

## CHAPTER 1

# Introduction

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*Since the beginning, it was just the same. The only difference, the crowds are bigger now.*

—Elvis Presley

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Humans are a social species, grouping together to do everything from waging war to attending cocktail parties. This desire to be with others also occurs in the financial markets. Some portfolio managers follow whatever investments are in vogue, mostly because bucking the trend doesn't pay. If the trend continues and they haven't followed it, they could look like idiots. If they follow it and it doesn't continue, they simply join the herd of other wrong-headed investors.

At other times, portfolio managers create an innovation. This innovation usually makes abnormally large returns, so others desperately want to copy the strategy. These copycats eventually learn the ropes and begin trading money in the same fashion. At first this leads to even more profits for the early innovators, because others buy more and more of their trades.

The copycats create a side effect, however: They crowd the space. The strategy's future returns depend increasingly on the copycat's behavior.

Oftentimes copycat investors make their trades on borrowed money, which amplifies both their positions and their risks. Modern risk-measurement models generally ignore the presence of copycats and the resulting crowded spaces, which often leads to underestimations of risk. A shock to the system can lead to sudden, sometimes large asset price moves, which can cause panic and failure among the institutions involved in that investment space.

In the past 20 years, globalization, technology, and increased leverage have made the effects of overcrowding more apparent and dramatic. In fact,

market crashes are happening more regularly than in the past, with nearly every crisis labeled a 100-year event.

The stock market crash of 1987 was likely the first crisis caused by modern-day crowding. The financial industry had popularized dynamic portfolio insurance, which involved protecting investors from losing money on their portfolios. Many institutions offered this protection by selling the market when it went down and buying the market when it went up. This practice can work quite well if only a small portion of the market pursues these strategies.

But if that proportion grows too large, crowding the space, the market may destabilize. As the market falls, the large group sells its positions, pushing prices further and further down and sometimes leading to a crash. In 1987 there were too many copycats, too much crowding, and too many models that didn't adequately account for this crowding.

The next big crisis came in 1998, eleven years later. It involved Russian markets and the failure of Long-Term Capital Management (LTCM), a well-known hedge fund. In 1994, Long-Term Capital was one of the largest hedge funds. Managers used technological and quantitative techniques learned at Salomon Brothers to sublime perfection. They were the new financial juggernauts, and everyone wanted a piece of their amazing performance.

Soon other institutions, including the proprietary trading desks of Goldman Sachs, Morgan Stanley, Lehman Brothers, and multiple new hedge funds, began to reverse engineer LTCM's strategies, all of which involved leverage. The lucrative relative-value bond arbitrage investment area became very crowded. Quantitative copycats saturated the space. Risk models were no longer accurate, because they didn't capture this crowding and its potential effects. Heavily leveraged positions meant that small moves could destroy an entire firm in a short period of time.

In July 1998, one of the large institutions, Salomon Brothers, began closing its copycat positions. In August 1998, the Russian government defaulted on its bonds. The shock occurred as the relative value funds were scrambling to survive. LTCM was on the brink of bankruptcy; many feared that this would shatter the financial system, just as with Lehman Brothers in 2008. The Federal Reserve stepped in and coordinated a private solution to prevent chaos.

In 2000, Internet stocks traded at ridiculous multiples. The crowd rushed in and the bubble formed. By April 2000, the bubble began to crash. The NASDAQ dropped by 70%. Yet despite investors' dramatic losses, the aftereffects were comparatively mild, mostly because of the limited amount of leverage in Internet stocks. This put some brakes on the crash.

From 2000 to 2008, every aspect of the U.S. economy got more and more involved in a massively leveraged trade: real estate investing. Instead of involving just traders, as most crowding does, the subprime lending bubble featured politicians, greedy home buyers, mortgage brokers, real estate agents, banks, investment banks, and quasi-government organizations Freddie Mac and Fannie Mae.

Investment banks took outright positions in real estate and also created, sold, and traded derivatives based on housing values. Hedge funds also took various bets on real estate market segments. Insurance companies joined the space by offering insurance to the crowded investors. Rating companies joined the greed train and issued AAA ratings as fast as they could write the three letters and cash the checks. Even the media pushed us forward with talk of rising home ownership, rising stock markets, and good times.

Like the Internet bubble of 2000, this bubble kept growing. Almost everyone was crowding this trade and using unprecedented leverage. Some home owners took leveraged investing to new heights by putting zero money down and enjoying a leverage ratio of infinity.

Risk models were glaringly inadequate. They used historical data, which didn't include the enormous amount of crowding and overvaluation that existed by 2008. It was only a matter of time before we saw the worst crash since the stock market crash of 1929: the 2008 financial crisis. The massive exposure to a collapsing bubble combined with leverage and short-term borrowing created an unprecedented shock to quantitative hedge funds. Known as the Quant Crisis, this destroyed Goldman Sachs's star hedge fund.

The crisis gave us a spectacular show: the historic collapse and rescue of Bear Stearns, a government rescue for Freddie Mac and Fannie Mae, hundreds of bank failures, Lehman Brothers' bankruptcy, a market-wide lending freeze, the failure of a whole host of hedge funds (including John Meriwether's new fund, JWMP), and unprecedented marketplace interventions from the U.S. government and Federal Reserve.

Three years and a depression later, the markets had slightly recovered. On May 6, 2010, between 2:42 P.M. and 2:47 P.M., the Dow Jones dropped by 600 points, then rose 600 points by 3:07 P.M., events known as the Flash Crash. Procter & Gamble stock dropped by 37% in that short period. What happened? Was a leveraged crowded space wreaking havoc again?

From 2001 to 2008, banks around the world lent money to Greece, assigning it a risk level very similar to that of countries with more discipline and higher productivity, such as Germany. The crowded space kept Greek interest rates at unrealistically low levels, and the Greeks were happy to borrow to fund consumption—until the crowd realized that Greece was a mess.

This is the story of the crisis of crowding. The story begins in 1998 with Long-Term Capital Management's fascinating collapse and tries to explain the ways in which crowds and leverage demolished one of the most successful hedge funds in history. The failure of LTCM had many lessons for the financial community and for society at large, but no one paid much attention—perhaps because disaster was ultimately averted. Ignored lessons formed a large part of the basis for 2008's financial disasters, only this time with more leverage, more participants, and a series of policy mishaps.

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