent historical events, but for which there are significant warning signals) and unpredictable surprises or "Black Swans."

Most risk models and managers concentrate on measuring and managing expected events, but they should put more emphasis on protecting their organizations against the other type of events that could hit them.

In this article, we provide an overview of how a typical external quarterly risk assessment audit for a hypothetical power trading firm would be conducted.

Utilities and power trading firms that conduct thorough independent risk reviews will be able to demonstrate regulators, rating agencies and equity analysts that their risk process is comprehensive, transparent and fully integrated into the overall firm's strategy. This proactive firm's will also be able to demonstrate their risk department's contributions to maximize shareholder value.

Technical risk reviews by external experts can evaluate the ability and willingness of the risk managers in protecting the firm's capital, and develop the ability to spot utilities and power trading operations with weak risk management processes. A comprehensive framework is an essential part of this effort.

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Minimizing Collateral Damage:

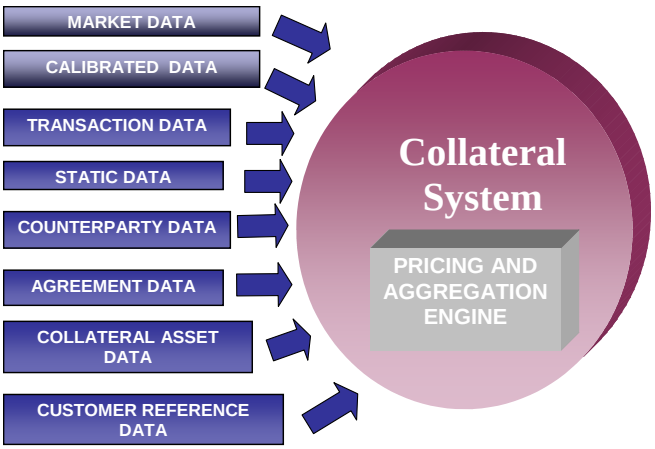
The case for integrating collateral management into the risk group

Carlos Blanco, Ph.D. Managing Director, Black Swan Risk Advisors, LLC
Michael Pierce, Director of Financial Engineering, Black Swan Risk Advisors, LLC

Risk Desk. March 2007.

Summary

The use of collateral for OTC energy derivatives has increased dramatically. The increasing presence of banks and hedge funds in the energy trading sector, where collateral is commonly used to mitigate counterparty risk, has contributed to that growth.



Some of the benefits of establishing a collateralized relationship with a counterparty are the ability to facilitate more profitable business, a reduction in the cost of credit, as well as the possibility of freeing up trading lines and achieving savings in regulatory capital for regulated entities.

Collateral management for OTC derivatives is gradually moving from an ancillary back-office, often silo-based, function into the heart of integrated credit and liquidity risk management.

To illustrate the importance of collateral management, we will briefly analyze Amaranth and MotherRock's liquidity problems.

Many hedge funds delegate collateral management to their clearing brokers and custodians. Even though setting up a collateral management infrastructure may be costly at first, the benefits many times outweigh the costs.

A dynamic simulation of their strategies complemented with a liquidity-based stress testing program could have shed light into the problems that they could be facing if markets were to turn against them.

In this article, we show that proactive collateral management can provide tangible benefits for trading firms. Those firms that fail to develop the internal capability to manage their collateral in an integrated fashion will have to rely on clearing brokers and third parties to perform a critical component of their risk process.

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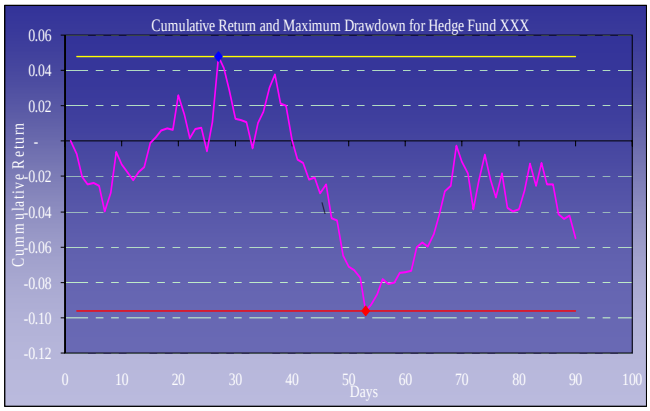
Trading Blow-Ups, Liquidity, Leverage and Risk Management

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
Chris Mammarelli, Director, Energy Research Black Swan Risk Advisors, LLC
Risk Desk. February 2007.

Summary

Trading firm blow ups can often be attributed to one of three basic causes: Overlying concentrated exposure,excessive leverage or writing instruments with options-like payoffs. Trading firms that implement a comprehensive risk process integrating liquidity and leverage risk could substantially reduce the likelihood of experiencing these kinds of problems.

In order to realistically account for risk in a dynamic fashion, including crisis periods, VaR is not sufficient and we need a multi-period measure of risk. Some of the measures commonly used by hedge fund analysts are Maximum Drawdown (MDD), which provides a 'backward-looking' worst-case loss estimate by measuring the largest 'peak-to-valley' drop from a fund or investment during a particular time period.



Multiperiod risk measures should complement and possibly take priority over one-period measures such as VaR, which do not capture adequately the risk in the presence of leverage, illiquidity and/or markets that can experience large fluctuations for prolonged periods of time.

Amaranth's risk managers may have operated under the assumption that risk of spread positions was considerably lower than outright positions, but given the size of the positions as well as the volatility of the spreads, those calendar spreads had similar risk characteristics as outright positions.

The most obvious lesson the recent hedge funds' debacles is that the backbone of the risk process should move from risk models to experienced risk managers who posess the authority and that have the willingness to take quick action .

Incorporating multi-period measures into the risk management process has an additional benefit: it directly addresses the all too human reluctance to quickly close out losing positions. Traders often become emotionally invested in a trading position, and realizing a large loss is seen as a personal failure. Even in situations where adequate liquidity exists to close out a losing position, there is an inherent tendency to avoid "locking in a loss".

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Tarnished Models:

Many risk models used for metal derivatives are not up to the task

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
Chris Mammarelli, Director, Energy Research Black Swan Risk Advisors, LLC

Commodities Now. March 2007.

Summary

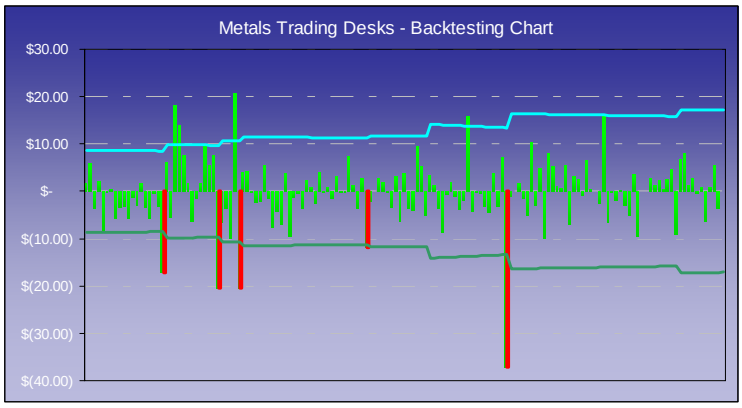
The global metals markets have seen numerous trading firms encounter financial difficulty in past few years due to shortcomings in their risk management programs. Problems at Sumitomo, Ashanti, China's State Reserve Bureau, and more recently Red Kite can all be attributed in some part to failures in risk control.

Regulators such as the Financial Services Authority (FSA) and credit rating agencies such as Standard and Poors are naturally placing increased focus on firms engaged in trading activities. Each organization has developed frameworks to independently evaluate the effectiveness of risk management processes in trading organizations. The results of these reviews can directly affect capital adequacy charges and credit ratings.

One of the key components in any trading firm's risk management process is the quality of the risk model. In this article we discuss a number of problems with standard approaches to modeling risk in metals markets, and outline some potential solutions.

In this article, we address six key areas where metals trading groups generally lag current practices at other financial and energy trading firms: (a) extreme risks and cumulative losses; (b) price jumps; (c) mean reversion; (d) curve regimes; (e) volatility risk; and (f) model validation.

Metals trading operations have a strong incentive to show board members, regulators and credit rating agencies that the quality of their risk management process is meeting best practices. Meeting this objective allows the trading organization to minimize capital adequacy charges as well as maintain or improve its credit ratings.



Well-designed risk and pricing models should be tailored to the unique characteristics of underlying markets and instruments traded.

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Lessons from Amaranth for investors in Hedge Funds

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
José Ramón Aragonés, Director - Hedge Fund Research, BSRA, LLC
Offshore Investments. April 2007

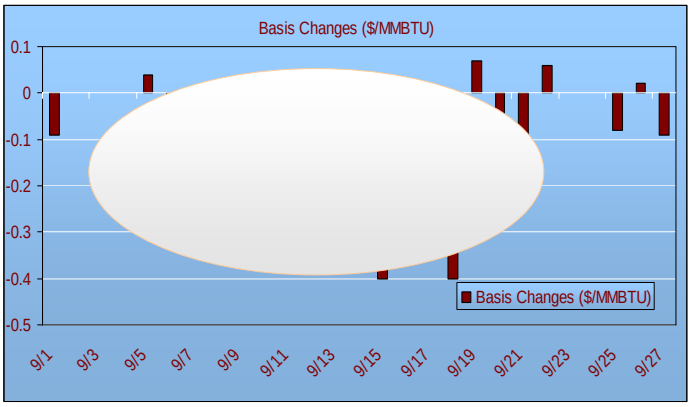
Summary

Last year, Amaranth Advisors, a multi-strategy hedge fund, managed to lose over US$ 6 billion trading natural gas derivatives. The speed and magnitude of the losses caught many investors by surprise. However, there were several warning signals whose analysis can assist investors in avoiding future disasters. In this article, we present a series of risk management lessons for investors as well as hedge fund managers.

First, the due diligence process should focus on the quality of risk management at the fund. Second, investors should be aware of the Black Swan Problem: Structural market dynamics in energy markets have shifted in recent years. Third, leverage and liquidity risk management are critical for hedge fund investments. Finally, the backbone of the risk process should move from risk models to risk modelers.

Before committing capital to a hedge fund, investors should check what is the quality of risk management at the fund. A comprehensive framework based on Policies, Methodologies, and Infrastructure (PIM) can assist managers at funds as well as investors conducting due diligence on those funds.

Before they blow-up, many hedge funds exhibit a good track record of returns. Because of the nature of their investment strategies, many hedge funds have an option-like payoff which means that they ultimately behave like insurance providers. Those funds may show good returns if the contingency covered does not materialize, but will experience large losses in the event of that contingency taking place, which could take the shape of a liquidity crisis, a large market shock, or other unexpected event.



In addition, many hedge fund managers perceive risk management as a cost center that cuts into their profits. Ultimately risk management failed at Amaranthy. Aggressive risk taking, excessive leverage, ill-defined incentive schemes and possibly, the lack of authority of the fund's risk managers, were responsible for the failures of those funds.

Trading firms that implement a comprehensive forward-looking risk process integrating liquidity and leverage risk could substantially reduce the likelihood of blowing up.

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Evaluating the quality of the risk management process:

Self-assessment, Technical Risk Audits, and External Reviews

Dr. Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
Dr. Robert Mark, CEO, Black Diamond Risk Enterprises, Inc.

Risk Desk. The Desk. The New Power Executive. End of Year Issue. 2005

Summary

A lesson painfully learnt in 2005 is that risk finds the weakest link in those firms that have not taken a serious effort to implement a superior risk management approach.

In this article we provide some of the highlights in terms of market, credit and operational risk failures.

Rating agencies have started evaluating the quality of the risk management function of energy trading firms as part of their overall rating process. For example, S&P has indicated that they plan to benchmark the quality of an organization's risk management process through a Policy, Infrastructure and Methodology (PIM) framework. The PIM approach is multi-layered and it measures in part the ability of the C-suite (CEO, CFO, CRO….) to clearly articulate the link between the business strategy and the risk. Unless the links are clearly established, the risk management process is not likely to be effective.

We argue that energy firms should conduct thorough risk reviews in advance of a visit from regulators and rating agencies. Equity analysts have not yet asked particularly sharp questions regarding the process to link risk and return at each firm, but will likely do so in the future. One of the hurdles will be the ability of the C-Suite to clearly link their firm's business strategy to the risk associated with the business strategy.

Building Blocks	Components	Market	Credit	Operational	Liquidity	Firm-wide
Policies	Business strategies					
	Risk tolerance					
	Authorities					
	Disclosure					
Methodologies	"at-risk" measures					
	Stress Testing					
	Vetting and valuation					
	Performance Measures					
Infrastructure	People					
	Operations					
	Data					
	Technology					
Overall Ranking						

Current gap vs. best practices: Low | Medium | High

Proactive energy firms have started putting together a process to effectively answer questions. These proactive energy firms will be able to demonstrate that their risk process is both transparent and nicely integrated into the overall firm's strategy. This proactive firm's will also be able to demonstrate their risk department's contributions to maximize shareholder value. On the other hand, lack of a clear answers by the C-Suite on any of the risk related areas, will likely be interpreted as a potential missing link in the risk process.

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Redefining the role of risk management

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC

End of Year Issue. The Desk & The Risk Desk. Vol. VI, Number 12. December

Summary

Energy firms are exposed to a series of complex risks such at those arising from the operation of physical assets and exposure to extreme events such as large market moves, natural catastrophes, changes in regulation, and potential terrorist attacks against the energy infrastructure. The events in 2006 have again shown the importance of having a strong risk and crisis management process in place.

The article explores three main areas where energy trading firms should concentrate their attention to be better prepared against possible adverse market, credit or operational events.

First, the backbone of the risk process should move from risk models to risk managers. If risk managers took a serious look at the risk models as well as their asset and derivatives pricing models, they would find that most of them are so riddled with assumptions that render them useless. *When an energy trading operation blows-up, risk managers tend to hide behind the assumption of traditional mathematical models rather than taking responsibility for the modeling errors.*

Second, firms should dedicate more resources to get ready for Predictable Surprises and Black Swans. Most risk models and managers concentrate on measuring and managing expected events, but they should put more emphasis in protecting their organizations against the other type of events that could hit them. Risk management professionals and models perform relatively well 99% of the time. It is the extra 1% of the cases that can take a firm down, and that is where risk management can truly show its value.

Finally, firms should conduct regular technical risk reviews. Even though it is unusual to hear an energy firm or hedge fund manager that does not claim to have superior a risk management process in place, the reality is different. Technical risk reviews by external experts can evaluate the ability and willingness of the risk managers in protecting the firm's capital, and develop the ability to spot trading operations with weak risk management processes.

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Derivatives Market-Based Counterparty Risk Management

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC

Vol. VI, Number 11. November

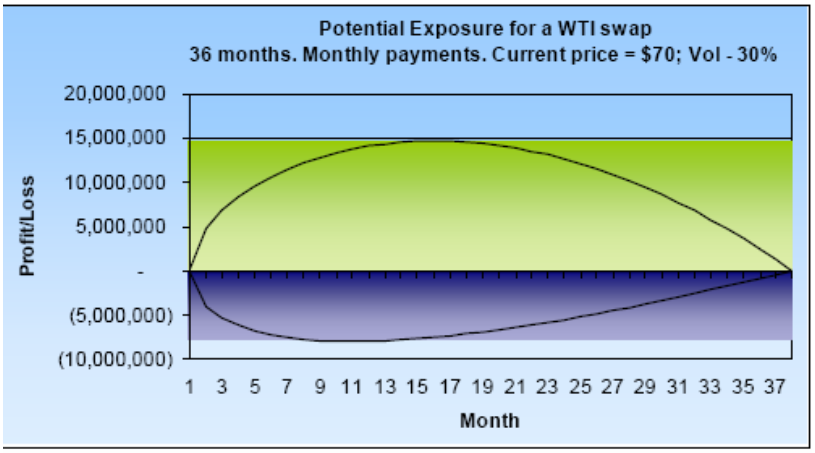
Summary

Counterparty Risk Measurement and Management is one of the most dynamic areas in energy derivatives risk management. Credit risk managers have access to market-based probability of default estimates as well as new methods to calculate potential future exposure

Market-based information that can be used to estimate default probabilities include corporate bond spreads and credit default swaps (CDS), as well as market-based models such as KMV's Expected Default Frequencies (EDFs).

Based on this information, credit risk managers can estimate implied probabilities of default as well as changes in the creditworthiness of each firm in real time.

Another important advance in recent years has been the development of dynamic simulation models that allow firms to measure potential credit exposure with a given counterparty on a portfolio basis at any time.



Source: Black Swan Risk Advisors, LLC.

In this article, we provide an overview of Credit Default Swaps (CDS) as well as Dynamic Credit Derivatives (DCDs), also known as "credit intermediation swaps." In DCDs, the notional payment is linked to the MtM of the reference derivative or portfolio of derivatives with a given counterparty. The dynamic credit protection buyer pays an amount agreed at the inception of the contract, either up front or periodically. If a credit event materializes, the credit protection seller makes a payment referenced to the prevailing mark to market of a derivative or portfolio of derivatives with a given counterparty.

To conclude, derivatives market-based information and tools provide a flexible and dynamic system to measure and manage counterparty risk for energy derivatives with counterparties. Credit risk managers can use those tools to complement traditional credit analysis of counterparties, and extend its use to price transactions as well as set realistic credit limits based on the credit exposure and the mitigation tools in place.

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Funds & Commodities

Funds and Commodities

Carlos Blanco and J.R. Aragonés, Black Swan Risk Advisors, LLC

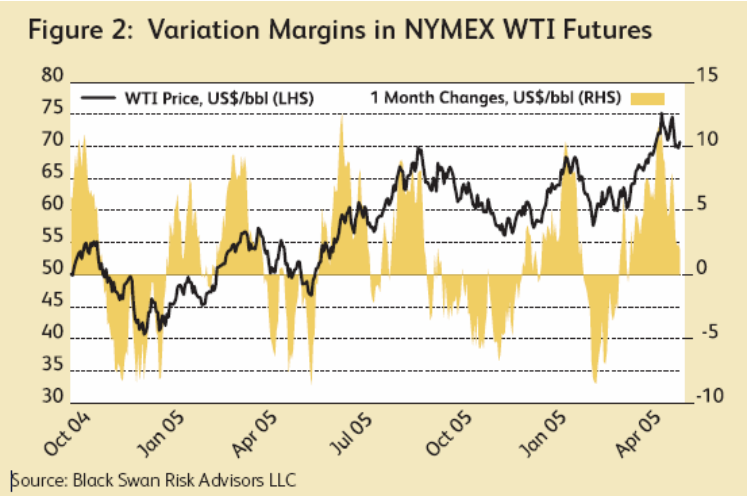
Commodities Now, June, pp. 10-16. 2006

Summary

Hedge funds are playing an increasing role in markets worldwide, including commodity markets and energy in particular. Largely unregulated, many are considerably less transparent than other investment vehicles.

In this article, we explore some of the key risk management issues related to hedge funds, both from the point of view of the hedge fund managers as well as investors in those funds.

Hedge fund managers usually run relatively small operations in terms of systems and personnel. Many hedge funds, particularly the smaller ones, do not have a dedicated risk management function. Hedge funds can 'borrow' some of the techniques from financial as well as energy trading firms, but due to their unique nature, they need to customise the risk management process, including policies, methodologies and infrastructure, to fit with their business models.



In order to attract large amounts of capital, energy hedge funds will need to prove that they have sound risk management policies, people and systems in place. By sound risk management we are not just talking about having someone with the title of Risk Manager or Chief Risk Officer but a comprehensive risk management process.

The larger and more established hedge funds, acknowledging the importance of a strong risk management process, have attracted some of the best risk managers in the industry.

As competition in the energy hedge fund market intensifies, sound risk management will be a competitive advantage, particularly for those funds that require long lock-out periods. Large institutional investors will mainly invest in hedge funds that can clearly communicate their risk appetite to investors and other stakeholders and prove that they have the risk management infrastructure to stay within certain agreed boundaries.

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Reputational Risk and Crisis Management

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC

The Risk Desk. Vol. VI, Number 7. July

Summary

Typically, reputational risk falls outside the mandate of the risk-management group. Another factor is the general difficulty in measuring and being aware of the implications of reputational risk events.

As with any form of risk, and by extension, risk management, the starting point to getting a better handle on reputational risk is to define its scope.

Reputational loss measures are particularly difficult to capture. The equity market can supply a set of measures such as the market reaction after announcements of operational losses. There are other methods to measure reputational losses, and we suggest that firms should start tracking those losses in a database to monitor patterns and changes.

Reputational risks often result from events the company controls directly or indirectly. Therefore, the key to manage reputational risk is prevention. In addition, when prevention is not enough, it is crucial to have contingency plans to break the 'reputational vicious circle' as soon as it starts developing.

From a governance perspective, the board has a fiduciary duty to ensure that a prevention program is in place at the firm, and that appropriate resources are dedicated to manage the firm's reputation.

Box 1. Is your firm a "leader or a laggard" in terms of reputational risk management?

- Does your risk definition promote capture of reputational risks?
- Are reputational risks integrated into your overall risk management framework?
- Do you assess financial and reputational impacts?
- Do you encourage constructive challenge of your risk profile?
- Are you meeting stakeholder expectations?
- Do you align values, policies, goals, roles, responsibilities, performance measures and rewards?
- Do you encourage innovative use of early warning indicators?
- Are comprehensive crisis management plans in place?
- Is everyone engaged in safeguarding and enhancing reputation?
- Do you use disclosure as a reputation risk management tool?

In this article, we provide a few sample questions to identify gaps in the reputational risk management program. Finally, setting the "right tone from the top" is critical to ensure everyone at the firm is aware of the importance of managing the firm's reputation. Company executives and board members should recognize that not having a policy is actually having a negative one.

We believe that firms should have an active framework in place to make sure that there is clear ownership for the management of reputational risk and any other risks that could significantly affect the firm's market value and operations. By default, reputational risk management is thrown into the public relations department. Active management of internal and external communication in times when a firm's reputation is at stake is critical, but once the vicious circle starts, there is not much that can be done by PR but damage control.

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Hedging Strategies for Airlines: The Shareholder Value Perspective

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
John Lehman and Naoki Shimoda, Strategic Decisions Group
Offshore Investments. Fall 2006

Summary

The foundation of any good hedging program is a direct, unambiguous, and rigorous connection between lowering market risk and raising shareholder value. One way to achieve this is to link the hedging decision to the overall business strategy. There are a number of ways in which hedging could increase share value, given the right circumstances. At the same time, there are many commonly cited reasons for hedging that are questionable in shareholder value terms such as satisfying rating agencies, which reflect the interests of the bondholders, while management owes its allegiance to the shareholders.

In the 19th century Soren Kierkegaard made a profound observation that should be taken to heart by today's airline fuel managers: "Life can only be understood backward, but it must be lived forward."

This fact should be borne in mind by those who celebrate the management of airlines that have hedged fuel costs and criticize those who have not. By what most would consider a reasonable definition, any position taken in the expectation that prices will move in a particular direction is speculative. This is as opposed to hedging, which is an effort to lower the uncertainty around future price, regardless of level. So, according to this definition, many airlines are speculating.

Sources of Value	Risk Management Objectives	Appropriate Risk Metrics	Proto-Typical Candidates
Minimize expected cost of financial distress.	Avoid changes in firm value that could lead to financial distress.	Capital-at-Risk	Highly levered companies with volatile asset values.
Reduce expected tax liabilities.	Minimize the variability in taxable income.	Taxable Earnings-at-Risk	Highly profitable companies in steeply progressive tax environments.
Lower the cost of funds.	Lower the chance of a cash shortage leading to a need for costly external financing.	Cash-Flow-at-Risk	Growing, capital intensive companies.
Avoid underinvestment	Minimize impacts of management risk aversion by aligning management behavior with desires of shareholders.	Various, depending on management compensation.	Companies whose management compensation is not closely tied to stock returns.

In this article we argue that those that claim that are "hedging" are in fact speculating The key question is whether an airline should hedge to improve the "quality" of its earnings by reducing their variability, not whether it should remove any of its natural exposures such as jet fuel price risk.

We also provide a brief case study of to firms following different hedging strategies with different impact in terms of shareholder value creation. One of the strategies provides a rationale whose connection to shareholder value is clear, explicit and defensible. The other one has an expected payoff of zero—excluding transaction and tracking costs.

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Do Most Oil and Gas Firms Use Derivatives?:

Analysis of S&P energy derivatives report

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC

The Desk. July 7th, 2006 & The Risk Desk Vol. VI, Number 6. June

Summary

With market volatility at historically high levels for many energy and commodity prices, disclosure of market as well as other risks related to trading and risk management are crucial for stakeholders to effectively evaluate the exposure of a firm to market fluctuations.

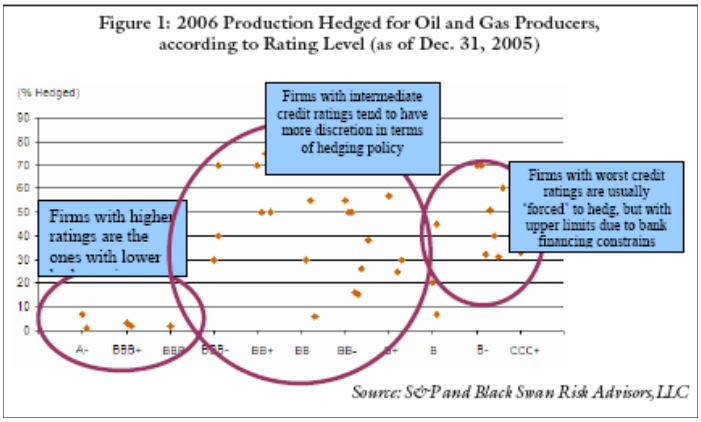
According to report issued by S&P based on energy and gas firm disclosures of derivatives use "just about all US oil and gas producers and refiners use derivatives to manage risks related to oil and gas commodity prices, albeit at varying degrees, using a variety of financial instruments and hedging practices."

One of the key findings is that S&P believes that current disclosures by many firms are insufficient.

There is considerable disparity and inconsistencies in market risk disclosures by US oil and gas firms. Differences in reporting are accentuated by the fact that the SEC offers firms a range of options to disclose market risk, e.g., VaR, sensitivity analysis or list of derivatives. In addition, some firms include the impact of related hedging activities, and different metrics are used, e.g. cash flow, earnings, etc.

The article also explores some insights on how S&P interprets certain signals from the various firms' risk-management programs (such as tactical and strategic hedging) and activities. That information can assist risk manager in energy firms to manage the dialogue with the rating agencies and ensure that their message is consistent with the risk strategy of the firm.

Figure 1: 2006 Production Hedged for Oil and Gas Producers, according to Rating Level (as of Dec. 31, 2005)



Source: S&P and Black Swan Risk Advisors, LLC

Difficulties in assessment result in potentially lower credit ratings due to the uncertainty around the disclosures. As S&P concludes, "additional disclosures for derivative, natural hedges, and pricing risks related to existing crude oil and natural gas commodities would be helpful in analyzing a company's credit position." At the moment, S&P and other agencies must resort in a time-consuming process of soliciting additional information and clarification of the limited information provided in disclosures to discern the actual changes in the risk profile arising from derivatives strategies.

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China's Copper Trading Losses Near $700 Million…

And Why You Should Take an offer to Work for a Chinese State Agency

Carlos Blanco, managing director, Black Swan Risk Advisors, LLC

The Desk. June. 2006

Summary

In November 2005, rumors surfaced that China's State Reserve Bureau (SRB), the state agency that manages the country's commodity reserves, had lost between $200 million to $300 million in wrongway copper futures bets. The bureau's physical and futures trading in London was headed by Liu Qibing, who has been under arrest since the news about the heavy losses became public.

In this article, we explore SRB's reported positions and argue that the magnitude of the losses should have not been a surprise given the size of the postions as well as the recent copper market volatility.

Table 1: Stress Test for a short position as of Oct. 31, 2005

Position	Copper Price Shocks		
	up 10%	up 20%	up 30%
Short 100,000 mt	$40,910,000	$81,820,000	$122,730,000
Short 200,000 mt	$81,820,000	$163,640,000	$245,460,000

In addition, there are cultural issues that should be taken into account,. In China, as well as other countries in the neighborhood such as Japan, "bad news" does not flow easily to top officials, mainly for fear of the repercussions. In order to save face, Chinese traders have lately adopted some popular strategies from the Western Book of Trading for Fun and Profit: They have opted to cover up losses by doubling-up their bets in an attempt to recover them. Brilliant.

We have argued (in "The Case of the Chinese Ghost Trader," The Risk Desk, December 2005) that as China becomes a major economic superpower and one of the largest players in international financial and commodity exchanges, it must improve the transparency of its dealings in the various markets.

In addition, the Chinese government should start thinking seriously about strengthening the risk management and internal control framework of state-owned agencies, and increase external risk disclosures to prevent new derivatives debacles from taking place.

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Risk Management in Emerging Markets.

Energy risk management is critical in developing countries.

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC

The Risk Desk (Blanco, C.) Vol. VI, Number 5. May.

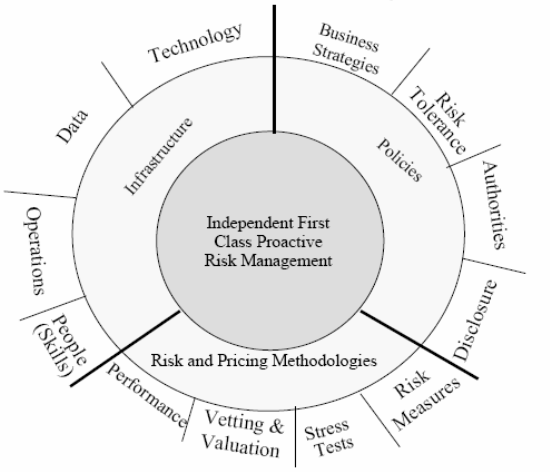
Summary

When it comes to Emerging Markets, Risk Management for energy and commodity trading firms is even more critical than for firms in developed countries.

For many operating in those markets, crisis management is the norm rather than the exception, and getting the right risk management process in place is a survival-type decision.

In this article we discuss our recent experience in Africa and South East Asia directly working with risk professionals.

Policies, Infrastructure and Methodologies framework.



As firms in emerging markets build their risk management infrastructure, policies and methodologies, they can learn much from what currently works (and doesn't work) at energy and commodity trading firms in developed countries.

Rather than adopting a standard "risk process template." it is crucial for these risk managers to design the risk program so it is effectively integrated into the overall firm's strategy and operations. In emerging markets, simple and common sense solutions are more effective than formal, complex risk systems and process.

In emerging markets, crisis management is much closer to what we know as "traditional" risk management. Risk managers often have to deal with with the substantial damage to physical facilities from operations risk arising from human errors and natural disasters, where the human dimension overwhelms and takes priority over everything else.

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Courage: The Most Overlooked Attribute in a Risk Manager

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
Robert Mark, CEO, Black Diamond Risk Enterprises, Inc.
The Risk Desk Vol. VI, Number 4. April.

Summary

Risk managers have prevented numerous debacles in the last decade. Many firms have invested a considerable amount of their resources to develop and implement policies, methodologies and infrastructure in order to improve their risk management capabilities. However, some firms have failed to set up a sound 'risk culture'

In many of the large high profile failures that surfaced in the last decade, risk management was notably absent. In some of those high profile cases around the globe such as National Australia Bank (NAB) or Enron, risk management failed to appropriately escalate issues when their concerns were ignored by senior management. In other cases, due to the relatively low stature and lack of independence of risk management, it was not clear whether risk management was even aware of the problems (e.g. senior management may have kept them shielded from critical information).

In this article we explore the role of personal courage as part of the risk management framework. We also provide a sample illustrative subset of questions to identify if the risk management function has sufficient stature and independence that it needs to effectively meet its responsibilities. Empirical evidence reveals that having sufficient stature and independence is a necessary but not sufficient attribute to ensure that risk managers will put their jobs on the line by confronting senior management when it is necessary.

Risk management has not consistently been able to prevent market disruptions or to prevent business accounting scandals resulting from breakdowns in corporate governance. Part of the reason for risk management's mixed record here lies with the double-edged nature of risk management function In a world that is increasingly driven by complex risk management concepts and technologies.

We need to look more carefully at the increasing important technical and personal attributes of the risk professional. Specifically, we need to arrive at tools to determine the degree to which a risk manger has the courage to act if they observe any negative change in a corporation's risk profile that doesn't serve the interests of stakeholders. The board needs to make sure that the CRO is not only has the courage but also to ensure that risk management has the right stature and remains independent which in turn facilitates encouraging the CRO to blow the whistle when things go wrong

However, when matters must be confronted, there are no formal mechanisms or protections that can substitute the courage attribute in risk professionals.

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Evaluating S&P's Intended Capital Adequacy Rules.

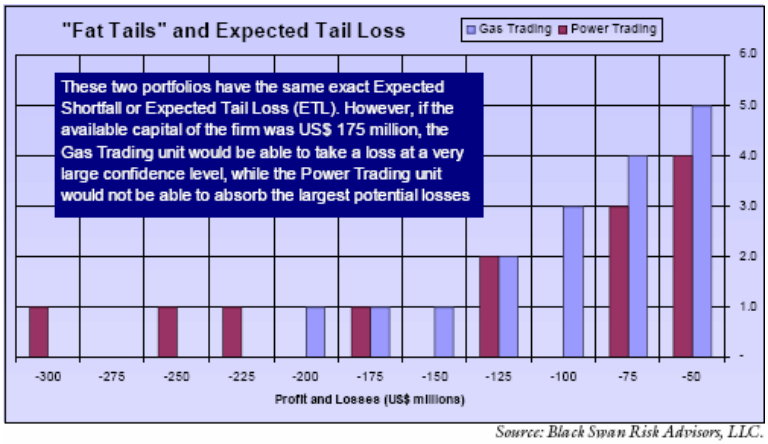
Why firms should actively manage risk communication with rating agencies.

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC

The Risk Desk. Vol. VI, Number 3. Marzo.

Summary

Actively managing discussions with credit rating agency analysts can save many millions of dollars by securing lower cost of capital as well as easier access to capital markets and other funding sources.



Source: Black Swan Risk Advisors, LLC.

Unfortunately, many energy-trading firms fail to successfully manage the risk communication process with the rating agencies. Some CEOs and CFOs complain about the unfairness of the rating process after they end up with lower ratings.

In order to improve the transparency of the rating process for energy trading firms, S&P has developed a three-pillar approach toward evaluating the liquidity, risk management and capital adequacy of energy-trading firms.

The evaluation of risk metrics used play an important role in the evaluation. For example, Expected Tail Loss is gradually replacing VaR to set capital requirements at many financial institutions for both theoretical and practical issues related to VaR.

In this article, we review S&P's proposal, and we believe that it is a move in the right direction. In order for firms to benefit from the increased scrutiny, energy-trading firms should be heavily involved in working with S&P to come up with a final framework that adequately captures their liquidity and adequacy conditions, as well as the quality of their risk-management processes.

Even though most firms are spending valuable time and resources dealing with SOX compliance issues, they should not forget that managing the communication with the rating agencies will result in potential savings and a large return on their investment.

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Due diligence for hedge funds

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
Robert Mark, CEO, Black Diamond Risk Enterprises, Inc.
The Risk Desk Vol. VI, Number 2. February 2006.

Summary

We have seen some extraordinarily embarrassing failures of risk management at hedge funds investing in various asset classes. Also, the risk-management process in several hedge funds has not been able to consistently prevent breakdowns in corporate governance that have resulted in scandal.

In the case of energy hedge funds, many of them are relatively small operations started by former energy traders at large firms, with a relatively small risk management infrastructure in place. Despite having good performance records, some of them may also have poor reputations based on alleged manipulation in the past.

In this article, we explore a key, and often overlooked, component of hedge fund investing: the due diligence process. As the number, style and range of energy hedge funds increase, investors will need to develop a strong selection process to minimize unpleasant surprises.

Prior to investing, prospective investors should conduct a thorough due diligence process to ensure that the hedge fund of interest has a sound risk management framework, particularly if it's a hedge fund with long "lock-up" periods. The due diligence process should include background checks for the managers and principals at the hedge fund, as well as a technical risk review.

Panel I. Recent Hedge Fund Fiascos

It is estimated that more than 50 percent of hedge fund failures are due to poor operational risk management. A sample list of high-profile hedge fund fiascos illustrates this point.

Bayou Management: Samuel Israel III, the fund's founder and principal, made up financial statements to lure $450 million from investors. Bayou managed to lose money every year since 1997. All that was left was about $100 million, which was seized after a bank employee inquired about suspicious wire transfers. It turned out that the audit reports were fictitious despite the fact that the management communicated regularly with clients.

Durus Capital Management: The COO of the fund pleaded guilty to charges that he artificially boosted returns by buying thinly traded stocks in an effort to inflate the share price and earn a big bonus. According to the SEC, the stock plunged as the negative news spread, reducing the value of the fund by more than $300 million.

KL Group: The principals of the KL Group, despite their relatively short trading experience, posted 40 and 50 percent returns before the fund blew up. They operated out of an obscenely expensive office, drove flashy sports cars and "partied in Las Vegas as if they were fraternity boys rather than boy wonders," according to *The New York Times*. In addition, the funds were not audited.

Philadelphia Alternative Asset Management: The asset management company was run by Paul Eustace of Ontario, Canada. He allegedly invented funds with fictitious returns, then mingled the investments with his personal funds. Regulators say he hid $175 million in losses from investors by stashing them in brokerage accounts run by another giant hedge fund, Man Group.

Refco: Many analysts have linked Refco's failure to its hedge fund operations. Refco profited by borrowing and lending securities for hedge funds. Prosecutors say that one hedge fund, Liberty Corner Capital, engaged in offsetting transactions at the end of each quarter and the beginning of the next. These offsetting transactions allowed Refco's CEO, Phil R. Bennett, to keep up to $545 million in bad debt off the company's books. The "Enronesque" game allegedly went on for years, undetected by auditors and bankers who peddled the company to investors. Refco was forced to file for bankruptcy protection in 2005, making it the fourth largest bankruptcy in US history.

Wood River Capital: John Whittier, a former securities analyst, managed to raise several hundred million dollars for Wood River Capital (based in Ketchum, ID), even after informing investors he had no particular investment strategy (a combination of technical, fundamental, quantitative and qualitative analysis). After promising not to put more than 10 percent of the fund in any one investment, Whittier poured two-thirds of it into two small wireless companies that lost a substantial percentage of their value in a short period of time. The manager also made false claims about having hired the services of an independent auditor and bookkeeper. He also lied about having Morgan Stanley as a prime broker as well as about the quality of the fund's staff.

Many investors erroneously make the decision to invest based exclusively on a hedge fund's recent track record. The fact that the fund manger generally makes all the investment decisions in a hedge fund, and that many of them do not have a dedicated risk manager to act as an additional "check and balance," makes the due diligence process particularly important.

An effective due diligence process can provide a good window into the quality of the risk management of the fund. Investors should not just rely on others to do their homework by performing their own analysis. There are firms that have developed extensive expertise in conducting due diligence on hedge funds and "spotting" issues with the potential to become future problems. As the old saying goes, "If it looks like a rat and smells like a rat, then it's probably a rat."

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Hedge Fund Risk Management

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
The Risk Desk Vol. VI, Number 1. January 2006.

Summary

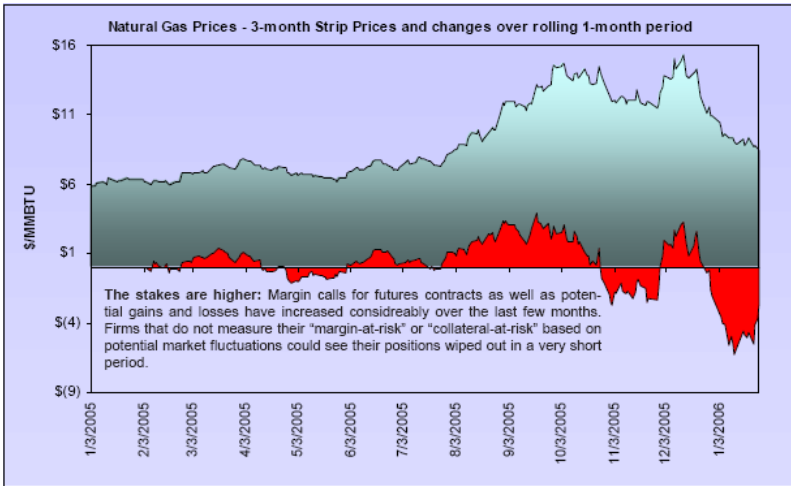
In order to attract large amounts of capital, energy hedge funds will need to prove that they have sound risk management policies, people and systems in place – not just someone with the title of risk manager or CRO, but a comprehensive risk management process.

The larger and more established hedge funds, acknowledging the important of a strong risk management process, have attracted some of the best risk managers in the financial industry.

As the competition in the energy hedge fund market intensifies, sound risk management will be a competitive advantage, particularly for funds that require long lock-out periods.

The article also explores the impact of recent and possible regulatory changes that will affect the quantity and quality of hedge fund disclosures. We also analyze the implications of longer lock-up periods in the choice of the hedge fund manager

In today's market environment, a position of a few hundred contracts in NYMEX oil and natural gas futures may lose or make a few million in just a few hours or days. Energy firms and funds that still have volumetric limits not supported by risk-based limits could be taking considerably larger risks than they did in the past. If their risk appetite has not changed, the size of the positions should be lower in the face of increasing market volatility.



Hedge funds can "borrow" some techniques from financial and energy trading firms, but their unique nature requires that they customize the risk management process – policies, methodologies and infrastructure – to fit their business models. Hedge fund investors also rely on custodian and administrators to minimize the risk of "style breaches" on the side of hedge fund managers, and to ensure they operate under the risk parameters promised to investors in the fund. But in the end, risk management can't be outsourced to a third party – the funds themselves will need to develop that expertise.

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Walking the Line ...
New Frontiers in Risk Management: Reputational Risk & Crisis Management

Walking the Line:

New Frontiers in Reputational Risk and Crisis Management

Carlos Blanco and Brian Regan, Black Swan Risk Advisors, LLC

Commodities Now, September, pp. 10-16. 2006

Summary

It usually takes years to build solid reputations. Conversely, they can be lost in a very short period of time – sometimes overnight – as the recent debacles of Refco, China Aviation Oil (Singapore) and Enron clearly illustrate. When firms lose their reputations, they usually face the classic 'run on the bank' problem as customers, creditors and employees rush to exit their relationships with the firm.

However, few firms have an active reputational risk measurement and management strategy in place. Firms dedicate a significant amount of their resources to manage the more 'quantifiable' and easily understood risks such as market and credit instead of the ones that may truly make a difference.

The main reasons behind reputational risk failures are the lack of ownership of that risk, as it usually falls outside the mandate of the risk management group. The other main factor is the difficulty in measuring the implications of reputational risk events.

In this article, we discuss BP's reputational risk problems that have put into question the firm's environmental and social friendliness and could seriously tarnish (some say has) the firm's reputation in the United States as well as jeopardise the firm's expansion plans.

Figure 1: Internal, Confidential [Once] Memo Regarding February 2004 Propane Trades

Compliance: Key risks

- Regulatory - No violations under current framework, but could increase the risk of regulatory intervention
- Legal/credit – No specific legal concerns identified, but could increase the risk of an "aggrieved short" failing to make payment or filing a claim for damages
- Reputational – Primary risk.

Source: BP internal presentation. "NGL Feb Value Trade Lessons Learned". Available at the Commodities Futures Trading Commission's website.

The problems faced by BP are complex and range from accusations of market manipulation in 2003 and 2004, to employee safety and environmental rules violations, together with alleged racial discrimination.

Fortunately, recent changes in BP America's leadership appear to put the firm in the recovery track. Robert Malone was recently appointed Chairman and President of BP America, Inc. He has inherited a large list of problems that will require a change in the firm's culture and tough decisions. The announcement of the shutdown of the Prudhoe Bay field until the firm and regulators are comfortable with the safety of the operations should be just the beginning in a series of critical decisions that will determine the future of BP's expansions in North America as well as its worldwide reputation.

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Improving Risk Literacy and Communication.

Carlos Blanco, Managing Director, Black Swan Risk Advisors, LLC
Robert Mark, CEO, Black Diamond Risk Enterprises, Inc.
WorldPower 2006 Junio.

Summary

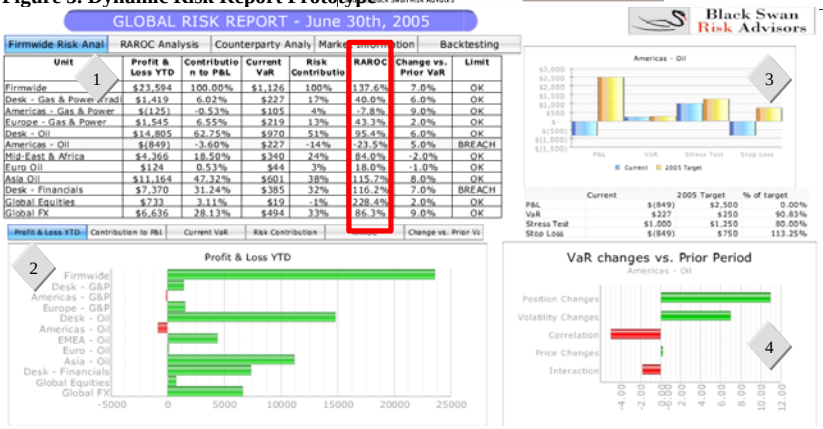
In the last decade, many firms have formed risk management units and relatively recently have created enterprise wide risk management (ERM) units.

The effectiveness of the risk management function is often hampered by the quality of the 'communication' amongst different risk management units as well as with other internal (e.g. the CFO) and external stakeholders (e.g. rating agencies). We argue that if risk management is to be an integral part of the business decision making process (encompassing both tactical and strategic issues) then a significantly greater emphasis needs to be placed on dramatically upgrading the active communication of risk.

Figure 1. Managing Communication with Internal & External Stakeholders

A professional "integrated" risk management communication program that brings all the elements of risk management together is the key to an optimal firm-wide management of risk. "Integrated" refers to the need to avoid a fragmented and often inconsistent communication approach to risk management that may not be consistent with the firm's business objectives.

Figure 3. Dynamic Risk Report Prototype



Source: Black Swan Risk Advisors, LLC.

An integrated risk management process is one where the policies and methodologies are consistent and goal-congruent with the business strategies of the firm..

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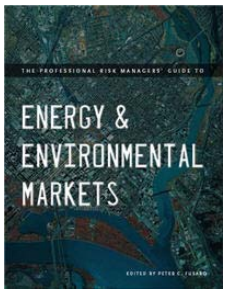


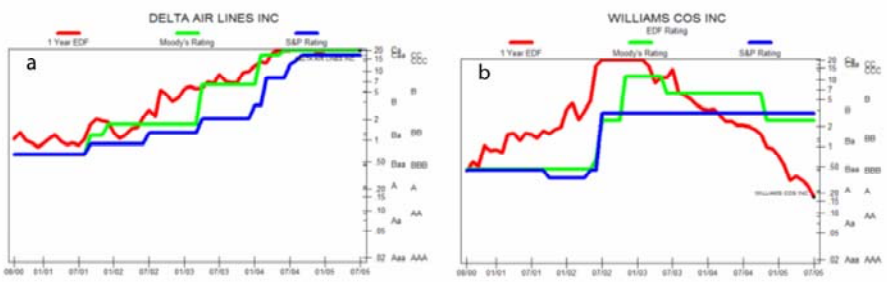
Credit Risk Measurement and Management for Energy Firms

Blanco, C., Dowd, K.,Mark, R. and Murdoch, W. 2006,
in Professional Risk Managers' Guide to Energy and Environmental Markets, pp. 69-82 (Wilmington, DE: PRMIA Publications). Edited by P. Fusaro

Summary

This chapter, co-written with Warren Murdoch from British Petroleum (BP) amongst others, provides an overview of best practice counterparty credit risk measurement and management for energy and commodity derivatives.

One of the keys to success in energy and commodity trading is the management of counterparty credit risk. This is particularly important in the energy markets where recent high-profile disasters – such as Enron NRG, PG&E, Southern California Edison, and more recently China Aviation Oil (CAO) Singapore – have highlighted the considerable dangers of inadequate credit risk management. Each of these cases involved a default that led to significant losses for the defaulting firm's counterparties – losses that could have been avoided, or at least mitigated, by better credit risk management.



Credit risk is generally (and rightly) considered more difficult to manage than market risk. The design and effective implementation of the right policies, methodologies and infrastructure are prerequisites for good credit risk management. For example, credit analysts need to have access to measures of current exposure and potential future exposure as well as netting, collateral, and settlement information.

Credit analysts also need access to a variety of internal and external tools to evaluate a counterparty's probability of default (PD) and loss given default (LGD). Moreover, credit managers also need to watch their respective markets for market risk related news.

The increasing complexity of the credit risks involved in running an energy or commodity trading operation mean that enterprise-wide credit risk education and awareness should be a critical item in the agenda of credit risk takers, senior executives and board members. Anyone who has any doubts on this should consider how easy it was to lose money as the counterparty of companies such as Enron or CAO. Firms that fail to take counterparty risk issues seriously are therefore taking large gambles – and generally without their senior managers even realizing it.

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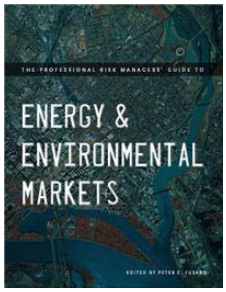


Market Risk Measurement and Management for Energy Firms

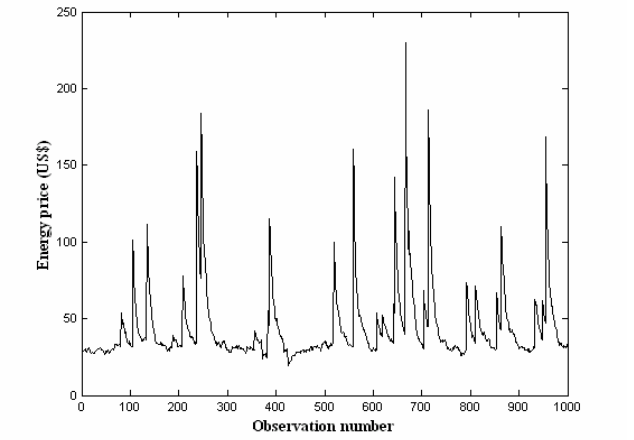
Aragonés, J.R., C. Blanco, K. Dowd, and R. Mark. 2006
in Professional Risk Managers' Guide to Energy and Environmental Markets,
pp. 69-82 Edited by P. Fusaro

Summary

This chapter describes best practices in the measurement and management of market risk.

The importance of this topic is self-evident: energy markets are extremely volatile, and energy firms frequently get into serious financial difficulties. It is also very clear that firms that do not implement best (or at least tolerably good) practice are much more likely to experience major financial problems. Being aware of best practices and striving to implement them are therefore keys not just to success, but to having good prospects of longer-term survival.

In discussing best practices, we also take the opportunity to explore recent methodological advances such as the development of coherent risk measures and methods of modeling mean reversion and jumps in energy price processes. We would also emphasize the importance of stress testing and scenario analyses to complement probabilistic risk measurement exercises.



We start with an overview of the main market risk measures as well as the main estimation approaches (Monte Carlo simulation, historical simulation and parametric methods) in Section 6-2. In Section 6-3 we show how to estimate market risk measures for energy derivatives using a mean-reverting jump-diffusion process to capture some of the main features of energy price behavior. Section 6-4 focuses on alternative approaches to modeling energy price spreads, one of the key issues for energy firms. Section 6-5 covers stress tests and scenario analysis in an energy context, and Section 6-6 concludes with an overview of general risk management issues for energy firms.

The theory and the practice of energy and commodity market risk management have developed enormously in the last decade, and one can easily get the impression that risk management in these areas is essentially quantitative. However, risk management is not purely, or even mainly, a quantitative subject. At the heart of market risk management is the notion of good risk management practice, and above all else this requires an awareness of the qualitative and organizational aspects of risk management.

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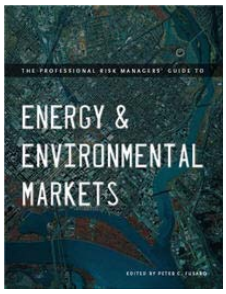


Liquidity Risk Measurement and Management for Energy Firms

Blanco, C., Dowd, K., Kremke, K. and Mark, R. 2006
in Professional Risk Managers' Guide to Energy and Environmental Markets
Edited by P. Fusaro

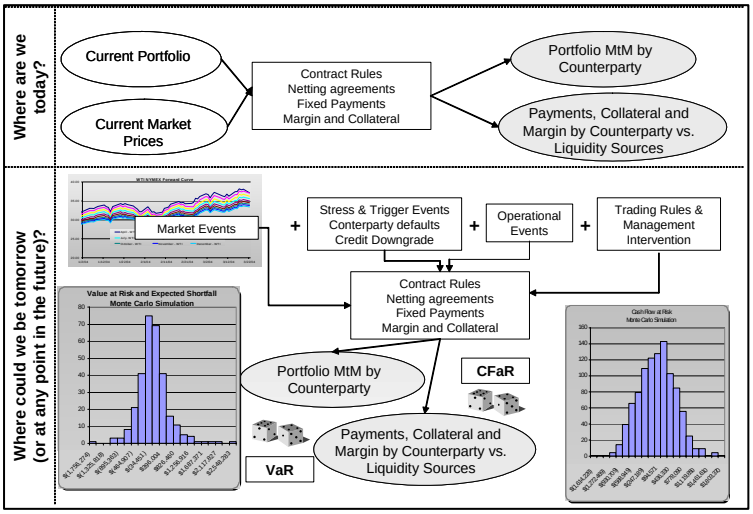
Summary

This chapter, co-written with Kevin Kremke from Reliant Energy amongst others, describes best practices in the measurement and management of liquidity risk management.

Liquidity risk management is an increasingly important concern for energy and commodity trading firms. A firm's survival depends on its ability to manage its liquidity, and recent developments in risk management create the potential for additional value-creation through proactive liquidity risk management.

The article explores the two main types of liquidity risks: **Funding liquidity risk and Trading liquidity risk.**

We also provide a framework to measure and manage liquidity risk within the ERM strategy. We introduce liquidity risk measures such as Cash Flow at Risk (CFaR) and Liquidity adjusted VaR (LVaR) , and Liquidity at Risk (LaR)



Good liquidity risk management is a key factor in maintaining a firm's financial health.

The article also reviews S&P's liquidity adequacy guidelines that focus on a set of benchmarks to measure a company's liquidity under stress scenarios that combine a crisis of confidence in the firm's financial condition with large market moves.

Market participants, credit rating agencies, regulators and other stakeholders are pushing energy merchants to establish such frameworks in order to restore confidence in their ability to meet their financial obligations. Best-practices firms already have these in place, and other firms would be well-advised to follow suit as soon as they can.

For more information, contact us at services@blackswanrisk.com or aherrera@otclegal.com

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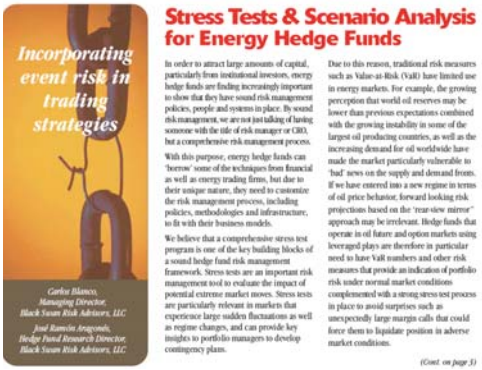


Stress Tests and Scenario Analysis for Energy Hedge Funds: Incorporating event risk in trading strategies

Carlos Blanco and Jose Ramón Aragonés, Black Swan Risk Advisors, LLC

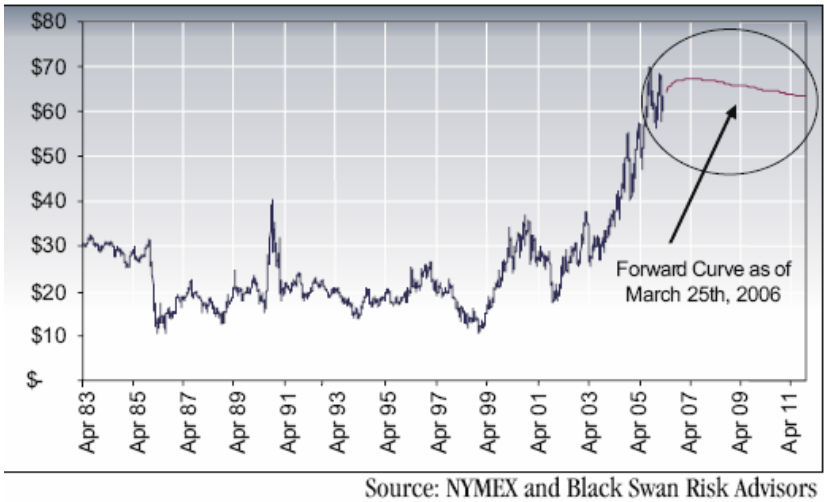
Energyhedge. Volume 20. 2006

Summary

A comprehensive stress test programme is one of the key building blocks of a sound hedge fund risk management framework. Stress tests are an important risk management tool to evaluate the impact of potential extreme market moves. Stress tests are particularly relevant in markets that experience large sudden fluctuations as well as regime changes, and can provide key insights to portfolio managers to develop contingency plans.

Due to this reason, traditional risk measures such as Value-at-Risk (VaR) have limited use in energy markets. For example, the growing perception that world oil reserves may be lower than previous expectations combined with the growing instability in some of the largest oil producing countries, as well as the increasing demand for oil worldwide have made the market particularly vulnerable to 'bad' news on the supply and demand fronts.

If we have entered into a new regime in terms of oil price behavior, forward looking risk projections based on the 'rear-view mirror" approach may be irrelevant. Hedge funds that operate in oil future and option markets using leveraged plays are therefore in particular need to have VaR numbers and other risk measures that provide an indication of portfolio risk under normal market conditions complemented with a strong stress test process in place to avoid surprises such as unexpectedly large margin calls that could force them to liquidate position in adverse market conditions.



Source: NYMEX and Black Swan Risk Advisors

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EnergyHEDGE

Risk Management and Extreme Events in Trading

How far should we go into the tail?

Extreme Events and Energy Trading

Carlos Blanco and Jose Ramón Aragonés, Black Swan Risk Advisors, LLC

Energyhedge. Volume 21. 2006

In this article, we explore some of the oil price scenarios suggested by various analysts as well as a macro hedge against large oil price increases.

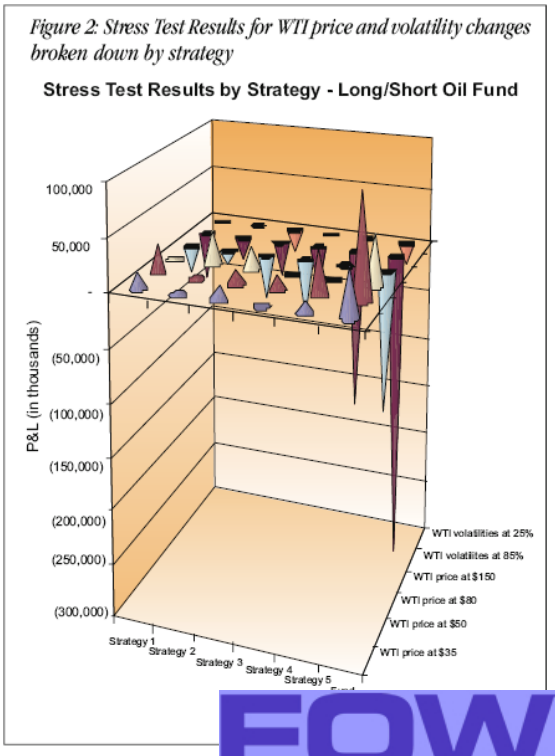
Stress tests are mechanical shocks applied to forward curves and spot prices. For example, S&P requires energy trading firms to conduct liquidity surveys to evaluate the impact in the portfolio of shocks in the NYMEX WTI forward curve of 30% up and down for the first 12 months and 20% in subsequent months. In figure 2 we can see the prices resulting from a 30% shock, which has not been uncommon over recent years.

However, the more relevant stress tests are the ones based on the information provided by the top analysts at each firm and interpreted by senior trading management.

Some of the leading hedge funds have already formed "stress test committees" with representatives of the main groups in the firm such as fund managers, risk managers, and analysts. The committee members proactively identify scenarios that would prove useful preludes to market crisis and feed that information into strategic planning, capital allocation, hedging, and other major decisions.

If stress test results indicate that the hedge fund's losses are beyond their tolerance level or the available capital, then immediate instructions are sent to the fund managers to reduce the exposure to such event, or increase its capital. In order to take the appropriate corrective action, it is essential that the stress tests provide enough level of detail of the impact of each scenario in different strategies or positions within the firm

Figure 2: Stress Test Results for WTI price and volatility changes broken down by strategy



Finally, option markets are an excellent source of information regarding the market perception of the probability of extreme events. OTM calls and puts can provide a macro hedge and peace of mind to many firms. We argue that the time to seriously consider the purchase of that protection is when markets are stable and implied volatilities are low, rather than after a possible oil crisis hits the markets.

FOW

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Best Practices in Energy and Commodity Risk Management Series:

Framework, Market, Credit, Operational, Liquidity and Model Risk

Carlos Blanco, Kevin Dowd and José Ramón Aragonés, Black Swan Risk Advisors
Robert Mark, Black Diamond Risk Enterprises

Futures and Options World. 2005

An Integrated Framework. February. 2005

Stress Test: Best practices in market risk management. March 2005

Art or Science: Best practices in operational risk management. April 2005.

Russian Roulette: Best practices in counterparty risk management. May 2005.

Liquid Diet: Best practices in liquidity risk management. June 2005.

Keeping all Eyes on Model Risk. September 2005.

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Beyond Normality, Volatility and Correlations

Carlos Blanco, Black Swan Risk Advisors, LLC

Financial Engineering News. Frontiers of Financial Engineering and Risk Management. Special Issue. Nov/Dec 2005

Summary

The 9/11 Commission cited "failure of the imagination" as one of the US intelligence community's key weaknesses. I believe that the same failing currently afflicts the risk management profession.

The recent history of risk management has been characterized by rapid change in both theory and practice. Today, however, the excitement of the 'early years' is gone and, although change continues, it tends to be slower and incremental rather than rapid and transformational.

Practitioners seem to be content with current risk management practice, despite the fact that many risk models are still purely based on analysis of historical data and are riddled with assumptions.

One of the key roles of the risk management process is to manage extremes, such as those associated with the tails of market return distributions and extreme operational events such as rogue trading or accounting fraud. Despite important developments in extreme event estimation, there is still significant room for improvement. Markets are complex systems that need to be continuously analyzed. In order to be prepared for the next crisis, forward looking and creative thinking are absolutely essential, as well as carefully designed contingency plans.

Many derivatives pricing and risk models are based on very questionable assumptions about individual and joint market behavior as well as portfolio dynamics. For example, most models are still contaminated by assumptions of "normality" or "lognormality" of returns, or by the use of volatilities and correlations for derivatives pricing and risk modeling.

Financial engineers have made substantial progress in enhancing the accuracy and speed of their models. The next step is to gain a greater understanding about the actual application of those models. It is also important to consider the organizational structure within which the decision to take and manage risk is made.

Many financial engineers have a heavy quantitative background, and their risk models tend to view the world as a place where experiments take place under certain pre-determined idealized conditions. The fall of LTCM was the culmination of a very particular way of depicting financial market behaviour. It also illustrated the consequences of putting too much faith in risk models.

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derivatives week

Beyond VaR and Expected Shortfall: Spectral Risk Measures

Carlos Blanco and Kevin Dowd
Derivatives Week. July 25th. 2005.

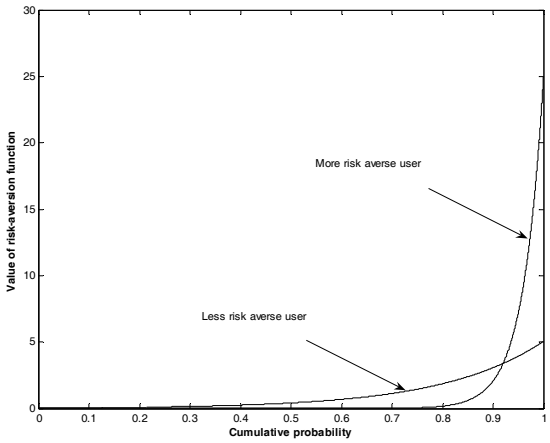
Summary

One of the main problems with VaR is that it ignores the values of losses in the tail of the distribution beyond the VaR quantile. Two funds can have the same VaR – and therefore appear to have the same risk – and yet have very different risk profiles.

It also means that the VaR can encourage fund managers to promote their own interests at the expense of their investors. The classic example is where a fund manager facing VaR-defined risk targets 'spike' their funds by selling out-of-the-money options that lead to higher income in most states of the world and the occasional large hit. If the options are suitably chosen, the bad outcomes will have probabilities low enough to ensure that there is no effect on the VaR, and the fund manager benefits from the higher income (and hence higher fees) earned in 'normal' times when the options expire worthless.

A series of risk measures known as "coherent" risk measures have theoretically superior properties (especially subadditivity) and avoid many of the problems that can arise when VaR is used as a risk measure. Coherent risk measures are weighted averages of the quantiles of the loss distribution, and can therefore be regarded as weighted averages of VaRs, where the weights satisfy certain desirable properties . The best-known of these is the Expected Tail Loss (ETL), also known as Expected Shortfall (ES), which is the average of the expected losses beyond VaR.

While VaR does not provide any guidelines about what to expect when losses are greater than VaR itself, ETL does give us an indication of what we may expect in "bad times".



However, ETL has a series of limitations as it assigns weights to tail observation in an arbitrary way. Bringing the firm's risk aversion and preferences into the risk measure seems to be the next natural step in the evolution of risk measurement.

A spectral risk measures can be regarded as a weighted average of losses (or VaRs) at all possible confidence levels, where the weights chosen reflect not just the probabilities associated with the losses, but the strength of the user's risk-aversion. Spectral risk measures rely on the correct specification of the risk aversion function.

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The Fall of China Aviation Oil: Lesson to Learn

Carlos Blanco and Robert Mark

Commodities Now. March 2005. pp 29-34.

COMMODITIES NOW

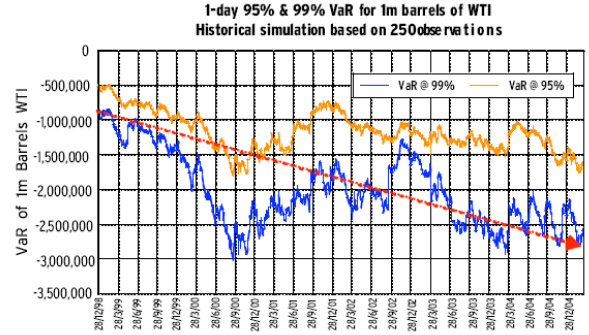
Summary

China Aviation Oil Singapore (CAO) – the Singapore - listed subsidiary of state – owned China Aviation Oil Holdings Co, and China's largest jet fuel supplier – announced last December that it had filed for court protection after it suffered a speculative derivatives trading loss of US$ 550 million.

It is very likely that CAO's traders and senior management managed to circumvent their trading limits and hide losses. CAO had a risk policy and a set of limits in place that, if followed, should have prevented the debacle.

The company's directors were most likely aware of the problems faced by the firm, but decided not to disclose them to the markets in order to buy time to put a rescue plan in place. A court affidavit during the week of December 3rd 2004 indica ted that CAO officials told investors that the company 's earnings would exceed its 2003 performance, although it had already been hit by US$ 232 million in derivatives losses it had not previously disclosed to the market.

Figure 2. VaR for a Position of 1m Barrels of WTI Through Time



The VaR of 1 barrel of oil has increased by nearly 300% in the period between 1998 and December 2004

Source: Black Swan Risk Advisors LLC

Chen Jiulin, CAO's Chief Executive Officer and Managing Director, was one of China's rising stars. In the last few years, he delivered key speeches at international forums and published a number of articles in newspapers and magazines. Mr. Jiulin's rise and fall has striking similarities with Enron's Jeff Skilling.

The derivatives losses were more than twice as large as CAO's shareholders equity in 2003. In addition, it is alleged that China Aviation Oil Holding Co. had been informed about CAO's dire financial straits some 10 days before it sold a 15% stake in the company to institutional investors on October 20th 2004 (possibly in an effort to raise cash to meet mounting margin calls).

Table 1. CAO's Payment Demands as of November 29th 2004

Company	Amount (US$)	Details
Barclays Capital	26,461,650	Settlement of three derivatives transactions
Mitsui & Co Energy Risk Management	70,331,400	Unwinding of 50% volume of eight derivatives contracts
J Aron & Company (Singapore)	12,397,805	Settlement of six swap & options transactions
Mitsui & Co Energy Risk Management	73,314,300	Unwinding of remaining 50% volume of eight derivatives contracts
Standard Bank London	14,430,398	Margin call
Macquarie Bank	2,610,000	Margin call
Sumitomo Mitsui Banking Corporation	113,72639	Demand for repayment of short-term credit facility, plus interest & default interest
Fortis Bank	33,100,000	No details
J Aron & Company (Singapore)	3,500,000	Margin call
Total	US$ 247,518,192.92	

Source: Risk, January, 2005

We extract a series of key lessons for Energy & Commodity Trading firms based on the information made public.

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The Risk Edge: Next Generation of Commodity Spread Models

Blanco, C.; Dowd, K.; Mammarelli, C.
The Risk Desk. Volume V. February. 2005.

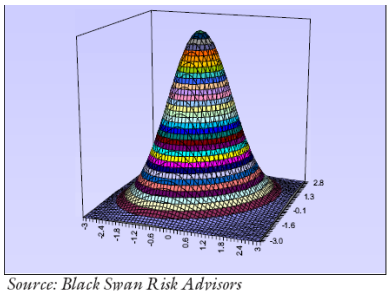
Summary

Spread relationships dominate physical markets and asset-hedging activities. Common examples are refinery crack spreads, power plant spark spreads, storage time spreads and geographical spreads (shipping, pipelines, etc.). Because of that, spread options and basis or differential swaps are some of the most common instruments traded in energy markets.

Yet despite their crucial role in most energy portfolios, the modeling of energy spreads is still very much in its infancy.

Many firms still use pricing and risk models that make a number of clearly unrealistic assumptions about underlying market behavior. In particular, many firms continue to assume that joint price distributions are lognormal or normal and that spreads are potentially unbounded, and use linear correlations to describe the dependence structure between related random variables.

The empirical distributions for many commodity spreads clearly show that these simplifying assumptions are inconsistent with real-world markets. The associated "model risks" can result in serious mispricing of spread derivatives or the mismeasurement of the risks they entail.


Source: Black Swan Risk Advisors

A variety of factors influence physical markets and help produce very "non-normal" distributions. One such factor is the availability of physical storage, which prevents the discount between spot and forward prices for many energy and commodity prices from ever becoming as large as standard models suggest is possible. Another is the availability of transportation, which links regional markets and sets bounds on geographical spreads. And a third is the ability of market participants to change their behavior depending on price signals, e.g., electric generators can reduce output when the 'spark spread' between natural gas and power becomes too small.

In this article, we explore alternative models to model derivatives based on spreads, and introduce copulas as an alternative dependence measure.

Copulas allow us to model individual asset price behavior using non-normal processes including a mean–reverting, jump-diffusion, and still have a "correct" way to determine their joint behavior. We can do so by taking marginal distributions – each of which describe the way in which a random variable moves "on its own." Then applying a copula function that tells us how the marginals "come together" to determine the joint or multivariate distribution.

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Top Ten Questions for Chief Risk Officers at Energy and Commodity Related Firms:

Are you balancing the "hard" vs. the "soft" side of risk management?

Carlos Blanco and Robert Mark

The Risk Desk. End of Year Special Issue. Dec. 2004.


the DESK
Annual End of Year Issue
December 2004
SPECIAL REPRINT
the RiskDESK
RISK POWER eXECUTIVE
Ten Questions For CROs at Energy and Commodity-Related Firms
Are You Balancing the "Hard" Versus the "Soft" Side of Risk Management?
Dr. Carlos Blanco and Dr. Robert Mark
The chief risk officers (CROs) who are identified with best-practice energy and commodities-related firms have re-
lenge for CROs. In other words, the best CROs stay on top of a complex combination of factors that drive risk. For example, as illustrated in figure 1, the CRO needs to build a risk program that supports the organization's efforts to operate in diverse markets, serve customers and satisfy regu-
rect reflection of the ability to hire and retain first-class risk managers. The stature of risk managers is also important. If risk-management personnel do not have the stature to be able to stand up for their beliefs under pressure, it is a recipe for trouble down the road. As Vince Kaminski, Enron's ex-head of research, said, Enron's ex-CRO chose "shame over confrontation" by sticking his head in the sand and therefore allowing senior management to continue engaging in business practices that went against shareholder interests.
2. Have you been able to design the risk-management organization and structure the risk-management compensation plan to achieve maximum effectiveness?
The design and reporting structure of the risk-management organization

Summary

In this article, we propose a set of 10 straightforward questions for CROs in energy and commodity-related firms that can be used as an evaluation tool to identify potential gaps in best practices.

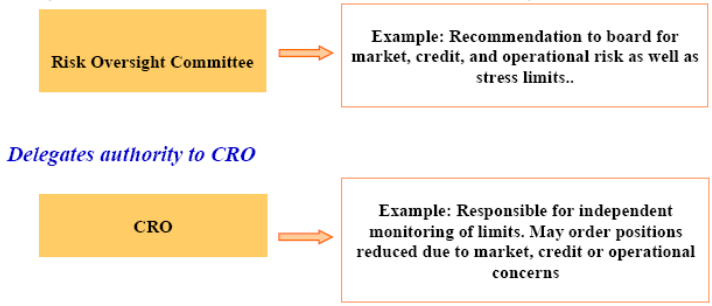
The questions attempt to capture potential weaknesses in the risk management process and cover a wide range of issues from the stature, responsibility, authority and compensation of the CRO and the risk group in the organization, to the courage of the risk management professionals.

Courage is one of the key issues that needs to be evaluated in a CRO. As Vince Kaminski, Enron's ex-head of research, said, Enron's ex-CRO chose "shame over confrontation" by sticking his head in the sand and therefore allowing senior management to continue engaging in business practices that went against shareholder interests.

The questions also address the degree of involvement of risk management in major investment and divestment decisions.

A CRO faces a significant challenge in ensuring that there is a formalized process to discuss and debate the trade-offs among the various business units so the firm can opportunistically increase or decrease their risk.

Figure: 2. Responsibility and authority should go hand in hand.



The article also argues that CROs should be in charge of designing a comprehensive RAROC process to provide the bridge to tie risk/reward relationships with the different activities and business units of the firm and therefore serve as a common analysis and communication tool. An investment evaluation process based on economic capital considerations (such as where decisions are based on a risk-adjusted return basis) encourages corporate managers to take risk into consideration explicitly at the time of allocating resources internally as well as to make investment and divestment decisions.

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