

The Capital Markets Credit Analysts Society

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15th Annual Dinner

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Roosevelt Hotel, Madison @ 45th Street, New York City

Guest Speaker: John C. Braddock

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“A Very Brief History of Financial Risk Management: Marco Polo to the New Millennium”

I would like to thank the Board of Directors of the Capital Markets Credit Analysts Society for inviting me to speak tonight, especially Board Member Paula Durand and Dana Kornbluth at Harry Hansen Management for their assistance and support. I would also like to thank Hans van den Houten at E.J. Lance Management Associates for recommending me to you as a speaker. And it is indeed a pleasure to be addressing you, a group of professionals who are the backbone of Wall Street and the financial markets.

As an active participant in the credit and capital markets for the past 25 years, I applaud the Society's mission to broaden peoples understanding of the capital markets, provide ethical standards promote best practices, and provide a forum for the exchange of ideas. I would also like to pay a special tribute to your founding member, Stewart Harris of Cantor Fitzgerald, who perished needlessly on 9/11. Stewart was a victim of a type of risk none of us expected but which has affected us all deeply, a risk we are trying to adjust to in our minds and in our daily lives.

At the outset, let me say that I am not an academic. I am a financial practitioner. As an oil and gas explorationist with Mobil Oil in New Orleans in the 1970's, my views of risk were tempered in an environment where only about one in ten wells were successful but the probabilities and economics worked. Then, in the early 1980's, I worked on oil and gas investment partnerships with Tower Capital Corporation, a venture capital firm here in New York. After graduate school I entered the Management Training Program at The Bank of New York. It was sobering being a credit analyst on Wall Street during the market crash in 1987, which certainly drove home the need for understanding risk. Credit analysis helped me in my later move to the American Stock Exchange as a listing representative, analyzing corporate financial statements prior to being admitted for trading. Later, I co-founded the Capital Markets Group at the Amex which has grown to become a major participant in listing and trading derivatives and structured products. In 1992, I became a derivative banker with PaineWebber and in 1996 founded the Structured Products Group at Oppenheimer. That evolved into asset management at Oppenheimer. I now enjoy being able to combine all of the things I have learned in the areas of asset management, banking, derivatives, and private equity investment. I attribute much of

what I have to say tonight to the research I did on my own book, my work in derivatives and asset management on Wall Street, and, with regard matters of history, to Peter Bernstein's book "Against the Gods: The Remarkable Story of Risk" which I encourage you to read (published by Wiley). My remarks tonight are intended highlight what I consider to be nothing less than the central role people possessing your expertise have played in the development of the modern world.

The advent of rational assessment of risk in society triggered the development of the modern world, literally. Our ability to define what may happen in the future and choose among alternatives is a modern invention. Understanding risk and the nature of decision-making enables us to make rational choices. It is very clear that early mathematicians (the original "credit analysts") guided humanity out of the Dark Ages. Prior to the Renaissance in the 14th century, people's views of the future was based on random luck, decisions were driven by instinct and superstition. Weather was the most apparent variable in people's lives. People usually thought in terms of today rather than the future, which they felt they had no control over. Today risk management guides virtually all decision-making in our society relating to health, protecting life and property, managing financial assets, politics, even, regrettably, waging war. Without command of probabilities and other tools of risk management, engineers could not have designed bridges, homes would still be heated by log fires, there would be no airplanes, no space program would exist, but there would certainly still be politicians.

Without the ability to measure and mitigate risk, society as we know it would not exist. For example, without property insurance only the wealthiest could afford homes and mortgages might not exist. The loss of a bread winner without life insurance would plunge families into starvation and poverty. Without the ability to lock-in prices in the futures markets for their crops, farmers would produce far less food. Without being able to diversify risk through the global capital markets, investors would hoard cash, entrepreneurs would become discouraged, and innovation would wither. Modern capital markets' enable savers to diversify and thus protect their accumulated assets, thereby allocating capital and creating liquidity for investment across a wide range of opportunities. This has allowed for the efficient allocation of capital and the growth and development of the companies we see today, like Microsoft, Pfizer, Boeing, GE, Starbucks, and EBay.

The serious study of risk began during the Renaissance, when people broke with the past and challenged long held beliefs. Venetian merchants during the time of Marco Polo hedged their risk or speculated on cargos en route from the Far East through the purchase and sale of option contracts. During this time gunpowder was in wide use, the world was deemed to be round not flat, the printing press was in wide use, art was reaching new heights, wealth was pouring into Europe, the Amsterdam Stock Exchange was flourishing, and the speculative tulip bubble had burst. These developments had the effect of putting mysticism on the run. Martin Luther challenged established church doctrine, medical teachings were becoming scientific. In the mid 1600's, two French mathematicians, Blaise Pascal and Pierre de Fermat,

developed some of the basic concepts of probability theory for Pascal who was looking for game theories to use when he gambled with other noblemen. As the years past, mathematicians transformed probability theory from a gamblers toy into a powerful instrument for organizing, interpreting, and applying information that has compounded into the risk assessment and management techniques we use today.

In 1703, the Swiss scientist Jacob Bernoulli invented the *Law of Large Numbers* which became the precursor to statistical sampling that drives modern opinion polling, stock picking, and drug testing. By 1725 the English government was financing itself through the sale of life insurance policies and marine insurance emerged as a sophisticated business in London. In 1730 Abraham de Moivre developed the concept of normal distribution (also known as the bell curve) and standard deviation, the combination of which make up what we know as the *Law of Averages*, essential ingredients in modern methods of quantifying risk. In the mid 1800's, during the U.S. Civil War, financiers for the Confederates issued bonds whose interest payments were linked to commodity swap contracts with England and France, exchanging cotton, sugar, and tobacco for armaments, with delivery in international waters off of Charleston Harbor. Confederate currency risk was hedged by using fixed pound sterling and French franc exchange rates.

Later mathematical constructs include those of Francis Galton, Charles Darwin's first cousin, who in 1875 developed the statistical concept of regression to the mean, otherwise understood as things "returning to normal." Other derivative instruments were developed to enhance corporate access to capital. For example, in the 1920's American Depositary Receipts were listed on the American Stock Exchange. In 1952, Harry Markowitz, demonstrated mathematically why diversification is the key to investment risk reduction and long term performance. This led to the development of modern portfolio theory, the "efficient frontier" of investment, asset allocation, and a host of other financial tools used on Wall Street and by businesses the world over. Dr. Markowitz, an Economist at Baruch College in NYC, was later awarded a Nobel Prize in Economics for his pioneering work.

In 1973, Fischer Black and Myron Scholes developed an option pricing model at the University of Chicago which is now widely referred to as the "Black & Scholes Model". Their formula allowed investors to determine the fair value of option contracts. Robert C. Merton and Myron Scholes were later awarded a Nobel Prize for expanding the applications of the Black & Scholes Model (Fisher Black had, unfortunately, passed away prior to the award). This, combined with the advancement of computers, led to the rapid development of the U.S. listed options markets (which had been only an OTC market up to that time). Ironically Merton & Scholes were partners in Long Term Credit Management, the Greenwich, Connecticut-based hedge fund that almost single-handedly triggered a worldwide credit crisis in the late 1990's. Sometimes even the brilliant misjudge risk.

This then lead in the 1980's and 1990's to a rapidly growing area of risk management/ risk dispersion/ risk concentration through the use and advancement of derivative-based financial instruments and structured products such as:

- Warrants
- Index and other asset-linked notes
- Convertible securities
- Exotic Options on baskets of stocks, relative performance of assets, price barriers, lookbacks, swap contracts, and investment trusts
- Monetizing and hedging strategies for restricted stock and concentrated equity positions (e.g., zero cost collars or pre-paid forward contracts)

The newest risk variable is terrorism. We are factoring terrorism into our thinking. I am confident that we can prevail in this regard by continuing to do what we do best: applying rational thought and action to addressing risk. Certainly we are making it more risky for those who are trying to adversely impact our way of life.

Thank you. It was a pleasure being here tonight. I would be happy to address any questions you might have. I'd like to present the Board with a copy of my book for the Society's library.