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THE FOG OF BATTLE
A Personal View of the October 1987 Market Break

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The author was a junior staff member at the SEC – having joined the staff slightly over three years earlier – at the time of the October 1987 Market Break, and was given a leading role in the Division's reconstruction of trading strategies that may have contributed to the severity of the sell-off and liquidity problems in the equity markets.

When asked for my perspective on the October 1987 Market Break, my first reaction was to reference Tolstoy's description in *War and Peace* of the battle of Austerlitz. I did this not because I wanted to try to appear well read or sophisticated (I claim neither distinction), but to emphasize the constricted and skewed perspectives that so many of us have of the historic market sell-off twenty years ago.

For some military historians, two battles serve as bookends for the Napoleonic wars: Napoleon's brilliant victory at Austerlitz in 1805 and his defeat at Waterloo almost ten years later. Outside of West Point, the battle of Austerlitz is largely forgotten today and Waterloo is little more than a cliché for a defeat. For generations, however, Austerlitz was the premier illustration of Napoleon's mastery of the battlefield, with the great general cleverly maneuvering his battalions like chess pieces across the landscape to deceive, surprise, and rout his dumbfounded opponents.

But that is not how Tolstoy described the battle. Instead, he presented the battle from the perspective of a young, well-meaning, but inexperienced and confused Russian cavalryman riding like mad through fog and smoke to relay messages between senior officers who knew as little about what was going on as he did. On both sides, troops were groping through the fog and colliding with friendly and enemy forces in sheer terror. On both sides, the generals' orders for maneuvers were misdirected or

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misunderstood. The battlefield was not an orderly chessboard, but a haphazard killing field with small victories on one hill counter-pointed with routs on another. But that did not deter later historians from divining brilliant strategies in this bedlam and purpose in accidents.

The October 1987 Market Break was not a killing field – except for some fortunes, careers, and reputations. But for my generation in the financial sector, this 20-year distant event was as cataclysmic as Austerlitz. And like that battle, the carnage of the Market Break was immediately distilled into neat frameworks that supported a multitude of agendas. Some saw the events of October 1987 as justification for more regulation – while others saw them as just the opposite. Newer markets claimed a mandate for their continued growth, while more established markets argued that their time-tested structures had been essential to withstand the tsunami of unthinking momentum selling.

When I think back to myself as a then-young staff attorney at the Commission during the Market Break, however, I identify with Tolstoy's fog-bound and confused cavalryman.

Monday, October 19, 1987

Even now, I am struck by the small details that I remember from the day that most people peg (incorrectly, in my opinion) as the key date of the market crash, October 19th. This was when the largest one-day declines in stock indexes took place (22.6% in the Dow Jones Industrial Average) and the most glaring breakdowns in market systems became apparent. But I remember details such as the weather (it was sunny and warm as Howard Kramer and I sped to the CFTC that morning to attend a briefing on the impact of the sell-off in the futures markets) and I can recollect hurried conversations that the staff had with the markets and market participants in dozens of phone calls to gather intelligence on how the securities markets were holding up.

Twenty years later, I still remember the looks on my colleagues' faces as we began to appreciate the true magnitude of the sell-off, particularly in the late afternoon, and our realization that the chaos of rapidly changing events was overwhelming everyone's expectations of how markets were supposed to operate. In retrospect, I remember that almost everything that *could* go wrong *did* go wrong at the firms and the markets. For example, NYSE order-routing systems designed to handle average daily share volumes of around 180 million shares had to cope with a then-record 344 million shares on Friday, October 16 – but were subsequently overwhelmed when confronted with 608 million shares on Monday, October 19 (and 614 million shares the next day). Systems on the other markets and at securities firms also were overwhelmed. And I cannot forget the confusing, contradictory, and flat out wrong information that we received from markets and firms and the feeble explanations that were immediately offered by so-called experts for the ever-accelerating price declines.

But my most vivid memory is of a seemingly unimportant detail that was emblematic of that day. I remember that a part of a screen on one of the market-data systems that we used initially showed only two digits for inter-day movements in some indexes. As a result, when the DJIA declined beyond "99" points for the day, this part of the screen registered the decline as "00" and then "01" points – like an odometer that had exceeded its settings. Although we kept track of the decline using other systems, by the late afternoon, this segment of the screen showed a decline of 08 points whether the total daily decline was 108, 208, 308 points or greater (it was actually 508 points at the close). But my colleagues and I nonetheless stared at this screen almost hypnotized by the velocity of the descent – like the scene in a movie when the pilot stares at the altimeter as his plane is in a steep dive. And I cannot forget the fear and disbelief on even the most experienced faces around me.[2]

But despite this – or perhaps because of this fear and confusion – I remember seeing the Commission at its best. I remember with pride how my more seasoned colleagues responded to the chaos with extraordinary professionalism and grace under pressure to keep the markets open. I remember seeing the Commission staff deal with one problem

2 It actually was a simple fix to add more digit spaces on this screen later that day. Our other systems were already tracking the decline accurately. With today's technology, market-data systems make these types of adjustments automatically.

after another – working late into that night and for many nights thereafter with our public and private sector colleagues to address breakdowns in essential trading systems and backlogs in clearance and settlement operations – and to assess the financial condition of critical market participants.

Tuesday, October 20, 1987 – The Day the Markets Almost Died

I am sorry if that sounds like the title for a science fiction B movie or a country-western song, but that is how I remember October 20th. While many of us were somewhat numb to the magnitude of the decline on the 19th while it was occurring (like being in a sudden car accident), mid-day on Tuesday, October 20th was when many of us were most afraid. That was when we could see the markets falling apart in front of us.

One of the most unnerving aspects of trading on that day was that everything appeared to start out so well. Despite the sharp follow-through declines overnight in foreign markets, share prices actually began to recover strongly when the NYSE reopened for trading at 9:30 am. By 10:28 am, the DJIA was up 197 points.

Then everything fell apart. My colleagues and I (not to mention market professionals and investors who were long the market) had a sickening feeling as we saw the sell-off resume with a vengeance. Sell orders flooded the markets, overwhelming market-making resources and other sources of liquidity. Individual stocks and futures contracts stopped trading (by mid-day, trading was halted in 77 NYSE stocks in the Standard and Poor's 500 Stock Index – representing 25% of the index capitalization), making it difficult to fully appreciate how bad the sell-off actually was. But we knew that it was very bad and getting worse – the bottom had fallen out. Then we heard that the NYSE was considering closing (it did not). It looked as though the markets would grind to a halt and there was nothing that we could do.

Then, suddenly, miraculously, the markets began to recover. Everyone, and no one, had explanations for the turnaround. Was it the blip up in prices in one of the few index futures that were still trading, or was this due to announcements from issuers of their intention to buy back shares, or the markets reaching some sort of "natural equilibrium" of sell and buy interests? Who cares? We pulled back from the precipice. By the end of the day, even though some indexes still were down, the headlines were that the DJIA closed up 102 points (5.88%).

But the most important news for us was that the markets had somehow continued to operate. Plenty of things had gone wrong and we knew that we faced a great deal of work to analyze the events of the 19^{th} and 20^{th} and to work with the markets, clearing organizations, and industry to address systems that had failed. But the markets had somehow kept going.

The Market Break Report

In many ways, the hardest days for the Commission staff were those following the Market Break. But they were also some of our best days. I am still exceedingly proud of the dedication of my colleagues as we worked 14 or more hours a day, every day, for months (I had Christmas Day off) to study what had occurred and draw out any lessons that might be learned from these events to minimize the likelihood of a recurrence. Virtually the entire Division of Market Regulation put aside more routine matters to concentrate on getting our study completed in a necessarily tight timeframe.

I was amazed at the range of technical expertise in our offices. Mike Macchiaroli led one staff team to study impact of the sell-off on the financial and operational condition of the major firms, while Bob Colby, Larry Bergmann, Catherine McGuire, Howard Kramer, Kathy England, Jonathan Kallman, and others[3] ran their own staff teams to look at a myriad of issues involving exchange operations, clearance and settlement systems, and trading rules, as well as the role of derivatives during the market decline. As I left work most nights after 11 pm trying to catch the last subway train home, I could see these

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3 Listings of key SEC staff during the Market Break and their contributions to efforts to respond to this event are provided at pages iii and iv of the Division's February 1988 Report (available in the virtual museum and archive Papers section).

teams still working furiously -- and the teams were already in full swing by the time that I returned around 7 am the next morning.

On a personal note, I remember the shock that I felt one Saturday to see Jonathan Kallman arriving for work at around 6 pm. My initial reaction was that he was sloughing off – but I was immediately ashamed to realize that he was coming in after his Sabbath, and that he would be at his desk until the wee hours of the morning to keep his part of the undertaking on track. Jonathan passed away a few years ago from cancer but I often think back to him on that cold dreary Saturday night.

Finally, for me, the most unbelievable aspect of this whole massive operation was how our Director, Rick Ketchum, and Associate Directors Brandon Becker and Mark Fitterman were able to work through the disjointed pieces that the various staff teams were producing to turn this mess of jargon into a readable report worthy of the Commission. Time and again, they prodded us to rethink our assumptions, reanalyze our findings, double-check our figures, or rework our pieces. They rewrote whole sections but they always followed up by returning these materials to the staff to ensure that the accuracy of the report had not been sacrificed to improve the clarity of the narrative. We then edited their edits and sent our pieces back to begin the cycle again. For Rick, Brandon, and Mark, this must have been exhausting – but for us, it was an invaluable tutorial in writing under pressure.

The Trading Reconstruction

My own small part of this undertaking was to reconstruct the trading strategies that may have contributed to the sell-off in the stock market. But I have to admit – it was fascinating work – with tedious analyses of arcane trading data sometimes leading to surprising insights. Sort of like CSI, but without the flashy graphics and space age technology. Best of all, it gave me an opportunity to participate in interviews with some of the leading traders and money managers of the day to hear their take on the dynamics of market decline.

Perhaps the most striking insight that I gained from these efforts was the realization that most of these smart and experienced market professionals had been as much in a fog during the sell-off as the rest of us. By and large, they admitted that their trading had less to do with sophisticated intermarket trading strategies and more to do with desperate improvised efforts to minimize losses (or maximize gains) in the particular stocks, options or futures that were their immediate concern at the time. Like the rest of us, they had only sketchy information on what systems at firms or markets were working and whether orders sent had actually been executed, buried in queues or lost in transmission. In some instances, when they failed to receive execution reports for sell orders sent earlier in the day, they sent duplicate orders as the 4 pm market close approached – only to later find that all of their duplicative sell orders had inadvertently been executed. At times, they also were far from certain whether the prices appearing on their computer screens were accurate and timely. But despite the confusion and uncertainties, they believed that they had to keep trading just to survive.

The more I heard, the more I came to see the human aspect of the confluence of events that made the sell-off almost inevitable. I came to the realization that these smart people had tried their best to deal with relatively new products and trading strategies that simply did not perform as advertised when market liquidity was exhausted. And they were trying to do this in the midst of a market decline of truly historic proportions – a decline unlike anything their computer models had contemplated. For all the subsequent talk of the effects of relentless and unthinking machines inundating markets with sell orders as part of computerized “program trading” using “portfolio insurance” or “index arbitrage” strategies, I heard from the very fallible and confused humans behind the machines.

In fact, some of these traders admitted that the market sell-off on October 19 may have actually been exacerbated by earlier decisions to rely on their trading experience and instincts to override the computer models and forgo selling futures and stocks during the preceding trading sessions. They cited the fact that the pull-back in share prices had been going on for weeks before the Market Break (by October 13, the DJIA was already off almost 8% from its August 25 high) and that many traders were hoping that the market was bottoming out when the DJIA fell another 3.8% on Wednesday, October 14, 2.4% on October 15, and 4.6% on October 16. As a result, at least some traders were reluctant to follow their computer models and sell sufficient quantities of index futures during this period out of concern that they would almost immediately have to buy them back at much higher prices if the market followed its usual pattern of snapping back from steep declines. By the end of the week, however, there was still no sign of a market rebound and these traders were in the extremely uncomfortable position of having lost money not because they had followed their models – but because they had ignored their models. As a result, they had to play catch-up on Monday, October 19, by selling many of the futures that they should have sold earlier. And when there simply was not sufficient liquidity to do so in the futures markets, they had no choice but to also sell stock baskets, thereby driving share prices down further. This factor alone is obviously insufficient to account for the historic 22.6% decline in the DJIA on October 19, but it was symptomatic of how misjudgments by even seasoned market professionals contributed to the chaos on that day.

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So I guess that it would be fair to say that the Market Break was a sobering experience for a lot of us - not just for inexperienced staffers such as me. But for the staff, it was a once in a lifetime experience. We hope.