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## A Study Of The Stock Market Crash Of October 1987

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A STUDY OF THE STOCK MARKET  
CRASH OF OCTOBER 1987

by

Jonathan D. Rudman

An Independent Study  
submitted to the Graduate Faculty of  
The University of North Dakota  
in partial fulfillment of the requirements  
for the degree of  
Master of Business Administration

The University of North Dakota Graduate Center

November  
1988

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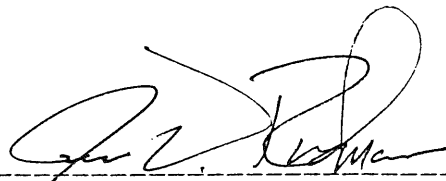
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## ABSTRACT

This study examines the situation surrounding the stock market crash of 1987. The research was conducted in current literature and government reports. The goal of the study is to provide a background on the operations of the stock markets, examine factors leading to and contributing to the crash of 1987, and compare the crash of 1987 to the crash of 1929 in order to provide possible insight to weaknesses in the market system.

The conclusions support specific recommendations that are designed to correct market inefficiencies. These recommendations include increasing margin requirements on index futures, monitoring the performance of specialists, and giving the same precedence to all market orders, regardless of size.



## Chapter I: Introduction

On October 19, 1987, the New York Stock Exchange Dow Jones Industrial Average dropped 508 points. This was the climax of a crash that started on October 14, when the DJIA lost 95 points. For the week ending Friday, October 16, the Dow Jones lost 235 points or 9.5%. By Black Monday over 600 million shares traded and the Dow lost 22.6%. This was the worst trading week in the New York Stock Exchange's history and the gloomiest day for financial markets in American history.<sup>1</sup>

This paper will analyze the stock market crash of 1987. Several causes will be discussed for the unprecedented drop. These causes will be analyzed to determine if in fact there was a relationship to the crash, and discuss what, if any, actions should be taken to avoid a repeat of the crash. First, this study will present a brief overview of the stock markets. Then, it will cover how the markets operate and who operates them, and why the markets failed to perform during the crash. Second, several leading factors that have been identified as possible causes of the crash will be discussed. Each factor will be analyzed and determined if those factors were partially or wholly to blame. Then, a comparison of the crash of 1987 to the crash of 1929 will be made. Last, conclusions will be drawn as to the causes of the market crash, and discussing whether anything should be

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<sup>1</sup>Alex Taylor III, "What Happened and What's Next," Fortune, 23 November 1987, 77-88.

done to prevent another such crash.

### Literature Survey

There are a variety of sources used in the research of this study. Since the market crash occurred approximately one year ago, there are very few bound references on the topic. Business periodicals and journals are used extensively for the more current data. Reference material, mostly text books, are used to provide background information on stock markets and their operating theories and information on the crash of 1929.

Periodicals and business journals are used extensively in the search for information regarding the stock market crash. Such journal articles are numerous and easily found in most libraries. Government publications are also cited in this study.

There is such a quantity of journal and periodical articles in the past year concerning the crash, as well as government and stock exchange reports on the subject, that special effort was made to avoid sources that duplicate information. This is so the individual can use the sources cited to get a more specialized level of information without having to jump from source to source for basically the same information.

### Methodology and Analysis

#### The Stock Market

What is commonly referred to as the stock market is actually a group of organized and unorganized stock

exchanges. Operating mostly in the secondary market, these exchanges are the meeting place for buyers and sellers of common stock and other securities. In its most basic function, the markets allow the buyers and sellers to meet and set a mutually agreeable price. The stock is then traded, or sold, and the cycle continues.<sup>2</sup>

The exchanges are actually modified auction markets wherein people, through their brokers, bid for stocks. When the stock market was first founded, brokers would call out the number of shares for sale and sell to the highest bidder. If a broker had a buy order, he would announce that he wanted to buy a certain stock and buy at the cheapest price. The exchanges now have members known as specialists who facilitate the process by keeping an inventory of shares of stock in which they specialize. If a buy order comes in with no one wanting to sell, the specialist will sell from his own inventory. The situation is reversed for sell orders.<sup>3</sup>

When the market opens for the day, the specialist sets both the bid and asked price on the stocks he has been assigned to as the specialist. The bid price is the price that he is willing to pay for the stock. The asked price is the price he is willing to sell out of his inventory. These

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<sup>2</sup>J. Fred Weston and Eugene F. Brigham, Essentials of Managerial Finance, 8th ed., (Chicago: The Dryden Press, 1987), 55-62.

<sup>3</sup>Ibid.

prices are set at levels that are designed to keep the inventory in balance. In an active market, the auction process will determine the bid and asked price. Whenever many buy or sell orders come in at one time, the specialist will act as the seller or buyer from his own inventory. This action keeps supply and demand in balance and insures an orderly market. Bid prices are slightly lower than asked prices. This difference, called the spread, represents the specialist's profit margin.<sup>4</sup>

In order to keep from losing their positions, the specialists are supposed to help achieve an orderly, continuous market by their own buying and selling of the stock in which they specialize when the auction process falters. This would ensure only small incremental changes in price from trade to trade. The specialist has a lot of responsibility for his stock. By being the specialist, he is rewarded for the responsibility by presiding over the trades of his stock and guaranteed a stream of income every time the stock is bought and sold from his inventory. The more volume his stock trades that day the more money he makes. But not just anyone can be a specialist. It requires experience to become a specialist. His ability as a dealer must be strong. He must be a member of the exchange and be selected by the exchange board of governors. All specialists are

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<sup>4</sup> Jack Clack Francis, Investments: Analysis and Management, 4th ed., (New York: McGraw-Hill Book Company, 1986), 59.

required to have adequate capital to assume a position of at least 4000 shares of every stock in which they specialize.<sup>5</sup>

Efficient capital markets are essential for a dynamic capitalistic society. Transactions in the financial markets bring together savings surplus units and savings deficit units so that savings can be redistributed into their most productive uses. By this process, real resources are allocated more efficiently and effectively, and real output for the economy is increased.<sup>6</sup>

The basic drive is to match potential capital sources with capital uses. The primary markets perform this function by arranging equity in companies to be sold to individuals and other organizations. The initial sales of securities are made by investment banking firms. These investment banking firms purchase the securities from the issuing company and sell them through an underwriting syndicate or group. The time when the investment banking firms own the stock and the time it is sold at initial offerings is very risky for the investment banking firm. If unfavorable information becomes public during this period, the investment banking firm could well lose a substantial portion of its capital.<sup>7</sup>

Common stock represents a share in the ownership of the firm. It has an unlimited potential for dividend payments

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<sup>5</sup>Francis, Investments: Analysis and Management.

<sup>6</sup>J. Fred Weston and Thomas E. Copeland, Managerial Finance, 8th ed., (Chicago, The Dryden Press, 1986), 31-32.

<sup>7</sup>Weston and Copeland, Managerial Finance, 35.

through increasing earnings and for capital gains through rising prices. If the firm should fail, common stockholders get what is left after everyone else has been repaid. The investor's risk is higher with common stock than with any other category of security. Knowledgeable investors refuse to invest in common stocks unless those stocks offer a rate of return sufficiently high to induce them to assume the higher losses that may result from such greater risk.<sup>8</sup>

Once the investment banker and the syndicate have sold, the stock is traded in organized security exchanges or in less formal over-the-counter markets. The efficiency of the primary and secondary markets in bringing buyers and sellers together is responsible for the liquidity of the stock.<sup>9</sup>

A security market is efficient if the price fully reflects all relevant available information. A totally efficient market would have all equity prices reflect today what the expected price would be in a later time. This hypothesis is further broken down into three categories of market efficiency: Weak-form efficiency, Semi-strong efficiency, and Strong-form efficiency. Each of these efficiency models all assume the same thing: There will always be both buying and selling pressures that will stabilize the price of securities.<sup>10</sup>

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<sup>8</sup> Francis, Investments: Analysis and Management.

<sup>9</sup> Weston and Brigham, Essentials of Managerial Finance, 55-62.

<sup>10</sup> Weston and Copeland, Managerial Finance, 523-525.

Weak-form efficiency states that the historical price and trading volume data for securities contain no information which can be used to earn a trading profit above what could be attained with a naive buy-and-hold strategy. Semi-strong efficiency maintains that markets are efficient enough for prices to reflect all publicly available information. According to the Semi-strong theory, only a few insiders who trade on short-run price changes, can earn a profit larger than a naive buy-and-hold strategy. Strong-form efficiency claims that no one can consistently earn a profit larger than what could be earned with the buy-and-hold strategy by trading on short-run security price movements. Insider trading scandals have shown that this last theory is not quite accurate.<sup>11</sup>

What sets the price of a security in the markets? There are several value theories that attempt to set a price on securities. All of these theories attempt to set a market value on the return the investor expects to get on the security taking into account the riskiness of the return. The expected return consists of two basic values: any dividend expected during the time the security is held, and the price expected when the security is eventually sold.<sup>12</sup>

The investor will not invest in stocks unless he thinks that the stock will earn a higher rate of return than a risk-

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<sup>11</sup>Francis, Investments: Analysis and Management, 527-553.

<sup>12</sup>Weston and Copeland, Managerial Finance, 689-698.

free rate of return. The return must be high enough to offset the higher risk of investing in stocks. The one factor that must be taken into account, however, is the market risk premium. This is the rate over the riskless return that must be offered to attract an investor to the security.<sup>13</sup>

What happened on Black Monday? Everyone is in agreement that there were more sellers than buyers. In a bid-and-ask market, this leads to lower prices. The reasons many money gurus give for the onset of the crash are high interest rates, a huge trade deficit, and a growing budget deficit.<sup>14</sup> But these reasons were around for several years during the biggest and longest sustained bull market in post-war history.

Program trading and portfolio insurance has not been around as long, and these two causes, put together, are considered the main reasons for the runaway slide that was the crash of October 1987. The theory of portfolio insurance and how it was used will be examined, and then how program trading allowed the increased use of portfolio insurance. The role of the specialist in the market crash will also be evaluated in the following section.

#### Portfolio Insurance

Portfolio Insurance is a strategy designed to protect

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<sup>13</sup> Weston and Copeland, Managerial Finance, 689-698.

<sup>14</sup> Stanley W. Angrist, "Assessing Blame," Forbes, 30 November 1987, 254.



institutional portfolios in down markets while giving them almost all the upside in rising markets. This strategy is executed by selling financial index futures to hedge the portfolio in a falling market. Hedging is the practice of creating a situation to protect capital gains in unfavorable market conditions. The theory goes that if you sell futures in an index that closely resembles your portfolio, and the futures project a downward price, then the futures will be more valuable in a falling market. Therefore, any or most losses by the stocks will be offset by the gains in the futures value. If the market continues to rise, then the only loss will be the moderate price of the hedge.<sup>15</sup>

This theory is used because of the advantage it had over the previously accepted method of portfolio insurance. The previous method consisted of managers selling stocks in down markets and buying something with little or no market risk, like government T-bills. If the market continues to fall, sell more stocks and buy more bills, when the market rises, sell the T-bills and buy more stocks. The mere act of buying and selling stocks is costly and cumbersome, so managers started using the index futures as a way to hedge.<sup>16</sup>

As stock prices decline, the insurance providers sell futures short. If stocks go still lower, then the price of the futures contract will also decline and the managers will

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<sup>15</sup>David Dreman, "Thanks Professor," Forbes, 16 November 1987, 314.

<sup>16</sup>Taylor, "What Happened and What's Next," Fortune, 76-77.

have a profit on the short position that will serve to offset the loss on the stocks that it owns.<sup>17</sup>

On October 14, portfolio insurers sold more and more futures contracts short. This steady selling of index futures probably helped drag stock prices lower, triggering still more selling. This downward pressure is considered by some to be a contributing cause to the crash. More likely, it was the portfolio managers decision to lock in the bull market gains as soon as prices started to decline that actually created the downward pressure. Once the sell decision was made, it is likely that the market would have done the same whether index futures were sold or the stocks themselves were put up for sale.<sup>18</sup>

The theory of portfolio insurance using index futures had never been tested in a bear market. But the so called insurance did not rely on some deep-pocketed insurance company to pay up if the market went sour. It depended on how well the investor could execute the strategy. The one method that was becoming increasingly used by the managers to execute this strategy is program trading.<sup>19</sup>

#### Program Trading

Program trading is simply the arbitrage between the financial futures index and the underlying stocks they

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<sup>17</sup>Taylor, "What Happened and What's Next," Fortune.

<sup>18</sup>Ibid.

<sup>19</sup>Floyd Norris, "Villain or Scapegoat? The Heat's on Program Trading," Barron's, 26 October 1987, 9.

represent. The computer program gives the investor a buy or sell signal when certain conditions exist. Based on the computers recommendation, the investor will automatically initiate the buy or sell order. As an example, if the S&P 500 index is at 250 and the Future is at 245, it pays the program trader to sell the parcel of stocks closely mirroring the S&P 500 and buy the index future. In this example, the trader locks in a 1% return after costs. But this is big money since margin requirements of 5 to 8 percent on futures index trading is razor thin compared to 50 percent or greater for the stocks. This can equate to an 80% return on the investors money.<sup>20</sup>

Sell programs are completely computerized. This is because the proper basket of stocks mirroring the S&P 500 index requires thousands of calculations instantaneously. These programs must react immediately to changes in the market. Some of these program are also set to trigger sell orders automatically at various points of decline in the index.<sup>21</sup>

The program traders are brokerage firms, fund managers, and large financial institutions. They can profit from slight price discrepancies because of the speed with which they trade and the smaller commissions they pay for trading. The computers tell them how many shares of stocks in the S&P

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<sup>20</sup> Dreman "Thanks Professor," Forbes.

<sup>21</sup> Ibid.

500 to buy or sell and the brokers electronically transmit the orders through the automatic order entry system to the specialists on the floor. This system enables program traders to execute trades of hundreds of different stocks almost instantly.<sup>22</sup>

The fact that the large managers and brokerage firms can trade huge blocks of equities allows them to take further advantage of lower brokerage fees. This also enhances their profit potential in comparison to small investors.

To the critics of program trading, the evidence is clear. New York Stock Exchange Chairman John J. Phelan Jr. notes that the computer tracking system found that program trading accounted for more than 20% of the trades on Black Monday. Most of this trading came late in the morning, just as the sell-off began to pick up steam. Phelan also notes that the stock market rallied on Tuesday when the exchange severely hindered program traders by denying them the use of its computerized order-execution facility for such massive sales.<sup>23</sup>

The efficient-market academicians claimed that none of the program trading and portfolio insurance could lead to disaster. "Liquidity begets liquidity" was the rationale behind such observations. What this means is that the more index futures selling takes place, the more rational, profit-

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<sup>22</sup> Taylor, "What Happened and What's Next," Fortune, 82-83.

<sup>23</sup> Gary Weiss, "Two Key Questions: Was Program Trading to Blame...", Business Week, 2 November 1987, 51.

seeking buyers will come into the market.<sup>24</sup>

In defense of program trading, the markets were chaotic. Many stocks had a stack of sell orders and no buyers to be found. This makes it hard to execute trades smoothly or to even determine the actual market price of a stock. Essentially, it seemed as if everyone made a fundamental decision to get out of the market.<sup>25</sup>

### The Specialists

Stock prices were in a free fall. The space between a bid and asked quote was big enough to drive a truck through. Were the specialists doing their job to maintain a fair and orderly market? Most market professionals feel the specialists did well under the circumstances. Nothing happened in an orderly fashion on Monday. The specialists who handle the biggest blue-chip stocks were met with sell orders that they could not hope to absorb. They had little choice but to lower their bids as fast as the exchange's rules allowed.<sup>26</sup>

The specialists also had to buy enormous amounts of stock themselves. By the end of Monday, they held over \$1.5 billion of stock, almost ten times the normal amount. Despite this, there are still some that say the specialists

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<sup>24</sup>Dreman, "Thanks Professor," Forbes.

<sup>25</sup>Weiss, "Two Key Questions:," Business Week.

<sup>26</sup>Taylor, "What Happened and What's Next," Fortune.

bought too few shares.<sup>27</sup>

Some specialists almost assuredly shirked their responsibility. There are documented cases where the specialists failed to even answer their phones. As a result of some impropriety, some specialists did lose their highly sought after position. As a group however, they stood together and made it through the largest single day of trading volume in the NYSE history, 600 million shares. This was not without a cost. In that one day, the 52 specialist firms absorbed about \$1 billion. So bad was the damage that on the next day they were advised that they could, when necessary, bend the rules that govern their trading. The message sent was clear: Do what you have to do to stay solvent.<sup>28</sup>

This paper has examined portfolio insurance, program trading, and even the specialists who make the trades. In each case, there is not a direct causal relationship that would explain the market crash. The evidence gathered by this study will support this conclusion.

One year after the crash, it is perhaps easier to see and understand what was going on in the markets. Several reports have been made by different exchanges and by the Federal Reserve. Even Congress got in on the act by holding hearings to decide if additional legislation was appropriate

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<sup>27</sup>Taylor, "What Happened and What's Next," Fortune.

<sup>28</sup>Ibid.

in such a situation. Following is an analysis that looks at some of these reports and offers an explanation for the crash and reviews the crash of 1929 for comparative analysis.

## Chapter II: The Crash of 1929

On September 3, 1929, the DJIA closed at 381. On October 2, the DJIA fell 49 points. This was followed by a 43 point drop the next day. By October 23, the DJIA had dropped to 306. This was a decline of almost 20 percent in less than 2 months and heralded the arrival of the worst bear market in the history of the stock market up to that time. The decline would take a total of over three years and would reach as low as 41 points on July 8, 1932.<sup>29</sup>

Unemployment went from a low of 3.2 percent in 1929 to 24.9 percent in 1933. As unemployment rose, the demand for goods continued to drop and prices fell. The now unemployed consumer's purchases dropped to subsistence levels. As retail sales went down, inventories rose and production at plants began to drop or stop. Many business shut down or went bankrupt, adding to the number of unemployed and continuing the cycle.<sup>30</sup>

There are some similarities and many differences between the crash of 1987 and 1929. Perhaps the most significant difference were the margin requirements. Before the crash of 1929, many speculators purchased securities on margin. By making small down payments of around 10 percent of the purchase price, the investor could borrow the remaining 90 percent. As the stock prices went up, the investors borrowed

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<sup>29</sup> Francis, Investments: Analysis and Management, 97-109.

<sup>30</sup> Ibid.



on the capital gains from the stock without ever selling them. This pyramiding of debt proved to be disastrous when the market crashed.<sup>31</sup>

When stock prices began to fall, declines equal to the investor's original 10 percent were common. This served to bankrupt investors who overextended themselves by pyramiding debt. When the lenders tried to sell the stocks they now held as collateral, often the value was not sufficient to cover the debt. In order to prevent further losses, lenders dumped the stocks on the market for immediate liquidation. This probably accelerated the market's decline and further aggravated the crisis.<sup>32</sup>

Another important difference between the two crashes is the effect on the unemployment status. While the rate was skyrocketing in 1929 as a result of the crash, the rate in 1987 was stable and even declining despite the stock market crash of 1987 (see figure 1). At a time in 1929 when factories were closing their doors and letting workers go due to little or no demand for their product, 1987 saw factory utilization increase and increased competition for the most desirable employees.

The other major difference between the two crashes is the difference in the margin rates. In 1929 the rates were as low as 10 percent. This enabled investors to be highly

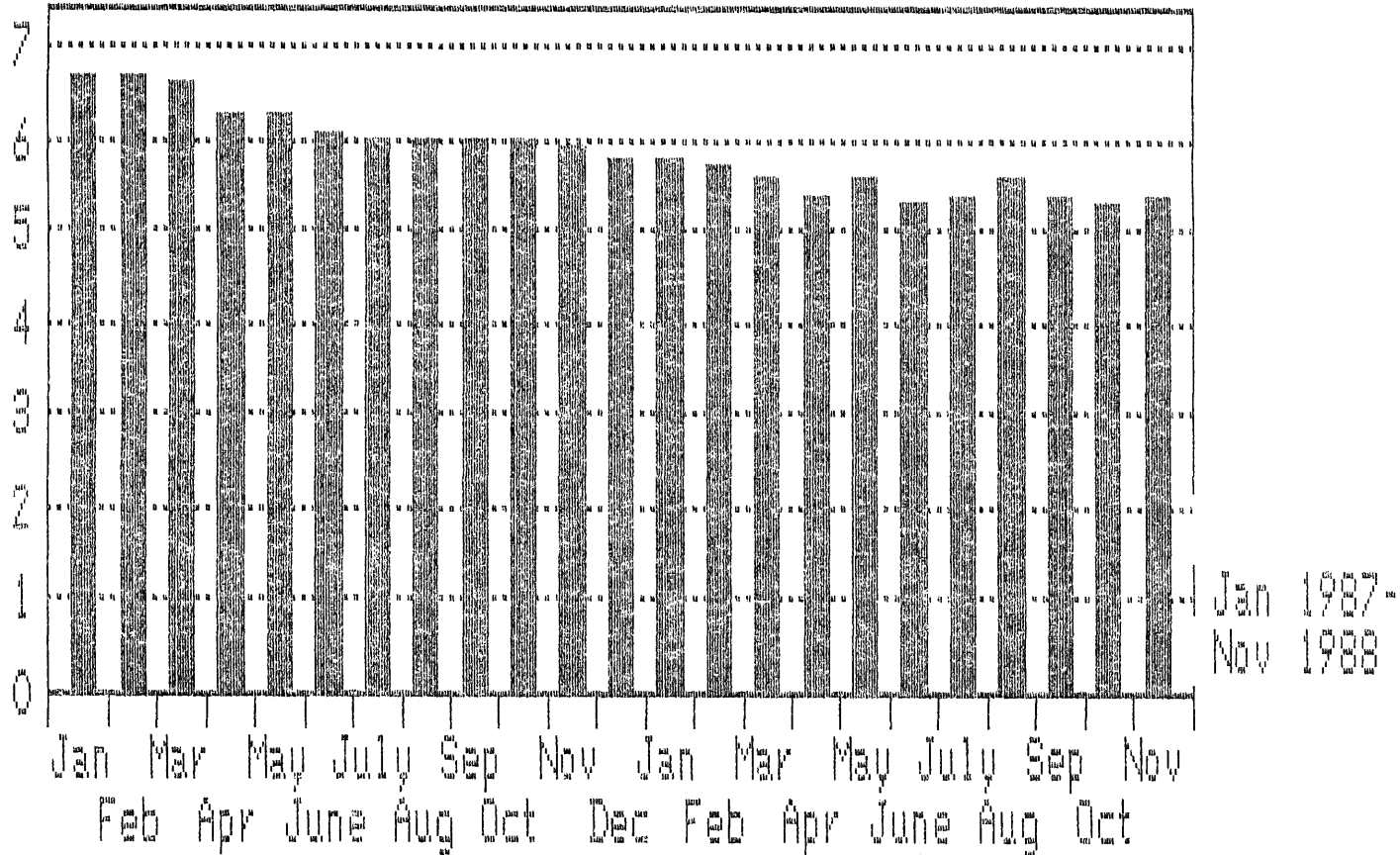
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<sup>31</sup> Francis, Investments: Analysis and Management

<sup>32</sup> Ibid.

FIGURE 1

UNEMPLOYMENT RATE



Source: "Review and Preview; An Investor's Almanac," Barron's, January, 1987 to November, 1988

leveraged and speculative. After the crash, the Federal Reserve restricted margin requirements. Recently, the margin requirements have ranged from 50 to 80 percent. In addition, the Securities Exchange Act of 1934 limited securities dealers' total indebtedness to 20 times their net capital. This is intended to keep the firms from using excessive debt to carry inventories of securities that could bankrupt the firm in a market decline.<sup>33</sup>

Perhaps just as important as the margin requirements, the Fed restricted the money supply during the 1929 crash. This move caused the trauma of the market to be worse. It is nice to know that the nation learns from its mistakes. When the market dropped in 1987, the Fed promised liquidity and actually sent the money supply higher than expected.<sup>34</sup>

As seen in charts 2 and 3, the market crash of 1929 and 1987 are very similar as far as the mechanics are concerned. The market did drop an enormous amount in a relatively short period of time. There was a huge public outcry for tighter control on the markets, and in both cases there was plenty of talk about the fact that such a drop foreshadowed a severe depression. In 1929 the foreshadowing was correct. In 1987 it was not. The conclusion should help explain why it did not happen in 1987.

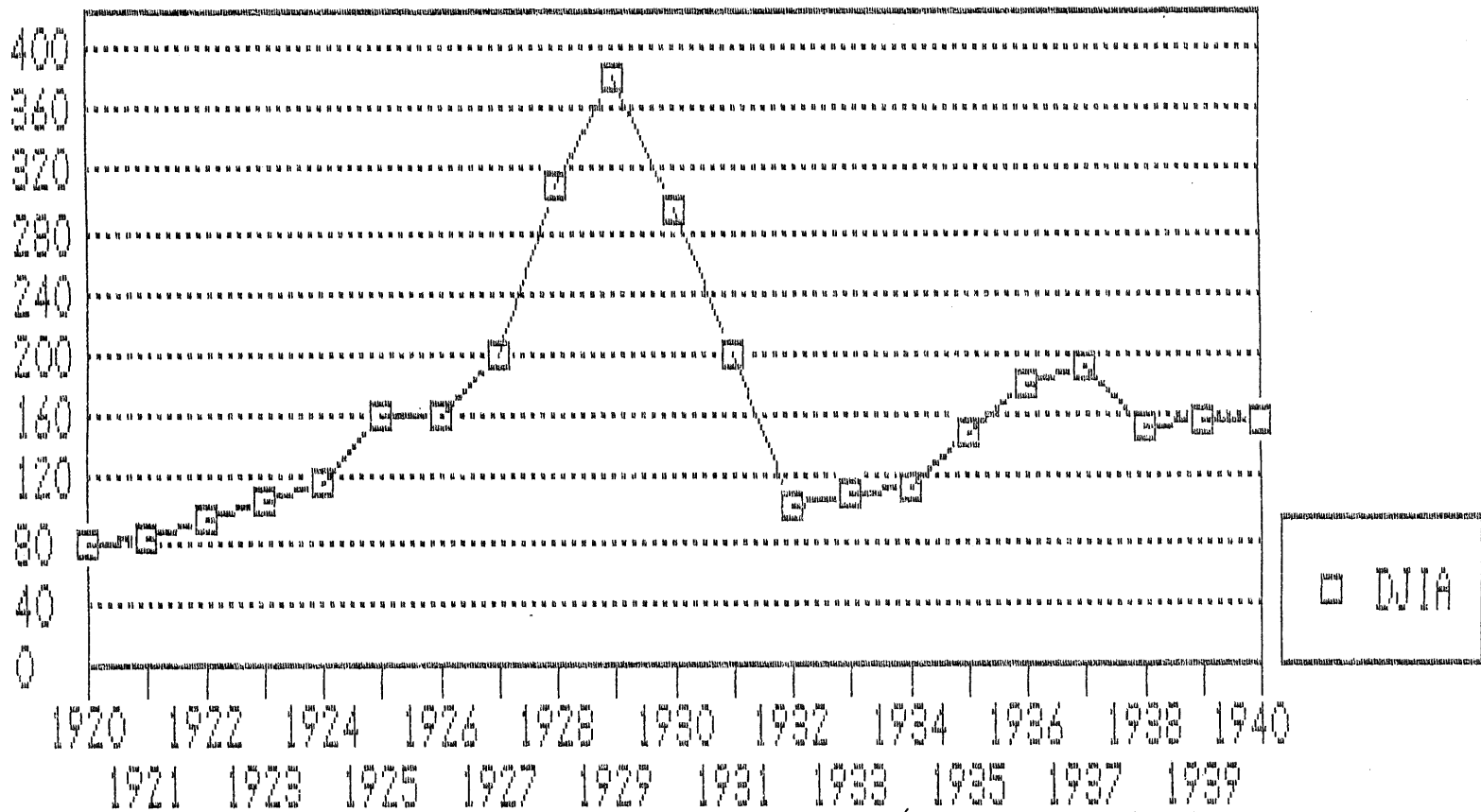
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<sup>33</sup> Ibid.

<sup>34</sup> Taylor, "What Happened and What's Next," Fortune.

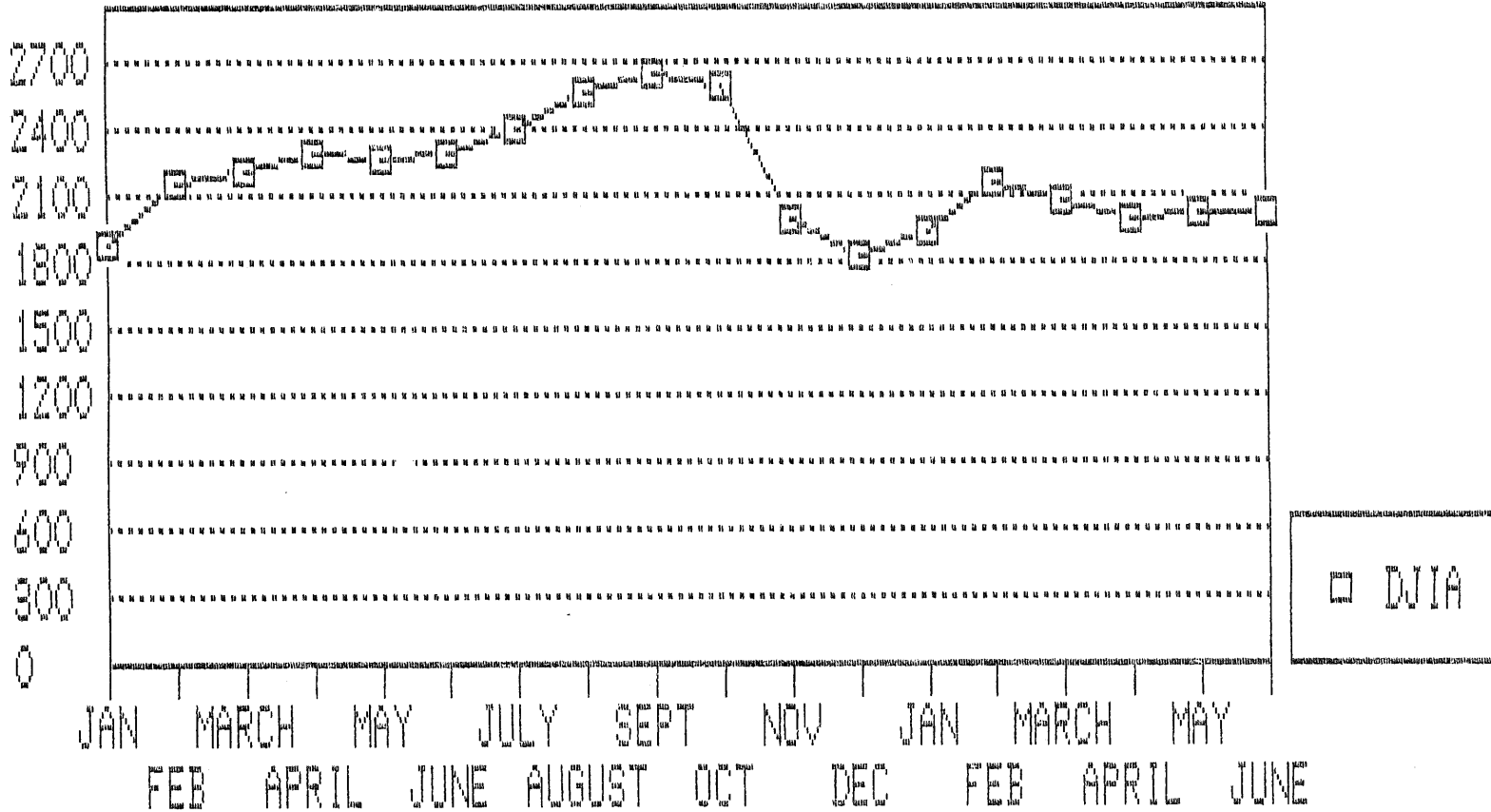
FIGURE 2

DJIA 1920 - 1940



Source: Peter Wyckoff, Wall Street and The Stock Markets, (Philadelphia: Chilton Book Company), 1972.

FIGURE 3  
DJIA 1987 - 1988



Source: "Investor's Scorecard," Money, January, 1987 to June, 1988.

### Chapter III: Analysis

It has been over a year now since the market crash of 1987. Since then some interesting ideas and observations have been presented. There were definitely some heroes and more than a fair share of people who failed to come to the rescue. There were also more than enough doomsayers among the journalists and columnists, and thankfully almost all of them have been proven wrong. There are several points that must be addressed and analyzed with a critical eye. With this critical analysis, recommendations for change will be addressed and any further implications concerning the actions of the market crash will be discussed.

During the crash of 1987, there were many people who thought that the stock markets were the only indicators of the US economy and its direction. Certainly, some feared that the economy might plunge in a abyss of loan liquidation and falling spending if some major brokerage firm was to default on its obligations or the securities clearing and settlement system collapsed.<sup>35</sup>

#### The Exchange Leadership

The NYSE was helped in some way by the exchange leadership. Chairman Phelan had predicted months before the likelihood of a market meltdown. He sighted such reasons as portfolio insurance and index arbitrage and over-speculation in instruments such as index and futures options. Phelan is

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<sup>35</sup>Jonathan R. Laing, "The Day the World Stopped: Taking Stock of the Crash one Year Later," Barron's, 7.

also credited with having the directors keep the exchange open for the next Tuesday despite pleas for a halt from a number of specialist firms that had already burned through most of their trading capital.<sup>36</sup>

However, Phelan's performance was not without some mistakes. Apparently at his bidding, the NYSE closed the DOT computerized order routing to program trading. This effectively eliminated index arbitraging. By pulling the plug on the program trading, the exchange severed the link between the equity and futures markets for days. As a result, the index futures markets for the remainder of the week traded at huge discounts to the actual value of their underlying stocks. These discounts tended to demoralize stock trading by encouraging additional selling and deterring buying.<sup>37</sup>

#### The Specialist: His Performance Under Fire

While most of the specialists did apparently perform admirable in a very trying time, the crash hardly proved to be their finest hour. The SEC staff report on the crash points out that a disturbing number of specialists were either net sellers of stock or did not take substantial positions in their stocks during the panic.<sup>38</sup>

The next trading day after Black Monday, some

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<sup>36</sup> Laing, "The Day the World Stopped," Barron's.

<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

specialists took advantage of the flood of orders and opened their stocks at much higher prices. The specialists used this to actually pump shares into the public's hands while not buying for their own inventory. Later in the day, trading had effectively halted in a number of major issues as the selling pressures grew and the specialists refused to stand in its way. In this manner the specialists did not fulfill their duty to insure an orderly, continuous market.<sup>39</sup>

#### The Media

Shortly after the crash, The Wall Street Journal, New York Times, and other publications began running charts showing the striking resemblance between the 1987 and 1929 crash. Many financial writers pointed out the various parallels between the two periods. Over most headlines at the time were stories asking if another downward spiral in both the general economy and stock market was on its way a la 1929-1932.<sup>40</sup>

Thankfully, the media seemed more interested in making headlines and selling papers than with accurate reporting. In fact the similarities were few between the two crashes and the Federal Reserve was already taking steps to prevent a reoccurrence.

#### The Federal Reserve

During the stock market crash and in the days following,

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<sup>39</sup> Laing, "The Day the World Stopped," Barron's.

<sup>40</sup> Ibid.



the Federal Reserve undertook a number of actions to deal with the emerging problems. The purpose was to limit any damage to the economy from the collapse in the financial markets.<sup>41</sup>

As a result of the financial crisis, savers and lenders attempted to disengage from the markets, especially those involving risk-bearing instruments. These savers and lenders tend to look for preservation of principal rather than capital gains and earnings potential. This increased demand for liquidity is often referred to as a flight to quality.<sup>42</sup>

In a sense, the strategy adopted by the Federal Reserve after the October 19 crash was aimed at shrinking irrational fears to a minimum. On Tuesday, October 20, a statement was issued indicating the Federal Reserve stood ready to provide liquidity to the economy and financial markets. By demonstrating openly their determination to meet liquidity demands, they could reduce those demands to the extent that they arose from exaggerated fears.<sup>43</sup>

By helping to reduce irrational liquidity demands the Federal Reserve avoided a tightening in overall pressures on reserve positions and an increase in short-term interest rates. In fact, the FED went even further and eased policy moderately after the collapse in light of the greater risk to

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<sup>41</sup> Alan Greenspan, "Statements to Congress," Federal Reserve Bulletin, April 1988, 217-225.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

continued economic expansion. Rather than up spikes in short-term rates observed in panics earlier in the market history, short-term rates actually declined after October 19.<sup>44</sup>

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<sup>44</sup>Greenspan, "Statements to Congress," Federal Reserve Bulletin.

## Chapter IV: Review of the Crash

### Weaknesses

When reviewing the market crash, one must recognize that the financial system is in the process of evolution and that each of the changes since mid-October has been in reaction to weaknesses displayed at that time. Some of these adaptations are taking forms that limit pressures that would be placed on the system if circumstances similar to those of the crash were to recur.<sup>45</sup>

Before the market drop, the market had run up to very high levels. The bull market from 1982 was nurtured by a favorable economic setting for businesses. However, stock prices finally reached levels that stretched to unrealistic expectations of rising real earnings and falling discount factors. Obviously, something had to snap. If it did not happen in October, it would have happened at another time.<sup>46</sup>

A contributing factor to high market prices were efforts by investors to extend their cash equity positions on the thought that the availability of liquid markets would enable them to promptly trim their holdings and limit losses should a turnaround occur. Many users of portfolio insurance believed that they could limit their losses in a declining market, and were willing to expose themselves more than normally. If there is one lesson to be learned from the

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<sup>45</sup> Greenspan, "Statements to Congress," Federal Reserve Bulletin.

<sup>46</sup> Ibid.

crash, it is that timely executions cannot be depended upon, especially when needed most--when selling pressures are great. This was true during the crashes of 1929 and 1987 and is still true today.<sup>47</sup>

In addition to this, the systems capacity became an influence on investor behavior. As investors began to recognize that the capacity of the system to execute trades was faltering, the instinct was to get out while they could. The realization by investors that the system could not simultaneously accommodate all the efforts under way to reduce long positions in stocks, prompted more investors to attempt to get out.<sup>48</sup>

The emerging difference between the prices of stocks, stock index futures, and options last October contributed to uncertainty premiums and the downward pressure on prices. In normal circumstances, arbitrage keeps the prices of these derivative instruments in line with equities. Under the strains of the crash, the individual markets for these were fragmented. This generated considerable price differentials. This difference persisted for an extended time because of the breakdown of the arbitrage process associated with the withdrawal process and execution problems.<sup>49</sup>

In summary, the initial rapidness of the price

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<sup>47</sup> Greenspan, "Statements to Congress," Federal Reserve Bulletin.

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

correction to an overpriced market, and a faltering execution capacity, sharply raised risk or uncertainty premiums. This contributed to historic declines in prices.<sup>50</sup>

### Strengths

Despite the attention given to the performance of the markets has been on the weaknesses, they did come through the crisis remarkably well considering the events. Remember that no major brokerage firm failed. Despite unprecedented margin calls by the futures clearinghouse, the calls were met by the members. Most importantly, the stock prices reached a new trading range shortly after the drop and has been steady ever since.<sup>51</sup>

### Reforms

When calling for reforms, it is important to recognize and avoid confusing symptoms with causes. When information affecting the value of equities becomes available, portfolio adjustments naturally occur. They occur first in those markets where the costs are lowest, futures markets. Arbitrage acts to insure that values in the cash market and elsewhere reflect the new information.<sup>52</sup>

It is just as important to realize that some of the factors contributing to the crash cannot realistically be corrected by public policy. In part, the degree of sharpness

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<sup>50</sup> Greenspan, "Statements to Congress," Federal Reserve Bulletin.

<sup>51</sup> Ibid.

<sup>52</sup> Ibid.

in the drop reflected modern telecommunications and information processing systems. In fairness, this technology also tends to enhance the efficiency of our markets and is beneficial to many other aspects of our welfare and is here to stay. In fact, since the bull market began in 1982, there has not been many people complaining that the market was going up too high.<sup>53</sup>

Before coming down hard on portfolio insurance programs, remember that these programs are strategies and not products. These strategies frequently involve the use of derivative instruments, but they would exist even without the availability of such products.<sup>54</sup>

One should be aware that demands on the system could again exceed the capacity of the system to perform its function. Remedies may well be needed that expand capacity or that establish an orderly adjustment process once capacity limits have been reached. One report suggests that circuit breakers in the form of price limits and coordinated trading halts be considered. The use of price ceilings could prove to be a constructive measure for prompting a pause in trading, especially if there is uncertainty about the financial position of money makers and brokers.<sup>55</sup>

Ad hoc methods of closing markets should be avoided.

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<sup>53</sup> Greenspan, "Statements to Congress," Federal Reserve Bulletin.

<sup>54</sup> Ibid.

<sup>55</sup> Ibid.

Such methods are likely to encourage rumors of closings and add to confusion. Any system that leads to market closings should be one that is coordinated among the markets. Price limits and other circuit breakers must be viewed as being destabilizing, but they may be the best of all solutions. When orders exceed execution capacity, the system has shown that it will break down. It may be better for it to take the form of a controlled disruption.<sup>56</sup>

The Federal Reserve continues to view the achievement of consistent margins across the various instruments as being appropriate. A federal oversight authority would be well positioned to accomplish this. However, the topic of the proper level of margin is very complicated and must be pursued carefully. The fundamental differences between the price behavior of individual stocks, stock indices, options, and futures likely call for different levels of margin. This is especially true if the objective is to preserve the integrity of these markets while promoting liquidity.<sup>57</sup>

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<sup>56</sup> Greenspan, "Statements to Congress," Federal Reserve Bulletin.

<sup>57</sup> Ibid.

## Chapter V Conclusion

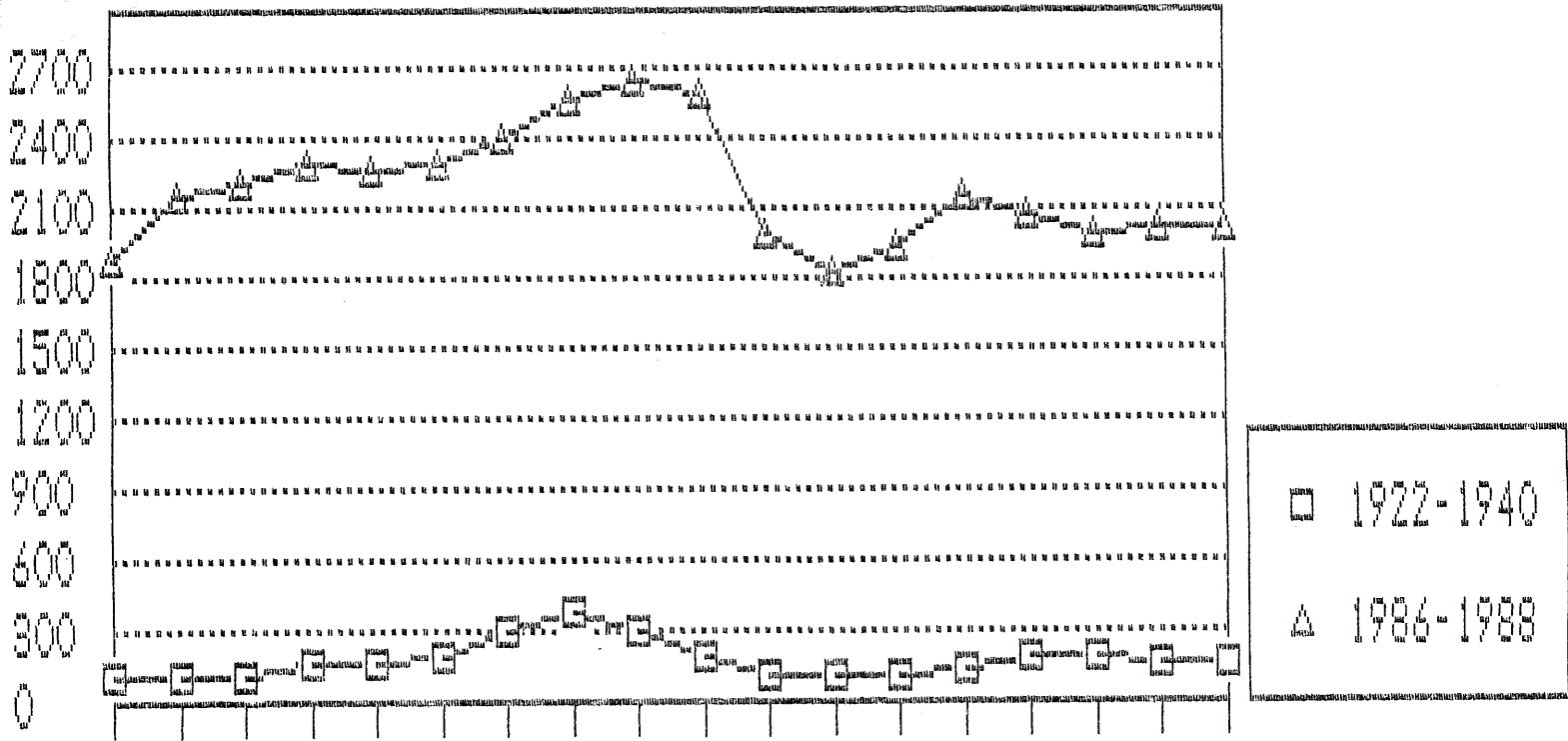
The market crash of 1987 may not have been all bad. In a matter of a few days, the often touted reasons for the crash were able to take a market whose prices were too high and send them down to the accepted value oriented trading range. The fact that it happened on tremendous volume and severe one-day drops, it erased billion of dollars in paper profits, and caused the entire country to panic about the future is perhaps the people's fault for not understanding what was happening. During the crash of 1929, it took 4 years for the market to reach bottom. In the meantime, the long, slow decline hurt employment, production, and the national standard of living. In 1987, the market was able to do all of its declining in one week. In such a short time, the industrial base had no time to react by shutting down. The markets stayed liquid, the population continued to work, and the investors are slowly coming back to the markets. Is this not the sign of an efficient market?

The figure on the next page shows both the 1929 crash and the 1987 crash. While the similarities are readily evident, remember that it was not until 1938 before the DJIA reached a stable trading range after the 1929 crash. After the 1987 crash, a trading range was established in four months.

A striking difference between the two crashes can be seen in the difference between the new range of trading and the lowest point on the DJIA. While the different methods



FIGURE 4  
THE CRASHES OF 1929 AND 1987



Source: Peter Wyckoff, Wall Street and The Stock Markets, (Philadelphia: Chilton Book Company), 1972, and, "Investor's Scorecard," Money, January, 1987 to June, 1988.

discussed in this report did succeed in bringing more efficiency into the market, it also brought inefficiencies. The degree of inefficiency can be measured by the difference between the lowest post-crash level and the newly established trading range.

The following recommendations are submitted, not to preclude another market crash, but to help rid the markets of the inefficiencies that multiplied the severities of the crash.

#### Recommendations

Since the crash in 1987, there have been many reports and analysis on not only the causes but on potential fixes. These fixes range from "iron fist" regulation of the markets by the government to a complete exoneration of every player involved in the crash. Based on the information examined in this study, the following recommendations are made.

There should be no further regulations regarding the use of portfolio insurance or program trading. Portfolio insurance is just another risk reduction model and a new model will replace an old one almost instantly. Since the crash, the portfolio insurers have discovered that no amount of hedging short of selling the stocks at a higher price than when bought will guarantee profits. Similarly, program trading in and of itself is not bad for the markets. A system that can handle more transactions than before only increases the liquidity of the markets and does not increase instability. However, when the transactions of the program

traders take precedence over smaller traders, then instability is introduced into the market. Unless every investor or potential investor can realistically believe that they are playing on a level field with the institutions, the small investors will go elsewhere with their capital and the markets will become more and more inefficient. Equal precedence should be given to all orders regardless of the size of the order.

The performance of the specialists should be more closely controlled. The specialists have a guaranteed profit identified by the "spread" every time they buy or sell stock from their own inventory. Being a specialist should be looked upon as a privilege, not a right, and any specialist who does not perform up to the standards of the markets should have their stocks reassigned.

It appears that this latest recommendation is already being followed. As of September 6, 1988, a total of eleven stocks have been reassigned from seven different specialist firms. A review of their performance during the crash prompted this action.<sup>58</sup> Continued vigilance during good times as well as bad is warranted. During a stock market crash is not the time to realize that you need a different specialist.

The last recommendation is perhaps the most important. It simply does not make sense to require stock margins to be

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<sup>58</sup>"Big Board Reassigning 4 More Firms' Shares to Other Specialists," The Wall Street Journal, September 6 1988, 8.

50 percent or higher and then to allow the corresponding index futures margins to be as low as 10 percent. The index is set up to mirror the actual stocks and the margins should also mirror. To not do so would invite over leveraged accounts and add fuel to the fire in any panic situation. This was definitely seen during the crash of 1929 and 1987.

These recommendations are not all encompassing. The stock markets are in a state of constant change and no regulation or control that works today can be expected to work as well in the future. The markets need strong leadership that recognizes this and is prepared to make some popular and not so popular decisions. Had these recommendations been enacted before the crash, it may not have been so severe. However, during the 60 month bull market, it would have been difficult to find anyone willing to stand up and pronounce that a change was needed.

APPENDICES

## Appendix A

### Definitions

DJIA- The Dow Jones Industrial Average, the most widely watched market index in the United States because of its historical significance. It includes 30 stocks and is not considered a comprehensive market index.

BLACK MONDAY- October 19, 1987. On this day the DJIA dropped 508 points. This was the single worst trading day in the history of the United States.

BROKERS- (Stockbrokers) Deal with both individual and institutional investors, earning commissions for buy or sell orders executed.

SPECIALISTS- Members of organized exchanges who specialize in certain stocks and aid the trading process by keeping an inventory of these shares.

INVESTMENT BANKING FIRMS- A firm that underwrites and distributes new security offerings and helps businesses obtain financing.

INITIAL OFFERINGS- The sale of securities by investment banking firms through an underwriting syndicate. This transaction is called the primary market.

NAIVE BUY-AND-HOLD STRATEGY- An investment plan where one decides on which stock or stocks to buy and then are held despite changes in the investment environment.

BULL MARKET- A period of sustained upward movement in market indices where each succeeding top is higher than the preceding top, and each bottom is higher than the preceding bottom.

BEAR MARKET- A period of sustained downward movement in market indices where each succeeding top is lower than the preceding top, and each bottom is lower than the preceding bottom.

INDEX FUTURES- An investment whose price is based on the expected price of a particular index (i.e. S&P 500). An index futures contract is settled in cash.

T-BILLS- Debt obligations of the U.S. Treasury sold on a discount basis with maturities ranging from 3 months to 1 year.

ARBITRAGE- The act of buying in one market for the immediate resale in another market with the hope of making a profit. Arbitrage keep markets efficient by maintaining the same price in all markets for the same security.

S&P 500 INDEX- A market index that more closely resembles the actual movement in the market. It is more comprehensive than the DJIA but is heavily weighted by large capitalization stocks.

MARGIN REQUIREMENTS- The amount of capital that must be available in an account before one is able to borrow from the brokers to buy securities.

BLUE-CHIP STOCKS- A low-risk common stock that offers moderate growth potential but safety for principal.

FEDERAL RESERVE- A branch of the U.S. Government that is powered to control the nation's money supply and credit conditions.

SEC- The Securities and Exchange Commission is a government agency that is responsible for regulating the securities markets.

FEDERAL RESERVE BOARD OF GOVERNORS- A Board of Directors consisting of seven members appointed by the President of the United States. Each member has a term of fourteen years and a vacancy occurs every two years. The Board of Governors usually controls all important policy matters and chooses the chairman of the Board of Directors of each Reserve Bank.



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