Financial Derivatives

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This book, Financial Derivatives, a blessing or a curse? (DerivaQuote, 2006), introduces financial derivatives, their uses and the debates surrounding their use. It looks at whether one should fear them or embrace them by digging into literature, theory and case studies.

The world seems to be divided into two camps: those who embrace financial derivatives as the ‘Holy Grail’ of the new investment area, and those who denigrate derivatives as the financial Antichrist (Edington, 1994).

As the quote above suggests, there are many conflicting views and opinions on derivatives and their use. Derivatives are seen either as useful instruments or as a complete waste of time and money.

Experience has indicated that derivative products have transformed the way firms view financial risk and mitigate it. It is no longer relatively simple, and risks are changing continuously with innovation. Risks are no longer nationwide but global and the internet and other fast communication channels have further complicated the issue.

In the article, ‘Are Derivatives Financial "Weapons of Mass Destruction"?’ Simon (2008) explains that although derivative instruments have been used to hedge risks that were previously left open, there are still those who are sceptical about using these instruments. As the Group of Thirty (G30) (1993) note, users from “both inside and outside of the financial industry, remain uncomfortable with derivatives activity.” Moreover, the latest survey by the Bank for International Settlements (2009) suggests that there is widespread employment of derivatives with adequate risk management systems. Nevertheless, not all firms are immune to derivatives misuse.

This book uses literature and case studies to determine whether it is misuse of this financial instrument, and not the derivatives instrument itself, that causes firm failure and large losses. These case studies help to pinpoint the root causes of these incidents.

Financial Derivatives Misuse Internal Control Risk Management Firm Failure Losses

1.Introduction

The world seems to be divided into two camps: those who embrace financial derivatives as the "Holy Grail" of the new investment area, and those who denigrate derivatives as the financial Antichrist (Edington, 1994).

This opening chapter introduces derivatives and the debates surrounding their use. It highlights the scope for undertaking this study, provides the objectives, the intended contribution, presents the problem and discusses the research questions, the hypothesis and the structure. Moreover, previous studies carried out on derivatives are summarised herein.

As the quote above suggests, there are many conflicting views and opinions on derivatives and their use. Derivatives are seen either as useful instruments or as a complete waste of time and money. As defined by Hull (2008), derivatives are any "inancial instruments that derive their value from the value(s) of other, more basic, underlying variables." The underlying is usually, but not always, a financial asset or a rate. As an example, one can have derivatives with payments that are linked to an index such as the S&P500, the weather in a specific area, or the profitability of a group of selected companies (Stulz, 2005).

Stulz (2004), in his paper "Should We Fear Derivatives?" specifies "two types of derivatives: plain vanilla and exotic." Plain vanilla derivatives are forward and futures contracts, swaps, options, or a combination of these. Exotic derivatives are all other remaining derivatives. These will be described in more detail in the second chapter of this dissertation.

"A Chronology of Derivatives", by Chance (1995), focuses on the history and development of derivatives. He notes that derivatives appeared around 580 B.C., "when Thales the Milesian, purchased options on olive presses and made a fortune off a bumper crop in olives." According to Chance, in 1700B.C. Jacob (Bible, Genesis chapter 29), "purchased an option, at a cost of seven years of labour, that granted him the right to marry Laban's daughter, Rachel." Chance identifies key historical moments in the derivatives development: the "Royal Exchange in London" was the first exchange in derivatives on which forward contracts were carried out, the Dutch Tulip Bulb Mania of 1637 was characterised by tulip bulbs forward contracts, and the first "futures" contracts can be traced back to 1650 in Japan’s Yodoya rice market in Osaka. Chance notes that the next most important "event happened with the formation of the Chicago Board of Trade in 1848."

In another paper, "Demystifying Financial Derivatives", Stulz (2005) notes that until the 1970s the derivatives markets were not always so large. However, the changes in the economic climate and the advances in the pricing methodologies of derivatives, led to spectacular growth. During that period, the instability of "interest rates and currency-exchange rates increased sharply, making it crucial to find ways to hedge the relative risks more efficiently. Meanwhile, deregulation in a variety of industries, along with soaring international trade and capital flows, added to the demand for financial products to manage risk." According to Stulz, the development of the Black-Scholes formula in the early 1970s, together with the introduction of cheaper, faster and more efficient IT equipment to manage the computations, stronger network and communication infrastructures, changed trading of derivatives drastically. Thereafter, financial engineers could build new derivative products and find their value more easily.

2. Financial Derivatives a Blessing or a curse

However, the market for derivatives and their use has subsequently mushroomed, and according to the Bank for International Settlements Quarterly Review (December 2009 and March 2010), the global growth in the first half of 2009 of notional amounts of all types of over-the-counter (OTC) derivative contracts mushroomed to a size of US$605 trillion at the end of June 2009. Exchange traded derivatives on the other hand, "measured by notional

amounts, went up by 5% to US$444 trillion between October and December 2009, that is, 22% higher than the trough in the first quarter, but still well below its peak in early 2008 (US$690 trillion)."

Therefore, there is a considerable need to further understand, and contribute to the scholarship on derivatives. Moreover, the increasing market size necessitates controls that are constantly kept up to date in order to prevent a potential global financial crises started by this instrument.

As we shall see in the next chapters, experience has indicated that derivative products have transformed the way firms view financial risk and mitigate it. It is no longer relatively simple and risks are changing continuously with innovation. Risks are no longer nationwide but global and the internet and other fast communication channels have further complicated the issue. In her article, "Are Derivatives Financial 'Weapons of Mass Destruction'?" Simon (2008) explains that although derivative instruments have been used to hedge risks that were previously left open, there are still those who are sceptical about using these instruments. As the Group of Thirty (G30) (1993) note, users from "both inside and outside of the financial industry, remain uncomfortable with derivatives activity." Moreover, the latest survey by the Bank for International Settlements (2009) suggests that there is widespread employment of derivatives with adequate risk management systems. Nevertheless, not all firms are immune to derivatives misuse.

In Philippe Jorion's (1995 p.4) "Big Bets Gone Bad", he recites the words of a Wall Street wise man Felix Rohatyn, who described derivatives as "financial hydrogen bombs created by 26 year-olds with computers." He notes the description given to derivatives "a monstrous global electronic Ponzi scheme," by Henry Gonzalez, former House Banking Committee chairman. In a March 1995 broadcast of the CBS TV show *60 Minutes*, derivatives were depicted as "too complicated to explain but too important to ignore." This show suggested that derivatives are "highly exotic, little understood and virtually unregulated. Some people believe they are so unpredictable they could bring down the world banking system" (Jorion, 1995 p. 4).

Hull (2008) states that derivatives have been viewed as inherently bad financial instruments that have led to financial failures of companies and government institutions.

However, according to Cochran (2007), the path to understanding the concept of derivatives – "which most economists view as a positive innovation that emerged over the past 30 years – is a predominant factor in the global financial markets. Since many derivatives involve cross-border trading, "the derivatives market has brought increased international financial fragility and the attendant need for greater supranational governance of the instrument" (McClintock, 1996).

Becketti (1995) highlights the general belief that firm-specific risk and systemic risk are increased by the derivatives market, wherein the use of derivatives is perceived to have threatening effects on both the financial system and the real sector. Firm-specific risk includes "credit or default risk, legal risk, market and liquidity risk, operating or management risk." Systemic risks entail "greater competition between banks and non-bank financial institutions, greater interconnectedness of financial markets, increasing concentration of derivatives trading,

reduced disclosure of financial information through off-balance sheet activities such as in the case of Enron, and financial and telecommunication innovations that have intensified reactions to market disturbances."

Warren Buffett (2003) as noted by Simon (2008), describes derivatives in the Berkshire Hathaway Inc. 2002 Annual Report as being "financial weapons of mass destruction" and contracts devised by madmen. An article by Das (2006), "Traders, Guns and Money", quotes the Financial Times (n.d) as noting that "ever since Warren Buffett memorably described derivatives as ‘financial weapons of mass destruction’ there has been a thriller waiting to be written about them."

Numerous cases have posed the question on whether derivatives are indeed the culprit that brings about massive failure and the loss of enormous sums of money by companies and government entities. Some of these cases are summarised in section 5 of chapter 2. Table 1.1 below notes the top 10 trading losses ever, highlighted by Babak (2008). It demonstrates the troubles that these instruments are perceived to have brought to the economy and the losses derived from their use. All, except for one (Daiwa Bank in 1995), has involved the use of, and trading in, derivatives. According to Babak (2008) in an article published in March: Trading derivatives is like juggling running chainsaws, which also happen to be on fire. Unless you know what you’re doing, it will get messy. Each and every one of them started out as a small loss. The only reason why they are up on the board is that they were allowed to balloon into grotesque proportions. If we allow our convictions to overrule our discipline, we're headed towards the same fate. If anything, such gigantic losses should, dampen conspiracy theories of market manipulation. After all, if someone can’t bully a market with a few billion, then the market is indeed bigger than anyone and everyone.

Name	Loss in US$ Billion	Institution	Market	Year
Jérôme Kerviel	7.1	Société Générale	European Index Futures	2008
Brian Hunter	6.5	Amaranth Advisors	Gas Futures	2006
John Meriwether	4.6	Long Term Capital Management	Interest Rate an d Equity Derivatives	1998
Yasou Hamanaka	2.6	Sumitomo Corporation	Copper Futures	1996

Wolfgang Flotti & Helmut Elsner	2.5	Bawag	Currency and interest swaps	2006
Robert Citron	1.7	Orange County	Interest rate derivatives	1994
Nick Leeson	1.4	Barings Bank	Nikkei Futures	1995
Heinz Schimmelbusch	1.3	Metalgesellscaft	Oil Futures	1993
Toshihide Iguchi	1.1	Daiwa Bank	Bonds	1995
David Lee	0.8	Bank of Montreal	Natural Gas Options	2007

Table 1 Largest Trading Losses (Babak, 2008)

Adams and Runkle (2000) take a slightly different line, arguing that it is the complexity of derivatives, not their inherent nature that should be seen as a contributory factor to the losses and failures. Muehring (1995), alternatively, suggests that it is neither the inherent quality of derivatives nor their complexity that causes major losses and that these are not a necessary element of mismanagement. He notes that this is often the result of a "can't-lose mentality" which fails to take note of the downside of the investment.

Das (2006) sees the "world of derivatives trading as a world of beautiful lies." They breakdown the trading floor into salespeople, "who lie to clients, traders who lie to sales and to risk managers, risk managers who lie to people who run the place (or as it is sarcastically noted in this article – only think that they run the place); the people who run the place lie to shareholders and regulators, the quants (sarcastically described as fabulous rocket scientists) develop a model for lying and lastly the clients, they lie mainly to themselves."

As Stulz (2005) suggests, in the last few decades derivative contracts have tended to only make the headlines when they have led to large financial losses. As noted above, derivatives have been associated with some notable events ranging from financial to non- financial firms, countries, and counties. Nevertheless, carefully handled derivatives have proved to be very precious to current economies, and will definitely remain so.

In order to determine whether it is misuse of this financial instrument, and not the derivatives instrument itself, that causes firm failure and large losses, the pertinent derivatives' cases need to be investigated further. These case

studies will help pinpoint the root causes of these incidents. Moreover, one has to look deeper into aspects such as the environment surrounding their use and the characteristics of the people using them. One must not look at these cases in isolation. There are also cases of derivative use that have not resulted in loss or failure and so have escaped publication or news. The research in this dissertation will be strengthened by using interviews and surveys as a way to help mediate between both the condemning and condoning derivatives usage reports. Also, to enhance these arguments the research will also investigate the role derivatives played in the latest global financial crisis (of this decade 2007 -2010).