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Board of Governors Feb 2007 Meeting Memo exploring Amaranth's Losses in August 2006

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BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

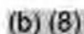
Date: February 26, 2007

To: Board of Governors

From: Pat White and David Lynch

Subject: Amaranth Follow-up

Amaranth, a hedge fund with concentrated positions in natural gas contracts, experienced large losses beginning in late August, 2006, and was forced to sell the bulk of its portfolio by mid-September. Board staff members have worked with members of the staff of the Commodity Futures Trading Commission (CFTC) and of the Federal Reserve Bank of New York to piece together information about the collapse of the fund and to identify bank supervisory and other public policy issues that its collapse poses. This note focuses on the management of counterparty risk by JP Morgan Chase (JPMC) and its futures commission merchant (JPMF), the firm that provided clearing services for Amaranth's natural gas futures trades, and by the Clearing House of the New York Mercantile Exchange (NYMEX), which acted as central counterparty for many of the natural gas trades that JPMF cleared for Amaranth.



Below, the first section provides background on Amaranth – a brief history of the fund, the instruments it was using, the strategies it was pursuing, and the costs associated with liquidation of the portfolio. The second section focuses on NYMEX, its relationship to Amaranth and JPMF and the tools NYMEX uses to address risk. Section 3 reviews JPMC's counterparty relationship with Amaranth and the key risk management tools it used in managing that relationship. Final sections identify broad policy issues for supervisors of financial institutions and clearing systems.

I. Background on Amaranth

Amaranth was founded in 2000 as a multi-strategy hedge fund. Assets under management at inception were $450 million, and they grew to $9.2 billion by mid-2006.[1] Amaranth originally pursued a diversified mix of strategies such as convertible arbitrage, merger arbitrage, long-short equity, and energy trading. However, energy became a focus of the fund with the arrival in 2004 of Brian Hunter, a former Deutsche Bank energy trader, and his portfolio ultimately came to dominate the fund. In the second quarter of 2005, for example, twenty percent of the fund's risk exposure was related to energy. That proportion grew to thirty percent by the third quarter of 2005, and by June 30 of 2006, energy exposure had risen to 56 percent. Although Amaranth had positions in oil and power, the vast majority of its energy exposure was in natural gas, and natural gas contracts are the focus of the discussion below.

Amaranth's natural gas portfolio consisted primarily of three forms of financial contracts: exchange-traded futures contracts, contracts that were traded over-the-counter (OTC) but submitted for clearing at a futures clearing house, and OTC deals that were strictly bilateral (that is, uncleared). Although there is an enormous cash market for trading of natural gas, Amaranth had little or no activity in this market segment. The main venue for exchange trading of futures contracts is NYMEX; these contracts are cleared by NYMEX's clearing house, a division of the exchange. There are a variety of electronic trading systems for OTC natural gas contracts, but the most important is the Intercontinental Exchange (ICE). An OTC deal struck on such a system can be retained by the two counterparties as a bilateral deal. Alternatively, if the contract meets certain criteria, it can be submitted to a clearing house that offers clearing services for OTC contracts. The London Clearing House (LCH) provides clearing for OTC energy contracts traded on ICE, and NYMEX offers a service, known as ClearPort, that allows OTC trades to be cleared by converting them into futures contracts.

The majority of the Amaranth activity was in cleared contracts (both contracts that were exchange traded and OTC contracts that were submitted for clearing). (b) (8)
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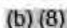
Some hedge funds founder from pursuing complex strategies, but the strategy that proved to be Amaranth's undoing was simple: calendar spreads in futures contracts.[2] The fund positioned itself to profit from an anticipated widening of the spread between contract

[1] This information about the history of the fund is from "Memorandum to: The State Investment Council," from William G. Clark, Director. The memorandum describes investments by New Jersey's pension funds in Amaranth through holdings of three fund of funds. New Jersey's investments totaled $21.8 million.
[2] (b) (8)
, Amaranth's calendar spreads were very large and unprofitable and undoubtedly played a leading role.

prices for natural gas in winter months and in summer months. For example, in September 2006, Amaranth was long March 2007 (so-called "winter") natural gas contracts and short April 2007 ("summer") contracts on NYMEX.[3] This position would gain in value if the spread widened, perhaps due to increased demand based on forecasts of harsh winter weather or supply disruptions from hurricanes. A similar calendar spread had been very profitable for Amaranth in 2005. In 2006, however, the spread narrowed starting in late August, resulting in losses for Amaranth's portfolio (chart).



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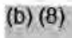
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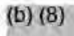

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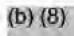

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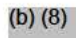

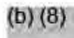

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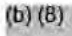
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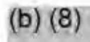

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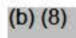

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