

# Operational risk red flags: Lessons learned from ten hedge fund blow-ups

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*Received (in revised form): 6th September, 2007*

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## ABSTRACT

*This paper examines the lessons learned and ten specific 'red flags' that can be extracted from*

*a case study analysis of recent hedge fund blow-ups, with emphasis on the Amaranth Advisors loss event. An in-depth discussion is included on the recent US Senate report on Amaranth and the role that electronic unregulated markets played in that breathtaking event. Through a systematic analysis of Amaranth and other events, a list of criteria is established for evaluating the risk profile of an individual fund from the perspective of investors or other exposed entities, such as service providers. These recommendations include an analysis of the mix of trading activity on regulated versus unregulated exchanges, the role that models play in day-to-day management, risks inherent in promoting a star culture and attention to market practices.*

**Keywords:** *hedge funds, operational risk, lessons learned, unauthorised trading, rogue traders, risk management, expert opinion, quantitative models, valuation, blow-ups, case studies*

## THE STATE OF THE HEDGE FUND SECTOR: WHY OPERATIONAL RISK MATTERS

The US\$6bn loss suffered by Amaranth Advisors in September 2006 was a wake-up call to the industry concerning the importance of operational risk concerns to the hedge fund sector. It raised questions relating not only to energy market condi-



tions, but also to the operations of the hedge fund, that included:

- why was so much of the fund's capital put at risk?
- why did the energy trader have so much access to the firm's funds, and seemingly so little oversight and supervision?
- how could a fund lose US\$6bn in so short a time frame?

Behind an examination of these questions lie a series of 'red flags' that can be extracted from examining the Amaranth event and other landmark hedge fund blow-ups.

The hedge fund industry has experienced tremendous growth in the last few years. Hedge Fund Research<sup>1</sup> estimated that, as of year end 2006, there were 9,000 hedge funds in existence, with total assets in the range of US\$1.3tn.<sup>2</sup> This is up from 3,873 funds in 2000, with US\$490bn in assets.<sup>3</sup> By mid-year 2007, total hedge fund assets were approaching an estimated US\$2tn.<sup>4</sup> But the growth in the sector might be impinged upon by large hedge fund losses. Blow-ups lead to calls for increased regulation, which might lead to limitations placed upon those who can invest in hedge funds. We have already witnessed a proactive US Senate, which released a report in June 2007 calling for regulation of electronic commodity exchanges by the Commodities Future Trading Commission (CFTC).<sup>5</sup>

The topic of operational risk and hedge funds is a large one, because operational issues touch every aspect of these organisations. Operational risk events refer to losses, or near losses, that are created by forces beyond pure market swings. In addition, losses related to market conditions can be greatly amplified by operational risk issues. In other words,

well-run hedge funds that deploy good operational risk practices can weather market volatility better than those that are exposed to control and management issues. Amaranth, whose US\$6bn loss has been attributed to a swing in energy prices, is a case in point.

The following issues either originate in operational risk, or contain elements of operational risk and are important factors in how hedge funds can weather volatile market conditions:

- intentional or unintentional improper or incorrect valuations;
- inexperienced traders and management;
- irregular or limited stress testing;
- over-reliance or under-reliance on quantitative market models;
- lack of adherence to, or drift away from, investment style;
- overemphasis on 'star' traders who achieve outsized returns;
- cornering of market in securities or commodities;
- singular trading strategies;
- improper market practices; and
- mix of trades on regulated versus non-regulated markets.

Adherence to operational risk best practices allows a hedge fund to develop resilience and muscle for its survival through times of volatility. Lack of attention to operational risk concerns can make funds more vulnerable to market dislocation.

## WHERE DO THE OPERATIONAL RISKS RESIDE?

Many hedge fund operational risk concerns involve 'process' aspects of running a fund, such as proving accurate valuations and proper stress testing. The 'process' category for hedge funds is one of the

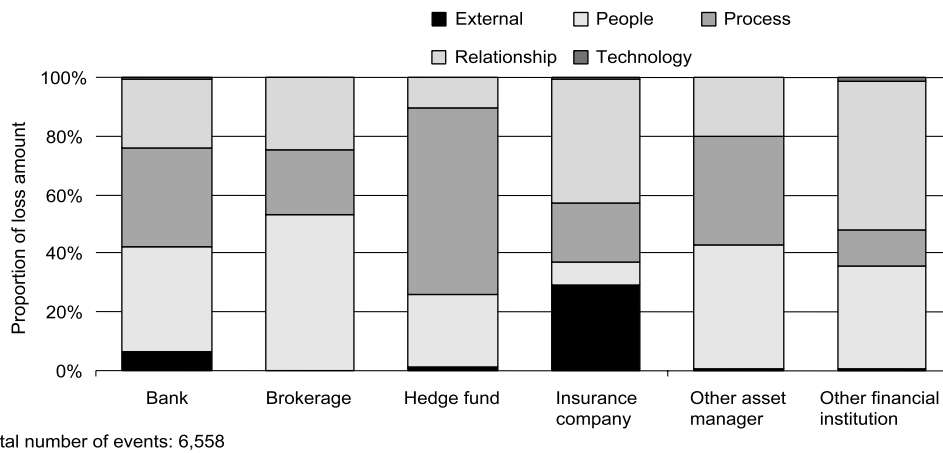


Figure 1 Loss event breakdown per industry

Source: Algo FIRST database

largest when losses are examined from the Algo FIRST database of operational risk loss events (see Figure 1).<sup>6</sup> This is particularly interesting considering the general impression that operational risk loss events can be attributed to issues that are more often associated with internal fraud, such as evidenced by the Bayou hedge fund fraud: over time, it becomes apparent that it is breakdowns associated with the actual running of funds that are the most prominent.

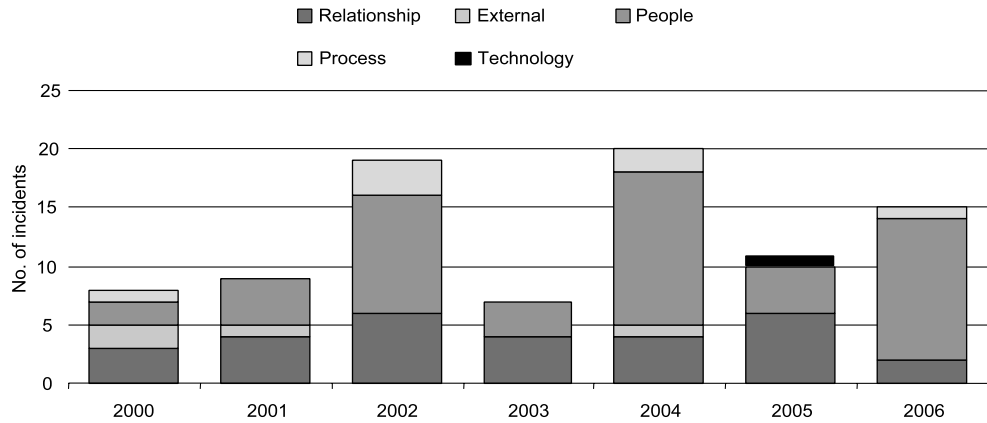
The hedge fund industry is not a static or homogenous sector, with operational risk pressures constantly changing as the industry itself reaches both upstream to large institutional investors, such as pension funds, and downstream to less affluent investors. Hedge funds are also currently moving into new strategies and redefining their present business models, which will require intelligent and thorough planning for a new set of operational risk challenges. Hedge funds, for example, are investing an increasing amount of assets in what they call 'non-correlated' risk. This allows them to take small portions of their assets and invest in places that would not be

impacted by market conditions, such as in the private markets.

There has, for example, been a recent trend towards convergence between hedge funds and private equity funds. Private equity funds have been acquiring or starting hedge funds, and hedge funds have become more active in the private equity markets. This leads to inevitable concerns surrounding a mismatch of skills and greater operational risk problems. Private equity funds, for example, may not have the requisite skills to run complex trading operations, while hedge funds may not understand the necessary rigour associated with private equity transactions and investments. One category of fund is very nimble at moving in and out of investments, while the other takes a more disciplined and hands-on approach in the internal operations of the recipients of the private capital.

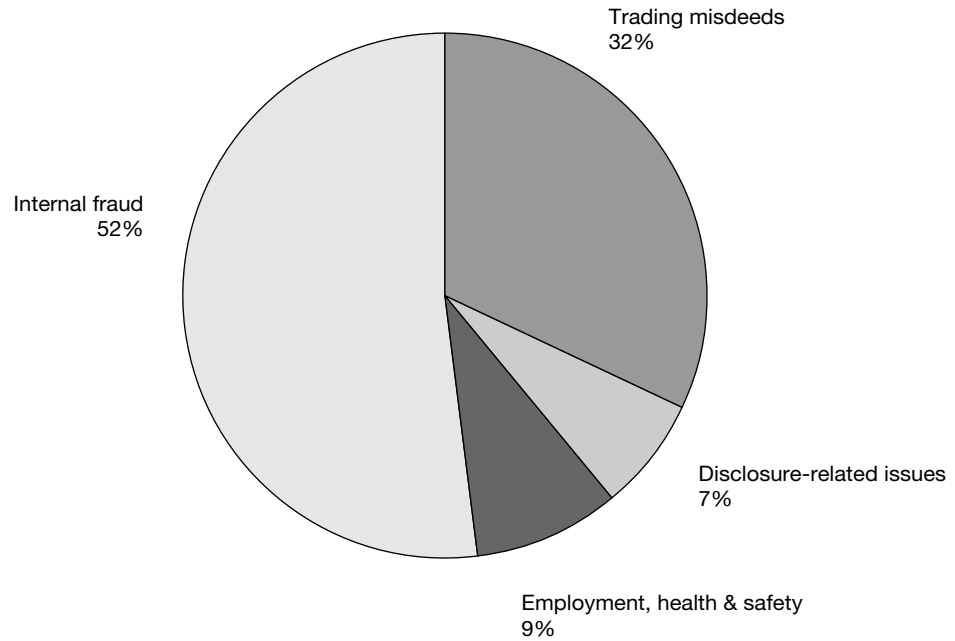
Although process risk is one of the largest categories for operational risk hedge fund events, the trend has been for 'people risk' — which encompasses internal fraud — to grow as an important exposure over time. Figure 2 demonstrates this increase over time,

Figure 2 Loss trend in the hedge fund industry



Source: Algo FIRST database

Figure 3 Hedge funds: People risk category by number of losses



Hedge funds: 94

Entity type = Fund management company/hedge funds

Service/product offering type = Hedge funds

Source: Algo FIRST database

with the bulk of losses collected for 2006 falling in this category. Figure 3, meanwhile, demonstrates that the majority of hedge fund losses attributed to the people risk category fall into the domain of internal fraud. This category

includes intentional misvaluation, fraud, embezzlement, and ‘pump and dump’ schemes.

Figure 4 demonstrates where losses fall for hedge fund events according to the seven primary Bank for International

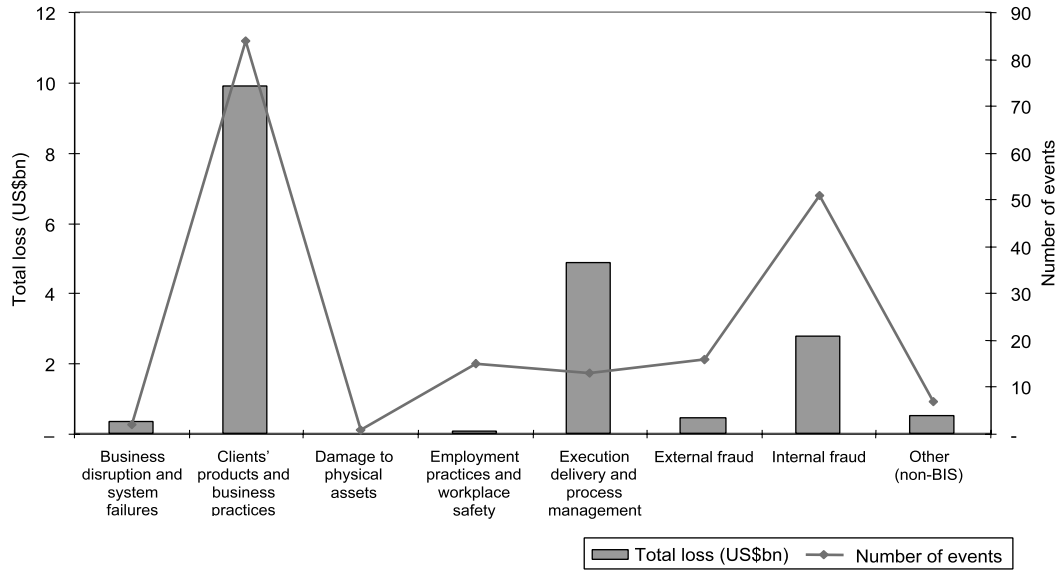


Figure 4 Hedge fund losses by BIS event type

Source: Algo FIRST database

Settlements (BIS) event type categories. The chart demonstrates that the largest category in terms of total loss amount is that relating to execution; in terms of number of events — that is, in terms of frequency — the largest category is that relating to clients and business practice issues, such as mis-selling and suitability.

**REGULATORY REVIEW**

Blow-ups such as Amaranth inevitably result in the expected regulatory call for enhanced oversight and the hedge fund community's counter-contention that 'trade secrets' or proprietary trading strategies are at risk of being compromised. Hedge funds have all along argued that any type of disclosure would result in increased risk for the markets: the trades of the more successful funds could be shadowed by others, depending on the level of disclosure, and, as a result and as was the case with Long Term Capital Management (LTCM), it would be

difficult to sell off certain positions during times of high volatility.

Few regulatory initiatives have been as contentious as the effort of the US Securities and Exchange Commission (SEC) to regulate hedge funds. The SEC scored a victory when it announced disclosure requirements for hedge funds. This led to preparation work on the part of hedge funds that met certain criteria and movement toward meeting 'light disclosure' requirements by the February 2006 deadline.

The direction of the SEC's disclosure initiative changed in June 2006, when a US federal appeals court rejected the new disclosure requirements as tantamount to violations of securities laws. The court ruled that a change in US securities laws would be necessary before the SEC could obligate non-regulated entities, such as hedge funds, to file disclosure reports.<sup>7</sup> This occurred during a time of political change in Washington DC and not too long after the US

Congress came under the control of the Democratic Party.

The SEC did not appear defeated at the time and announced that it would investigate ‘administrative’ solutions to the issue of hedge fund regulation, including raising the minimum level of net worth for investors entering hedge funds to US\$2.5m. More than one year later, however, the SEC has not yet managed to raise the minimum net worth of accredited investors from the current US\$1m floor that has been in place since 1982 — and there is speculation that the proposal will be abandoned.

The SEC has managed to increase its enforcement prowess. In July 2007, the SEC adopted a rule that allows it to sue hedge funds that are believed to have misled investors. If the SEC can determine that a hedge fund has provided inaccurate information to investors in relation to investment strategies, performance or a manager’s experience, the SEC now has the authority to move the matter to the courts.

At the same time, as the result of blow-ups that are discussed in this paper, some hedge funds have moved to file voluntary disclosure reports. These hedge funds have adopted this method of self-disclosure in an effort to distinguish themselves from competitors and to attract institutional investors who are increasingly demanding transparency.

### **LESSONS LEARNED FROM LANDMARK CASES**

Hedge fund losses tracked by the FIRST database of operational risk case studies now total approximately US\$22bn. But the loss amount, as expressed in dollars, is only part of the story: within each case study is an analysis of what went wrong within the hedge fund through an operational risk perspective. Some of the

events — such as LTCM — may be considered to represent market risk losses for risk categorisation purposes, but they have strong operational risk underpinnings. The analysis of past events can lead to more understanding of what could go wrong in the future and a greater acceptance of operational risk best practices in the hedge fund sector. In hindsight, even among landmark events such as LTCM there are commonalities that can serve as valuable content for the formulation of ‘red flags’, or warning indicators.

A series of cases have been selected for discussion in this paper. Amaranth is discussed in depth, because it contains a multitude of lessons learned from an operational risk perspective. These cases discuss losses that were incurred as a result of over-reliance on models and model errors, over-concentration in specific strategies or commodities, problems with singular strategies, outright fraud, improper valuation and control issues. These cases provide insight and content for the ultimate list of red flags for which investors, institutions and service providers should look in their due diligence in relation to any hedge fund with which they interact.

### **AMARANTH ADVISORS: LESSONS LEARNED FROM A US\$6BN LOSS (SCENARIO ONE)**

#### **Summary**

Amaranth Advisors announced, in September 2006, that it had suffered losses in the range of US\$6bn from natural gas trades. The losses were attributed to a dramatic drop in natural gas prices during the month of September 2006 and an associated lack of liquidity in the market: when bets on natural gas futures for March 2007 and March 2008 went

against the fund, it was unable to sell its significant portfolio of contracts into a rapidly falling market. A number of control failings contributed to the loss, including over-leverage, ineffective pricing models during a time of volatility, and an alleged confusion on the part of the trader between paper and cash profits.

The US Senate released a report on the event in June 2007 that identified the ‘Enron loophole’ as an important contributing factor.<sup>8</sup> The Senate Subcommittee report targeted Amaranth’s ability to arbitrage between regulated and unregulated markets as a key variable in the realisation of such large losses. The CFTC had previously warned the fund that its natural gas positions had become too concentrated; the fund had proceeded to unload positions it held in the CFTC-regulated New York Mercantile Exchange (NYMEX) and to purchase similar contracts in the unregulated Intercontinental Exchange (ICE).

### Details

Amaranth promoted itself as a fund that had in place best practice risk management systems. It did not, however, have a long energy trading history and primarily engaged in the less volatile trading of convertible bonds. The hedge fund’s chief energy trader was California-based Brian Hunter, who was allegedly responsible for the trading loss. Hunter’s strategy was seemingly ordinary: he worked to exploit differences in the delivery price of natural gas at different points in time; he also bought options to buy or sell natural gas if prices moved against what the rest of the market had anticipated. The dual strategy was thought to be less risky than simple bets on the up or down movement of prices.

Natural gas prices started falling in early September 2006, as supply became readily available. Hunter, however, felt that either

another dramatic hurricane season, like that which had been experienced in September 2005, or a very cold winter in the USA, with its subsequent pull on energy resources, would eventually push natural gas prices back up. That predicted dramatic hurricane season had not, however, materialised by mid-September 2006 and a mild winter was predicted for the 2006–07 season.

The Amaranth event led to an investigation and hearings sponsored by the US Senate’s Subcommittee on Investigations. The bipartisan Subcommittee traced the pattern of natural gas trading through millions of records from both the regulated NYMEX and the unregulated ICE. It came to the conclusion that Amaranth had dominated the natural gas markets from early 2006 until its September 2006 collapse. In fact, at one point during 2006, Amaranth had owned at least 40 per cent of all outstanding natural gas contracts trading on NYMEX.<sup>9</sup> The CFTC had even been so concerned about Amaranth’s holdings of natural gas contracts that it had ordered the firm to reduce its positions in the commodity. Securities regulations allow the CFTC to demand reductions in positions that are large enough to impact market prices.

But what the CFTC had no control over, or knowledge of, was Amaranth’s positions on the ICE: there are no limits on the unregulated ICE, nor does the CFTC have the power to order reductions in concentrated positions. It is this that the Senate Subcommittee called the ‘Enron loophole’, created by the US Commodity Futures Modernisation Act of 2000, which deregulated certain types of futures trading, including energy futures. Enron had lobbied heavily for the passage of this regulation, which allowed it to remove from the regulated markets a substantial portion of its trading activities.

The Senate Subcommittee found that the ICE and NYMEX influence each other, and that both have impact over the price of natural gas, which its report identified as an essential commodity for US consumers. The investigation had been based on the premise that there was no market reason why the price of natural gas should have been so volatile during the summer months of 2006, because supply and demand patterns had been relatively stable. This anomaly led to its conclusion that Amaranth's concentrated holdings had led to higher contract prices, which had ultimately caused consumers to pay inflated prices for natural gas. This led to the Subcommittee's primary recommendation that, because the currently unregulated energy markets can have an impact on consumer prices, they should be regulated by the CFTC.

Whenever a large hedge fund implodes, the event is compared with the US\$4.4bn loss sustained by LTCM in August 1998. Unlike the debacle involving LTCM, which resulted in a rescue by the US Federal Reserve, the case of Amaranth did not result in dislocation of the markets. This was attributed to a number of factors, including Amaranth's holdings in significant liquid assets that it was able to sell off quickly. LTCM was also at risk of losing significantly more than the US\$4.4bn and there was a lack of liquidity in the emerging markets within which its investment strategy was concentrated. In addition, LTCM was significantly more leveraged than Amaranth.

### **Control failings and contributory factors**

There has been speculation that Amaranth concentrated too much of its resources in natural gas positions, and failed to deploy proper hedging and diversification strategies. Chief energy trader Brian

Hunter would allegedly borrow money to 'double down' his trades on energy futures and to buy increased numbers of contracts that he already owned. What this meant is that he was helping to drive up prices on contracts that he owned. The problem with this strategy is that the price support could only last as long as Amaranth was willing to spend more money on the acquisition of additional contracts.

Amaranth touted its sophisticated market risk systems — but coverage on the event by the *Wall Street Journal* suggested that these systems were flawed, because they did not '*measure correctly how much risk [Amaranth] faced and what steps would limit losses effectively*'.<sup>10</sup> The *Journal* speculated that most models used by energy trading firms would be problematical in 2006, due to extreme volatility in the energy markets and the related inadequacy of model inputs, such as historical data.

An additional control failing was a failure of the firm's Canadian office to abide by a company policy that attempted to limit large discretionary trades to the firm's home office in Greenwich, Connecticut. After demonstrating big gains in 2005, Hunter had been allowed to participate in such trades from Calgary. A former human resources officer with Amaranth is reported as commenting that '*to have a relative newcomer receive so much discretion is shocking to me*'.<sup>11</sup>

The Senate report on this event targets the lack of regulation in the electronic ICE. Amaranth was essentially operating without any regulatory oversight or controls: the firm was able to switch its trading to the ICE when the CFTC expressed concern that it held too many contracts on NYMEX. If the CFTC had also been in charge of overseeing the electronic exchange, it is likely that Amaranth would never have been able to

accumulate such a large natural gas position.

### How management responded

Amaranth contacted its investor base only a few weeks after it announced impressive returns for the month of August 2006 with the following warning that losses had been sustained in September:

As of this writing, we anticipate our year-to-date losses might be in excess of 35 pct as we near completion of the disposition of our natural gas exposure.<sup>12</sup>

The letter was later revised on 20th September, 2006, and stated that the firm had lost 65 per cent of its assets, or US\$6bn. A letter circulated to investors a few weeks later indicated that recent redemption requests would not be met and investors would need to wait longer to retrieve their funds.<sup>13</sup>

The original loss estimate was raised after the firm sold off some of its assets at a loss. CEO Nick Maounis stated, in the investor letter, that the sale *‘helped us avoid the termination of our credit facilities and the risk of a consequent forced liquidation by creditors’*. He also wrote:

We are now focused on communicating with our investors and defining the future of our business. Amaranth is determined to earn back its investors’ trust, and one step towards that end is to share as much information as we reasonably can.<sup>14</sup>

Amaranth announced on 20th September, 2006, that it was in the process of transferring its energy portfolio to an unnamed third party.<sup>15</sup> Maounis held a news conference with investors on 23rd September, 2006. After promises all week had assured all that the conference would be open and

would provide an opportunity for investors to ask questions, in the event, it consisted of a pre-recorded statement read by Mounis.

The firm’s chief operating officer, Charlie Winkler, indicated in October 2006 that he was working diligently to secure positions for as many as 250 of the firm’s 420 dismissed workers. He also made a plea to the firm’s competitors to resist recruiting the remaining employees so that they could assist with an orderly shutdown.<sup>16</sup>

On 22nd March, 2007, Amaranth circulated a letter asking investors whether they would agree not to sue the firm in return for faster distribution of their money.<sup>17</sup> Amaranth said that the plan was proposed by an unidentified investor group representing about 10 per cent of the capital in its flagship multi-strategy fund. According to press reports, the plan offered two options: if investors agreed not to sue Amaranth for actions that led to its collapse, they could get faster distributions from the ongoing liquidation; if they decided not to release the firm from liability, a portion of their pending proceeds would be set aside in a litigation reserve fund.

### Lessons learned

Initial speculation that, with two ‘hot button’ issues surfacing in this case — energy and hedge funds — regulators and the US Congress would be moved to begin the discussion on enhancing oversight has been realised. The Senate Permanent Subcommittee on Investigations held hearings on the Amaranth case and released a 139-page report in June 2007 entitled *Excessive Speculation in the Natural Gas Market*.<sup>18</sup> Committee chairman, Carl Levin, commented that Amaranth had turned the *‘US energy markets into a lottery where everybody is forced to gamble’*. He also cited the ‘Enron loophole’ as a factor

in allowing Amaranth to arbitrage its trades between regulated and unregulated markets.

The Senate report's recommendation was that the over-the-counter (OTC) commodities exchanges — and primarily the ICE — should come under the regulatory mandate of the CFTC. Ranking minority party committee member Senator Norm Coleman commented that:

[the] ongoing shift of energy trading to unregulated, over-the-counter electronic exchanges undermines the CFTC's ability to monitor and prevent excessive speculation and price manipulation.<sup>19</sup>

#### **MOTHERROCK: LESSONS LEARNED FROM LOSSES SUSTAINED FROM ENERGY BETS PLACED IN ANOTHER DIRECTION (SCENARIO TWO)**

MotherRock Energy Master Fund alerted investors on 2nd August, 2006, that it had sustained losses in the range of US\$230m as a result of placing bets on the direction of natural gas contracts traded on NYMEX.<sup>20</sup> MotherRock had US\$500m of assets at the time and announced that it was intending to shut down in order to preserve remaining cash reserves. The losses were sustained during a very volatile time in the energy trading market and emanated from a bearish belief that natural gas prices would eventually fall. Unlike Amaranth's losses, which were announced a few weeks later, MotherRock had gambled that the price of natural gas would decrease.

MotherRock placed bets that the price of natural gas would continue to drop as it had done for most of 2006. Prices reached a high in December 2005, but were driven down by an estimated 60 per

cent, due to a mild winter in the USA and a large supply of the commodity on hand. Gas prices, however, started to improve dramatically by July 2006, as a result of enduring heatwaves throughout the USA and the resulting spike in the use of air conditioning. By July 2006, prices had rebounded by 40 per cent. During the month of July, volatility in the natural gas options market swung between 12 and 15 per cent. MotherRock was a single-strategy firm, with all of its trading assets invested in natural gas futures — and such a strategy can be inherently riskier than one that is spread among a wider range of asset and security types.

The blow-up of MotherRock was not considered to be representative of systemic problems at the time, due to its relatively small size — but the much larger losses sustained by Amaranth, in tandem with MotherRock, led to a flurry of commentary on inherent risk within the sector. Such risk is driven by trades financed by leverage, relatively young traders, and a commodities sector that has limited supply and is very sensitive to market demands. There is also a misbalance between how many barrels in NYMEX crude oil contracts are owned by hedge funds and the actual number of physical barrels delivered to the market. This misbalance can lead to volatility, wild trading and swift changes in the direction of prices. In this case, the market became volatile when the storage supply of natural gas started being tapped into in order to meet the demands of the sweltering summer of 2006.

#### **GLG PARTNERS: LESSONS LEARNED FROM A MODEL FAILURE (SCENARIO THREE)**

GLG Partners' flagship credit hedge fund registered unprecedented losses in the month of May 2005 as a result of the

credit downgrades of Ford Motor Co. and General Motors.<sup>21</sup> The dramatic loss was partially attributed to flaws in the credit fund's trading models. GLG partially attributed the 14.5 per cent drop in value of its US\$1bn credit fund during May 2005 to errors in its trading model. According to a letter circulated to GLG's clients, the hedge fund's trading models for credit derivatives failed to account properly for market swings as a result of the credit rating downgrades of General Motors and Ford.<sup>22</sup>

In a private letter to its clients, GLG blamed the credit fund's losses on a mathematical model that it utilised to price complex credit derivatives. The model failed to account for market volatility as a result of credit agency downgrades of GM and Ford, and, specifically, how the automotive manufacturers' debt would respond to the drop in ratings. The models also allegedly failed to anticipate a sharp drop in the price of the riskiest tranches of certain collateralised debt obligations (CDOs).<sup>23</sup>

GLG stated that the model errors happened because the CDO market is relatively new, and so the models did not have enough history to support accurate predictions of risk and to account for the sequence of events that occurred in mid-2005. The fund's client letter stated that *'consequently any risk simulations based on historic data would not have identified this move'*.

One of the contributory factors in this case is the inadequate stress testing of models. According to the client letter that was circulated, the state of events that occurred in the markets after the downgrades of Ford and General Motors were characterised as events that were so unlikely to happen that they could be ignored. The model labelled such combination of events as an 'eight standard deviation move'.

#### **LF GLOBAL INVESTMENTS: AN OUTRIGHT FRAUD (SCENARIO FOUR)**

In February 2005, the SEC charged the principals of hedge fund Global Money Management with defrauding investors out of approximately US\$100m.<sup>24</sup> The fraud allegedly goes back to 1993 and involved a traditional Ponzi scheme. The hedge fund, which was operated by a shell company called LF Global Investments, allegedly became a 'personal bank account' for the fund's principals.

Investors are believed to have contributed more than US\$100m to the hedge fund between 1999 and 2004. Of that amount, only US\$33m is believed ever to have been transferred into trading accounts — and of that US\$33m, approximately 50 per cent was lost through bad trading strategies and only US\$16m was returned to the hedge fund for further investing. By the time that the SEC embarked upon an investigation in early 2005, the hedge fund held only US\$3m in investments and US\$8,000 in cash.<sup>25</sup>

The hedge fund's primary sales strategy was to market its founder as a 'trading wizard' who was able to achieve 30 per cent annual gains.<sup>26</sup> In reality, however, such gains were fictional. The firm developed a close relationship with Santa Rosa-based advisory firm Zenith Capital LLC. Zenith became a conduit for the firm and was responsible for sending nearly US\$40m in assets to Global Money Management. At least 115 of the hedge fund's total 240 investors came from Zenith referrals; in return, Zenith received more than US\$2m in incentive fees.<sup>27</sup>

The firm's principals are alleged to have used the hedge fund as their personal coffers. Although they were investors in the fund, they withdrew substantially more money than they had invested. For example, the founder of the firm in-

vested US\$223,000 in the fund in 2003, but, between 1998 and 2004, he allegedly withdrew about US\$6.2m. His partner claimed to have invested as much as US\$4.6m of his funds in Global Money Management, but forensic accountants have only been able to verify a personal investment in the range of US\$2m.<sup>28</sup> Meanwhile, he is alleged to have withdrawn more than US\$18m from the fund between 1998 and 2004.<sup>29</sup>

The SEC contends that no independent audit of the hedge fund's performance returns or financials ever occurred. The founder of the fund had almost total control of operations and there was no supervision of his actions. He also had a record of past securities industry violations: he had, for example, been barred in the mid-1990s from conducting business with a National Association of Securities Dealers (NASD) member firm.<sup>30</sup>

There was also a complex web of cross-ownership and conflicts of interest involving Zenith Capital: Zenith earned about US\$2.2m in fees as a result of referring investors to Global Money Management; Global Money Management had a US\$350,000 investment stake in Zenith.<sup>31</sup>

#### **KL INVESTMENTS: 'WHIZZ-KIDS' MAY BE TOO GOOD TO BE TRUE (SCENARIO FIVE)**

KL Investors had an elite reputation and raised US\$250m from mostly wealthy Palm Beach, Florida, investors as a result of referrals made by friends, accountants and lawyers. Among the promoters of the hedge fund was a well-known trust and estate lawyer, who brought nearly forty investors into the fund. The hedge fund also relied on 'dramatics' to raise funds: potential investors were invited to the firm's headquarters in downtown West Palm Beach, where they could watch

KL's founder conduct million-dollar trades from a desk that contained over twenty computer screens.

The three principals of the hedge fund were in their mid-thirties and displayed little evidence of past financial services or investment-related experience.<sup>32</sup> They controlled six hedge funds between 1999 and February 2005, and raised approximately US\$250m from a group of prominent investors, including several professional golfers and well-known local businessmen. The hedge fund's principals created an aura that led to investors literally begging to be let in, despite the fact their trading background was limited to a small amount of day trading during the late 1990s. The founder of the firm claimed that he had worked in the mergers and acquisitions department of a large investment house in the mid-1990s, but the bank in question has no record of ever employing him.<sup>33</sup>

The biographies of the principals of the hedge fund — including that of the head trader — did not include any specific mention of prior experience managing investor funds, yet the hedge fund had a golden reputation and those that invested believed that it could double their investments. The fund claimed to achieve returns greater than 100 per cent. One of the hedge fund entities managed by the three partners in the firm, KL Investors, claimed returns of 127 per cent since its inception, while the SEC contends that it had actually lost significant money on risky and aggressive trades.<sup>34</sup> In addition, another fund predicted that it would achieve significant returns from an anticipated market downturn; instead, the market improved in 2005 and most of the fund's money remains unaccounted for.<sup>35</sup>

There were many warning signs in this case that were ignored by investors, including the lack of financial audits and independent oversight, and the promises

of outsized returns. Despite these, the fund was able to raise millions of dollars from around three hundred investors. Additional red flags included the fact that the hedge fund set up shop in extremely expensive offices in Boca Raton, rather than in more traditional financial centres, such as New York, Greenwich, Connecticut or Chicago.

### **BAYOU FUND: A MATURING OF HEDGE FUND FRAUD (SCENARIO SIX)**

On 25th August, 2005, US Federal and Connecticut investigators announced that they had undertaken an investigation into the collapse of Bayou Group, a US\$440m hedge fund manager based in Stamford, Connecticut, after a suicide note was left by a senior executive indicating a long-standing fraud.<sup>36</sup> US Federal prosecutors announced a few days later that they were suing Bayou for what they characterised as a US\$350m securities fraud.<sup>37</sup>

The two principals in the case, Samuel Israel and Daniel Marino, eventually plead guilty to investment advisor fraud, mail fraud, conspiracy and wire fraud. Both men agreed to forfeit all claims on Bayou funds. Prosecutors seized US\$100m from an account in Arizona, but the remaining US\$350m that was invested in Bayou funds was not readily accounted for. On 14th December, 2006, a third principal with the firm, James G. Marquez, plead guilty to securities fraud.<sup>38</sup>

A complaint filed by David N. Kelley, the US attorney in Manhattan, seeking the return of US\$100m in funds seized from an account uncovered in Arizona, alleged that Bayou, under ownership of Samuel Israel III, perpetrated a fraud going back to at least 1998 that is estimated to be in the range of US\$350m.<sup>39</sup> The fraudulent activity is believed to have continued through

August 2005, when the fund's management announced that it was closing down. An investigation into Bayou's money trail uncovered a complicated flow of funds through Wachovia, Barclays and Commerce Banks.<sup>40</sup>

Bayou claimed, in 2002 marketing materials, that Grant Thornton was its auditor.<sup>41</sup> In actuality, Bayou was audited by accounting firm Richmond-Fairfield Associates, which listed Daniel Marino as its managing agent. Richmond-Fairfield employed just three individuals, including Marino, listed approximately US\$110,000 in sales and included a residential apartment as its operating address, according to Dun & Bradstreet.<sup>42</sup>

Bayou had a unique fee structure: instead of accepting fees in the range of 1 or 2 per cent of assets, as is customary, it claimed 20 per cent of fund profits as its revenue. This meant that it was appealing to investors who did not want to pay up-front fees. It also had a relatively low buy-in rate of US\$225,000, which made it attractive to smaller investors, rather than only to large institutions, such as pension funds and university endowments.

Bayou filed a 2004 financial statement indicating that its four funds generated net gains for the year of US\$54.3m. The firm's executives shared 20 per cent of those gains — that is, US\$10.8m. According to the document, Bayou held US\$18m of its own capital in the fund and most inflow of new money went into the Bayou superfund, which held approximately US\$350m in assets. The funds used a short-term trading strategy in order to profit from gains from equities and options, and did not rely heavily on leverage. Most of these profits were alleged to have come from small movements in energy-related securities.

One marketing ploy that the fund allegedly used in order to comfort in-

vestors was that it owned a brokerage arm, Bayou Securities. Bayou's marketing materials mentioned that its ownership of a brokerage meant that its books were 'audited on a periodic and surprise basis by the NASD and the SEC'.<sup>43</sup> The marketing materials stated that 'regulators have the right to examine the books and records of each Bayou fund', because of the parent's ownership of a brokerage. One institutional investor stated that he was comforted by the claim that Bayou 'would be audited regularly and problems would surface'.<sup>44</sup>

Bayou also provided a degree of comfort to investors through Israel's family connections. His grandfather was a New Orleans-based coffee importer who built the family business into a commodities trading firm that was eventually merged into Donaldson, Lufkin & Jenrette. Israel consequently marketed himself as a 'third-generation trader'. Bayou also seemed to attract investors by achieving reliable and steady returns, rather than appearing flashy and registering spectacular growth that was 'too good to be true'. According to one investor, the fund 'had good returns, they seemed reputable, there's nothing sort of fly-by-night about them'.<sup>45</sup> In addition, investors must have been comforted by their ability to withdraw their funds at any time, rather than being subject to lock-up agreements.

Authorities made some progress in locating Bayou's funds when they discovered in Arizona US\$101m in a Wachovia account under the name of Majestic Capital Management.<sup>46</sup> Majestic confirmed that the money was deposited with the firm by Israel. The Attorney General for Arizona stated: '[I]t is reasonable to believe it is Bayou money.' The funds were traced to a decision by Bayou's board in December 2004 that allowed Israel to withdraw US\$100m of funds in order to invest in his own name. The

board consisted solely of Israel and Marino.<sup>47</sup>

Israel was believed to have invested the US\$100m in bank instruments that were promised to yield US\$7.1bn over a ten-year period. Federal prosecutors believe that the funds were used in what they have called a 'prime bank instrument scam', which promised investors special access to unusually large returns on debt securities that are achieved by a group of 'insider' traders. The transfer of funds to Europe, in order to achieve high rates of return by overseas traders who had advance knowledge of bond offerings, was believed to be handled by Majestic Capital.

The Wachovia bank account was targeted after funds were moved 'systematically all over the world'.<sup>48</sup> The funds in question were shifted among bank accounts in Germany, Hong Kong, the UK and the USA. The funds were originally transferred from a Citibank account in New York, to an account held with Barclay's in London, and then back again to the Citibank account a few days later. The funds were then moved to Germany, London and Hong Kong, before being returned to the USA.

Several 'red flags' were present early on at Bayou, including the fact that Marino served as a principal with the firm that audited Bayou's books. An ex-partner previously sued Bayou, alleging the disappearance of US\$7m from a trading account; the same individual also had accused the firm of securities fraud.<sup>49</sup> Israel represented himself in marketing materials as the former head trader for the established Omega Advisors — a claim that was disputed by Omega's founder.<sup>50</sup> All of these deceptions could have been uncovered through a careful search of the Internet or an online news service, such as Lexis Nexis.

When James G. Marquez plead guilty

to securities fraud in December 2006, he provided evidence that substantiated claims of significant management wrongdoing.<sup>51</sup> He claimed that he had assisted with the formulation of a strategy that misrepresented the financial health of the firm to investors. This included the issuance of false financial statements, the formulation of a ‘sham’ accounting firm and a failure to disclose regular trading losses.

This case may represent a certain ‘maturing’ of hedge fund fraud. Whatever happened at Bayou — at least on the surface — does not resemble standard Ponzi schemes, within which advertised investment returns are usually ‘spectacular.’ Instead, investors thought of Bayou as a steady, but not ‘glitzy’, investment vehicle. According to Ross B. Intelisano, a lawyer with a firm that represents several Bayou investors:

What we’re now seeing is an increase in what we call hedge fund fraud. It just shows that even sophisticated investors who do their due diligence can be defrauded.<sup>52</sup>

#### **BEACON HILL ASSET MANAGEMENT: RISKS FROM MANDATE DRIFT (SCENARIO SEVEN)**

In August 2003, a group of 32 investors in Beacon Hill Asset Management lodged a suit against the collapsed hedge fund manager after suffering massive losses as a result of a ‘huge short position’ in ten-year Treasury notes.<sup>53</sup> The hedge fund was shut down in October 2002 after incurring US\$400m in losses. The investors who have sued contend that Beacon Hill deviated from its ‘safe’ and low-risk investment strategy. The SEC also charged Beacon Hill with fraudulent misrepresentation and four executives with the fund were charged with fraud.<sup>54</sup> At

the time of its collapse, Beacon Hill was one of the largest hedge funds in the mortgage-backed securities sector.

In its complaint against Beacon Hill, the SEC alleged that Beacon Hill was in violation of anti-fraud provisions of the US Investment Advisors Act of 1940, through its misstatement of fund returns. The SEC contends that Beacon Hill reported false net asset values and returns to its investors from July 2002 to September 2002. The SEC claims that Beacon Hill managed three ‘feeder funds’ — Bristol, Safe Harbor and Milestone — as well as Beacon Hill Master Fund, through which it invested in mortgage-backed securities on a leveraged basis.<sup>55</sup> After suffering losses as a result of falling interest rates, the SEC targeted falsely reported valuation statements that were overstated by as much as 54 per cent during this period.

According to the plaintiffs who filed the lawsuit, Beacon Hill, and its affiliates and principals, placed an unusually large bet that US Treasury bonds would lose value due to rising interest rates. This constituted a deviation from the Safe Harbor fund’s stated low-risk investment objective. When interest rates dropped to their lowest levels in 40 years during the period from 1st June, 2002, to 30th September, 2002, the fund lost millions of dollars. To complicate matters, the fund allegedly failed to report the losses to its investors and instead fraudulently inflated the value of its portfolio.

#### **ASKIN CAPITAL: OVER-LEVERAGED (SCENARIO EIGHT)**

In the largest failure of a hedge fund at its time, three mortgage funds managed by David Askin folded in 1994 after the Federal Reserve implemented a series of interest rate hikes that were the first such rises since 1989. The fluctuation in inter-

est rates negatively impacted Askin's collateralised mortgage obligation (CMO) funds, which allegedly had been sold to investors as 'market neutral'. Ultimately, Askin lost US\$600m of investors' dollars and witnessed liquidation of his managed funds.<sup>56</sup>

Several brokers sold large quantities of high-risk mortgage-backed securities to Askin Capital. Askin then pooled the instruments into CMOs and resold them to investors. The bundling of mortgage securities allowed the less risky tranches — or higher-rated instruments — to be sold to institutional investors at higher fees. In order to assist with the pooling of the mortgages into obligations with various ratings tranches, the brokers set up special credit arrangements for Askin.

The SEC — which had filed a suit against Askin and which Askin ultimately settled — stated in a formal complaint that he had issued his own estimates on his CMO holdings rather than using standard market valuations or quotes directly from dealers,<sup>57</sup> despite allegedly stating in his fund prospectuses that he would use market valuations. In actuality, Askin's pricing system showed that his funds performed at the rate of between 1 and 2 per cent, while market valuation systems showed that the funds were losing anywhere from 20 to 28 per cent of their value between February 1994 and March 1994.

The collapse of the Askin funds left many on Wall Street wondering why so many investors — including large institutions — had entrusted a manager as relatively inexperienced as Askin with so much of their money. The lessons learned here on the part of banks, brokers and investors, then, primarily centre around due diligence. Many appear never to have questioned Askin's performance measures, nor to have performed independent valuations of their own. Valuation experts

who were brought in after the fund blew up claim that they were surprised to find that Askin lacked classic market hedging strategies. This raises questions about Askin's expertise in risk management issues and about why the portfolios were not more carefully scrutinised by the large institutional investors. But what ultimately killed Askin was leverage: in essence, he borrowed more than the funds were worth and, when the margin calls arrived, he had a major liquidity crisis on his hands.

### **MILLENNIUM PARTNERS: A MARKET PRACTICE EVENT (SCENARIO NINE)**

On 1st December, 2005, Millennium Partners, LP and its executives reached a US\$180m settlement with the SEC and New York Attorney General Eliot Spitzer, over charges of improper mutual fund share trading.<sup>58</sup> As part of the settlement, Millennium agreed to repay US\$148m in what regulators characterised as 'ill-gotten revenues'. The settlement came two years after a former Millennium executive and senior trader pleaded guilty to, and settled, mutual fund market timing charges.<sup>59</sup>

Both the SEC and the New York Attorney General alleged that Millennium defrauded mutual fund companies, between 2000 and 2003, by setting up more than a thousand trading accounts in order to conceal its identity after it was alleged that the hedge fund had engaged in market timing.<sup>60</sup> The fund allegedly earned more than US\$100m from its purported market-timing strategies, which consisted of frequent trading of mutual fund shares based upon the percentage rise or fall in the US markets. The fund operated under the theory that, if US markets closed up by more than 0.5 per cent, Millennium should purchase shares of US mutual funds that invested in foreign securities, hoping for foreign

markets to rally behind a strong day in the US markets. Conversely, if US markets performed poorly, Millennium would then sell any long positions that it maintained in these mutual funds.

It was alleged that Millennium utilised up to 25 per cent of its assets in market-timing strategies between 2000 and 2003. The period also coincided with increased vigilance on the part of mutual funds, however, and, as Millennium began to receive hundreds of block letters and notices, it allegedly engaged in a series of strategies aimed at evading the scrutiny of the ‘market timing police’.

Regulators alleged that Millennium set up more than a thousand accounts to conceal its identity as it made more than US\$52bn in trades. According to the New York Attorney General’s complaint, Millennium used ‘*an elaborate fraud designed to exploit not market inefficiencies or financial arbitrage opportunities, but loopholes in the methods employed by mutual funds and others to detect and prevent rapid trading*’.<sup>61</sup> Part of the so-called ‘cloning’ strategy involved the creation of approximately a hundred shell companies that were then used to open approximately a thousand brokerage accounts at 39 different clearing brokers. Millennium purportedly rented post office boxes when opening brokerage accounts in an effort to mislead mutual funds that tracked market-timing investors by street address.

E-mails, notes of telephone conversations and internal documents cited by regulators indicate that Millennium used unique tax identification numbers associated with the shell companies it created to ‘*shield us to some extent from fund crackdowns*’. When a mutual fund identified Millennium as a market timer and blocked it from trading, the fund allegedly continued its practices through a new account in the name of a new front company, thereby concealing its identity

from the mutual fund in question. The practice of evading mutual fund trading supervision was referred to as ‘flying under the radar’ and the elaborate scheme allegedly allowed Millennium to make more than 76,000 trades with a total trading volume of more than US\$52bn over a four-year period.

## RED FLAGS

### 1. Independent valuation

Valuation methods used by hedge funds should be transparent and should accord with standard industry conventions. In case after case of fraud, regulators target the lack of independent audits of the hedge fund’s performance or returns: hedge fund frauds containing alleged intentional mis-statements may have been ferreted out through independent valuations. In addition, hedge funds that invest in non-exchange-traded contracts — such as natural gas futures, in the case of Amaranth — are especially vulnerable to providing (either intentionally or unintentionally) inaccurate valuations.

### 2. Experience levels of senior traders and senior management

The hedge fund industry is a ‘youthful’ one, which is a consequence of it also being one that involves the taking of high risks, but this creates an even greater imperative for oversight by seasoned industry veterans. For example, the head trader with Amaranth was in his early thirties and seemingly had little management oversight, given the amount of funds that were at his disposal. In other instances, principals of hedge fund firms have misrepresented their qualifications, which misrepresentations can be discovered through routine background checks. In addition, investors and others with exposure should ascertain if a hedge

fund's management team has experience of weathering market cycles, and has put the necessary strategies in place should conditions change suddenly and dramatically.

### **3. Regular and robust stress tests, and the adoption of scenarios**

One of the primary failings in the GLG, MotherRock and Amaranth cases, along with the landmark LTCM event, is the failure properly to stress test. According to a client letter that was circulated in the GLG case, the state of events that occurred in the markets after the downgrades of Ford and General Motors were characterised as events that were so unlikely to happen that they could be ignored.<sup>62</sup> One commonality among many hedge fund blow-ups is senior management's expression of surprise that such a scenario could have occurred.

The adoption of rigorous stress testing and scenarios can help to protect management from such surprises, and should be diverse and far-reaching enough to include political, economic and corporate events. For example, a natural gas trading scenario should include predictions on what would happen if supply were to be released from reserves in the weeks leading up to contentious political elections; this is not an unusual action by an incumbent administration that might be trailing in the polls. And although the best and most sophisticated hedge funds have such scenarios already in place, a process needs to also be developed to ensure that they are incorporated into day-to-day management and decision-making, and are properly robust and imaginative in their inclusion of what could happen.

### **4. Over-reliance or under-reliance on quantitative market models**

Over-reliance on models, and a reluctance to trust expert opinion and manage-

ment experience, can lead to large losses, particularly when there are errors in the models. GLG, for example, partially attributed the 14.5 per cent drop in value of its US\$1bn credit fund during May 2005 to errors in its trading model.<sup>63</sup> In addition, models should be properly stress tested through a variety of scenarios, and updated and revised on a regular basis, and in response to changing market conditions.

Conversely, a mistrust or lack of sophistication in predictive modelling techniques is also a red flag that the fund may not be properly managed. A hedge fund needs to have the sophistication to understand and stress test sophisticated models, but also to have the market knowledge and experience to validate those models with expert opinion. It should be an iterative process within which the models inform the management process, and expert opinion informs and validates the models.

### **5. Adherence to investment strategy**

Over time, hedge funds can drift away from their original investment mandates or strategies. It appears that Amaranth drifted away from its multi-strategy mandate when it concentrated so much of its capital in natural gas futures; the group of investors who sued Beacon Hill claimed that the hedge fund had deviated from its 'safe' and low-risk investment strategy.<sup>64</sup> This suggests that routine and regular 'suitability' reviews should be undertaken by hedge funds, in much the same way that their retail-oriented colleagues do in the asset management sector. Such reviews should include constant monitoring of the impact of certain strategies and of whether market conditions, such as a movement in interest rates, can impact their overall profile.

Another consideration in terms of adherence to investment strategy is the

present interest of hedge funds in private investments, as opposed to those that are more traditional. At least one prominent hedge fund, in the wake of suffering energy losses in the autumn of 2006, announced that it was redeploying some of its capital to private equity funds. Hedge funds are participating in the private equity markets in a number of capacities, including private lending and direct investing — but they may not have the necessary skill set to participate in the restructuring or day-to-day decision-making that may be necessary in order to maximise a private equity investment.

It is also important, however, to achieve balance. Hedge fund managers will complain that an overly religious adherence to a certain style will not allow adjustment in strategies as market conditions change. Allowing hedge fund managers to move nimbly, while remaining true to an overriding mandate, is possible through an emphasis on balance and good risk management.

### **6. 'Star' culture**

The cult of the trader is an inherent operational risk associated with the hedge fund sector. Problems associated with this cultural phenomenon have been witnessed in the largest operational risk events, such as the Barings landmark unauthorised trading case. The scenario includes a young 'hotshot' trader, who is seemingly brilliant and manages to obtain above-average returns, colleagues who are perhaps based in the back or middle office who raise red flags concerning certain behaviours deployed by that trader, and senior management that overlooks warnings in order to protect the profitable employee. This is a classic scenario for unauthorised trading events, but also appears to have been present in the Amaranth case. In fact, when control issues are examined, Amaranth emerges as

not entirely dissimilar to large unauthorised trading events.

### **7. Cornering of the market in securities or commodities**

The problem with cornering the market of a single class of security or commodity is that, in essence, the fund is trading against itself. This was the case in Amaranth, when the fund had positions in a large number of natural gas contracts; it was the case in the Sumitomo copper incident, when a trader was able to prop up the market through aggressive acquisition of the commodity. It is not very different in actuality from market manipulation. The trader is able to keep the price of the commodity or security raised as long as he or she is backed by the firm's capital; once the money runs out, however, the strategy can collapse upon itself, with the trader forced to sell positions into an artificially inflated market that quickly deflates. Knowing the concentration of a portfolio in a certain commodity or security demands transparency and a fund's willingness to inform its investors of its asset mix.

### **8. Single-trading strategy**

Single-trading strategies, as demonstrated in the case of MotherRock, can be particularly dangerous when they involve contracts such as natural gas futures, which are volatile and vulnerable to liquidity issues. Single-strategy funds, when compared with multi-strategy funds, have a more difficult time surviving through different types of market cycle and in holding onto their investors over a longer period of time. And when the markets turn against their particular strategy, they are vulnerable to the equivalent of a 'run on the bank' by panicked investors. Of course, as was demonstrated with the Amaranth case, a singular strategy can be pursued intention-

ally or unintentionally by multi-strategy funds.

### 9. Improper market practices

Hedge funds have not escaped the scrutiny of regulators, such as that of then New York Attorney General Eliot Spitzer, who initiated the original investigation into the rapid trading of mutual fund shares. Even hedge funds that are not regulated directly by national securities bodies can become the subject of criminal or civil investigations into how they conduct their business from day to day.

At the centre of many market practice investigations is the concept of ‘conflict of interest’ and treatment of one investment class — institutional investors and hedge funds, for example — differently from another — perhaps retail investors. Hedge funds, through their participation in such schemes such as elaborate market timing of mutual fund shares, have been found liable of aiding and abetting, front running and market manipulation. Canary Capital Partners was one of the first hedge funds to be fined for improper market practices related to market timing and late trading.<sup>65</sup>

One market practice that regulators are likely to examine closer is the existence of ‘side agreements’. Such agreements may allow certain investors — perhaps larger institutions — to sidestep lock-up clauses that require investors to stay in a fund for a certain period of time. Some investors, however, may have agreements in place that allow them to exit the funds during a much shorter time frame. This has an impact on investors who are subject to standard lock-up agreements during volatile or difficult market conditions. It means that some investors can move out of their holdings, while others are forced to sit tight and watch their investment dissipate. This constitutes a ‘hot button’ issue for regulators and attorney generals:

the different treatment of classes of investors, to the detriment of those that are smaller and less affluent.

### 10. Exchanges upon which contracts and securities are traded

Although hedge funds are unregulated, they often trade on regulated markets that serve as a type of ‘check’ on their trading and market practices. Regulated exchanges often have caps on how much a single entity can accumulate of a certain contract or security, for example. This was the case with Amaranth and the natural gas contracts that it traded on NYMEX. The CFTC became concerned that Amaranth’s holdings of natural gas contracts on NYMEX had become so concentrated that it might impact the market price of the contracts. The CFTC had the power, in this circumstance, to demand that Amaranth reduce its position, which Amaranth did — but along with purchasing equivalent contracts on the unregulated ICE.

### CONCLUSION: THE IMPORTANCE OF ADHERENCE TO BEST PRACTICES IN OPERATIONAL RISK MANAGEMENT

Senior management needs to accept that there is value to instilling certain basic operational risk controls within their organisations, such as:

- the separation of duties;
- ‘four-eye’ sign-off and review policies;
- clear and articulated reporting lines;
- strategies for interacting with regulators;
- abiding by promises made to clients concerning investment strategy and mandates;
- proper disclosure to clients.

There are practical lessons to be learned

from the more regulated banking community in terms of identifying, articulating and managing operational risks. The banking community has, for example, adopted a scenario approach to operational risk that includes both quantitative and qualitative components. This can involve interviews or workshop sessions with the key stakeholders of the hedge fund, in an effort to identify and map out present and future risks. It can also include scenario modelling techniques and a quantification of potential risks. This is an exercise that can make the entire organisation more cognisant of operational risk as an issue and, hopefully, more adept at avoiding catastrophic losses.

The basic principle behind many scenario efforts is to identify not only what is known, but also that which is unknown and could occur in the future. Too many hedge fund events involve unexpected losses that could have been considered and planned for had robust and creative scenarios been considered. By their very nature, of course, hedge funds are smaller and employ fewer institutionalised risk management processes than banks, but the dedication of only one smart person to the process of risk identification can achieve a great deal, provided that senior management support is present. It takes a creative facilitator to begin the process, rather than an army of regulatory experts.

The bad news is that we have seen breathtaking blow-ups of hedge funds in recent years. It would have seemed inconceivable not too long ago to envision such large losses without the associated market dislocation that we witnessed after the LTCM event. The good news is that, with some attention and understanding of operational risk best practices, we can learn from Amaranth and other events. We know that, in time, another spectacular event will arise — but with

knowledge and intelligence, the hedge fund sector will continue to weather times of volatility with grace and continued asset growth.

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