

THE ESSENTIALS OF RISK MANAGEMENT

Third Edition (EoRM3)

ONLINE CONTENT FOR CHAPTER 2

Box 2-2 of EoRM2

From pp. 63–64 of *The Essentials of Risk Management, Second Edition* (EoRM2)

BOX 2-2

DYNAMIC RISK MANAGEMENT STRATEGIES CAN GO BADLY WRONG: THE MGRM EXAMPLE

In 1993, MGRM (MG Refining & Marketing), the U.S. subsidiary of Metallgesellschaft (MG), entered into contracts to supply end-user customers with 150 million barrels of oil products (gasoline and heating oil) over a period of 10 years, at fixed prices.

MGRM's fixed-price forward delivery contracts exposed it to the risk of rising energy prices. In the absence of a liquid market for long-term futures contracts, MGRM hedged this risk with both short-dated energy futures contracts on the New York Mercantile Exchange (NYMEX) and over-the-counter (OTC) swaps. The derivative positions were concentrated in short-dated futures and swaps, which had to be rolled forward monthly as they matured. Each month, the size of the derivatives position was reduced by the amount of product delivered that month, with the intention of preserving a one-to-one hedge. According to Culp and Miller, "such a strategy is neither inherently unprofitable nor fatally flawed, provided top management understands the program and the long-term funding commitments necessary to make it work."^{*}

This rolling hedge strategy can be profitable when markets are in a state known as "backwardation" (oil for immediate delivery commands a higher price than does oil for future delivery), but when markets are in contango (the reverse relationship), it can result in losses. This is because when a company is rolling the hedge position in a backwardated market, the contract near expiration is sold at a higher price than the replacement contract, which has a longer delivery date, resulting in a rollover profit. The contrary applies when the market is in contango.

This meant that MGRM was exposed to curve risk (backwardation versus contango), and to basis risk, which is the risk that short-term oil prices might temporarily deviate from long-term prices. Over 1993, cash prices fell from close to \$20 a barrel in June to less than \$15 a barrel in December, leading to \$1.3 billion of margin calls that MGRM had to meet in cash. The problem was further compounded by the change in the shape of the price curve, which moved from

^{*} C. Culp and M. Miller, "Blame Mismanagement, Not Speculation, for Metall's Woes," *European Wall Street Journal*, 1995, April 25.

backwardation to contango. MGRM's German parent reacted in December 1993 by liquidating the hedge, and thus turned paper losses into realized losses.

Whether or not the cash drain from the negative marked-to market of the futures positions was sustainable, the decision by the supervisory board to liquidate the hedge might not have been the optimal one. According to Culp and Miller, at least three viable alternatives should have been contemplated to avoid the price impact of unwinding the hedges in the market place: secure additional financing and continuing the program intact; selling the program to another firm; or unwinding the contracts with the original customers.