

WHEN THE MUSIC STOPPED:
THE FINANCIAL CRISIS OF 2007-2008

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As long as the music is playing, you've got to get up and dance...

--Charles Prince¹

The former Citigroup Inc. Chairman and Chief Executive Officer (CEO) Charles “Chuck” Prince made this now infamous comment to the *Financial Times* in 2007 in reference to the pressure he felt to keep up with the aggressive leveraged lending practices occurring among his competitors. He also added, "We're still dancing."²

Could The 2007-2008 Financial Crisis Have Been Averted?

It was a failure of epic proportions; the Wall Street financial crisis of 2007–2008 nearly caused a collapse of the world’s financial markets. According to the 639-page post mortem report *Wall Street and The Financial Crisis; Anatomy of a Financial Collapse* (Levin-Coburn Report) released in 2011 by Senators Carl Levin and Tom Coburn; the blame falls upon: (a) the greed of Wall Street executives and banking institutions, (b) the federal regulators who failed to fulfill their oversight roles, (c) and the ratings agencies who were not adequately prepared to evaluate the newer complex products, and who were reaping significant fees from the institutions themselves. All of these activities were linked by conflicts of interest among the institutions as well as within the organizations themselves.³

¹ “Prince’s Quote That Citi Was ‘Still Dancing’ as Crisis Worsened Haunts Him at Panel Inquiry,” *NY Daily News*, accessed November 8, 2014, <http://www.nydailynews.com/news/money/chuck-prince-quote-citi-dancing-crisis-worsened-haunts-panel-inquiry-article-1.165694>.

² Ibid.

³ Carl Levin, “Carl Levin - United States Senator for Michigan: Issues - Wall Street and the Financial Crisis,” accessed October 19, 2014, <http://www.levin.senate.gov/issues/wall-street-and-the-financial-crisis>.

A complete analysis of events leading up to and occurring during the meltdown are beyond the scope of this paper, but it is helpful to look at some specific examples of institutional and individual failures through the rubric of the **five key practices for developing mindfulness and dealing with the unexpected** by Karl Weick and Kathleen Sutcliffe.⁴

Although this paper has been separated into the five different key practices specifically indicated by Weick and Sutcliffe, it should be understood that each of these failures would likely also include overlaps into one or more of the other four practices.

Background and History

Years of low inflation and stable growth had fostered gleeful complacency on Wall Street, and led to a steady surge in home building. Interest rates were low, and mortgages were easily obtained, whether one was qualified or not. But beginning in the 1970s, the oil embargo, rising interest rates, and rising inflation resulted in increasing volatility in the financial markets, and the formerly conservative bond markets reflected these changes as their perceived risks increased. It became much more important for the financial institutions to understand and protect themselves from that risk. In the early 1980s, Wall Street began to hire physicists and mathematicians, who became known as “quants,” to produce mathematical models to determine the valuation of securities and other financial products being created and sold to investors. These individuals brought to investment banking the practice of quantitative finance, which, at its best brings ...”insight into the relation between value and uncertainty, and it approaches the quality of real science; the worst is a pseudoscientific hodgepodge of complex mathematics used with obscure justification.”⁵ These models generally involved extremely complicated algorithms to be

⁴ Karl E. Weick and Kathleen M. Sutcliffe, *Managing the Unexpected: Assuring High Performance in an Age of Complexity*, 1 edition. (San Francisco: Jossey-Bass, 2001).

⁵ Emanuel Derman, *My Life as a Quant: Reflections on Physics and Finance*, 1 edition. (Hoboken, N.J.: Wiley, 2007), 3.

used to attempt to predict future events related to interest rates and underlying values in an attempt to quantify and minimize risk. New, and sometimes poorly understood, financial products called derivatives began to dominate the balance sheets of lending institutions and investment banks, and the successful sales of these products, along with deregulation, failed oversight, highly-leveraged financial institutions, and the drive for short-term profits resulted in the worldwide financial crisis that almost shut down worldwide financial markets in 2008.

Principle 1: Preoccupation With Failure

Many attribute the beginning of the financial crisis of 2007-2008 to the burst of the housing bubble. Years of stable growth and low interest rates had fed the housing demand beast during the preceding decade. Washington Mutual (WaMu) was at the forefront of lending to real estate purchasers, and embarked upon a system of relaxed underwriting to unqualified buyers. Many of these “subprime” loans made to borrowers with lower credit scores were originated with teaser, or adjustable rates (ARMs) rates that jumped to significantly higher rates within two years. Another type of loan resulted in negative amortization, that is, loan payments that were less than what would be required under a normal 30-year amortization schedule, resulting in increasing principal balances and short-term balloon payments. To WaMu, it did not matter that they had made high risk, high interest loans, with high-delinquency rates, because they could earn more income from the higher risk loans, and then pass the risks on by selling them to the investment banks, thereby removing themselves from default risk.⁶

WaMu, as well as many other lenders, was also engaged in illegal predatory lending practices such as charging excessive fees, abusive prepayment penalties, and kickbacks to brokers, all at the expense of the unsophisticated borrower. When Alan Greenspan, Chairman of

⁶ “FinancialCrisisReport.pdf,” n.d., 56, accessed October 29, 2014, http://www.hsgac.senate.gov//imo/media/doc/Financial_Crisis/FinancialCrisisReport.pdf?attempt=2.

the Federal Reserve Bank, was shown examples of the types of loans pushed onto these borrowers, he responded “[i]f you had a doctorate in math you wouldn’t be able to understand them enough to know which was good for you and which wasn’t.”⁷ It should be noted, however, that Greenspan took no action to mediate on behalf of the borrowers, or to investigate the unregulated mortgage industry. The subprime lenders justified these practices under the assumption that home prices would continue to rise, allowing for profitable sales for the borrowers, or enabling the buyers to refinance as their equity built. This culture of overconfidence and short-term profit taking drove the business models of these lending institutions. Between 2000 and 2003, the number of mortgage loans tripled because of the financial incentives to make subprime loans that would command higher prices when sold to the Wall Street financial institutions.⁸

This housing bubble burst in 2006, leading to massive defaults; however, by this time these loans had already been sold to the investment banks and repackaged as complex new financial products called collateralized debt obligations, or CDOs, infecting the Wall Street institutions and investors. As the rate of defaults grew, the underlying values of the CDOs plummeted, cascading through financial institutions and taking millions of jobs, retirement accounts, and banks into the abyss of the financial crisis of 2007-2008.

Principle 1. Did WaMu Demonstrate a Preoccupation With Failure?

Apparently not; WaMu seemed to be blinded by its successes. Anyone could get a mortgage; subprime lending increased from \$30 billion to over \$600 billion and housing prices doubled between 1996 and 2006. There was simply no motivation to question the long-held assumption that real estate values would continue to rise, ensuring a continuing supply of

⁷ Charles Ferguson, *Inside Job*, Documentary, Crime (Sony Pictures Classics, 2010).

⁸ “Financial Crisis of 2007–08,” *Wikipedia, the Free Encyclopedia*, October 15, 2014, accessed October 16, 2014, http://en.wikipedia.org/w/index.php?title=Financial_crisis_of_2007%E2%80%9308&oldid=629666424.

borrowers to contribute to WaMu's revenues. Nor did WaMu question the increases in default rates, instead, they encouraged subprime loan originations because these loans could be sold to investment banks at higher prices. When the housing market began to exhibit fragility and loan defaults began to mount, WaMu did not question these failures, but instead continued its relaxed underwriting standards and required even less documentation in order to continue its profitable business. It did not reward and report errors or question its ethics in underwriting, but instead financially rewarded its loan officers and originators for making even riskier and more profitable loans, while at the same time failing to disclose the underlying risks to the investors who purchased the subprime loans from them.⁹ Blinded by success, WaMu was hugely profitable during this time, and its success led to complacency. Management encouraged the originations of fraudulent lending practices, and when the warning signs of impending financial crisis in the housing market began to accumulate, they were unquestioned and treated as normal business operations. WaMu's spectacular collapse in 2008 is the largest bank failure in American history.¹⁰

Principle 2: Reluctance to Simplify

While more quants migrated from academia to Wall Street to produce new mathematical models for determining the valuation of financial instruments, deregulation and advances in technology also contributed to the explosion of derivatives; so-called because the value of the product is 'derived' from its underlying assets.

Collateralized debt obligations, or CDOs, which are derived from mortgages, are a type of derivative. After the Wall Street investment banks purchased the mortgage loans from WaMu, these receivables would be combined with other types of instruments such as car loans, student

⁹ Levin, "Carl Levin - United States Senator for Michigan: Issues - Wall Street and the Financial Crisis."

¹⁰ "Washington Mutual," *Wikipedia, the Free Encyclopedia*, October 25, 2014, accessed October 25, 2014, http://en.wikipedia.org/w/index.php?title=Washington_Mutual&oldid=618384614.

loans, and credit card debt. This mixture would then be sliced into saleable ‘tranches’ according to similar characteristics of the underlying assets to be sold yet again, often to institutional investors such as retirement funds.

One of the most widely-used mathematical models used by financial institutions was known as the Gaussian Copula Function, developed by David X. Li. Born in China, he received a master’s degree in economics from Nankai University, followed by master’s degrees in business, actuarial science, and a PhD in statistics; the latter two from Ontario’s University of Waterloo. He began his career as a “quant” in 1997 at the Canadian Bank of Commerce.

By 2000, he was at JPMorgan Chase, where he published a paper in *The Journal of Fixed Income* called “On Default Correlation: A Copula Function Approach.”¹¹ The perceived beauty of this model was that it took all of that complicated data about how to correlate credit default swaps and bond pricing and interest rate predictions and defaults on the underlying assets and lack of historical data and dumbed it down into one number. Wall Street described the formula as “beautiful, simple and tractable,”¹² and enthusiastically embraced its use to dramatically expand their profitable credit derivatives markets. The industry-wide adoption of this model allowed the financial institutions to supposedly minimize their risks and to make huge trades with little of their own money, and its universal adoption also simplified cross-institutional communication. Remember that the housing bubble burst in 2006, but in 2005, David X. Li was on record telling *The Wall Street Journal* that the model had its risks; “The most dangerous part is when people

¹¹ “David X. Li,” *Wikipedia, the Free Encyclopedia*, October 16, 2014, accessed October 25, 2014, http://en.wikipedia.org/w/index.php?title=David_X_Li&oldid=616058975.

¹² “Recipe for Disaster: The Formula That Killed Wall Street,” *WIRED*, accessed October 16, 2014, http://archive.wired.com/techbiz/it/magazine/17-03/wp_quant?currentPage=all.

believe everything coming out of it.”¹³ He also noted that the model’s output is partly a result of what assumptions are made for the input. Both Li and Darrell Duffe, a Stanford University professor serving on Moody’s Academic Advisory Research Committee warned the investment banks that this model was not suitable for risk evaluation, but the banks’ management ignored them; they either did not understand the model, or they were making too much money to stop. They were all using the Gaussian model to convince themselves there was minimal risk. However, the possibility of an unforeseen event may have been small, but if something did occur, the exposure would be catastrophic. And as we now know, the unforeseen did occur, as the markets reacted to the decline in housing appreciation and the resulting defaults produced the domino effect across the financial markets.¹⁴ Mathematical models may be able to quantify the possibility of risk, but they cannot predict the future with 100% accuracy.

Principle 2: Over-reliance on The Gaussian Copula Function Model

Did the financial institutions display a reluctance to simplify? On the contrary, they embraced use of the Gaussian model as a way to take complicated, historical data and turn it into a one-size-fits-all model that they thought could be used to minimize risk. Once the Gaussian Copula Function was established as the go-to financial tool, they took it for granted that it was the model that could be applied to almost any financial product. Even when warned of the risks by its own developer, the financiers looked the other way. That the model was adopted by almost all traders to price their derivatives further insured that if one institution fell, their interdependent relationships would result in damage to all. The bankers and traders knew that the risks had to reside somewhere because that is the nature of markets, but they chose to insulate themselves

¹³ Mark Whitehouse Staff Reporter of THE WALL STREET JOURNAL, “How a Formula Ignited Market That Burned Some Big Investors,” *Wall Street Journal*, September 12, 2005, sec. News, accessed October 26, 2014, <http://online.wsj.com/articles/SB112649094075137685>.

¹⁴ Donald MacKenzie and Taylor Spears, “‘The Formula That Killed Wall Street’: The Gaussian Copula and Modelling Practices in Investment Banking,” *Social Studies of Science* 44, no. 3 (June 2014): 393–417.

inside their glass towers without considering that a downturn in the housing market could turn those towers into houses of cards. They did not seek input from diverse sources; but chose to ignore warnings. Some publications tried to pin the blame on the quants for making such complicated models.¹⁵ Even when General Motors debt was downgraded to below investment grade in 2005 by Standard & Poor's, causing scores of hedge funds to lose hundreds of millions of investors' dollars, GLC Credit Fund's manager responded that "the market reaction...[was] too improbable an event for the hedge fund's risk model to capture."¹⁶ There was no diversity of expectations, instead, the lack of respect and credibility toward those who would question underlying assumptions eventually resulted in worldwide financial meltdown, where investors lost billions of dollars, people lost jobs, and long-standing companies went bankrupt or were purchased for pennies on the dollar.¹⁷

Principle 3. Sensitivity to Operations

Dr. Emanuel Derman came to Wall Street in 1985 to work for Goldman Sachs (Goldman) where he eventually became managing director and head of the Quantitative Strategies group. His book, *My Life As A Quant: Reflections on Physics and Finance*, provides vivid insight into the two diverse and incompatible cultures between traders, or the "salesmen," and the quants. He describes their differences as "[t]hinkers versus doers."¹⁸ Although stereotypes may not always be fair, in general, quants tend to be more reticent, thoughtful, and introverted, defined by their academic accomplishments and esoteric pursuits. As almost all are PhDs, they have been trained to focus on one task at a time, and to understand it thoroughly, and to substantiate their positions.

¹⁵ Ibid.

¹⁶ JOURNAL, "How a Formula Ignited Market That Burned Some Big Investors."

¹⁷ Levin, "Carl Levin - United States Senator for Michigan: Issues - Wall Street and the Financial Crisis."

¹⁸ Ibid., 11.

Traders, on the other hand, as the most visible faces of Wall Street, tend to be dominant personalities, quick to act and speak, and thrive on excitement. In the financial services industry, this extroverted alpha-male type reaps the greatest financial rewards. They define their success by the size of their bonuses, calculated based on their quantitative contributions to the institutional profit margin. If you were not a significant contributor to the bottom line, you did not stay employed.¹⁹

Quants were hired as financial engineers to create new mathematical models to design new products. The pooling of subprime mortgages into collateralized debt obligations (CDOs) became the directive to the quants. This allowed Wall Street to ride the markets up, but the risks resulting from the new products were often not understood or acknowledged by traders. Neither quants nor traders have collaborative social skills, and the quants were often mocked and left out of decision-making events. The quants were the back-room workers, and since it was difficult to quantify their contributions, they were not typically rewarded with similar-sized bonuses or promotions when they first arrived on Wall Street.²⁰

Emanuel Derman describes one of the ways, while he was working at Goldman, in which there was an attempt to bridge the communication gaps that often existed between the quants and the traders. The quants needed to understand the finance, build the models, understand the math, and write the programs, and worked under less immediate time constraints. Traders, on the other hand, had to attend to the immediacy of the markets and had different skills and requirements to do their jobs. The “middlemen” served as interpreters and mediated between the two positions. Derman describes that some middlemen preferred to keep the quants invisible, because there was a tendency for the traders to obtain information from the quants and then take credit for it

¹⁹ Ibid., 12.

²⁰ Dennis Overbye, “They Tried to Outsmart Wall Street,” *The New York Times*, March 10, 2009, sec. Science, accessed October 18, 2014, <http://www.nytimes.com/2009/03/10/science/10quant.html>.

themselves. When Derman became aware of this practice, he began to add additional code into his own models in order to track its usage by the traders and document his own value to the business.²¹

Quants say that they tried to warn leadership about the issues with models, but they claim that the crisis was driven by business decisions. Eric Weinstein, a mathematical physicist running the hedge fund Natron Group, states that the quants did try to warn Wall Street that the models about their shortcomings. He states “This [was] a crisis caused by business decisions. This isn’t the result of pointy-headed guys from fancy schools who didn’t understand volatility or correlation.”²² Nigel Goldenfeld, physics professor and founder of NumeriX, an investment software company, compares the meltdown to the Challenger space shuttle explosion, describing it as a failure between management and communication.²³ The quants understand that as a result of their models, the traders were able to execute their billions of dollars in trades under the guise of pseudo-scientific language and without complete understanding of the risks of the products created. But when the quants voiced criticism of or qualified use of financial models, they in turn were criticized by management and told that it made the company look bad. Ultimately, decisions were made in the business model of increasing profits, and satisfying shareholders and customers.²⁴

Principle 3: The Disconnect Between Quants And Traders

The social and cultural disconnects between the research operations of the quants and the business operations of the traders made it difficult to reconcile any warning signals between the two factions. Typically, these two types will be driven by distinctly different types of goals; that

²¹ Derman, *My Life as a Quant*, 166.

²² Overbye, “They Tried to Outsmart Wall Street.”

²³ Ibid.

²⁴ Ibid.

is, science goals vs. business goals. The need for middlemen, the different “dialects” spoken, and the lack of understanding of the financial models created by quants turned these institutions into the band geeks and the sports jocks. There was no attempt to enlist everyone in an attempt to collaborate and fine-tune ongoing assessments. The quants were treated almost as an administrative role, with the traders using the tools created for them by the quants without understanding the models’ assumptions or the results they portrayed. As the financial crisis approached in 2007, institutional leadership refused to heed the warnings coming from the quants’ operational positions. Interaction would be necessary to deepen understanding of how the mathematical models were shaping the markets as well as the magnitude of the effects, but this simply did not occur on an ongoing basis.

Were the operations of the firm and the contributions of the quants accorded the respect due? Raghuram Rajan, Chief Economist (2003-2007) of the International Monetary Fund delivered a paper titled *Is Financial Development Making the World Riskier?* at a summit represented by some of the most elite financial and governmental institutions of the world in November 2005. The conclusion of the paper – it IS riskier. Rajan concluded that a focus on compensation plans that generate enormous bonuses that are tied to short-term profits but do not impose penalties for later losses incentivizes the employees of financial institutions to take risks that could ultimately destroy the entire financial system.²⁵ Former Treasury Secretary and Harvard University President Larry Summers, who was in the audience, criticized Rajan and called him a Luddite. History now shows that Rajan’s ominous predictions were completely credible. This was clearly a disconnect between the scientists and the businessmen, as the goal of making short-term profits continued to drive the financiers.

²⁵ Raghuram G. Rajan, *Has Financial Development Made the World Riskier?*, Working Paper (National Bureau of Economic Research, November 2005), accessed November 8, 2014, <http://www.nber.org/papers/w11728>.

Principle 4: Commitment To Resilience

One of the most well known stock option pricing models is called the Black-Scholes model, named after its two creators, the late Fischer Black, and Myron Scholes. Robert Merton was also associated with this model after he published a paper expanding the mathematical applications. Developed in the 1970, it is based on similar types of random patterns found in heat diffusion, and was adapted to predict financial market volatility. Dr. Black died in 1995, but Drs. Merton and Scholes were awarded the 1997 Nobel Prize in economic science for their work. One year later, the highly leveraged hedge fund Long Term Capital Management (LTCM) collapsed. The two Nobel laureates, Drs. Merton and Scholes, were members of its board.²⁶

Between its inception in 1994 and the end of 1997, this hedge fund's investors saw their money triple. The fund's strategy was considered "market-neutral," that is, it was designed to make money in either up or down markets. Initially, their Black-Scholes model seemed to be a success – they were able to earn high returns with little risk using sophisticated arbitrage trades. These so-called "rocket scientists" seemed to have found the golden goose for making money.

However, by August of 1998, its year-to-date portfolio value had declined 52%, or almost \$2 billion. The next month, Salomon Smith Barney and Merrill Lynch also announced multi-million dollar losses. Several other funds, operating under the this mathematical model were also suffering huge losses. Why did this happen with so much brainpower behind the assumptions? Apparently, the models did not account for the possibility that several events could, and did, happen at the same time; Russia and Asia were experiencing their own economic crises and were moving into the safer investments of US Treasury bonds, the spreads between risky and safer

²⁶ Roger Lowenstein, "Long-Term Capital: It's a Short-Term Memory," *The New York Times*, September 7, 2008, sec. Business, accessed October 31, 2014, <http://www.nytimes.com/2008/09/07/business/07ltdcm.html>.

investments began to widen, and liquidity began to dry up. The correlation of these events had a cascading effect on the financial markets, much like a bank run. As liquidity dried up, riskier positions needed to be liquidated as soon as possible, and since so many the organizations were making the same kinds of bets, there were no buyers, and many other institutional balance sheets also suffered catastrophic losses.²⁷

Did this spectacular flameout introduce a new level of caution on Wall Street?

Apparently not. Randomness occurring in market volatility is not the same as the randomness that occurs in nature, yet this was one of the major flaws of the Black-Scholes model. Inherent in markets involving risk are those occurrences that simply cannot be predicted, however reliance on financial models seemingly provided a level of confidence that simply was not warranted.

Some critics blame the quants for the market failures. However, the quants were not the decision makers, and the institutional managers continued to rely on their financial models, and, fueled by the housing boom, headed toward the doomed bubble burst.

Principle 4: “Too Big To Fail,” After LTCM Collapses, Nothing Changes

Errors are inevitable in any kind of business forecast, and when your business depends on making judicious assumptions about future risks, the results of making the wrong assumptions can be exceptionally damaging. Risk, in the financial markets, is often tied historical data. Herein lies the fault; history cannot always reliably predict the future. After the collapse of LTCM, one might expect that the financial institutions would be mindful of the presumptive errors and take corrective actions immediately. They should have looked at the events leading to the collapse, determined if there were any steps that they could take immediately to stop the losses (intelligent

²⁷ “Long-Term Capital Management,” *Wikipedia, the Free Encyclopedia*, November 1, 2014, accessed November 4, 2014, http://en.wikipedia.org/w/index.php?title=Long-Term_Capital_Management&oldid=629753913.

reaction, improvisation), and changed their methods of operation to be ready for next unforeseen event..

Instead, fearing systemic meltdown, the Federal Reserve stepped in to broker the rescue of LTCM. Six months after LCTM imploded, Alan Greenspan, Federal Reserve Chairman, called for even less burdensome bank regulation. Ten years later, the markets crashed again in 2007, for many of the same reasons, and with much greater impact. There was no incentive for the Wall Street institutions to change their strategies; there appeared to be no attempt at mitigation or creation of new sources of knowledge that might prevent future occurrences. However, some cynical financial pundits even believe that Wall Street may have, in fact, learned from its mistakes; they learned that these risks might be worth taking because, after all, the Fed would rescue them too because they were “too big to fail.”²⁸

Principle 5: Deference To Expertise

In hindsight, it is much easier to view the multiple causes of the 2007-2008 financial crisis. Many fingers point to the financial institutions; they thought they could minimize or ignore risk when they actually lost track of it. Their financially engineered financial products were deemed to be “safe” investments because of the triple-A credit ratings given by Standard & Poor’s, and Moody’s. Who, then, should have minding the store? Bank regulators failed in their oversight roles, for example, the Office of Thrift Supervision (OTS) repeatedly identified problems with WaMu’s underwriting practices, yet they failed to enforce appropriate corrective action. They allowed the bank to make hundreds of billions of ARM mortgages to unqualified buyers, and ignored the possibility that housing prices may not continue to rise. OTS also allowed WaMu to continue to book short-term profits while abdicating their responsibility to

²⁸ Lowenstein, “Long-Term Capital.”

follow strategies to ensure long-term viability. OTS also stonewalled FDIC oversight by blocking access to bank information, and the FDIC allowed this to happen. The Levin-Coburn Report prepared by the United States Senate Permanent Subcommittee on Investigations exposed a culture of ineffective followthrough of the bank examiners and their lack of objectivity.²⁹

In addition to the government agencies, the supposedly independent credit rating agencies (CRAs) failed to appropriately rate the instruments of the financial institutions. In fact, these CRAs are paid by the very institutions they are supposed to investigate, thereby exposing themselves to the pressures of the institutions to provide favorable ratings. When they actually did downgrade thousands of the financial instruments during a few days in July 2007, the shocked institutions immediately reacted with massive selloffs of downgraded subprime assets, flooding the markets and contributing to the collapse.

Principle 5: Failures Of Regulators And Alpha-Male CEOs

Who was in control during this time? All of the players kept the music playing as long as possible so they could continue dancing. Who would sit down first? Certainly not Dick Fuld, CEO of the now defunct investment-banking firm Lehman Brothers. Called “the gorilla” by his fellow bankers, his management style was demanding and intense.³⁰ He would say “I take it as a personal failure to lose money.” Another colleague said that “[he] thought he could intimidate you out of losing money.”³¹ At the end of 2006, Mike Gelband, responsible for commercial and residential real estate at Lehman, told Fuld that he concerned about their investments in real estate. Fuld disagreed, and by the next March, Gelband was fired. Fuld was not interested in hearing about any potential problems, if you wanted to keep your job, you only gave him the

²⁹ Levin, “Carl Levin - United States Senator for Michigan: Issues - Wall Street and the Financial Crisis.”

³⁰ “Burning Down His House,” *NYMag.com*, accessed October 27, 2014, <http://nymag.com/news/business/52603/index1.html>.

³¹ Ibid.

good news. The culture of these firms were all about taking the short-term profit, and bonuses were dependent upon meeting the quantitative expectations of senior executives. When the cracks started to widen, there was no attempt to shift leadership to persons with greatest expertise. There was no call to return bonuses or take responsibility for erroneous decisions. It was simply easier to look elsewhere for blame; but they were all complicit in orchestrating the massive financial crisis. Some fingers pointed to the quants, but they were not the moneymakers; they generally were not involved in the deals and their contributions were not easily quantified. The traders and CEOs lacked the mathematical skills and experience to understand the products they were selling. The warnings sounded by the quants were ignored; according to David X. Li, “The most dangerous part is when people believe everything that comes out of it.”³² The ratings agencies were paid to provide AAA ratings, deserved or not. Status & rank ruled, rather than expertise.

According to Jonathan Alpert, therapist to many Wall Street executives, “These people are risk-takers. They’re impulsive. It’s part of their behavior, their personality, and that manifests outside of work as well...A lot of people feel that they need to participate in [risky] behavior to get promoted, to get recognized... There’s just a blatant disregard for the impact that their actions have on society, on family.” Andrew Lo, Professor & Director at MIT Laboratory for Financial Engineering states that “... scientists have done a lot of experiments where they’ve taken individuals and put them into an MRI machine, and they have them play a game where the prize is money, and they noticed that when these subjects earn money, the part of the brain that get stimulated is the same part that cocaine stimulates.”³³ One can easily deduce from these well-

³² “Recipe for Disaster.”

³³ Ferguson, *Inside Job*.

considered sources that it is highly unlikely that deference to expertise was likely to occur in these financial institutions.

Conclusion

Almost all of the sources reviewed for this paper were in agreement about several key factors. The crisis had multiple causes, including:

- Stable growth and low inflation lead to complacency and risk-taking.
- A belief that the real estate market would continue to rise.
- The financial institutions and consumers were over-leveraged.
- The influx of quants to Wall Street resulted in complex financial models that were misunderstood, oversimplified risk, and were over-relied upon.
- Bank regulators and credit rating agencies failed in their oversight roles.
- Short-term profit taking and related compensation models were the market drivers.
- Lessons that could have been learned from earlier market crises, such as those occurring in 1987 and 1998 had no impact on the way financial institutions and regulators continued to do business.

If one examines these common factors in light of Weick and Sutcliff's five principles of mindfulness; these key failures are seen:

- Complacency
- Blinded by success
- Lack of attention to failures
- Assumptions are unquestioned
- Questions are ignored
- Quests for simple answers to complex questions
- Lack of collaboration within and among organizations
- Failure to learn from errors and history
- Dominant alpha-male hierarchies were ruled by rank, status, and money

All of these factors and the resulting market conditions lined up as an example of James Reason's Swiss Cheese Model of Error.³⁴ Or, according to author Michael Lewis, "The big Wall Street firms, seemingly so shrewd and self-interested, had somehow become the dumb money.

³⁴ "Anatomy of an Error," accessed October 22, 2014, http://patientsafetyed.duhs.duke.edu/module_e/swiss_cheese.html.

The people who ran them did not understand their own business, did not anticipate errors, and **had no strategies to mitigate by managing the unexpected.**³⁵

³⁵ Michael Lewis, *The Big Short: Inside the Doomsday Machine*, Reprint edition. (W. W. Norton & Company, 2010), 244.

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