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The role of derivatives in the 1987 U.S. financial crisis

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INTRODUCTION

The period immediately preceding the 1987 crisis in America was characterized by a series of economic and social conditions that contributed to the collapse of the financial markets known as "Black Monday." During the 1980s, the United States was experiencing stable economic growth, with rising productivity, employment, and real income.

The stock market had experienced remarkable growth between 1982 and 1987, with the Dow Jones Industrial Average index more than doubling in value. New financial instruments, including "derivative products," were gaining popularity among institutional investors. Computerized trading was on the rise, with an increase in stock transactions handled by electronic systems.

The Federal Reserve had implemented expansionary monetary policies, reducing interest rates and increasing liquidity to counter the economic recession. However, corporate and consumer debt was rising, posing a potential risk in the event of economic downturns.

Investors had become increasingly optimistic and began to speculate excessively, pushing up stock prices. The 1987 crisis was triggered by large-scale mass selling, lack of investment confidence, and technical problems in computerized trading systems. The fall in stock markets was sudden and intense, with the Dow Jones losing about 22 percent of its value in a single day.

On October 19, 1987, financial markets, including futures and options, experienced a significant crash, with the S&P 500 index plummeting by approximately 20%. The 1987 market downturn is notable not only for the rapidity and depth of the decline but also for exposing the vulnerabilities within the trading mechanisms, highlighting their potential to falter under extreme stress.

The trading system's inadequacies exacerbated the downturn, with a critical issue being the challenge of collecting data amidst the fast-paced and tumultuous conditions. Existing infrastructures were overwhelmed by the volume of transactions, contributing to investor retreat due to informational uncertainty.

Moreover, unprecedented margin calls that followed the sharp price drops played a role. These were essential for maintaining the clearinghouse's financial integrity but their magnitude and the timing of payments diminished market liquidity. Additionally, the impact of "program trades," triggering significant sales of securities, further burdened the system.

The Federal Reserve took proactive measures to restore market stability by enhancing liquidity visibility. It relaxed short-term credit conditions through broader open market activities initiated sooner than typical, made

declarations of its dedication to liquidity provision, and eased regulations on Treasury securities lending from its holdings. The visibility and the liquidity support itself were critical, but the public aspect of these measures likely bolstered market confidence. Furthermore, the Federal Reserve prompted commercial banks to offer liquidity assistance to market entities. The Federal Reserve's actions were positively viewed, playing a crucial role in facilitating the financial markets' recovery to a state of normalcy.

This document aims to chronicle the 1987 stock market crash comprehensively, elucidating the contributing factors to its intensity, with a specific focus on the role of derivatives in the crisis.

Chapter 1: Historical context

1.1: Former times of the security markets

In the forthcoming chapters, we embark on a comprehensive exploration of diverse topics intricately linked to the intricate world of securities. This detailed introductory section provides a historical perspective on the evolution and significance of derivatives and financial markets, setting the stage for a deeper understanding of the complex mechanisms that drive these financial instruments. By examining the past developments and transformations within these markets, we lay a robust groundwork essential for navigating the subsequent discussions. This historical context not only enriches our appreciation of the current state of financial markets but also equips us with the necessary insights to anticipate future trends and challenges in the realm of securities.

The origins and spread of security markets can be traced back to ancient times, evolving significantly over the centuries to become the complex systems we see today. Initially, these markets began as informal gatherings of traders and merchants, looking to exchange goods, debts, and later, financial instruments such as bonds and promissory notes. The development of these trading practices laid the groundwork for modern financial markets. One of the earliest recorded examples of securities trading can be found in Rome, where government bonds and shares in companies conducting public services (such as supplying the city with grain or operating public baths) were traded among investors. However, it wasn't until the late Middle Ages and early Renaissance period that the foundations of the modern security markets began to take shape, particularly in the merchant cities of Italy, like Venice and Genoa. These cities saw the emergence of government bonds issued to fund city-state ventures and wars, marking an early form of public debt securities. The concept of shares in a company, which could be bought and sold, emerged more fully with the establishment of chartered companies in the 16th and 17th centuries. The Dutch East India Company, formed in 1602, is often cited as the first company to issue shares to the public and list them on a formal stock exchange, the Amsterdam Stock Exchange. This event marks a significant milestone in the history of security markets, demonstrating the viability of raising capital through public investment in company shares. As trade and commerce flourished, the need for a more organized and regulated marketplace for securities became evident. This led to the establishment of formal stock exchanges in major European cities and later in North America, where securities could be traded in a regulated and standardized manner. The London Stock

Exchange (LSE), founded in the late 17th century, and the New York Stock Exchange (NYSE), established in 1792, are among the oldest and most influential stock exchanges in the world. The spread of security markets globally was facilitated by industrialization, economic expansion, and the increasing complexity of business operations, which required more significant amounts of capital. The 19th and 20th centuries saw the proliferation of stock exchanges around the world and the expansion of the types of securities traded, including government and corporate bonds, stocks, and various derivative instruments. Technological advancements, particularly in telecommunications and computing, have further transformed security markets, enabling faster trading, greater market accessibility, and the development of new financial products and services. Today, global security markets are interconnected, with transactions involving millions of trades worth billions of dollars conducted daily across different continents and time zones.[1]

The role of bankers and banks in the evolution and functioning of security markets is pivotal, serving as the backbone of modern financial systems. Banks, with their extensive networks and resources, have historically played a crucial role in facilitating the growth and development of securities markets by providing a variety of essential services. Banks have been instrumental in the process of capital formation, pooling savings from individuals and institutions and channeling them into productive investments. Through the issuance of securities such as bonds and stocks, banks have enabled governments and corporations to raise the necessary funds for expansion, infrastructure projects, and other capital-intensive initiatives. This process not only supports the economic development of nations but also provides investors with opportunities to earn returns on their capital, thus encouraging further savings and investment. One of the critical roles banks play in the securities market is the underwriting and distribution of securities. Investment banking arms of banks assess the risk and value of securities, underwrite them by purchasing securities from issuers, and then distribute them to investors. This service reduces the risk for issuers, ensuring that they receive the necessary funds even if the securities are not fully sold in the market. For investors, banks provide a layer of due diligence, ensuring that the securities they purchase meet certain standards of risk and potential return.

Banks also act as market makers in various securities, providing liquidity to the market by buying and selling securities from their own accounts to ensure that investors can buy or sell their holdings when they wish to. This liquidity is crucial for the efficient functioning of the markets, as it facilitates the smooth exchange of securities and helps to maintain stable prices. Banks offer financial advisory services to both issuers of securities and investors, advising on the timing,

[1] A Short History of Derivative Security Markets, By Ernst Juerg Weber, The University of Western Australia

structure, and pricing of securities issuances, as well as on investment opportunities and portfolio management. Furthermore, banks play a significant role in developing and offering products and strategies for risk management, including derivatives like options, futures, and swaps, which allow market participants to hedge against or speculate on changes in market prices. Finally, banks have been at the forefront of innovation in the securities markets, developing new financial products and services to meet the evolving needs of investors and issuers. They have also invested in the infrastructure of financial markets, including trading platforms, clearinghouses, and payment systems, which are essential for the efficient and secure processing of securities transactions.[2]

In summary, bankers and banks have been central to the development and operation of securities markets, facilitating capital formation, ensuring liquidity, providing risk management tools, and driving innovation. Their role has evolved over time, adapting to changes in the economic environment, regulatory landscape, and technological advancements. As the financial markets continue to grow in complexity and global reach, the role of banks remains fundamental to their stability, efficiency, and continued development.

Modern financial literature and textbooks often present a skewed narrative regarding the significance and history of derivatives. A common misrepresentation found in contemporary educational materials is the suggestion that derivatives are a relatively recent innovation in financial markets, gaining prominence only in the last few decades. This perspective grossly underestimates the historical depth and impact of derivatives, which have been integral to financial systems for centuries.

Derivatives, in various forms, have been used since ancient times. For example, merchants in the Roman Empire used contracts that were similar in function to modern futures contracts, allowing them to hedge against the fluctuation in prices of goods like grains and spices. In the medieval era, forward contracts became common among European traders as a means to secure prices for goods before their transportation or harvest. The misrepresentation stems from a narrow focus on the sophisticated, computer-driven derivatives markets of today, overlooking the long-standing human practice of managing financial risk through contracts that derive their value from underlying assets, rates, or indices. The oversight of derivatives' historical significance also diminishes understanding of their role in shaping financial markets throughout history. Derivatives have been pivotal in the development of modern finance, from facilitating trade in the bustling commercial centers of Renaissance Italy to enabling farmers in the 19th century United States to hedge against crop price volatility.

[2] A Short History of Derivative Security Markets, By Ernst Juerg Weber, The University of Western Australia

By not fully acknowledging this history, modern textbooks fail to convey the complexity and nuance of financial markets' evolution. This can lead to a lack of appreciation for the role derivatives play in market stability, risk management, and economic development across different historical periods. The underrepresentation of derivatives' history in educational materials has broader implications. It risks leaving students with an incomplete understanding of financial instruments' roles and functions, potentially undermining their ability to navigate and innovate within today's complex financial landscapes. Furthermore, it reflects a broader issue of historical selectivity and bias in financial education, where the richness of financial history is often sacrificed for a more streamlined, but less accurate, narrative.

The misrepresentation of the historical significance of derivatives in modern textbooks is a notable oversight. It not only distorts the understanding of financial markets' evolution but also diminishes the educational foundation upon which future finance professionals build. Acknowledging and correcting this misrepresentation is crucial for developing a more comprehensive and nuanced understanding of financial markets, both past and present.[3]

The exploration and understanding of the history of derivatives are significantly hindered by a lack of historical records. This gap in documentation presents a considerable challenge for historians and financial researchers aiming to construct a detailed account of how derivatives have evolved over centuries. Derivatives, by their very nature as private agreements and often as over-the-counter (OTC) transactions, do not leave behind the same volume of records as more formalized financial instruments traded on exchanges. Historically, many derivative contracts were verbal or, if written, not systematically archived. This informality and the private nature of transactions mean that much of the activity in the derivatives market has gone unrecorded. The scarcity of records affects our understanding of the role and significance of derivatives in past economies. For example, while there is evidence of forward contracts in ancient Mesopotamia and options contracts in ancient Greece, the specifics of these transactions, including their frequency, the volume of trades, and their impact on the broader economy, remain largely speculative. The lack of detailed records makes it difficult to assess the true scale and implications of derivatives trading in historical contexts. Beyond the sheer absence of records, there are conceptual and methodological challenges in studying the history of derivatives. Derivatives are complex financial instruments, and their valuation and impact are contingent upon a variety of factors, including market conditions, underlying assets, and counterparty risk. Historical analyses must contend with the difficulty of

[3] A Short History of Derivative Security Markets, By Ernst Juerg Weber, The University of Western Australia

reconstructing these contexts accurately. Furthermore, the evolution of financial terminology and concepts over time complicates the interpretation of historical records that do exist.

Despite these challenges, recent efforts by historians, economists, and archivists have begun to shed light on the history of derivatives. The digitalization of archives and the use of new methodologies, such as computational analysis and network theory, are helping researchers uncover and interpret historical financial data. These advancements, while promising, are still in their early stages, and much work remains to be done to fill the gaps in our understanding of derivatives' historical development. The lack of historical records poses significant challenges to documenting and understanding the full history of derivatives. This gap impacts not only academic knowledge but also the appreciation of derivatives' role in financial markets throughout history. As research methods evolve and more archives become accessible, there is hope that the historical narrative of derivatives will become richer and more nuanced, offering deeper insights into their enduring significance in global finance.

In conclusion, the origins and spread of security markets are a testament to the evolving nature of trade, finance, and investment, reflecting broader economic, technological, and social changes. From their humble beginnings in ancient times to their current status as pillars of the global economy, security markets have played a crucial role in facilitating capital formation, economic growth, and wealth generation.[4]

1.2: Reaganomics

During the concluding years of Jimmy Carter's presidency, the United States was plagued by severe inflation and unemployment, a predicament that led economists to coin the term "stagflation" to describe the simultaneous occurrence of these two economic woes. In the 1980 presidential campaign, Ronald Reagan proposed an economic strategy aimed at catalyzing economic growth, a plan that would later be known as Reaganomics. Essentially, Reaganomics revolved around significant tax reductions. Throughout his presidency, Reagan successfully implemented numerous tax cuts and streamlined the tax code. However, the reduction in government revenue forced him to increase taxes 11 times, effectively nullifying a substantial portion of the original tax cuts. Despite

[4] A Short History of Derivative Security Markets, By Ernst Juerg Weber, The University of Western Australia

these reversals, the nation managed to emerge from the stagflation that characterized the Carter years, witnessing a considerable economic upturn. This exposition delves into the intricacies of Reagan's economic policy and examines its impact on the American economy during the 1980s.

Initially, Reagan's proposition of what would eventually be recognized as Reaganomics received a lukewarm response from his fellow Republicans. For instance, President Gerald Ford vehemently criticized Reagan's plan, which advocated for transferring significant responsibilities from the federal government to the states. Nonetheless, Reagan incorporated this economic philosophy into his platform for the 1980 election, asserting that the plan would facilitate job growth by ensuring that the wealth accumulated by the highest earners would be reinvested, thus trickling down to the workers on the factory floors. The term "Reaganomics" was coined by radio personality Paul Harvey, and it quickly became part of the national lexicon.

Reagan's economic strategy was both unconventional and largely untested, with key objectives that included cutting taxes for the wealthiest individuals, reducing capital gains and corporate taxes, promoting deregulation, and slashing government spending. George H. W. Bush, one of Reagan's rivals within the Republican Party, initially dismissed the plan as "voodoo economics," a critique he would later recant when he served as Reagan's vice president. Confronted with a skeptical Congress dominated by Democrats, Reagan's economic agenda prioritized four main areas:

1. Reduction of Government Spending: Reagan's budget proposals sought significant reductions in entitlement spending, targeting programs such as food stamps, unemployment benefits, along with Medicare and Medicaid health coverage. These proposed cuts were met with stiff resistance from both Democrats and Republicans, who were acutely aware of the popularity of these programs among their constituents.

2. Tax Reductions: Reagan advocated for a 30% reduction in taxes for the highest earners and proposed a simplification of the federal income tax code into three brackets: 15%, 25%, and 35%. This restructuring aimed to reduce taxes for the top 5% of earners by 35% while increasing taxes for the poorest citizens by 4%. Although Reagan encountered obstacles in fully implementing his vision, with the support of conservative Southern Democrats, he managed to secure a 25% tax cut during his first term.

3. Capital Gains Tax Reduction: The capital gains tax, imposed on earnings from the sale of assets such as stocks, bonds, precious metals, or property, mainly impacts those with higher incomes. Under Reagan's administration, this tax was substantially reduced to 20%, the lowest level since

Herbert Hoover's term.. This move was intended to encourage the reinvestment of these savings into business growth and job creation.

4. Deregulation: Reagan and his administration argued that excessive regulations were burdensome for businesses, making them less profitable and competitive. By advocating for deregulation, Reagan believed that businesses could operate more efficiently and, in turn, create more jobs. During his presidency, numerous regulations, especially those pertaining to environmental protection, were relaxed. For instance, measures were introduced to allow higher levels of arsenic in drinking water[5].

The outcomes of Reaganomics were complex and multifaceted. In the initial years of Reagan's presidency, the Federal Reserve Board of Governors, anticipating that tax cuts could lead to inflation, raised interest rates. This move precipitated a recession that compelled Reagan to raise taxes again, undoing much of his initial tax reductions. The appreciation of the dollar exacerbated the trade deficit. Nonetheless, by 1983, the economy had stabilized and began to exhibit consistent growth. Moreover, Reagan increased government expenditure on defense, arguing that the United States needed to bolster its defenses against potential threats from the Soviet Union. However, the combination of tax cuts and increased defense spending resulted in a substantial federal deficit. Over time, Reagan's policies of reducing entitlement programs, lowering taxes for the wealthiest Americans, and strengthening the military have become foundational to conservative economic policy. The debate over the efficacy and consequences of these policies continues among historians and economists to this day.

1.3 Public vs Private Sector

When considering the dynamics of sectoral confidence during the Reagan years, it's essential to understand the broader economic and political context. Reagan's presidency was characterized by a strong push towards deregulation, tax cuts, and a general shift from public to private sector emphasis. This ideological stance was expected to invigorate the private sector and, by extension, foster a surge in public confidence in it. However, the reality was more nuanced. While there was a notable economic recovery, the public's confidence in the private sector didn't uniformly mirror this improvement. Instead, perceptions were deeply influenced by the economic disparities experienced

[5] The Federal Reserve response to the 1987 Market Crash, Yale School of Management (2020)

by different segments of the population, ongoing concerns about corporate ethics, and the social responsibilities of businesses. The government's role, while ostensibly diminished, remained a critical anchor for public trust, especially in areas where the private sector's motivations were perceived as misaligned with the public good. This period, therefore, presents a fascinating case study in the interplay between policy intentions, economic outcomes, and public sentiment[6].

Incorporating data into the discussion of sectoral confidence dynamics during the Reagan years, it's evident that the economic indicators play a crucial role. For instance, the GDP growth rate, which saw an average annual increase of approximately 3.5% during Reagan's presidency, and the decline in unemployment rates from 7.5% in 1980 to 5.4% by 1988, underscore the economic recovery. However, despite these positive trends, the public's confidence in the private sector did not uniformly increase. This discrepancy can be attributed to various factors, including wage disparities, rising income inequality, and high-profile corporate scandals, which may have tempered public enthusiasm for the private sector's role in society. On the other hand, the modest improvements in confidence towards government institutions could reflect the public's appreciation for regulatory oversight and social safety nets during a period of significant economic transformation.

The impact of Reagan's policies on sectoral confidence can be viewed through the lens of economic revitalization and deregulation. His administration's focus on reducing the size of government, cutting taxes, and promoting free market principles was aimed at stimulating growth in the private sector. These policies did lead to a period of economic expansion and were instrumental in lowering inflation rates, which in turn helped to restore some degree of public confidence in the economy. However, the benefits of these policies were not uniformly felt across all sectors or demographics, leading to mixed perceptions about their overall effectiveness. While some credited these policies with fostering a conducive environment for business and innovation, others pointed to the growing income inequality and the perceived neglect of social welfare programs as areas of concern, highlighting the complex relationship between policy, economic outcomes, and public confidence[7].

Expanding on the impact of Reagan's policies on sectoral confidence, it's pivotal to highlight the economic data that underscores this era. The administration's tax policies, notably the Economic Recovery Tax Act of 1981, aimed to stimulate investment and consumer spending by significantly reducing tax rates. This legislative move, coupled with deregulation efforts, is credited with

[6] The Federal Reserve response to the 1987 Market Crash, Yale School of Management (2020)

[7] Federal Reserve History, stock market crash of 1987 (1987)

contributing to a substantial economic upswing, with GDP growth rebounding strongly in the mid-1980s after the recession of the early 1980s[8]. However, the income inequality index, as measured by the Gini coefficient, saw an increase during this period, reflecting a widening gap between the wealthiest and poorest Americans. This economic stratification contributed to varied perceptions of Reagan's policies' effectiveness, complicating the narrative of sectoral confidence. While businesses and investors showed increased optimism, mirrored in the rising stock market, the broader public sentiment was mixed, reflecting concerns over job security, wage stagnation, and the social safety net's erosion.

To provide a detailed explanation of the comparative analysis of confidence trends during Reagan's administration, it's important to delve into both quantitative data and qualitative assessments. During this period, economic indicators like GDP growth, unemployment rates, and inflation were key measures influencing public perception. Surveys from that era show a nuanced view of confidence; while there was an uptick in optimism following economic recovery, lingering concerns over job security, wage stagnation, and social inequality affected confidence in both government and private sectors. Analyzing Gallup polls and other survey data reveals that confidence in the federal government saw slight improvements, attributed to Reagan's charismatic leadership and the perceived success of his economic policies. However, the public's view of the private sector, especially big corporations, remained mixed due to factors like corporate scandals, environmental concerns, and the outsourcing of jobs. This period also saw a notable shift in the public's expectations from their institutions, with a growing demand for ethical conduct and social responsibility from both sectors. Furthermore, sector-specific confidence trends varied significantly across different demographics, with certain groups expressing more skepticism towards the government's ability to manage economic policy or protect consumer interests. The disparities in confidence levels highlight the complexity of public sentiment during the Reagan years, underlining the impact of economic performance, political rhetoric, and media portrayal on public trust[9].

To delve deeper into public perception and critiques of the Reagan administration's policies, it's crucial to consider the broader socio-economic impacts. The era was characterized by a strategic shift toward market-driven economics, which, while stimulating economic growth and reducing inflation, also led to increased concerns over wealth inequality and the erosion of the social safety net. Reports from the period highlight a rise in homelessness and a squeeze on middle-class

[8] Financial Crisis Management - Four Financial Crisis in the 1980s, United States general accounting office

[9] The Federal Reserve response to the 1987 Market Crash, Yale School of Management (2020)

Americans, exacerbated by cuts to social programs. Environmental issues became a focal point of public critique, with the administration's deregulatory policies perceived as favoring industrial growth at the expense of environmental protection. Public opinion was sharply divided: some Americans felt these policies restored economic strength and national pride, while others were deeply concerned about the long-term social and environmental costs[10]. This dichotomy in public perception underscored a fundamental debate about the role of government in American life, a debate that extended beyond Reagan's presidency and into the broader discourse on American values and priorities[11].

1.4 National morale and international affairs

To delve deeper into the impact of Reagan's presidency on national morale, we must consider the broader socio-political context of the 1980s. Reagan's tenure was marked by a concerted effort to restore confidence in American exceptionalism, amid economic challenges and the Cold War's lingering shadows. Through a combination of policy initiatives aimed at economic revitalization and a rhetorical emphasis on the United States as a "shining city upon a hill," Reagan sought to rekindle a sense of national pride and optimism that had been battered in the preceding years. This narrative of renewal and strength was further reinforced by Reagan's public demeanor and communication style, which resonated with many Americans, leading to a palpable shift in the country's mood. The administration's focus on significant tax cuts, deregulation, and increased defense spending were presented not just as economic measures but as a moral reawakening of the American spirit. This period also saw the leveraging of media and public relations in unprecedented ways to craft and disseminate the message of American resurgence, aiming to directly influence public sentiment and national morale.

Expanding on Reagan's foreign policy successes, it's essential to consider the broader impact of these initiatives on global perceptions and domestic public opinion. The Strategic Defense Initiative, while controversial, symbolized a bold commitment to national security and technological innovation, impacting the strategic calculations of the Cold War and the nuclear arms

[10] Federal Reserve History, stock market crash of 1987 (1987)
[11] Federal Reserve History, stock market crash of 1987 (1987)

race. Reagan's diplomatic engagements with the Soviet Union, particularly his relationship with Mikhail Gorbachev, led to significant nuclear arms reduction agreements. These moves, alongside Reagan's assertive rhetoric, played a critical role in shaping the narrative of American resilience and diplomatic prowess, influencing public perceptions and contributing to a sense of victory in the Cold War era. To provide a more complete analysis of how Reagan's combined domestic and international policies influenced public trust in government institutions, we need to delve into specific examples and the broader impact of these strategies[12]. Domestically, Reagan's economic policies, known as "Reaganomics," aimed at reducing the government's intervention in the economy, cutting taxes, and controlling the money supply to reduce inflation. These measures led to an economic upturn by the mid-1980s, with GDP growth and a decrease in unemployment rates, which bolstered public confidence in the government's ability to manage the economy effectively. Globally, Reagan's firm approach towards the Soviet Union, highlighted by the Strategic Defense Initiative and his impactful statement, "Mr. Gorbachev, tear down this wall![13]" in Berlin, played a crucial role in altering the course of the Cold War. The signing of the Intermediate-Range Nuclear Forces (INF) Treaty in 1987 represented a notable easing in U.S.-Soviet tensions and was regarded as a triumph for Reagan's diplomatic strategy, enhancing public trust in the government's diplomatic and military capabilities. These policies and outcomes contributed to a renewed sense of American strength and optimism, which in turn affected public perceptions of governmental institutions. Reagan's ability to communicate his policies and achievements effectively also played a crucial role in shaping public trust. However, it's important to note that while these strategies improved public confidence in certain areas, they also sparked debate and criticism, particularly regarding economic inequality and the social safety net, reflecting the complex legacy of Reagan's presidency on public trust in government institutions.

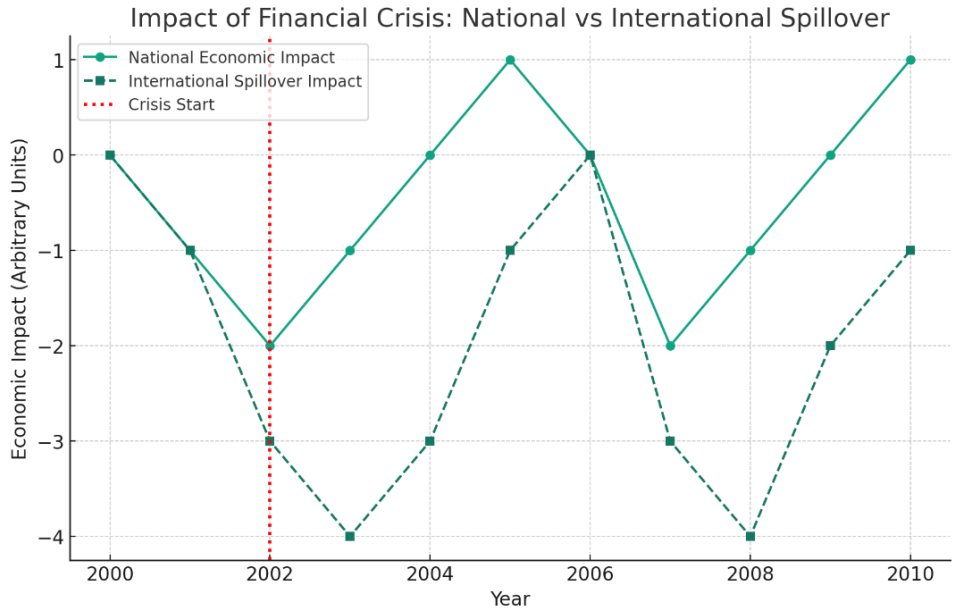
Reflecting on the long-term implications of Reagan's policies reveals a complex legacy that continues to influence American political and social life. Reagan's economic strategies, characterized by tax cuts, deregulation, and a focus on free-market capitalism, have shaped subsequent fiscal policies and debates about the role of government in the economy. His approach to Cold War diplomacy, particularly his efforts to reduce nuclear arsenals and engage directly with Soviet leadership, set precedents for U.S. foreign policy. Moreover, Reagan's tenure marked a shift in the political discourse, emphasizing conservative values and reshaping the ideological landscape of American politics. These policies and the broader Reaganomics framework have had lasting impacts on public trust in government, influencing perceptions of governmental effectiveness and

[12] The Federal Reserve response to the 1987 Market Crash, Yale School of Management (2020)
[13] National Archives, how top advisers opposed Reagan’s challenge to Gorbachev—but lost

the balance between public and private sector roles in national development. The enduring debate over Reagan's legacy reflects the deep and lasting impact of his presidency on the fabric of American society.

1.5: Examination of a crisis

Prior to delving into the specifics of the crisis, it is essential to establish the context and categorize the nature of the crisis that unfolded. The distinction between a generalized financial crisis and an isolated financial crisis is primarily defined by their scope, impact, and the mechanisms through which they unfold and affect the financial system and the broader economy. To give a general idea of the difference in in magnitude of the two phenomena I have built this graph that illustrates the difference between a financial crisis that affects just the national economy of the underlying state and a crisis that spreads from the national economy to international markets. The "National Economic Impact" line shows the hypothetical impact on the national economy, which is contained within a narrower range of negative and positive values. In contrast, the "International Spillover Impact" line demonstrates a more pronounced negative impact, indicating how the crisis exacerbates when it spreads to international markets. The vertical dotted line marks the start of the crisis, showcasing the trajectory of impact over time for both scenarios.



A generalized financial crisis is characterized by its widespread nature, affecting a significant portion of the financial system and often extending to the economy as a whole. Such crises lead to a sharp decline in asset prices, widespread insolvency among debtors and financial intermediaries[14], and a significant contraction in the availability of credit. The transmission mechanisms of these crises are notable for their rapid spread through the financial system, affecting multiple sectors and often spilling over into the real economy[15], facilitated by interconnectedness among financial institutions, market panics, and a loss of confidence in financial assets. Given their systemic importance, generalized crises typically require coordinated policy responses, including interventions by central banks, government bailouts, and international support measures. Historical examples, other the 1987 financial crisis include the Great Depression, the Global Financial Crisis of 2007-2008, and the Asian Financial Crisis of 1997.

In contrast, an isolated financial crisis is more limited in scope, often confined to a particular sector, institution, or country, without significantly affecting the broader financial system or the economy at large. The effects of such a crisis are typically contained and may have severe consequences for those directly involved but do not lead to widespread financial instability. Isolated crises may arise from idiosyncratic risks, such as mismanagement within a single financial institution, and lack the systemic linkages that would facilitate their spread through the financial system. As they are not systemic in nature, isolated crises do not pose a significant threat to the stability of the financial system as a whole and can often be managed through targeted interventions, such as the resolution of a failing bank or localized regulatory measures. An example could be the collapse of a single bank or a debt default by a small country that does not trigger a broader financial crisis. The fundamental difference between the two types of crises lies in their systemic impact and the extent to which they spread. Generalized financial crises involve systemic disruptions that affect the entire financial system and the economy, necessitating broad-based policy responses. Isolated financial crises, on the other hand, are confined to specific areas and can be addressed through more targeted interventions without broader systemic implications.

Through illustrative examples, we can explain how certain conditions may prevent isolated incidents from escalating into generalized crises. For instance, defaults on sovereign bonds[16] could hamper the bond market's capital allocation function. However, if these defaults do not lead to bank

[14] Financial intermediaries such as banks, investment banks, insurance companies, mutual funds, and pension funds are essential in directing capital and managing risk in the economy. They bridge the gap between savers and borrowers, enhancing financial stability and efficiency.

[15] The real economy involves the production, distribution, and consumption of goods and services, excluding financial sector activities.

[16] Sovereign bonds are government-issued debt securities used to finance a country's fiscal needs.

failures, the financial system might still function through alternative pathways, like bank loans, thereby preventing a broader crisis. Conversely, situations where a debt default significantly increases the risk of bank failures signal a potential for widespread financial turmoil. Here the role of institutional and policy responses in influencing the likelihood of crises becomes crucial. The conditions under which isolated financial disturbances do not escalate into widespread financial crises, highlighting the importance of the financial system's interconnectedness and the effectiveness of institutional frameworks and policy interventions in managing these events. This examination[17] uncovers several key insights:

Firstly, it addresses the issue of sovereign bond defaults, noting that such defaults, unless they are particularly extensive and disruptive, may limit the bond market's ability to allocate capital internationally but do not necessarily lead to a financial crisis. In situations where these defaults do not lead to bank failures, the financial ecosystem can remain robust through alternative financing mechanisms, such as bank loans, thereby preserving its capital allocation capabilities.

Additionally, the analysis reveals that the escalation of isolated incidents into major crises can be prevented by interrupting specific financial linkages. For example, if debt defaults do not result in bank failures due to the cutting of critical financial connections, the overall systemic risk is kept under control. Another strategy is the holding of government securities by depositors in anticipation of devaluation, which can prevent the liquidation of bank accounts and thus avoid a destabilizing effect on the banking sector. This proactive strategy effectively interrupts the sequence of events that could lead to a broader financial crisis. A significant focus is placed on the role of institutional arrangements and the strategic responses formulated by policymakers. The analysis underscores that the way these financial linkages are managed, combined with the strategic and timely interventions by policymakers, is crucial in preventing isolated disturbances from turning into generalized crises, in the last chapter we will discuss how those policies have limited the spillover of the crisis. The intricate nature of financial systems is emphasized, showcasing how the interplay between the system's interconnectedness, the strength of institutional arrangements, and the strategic implementation of policy measures plays a critical role in influencing the direction and resolution of financial disturbances.

[17] NBER paper working series, the anatomy of financial crisis.

Now if we change our prospective from the country in exam to its counterparts, the effected economies, we can see that there is a specific pattern of influence applicable in both, the general framework of a crisis and in our specific case, the 1987 U.S. financial crisis[18].

Always taking into exam the United States as the generator of outcomes. The U.S. monetary policy affects international risk perceptions, particularly highlighting the sensitivity of Emerging Market Economies (EMEs) are more vulnerable and sensitive to crises originating from the U.S., particularly due to the significant impact of U.S. monetary policy on global risk perceptions. This heightened sensitivity can lead to more pronounced spillover effects in these economies, affecting their capital flows, exchange rates, and domestic credit conditions. The interconnectedness of global financial markets means that policy decisions in major economies like the U.S. can have far-reaching effects on EMEs, making them more susceptible to external shocks[19].

The intricate web connecting the U.S. economy with the markets of other countries spans across trade relationships, financial integration, and the pivotal role of the U.S. dollar in the realm of global finance. At the heart of these connections are several key elements, trade relationships play a crucial role, as countries that either export to the U.S. or import American products find their economic fortunes tied to the state of the U.S. economy. Shifts in U.S. economic conditions can significantly influence the demand for these goods and services, directly impacting the exporting and importing countries.

Secondly, financial integration highlights the global investors' strategy of diversifying their portfolios by venturing into various markets, including the U.S. The monetary policies of the United States have a ripple effect on global capital flows, which in turn can alter asset prices and the financial climate in countries around the world. Lastly, the dominance of the U.S. dollar as the leading global reserve currency places it at a critical juncture where changes in U.S. monetary policy can sway exchange rates and affect global liquidity. This, in turn, has far-reaching implications for international trade and investment decisions. Together, these linkages serve as conduits through which U.S. economic policies and conditions are transmitted to the global stage, rendering economies worldwide sensitive to shifts in U.S. economic policy and market dynamics.

Reflecting on the 1987 financial crisis, it is evident that the crisis had a global impact, affecting both developed markets and Emerging Market Economies (EMEs). The stock markets in Asian countries (excluding Japan), Europe, the United States, and finally Japan experienced significant declines. Specifically, EMEs such as Malaysia, Mexico, New Zealand, Hong Kong, Australia, and

[18] National Bureau of Economic Research, U.S. monetary policy and international risk spillover

[19] The Federal Reserve response to the 1987 Market Crash, Yale School of Management (2020)

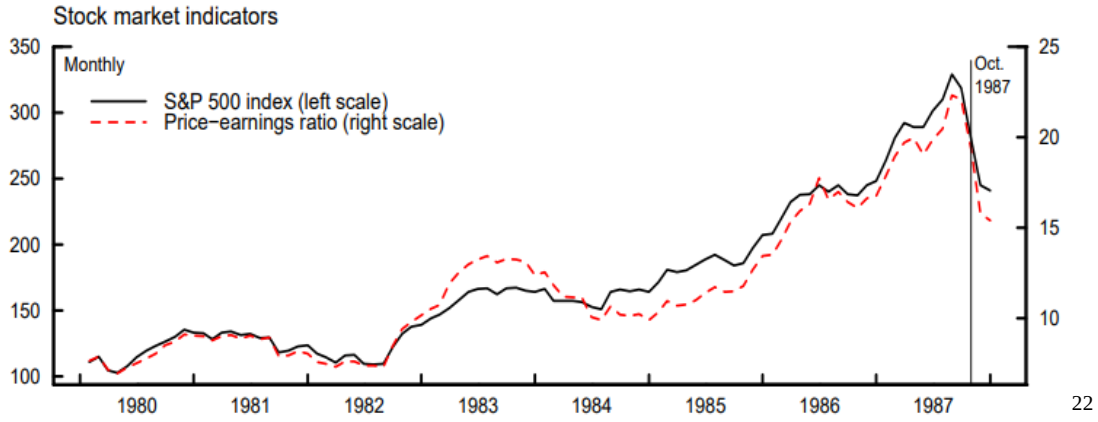
Singapore faced substantial market drops, with declines ranging from 20% to over 45%. The widespread nature of the crash, which led to an estimated worldwide loss of $1.71 trillion, underscores the interconnectedness of global financial markets and highlights the vulnerability of EMEs to shocks originating in major economies like the U.S.[20]

[20] Black Monday (1987), Wikipedia

Chapter 2: Economic and Financial conditions leading to the crash.

Prior to the 1987 stock market crash, U.S. equity markets experienced a persistent surge, regularly achieving substantial gains. This extraordinary surge in prices exceeded the rate of earnings growth, resulting in a marked increase in price-earnings ratios. Financial analysts and commentators, including those from the Wall Street Journal and individuals like Anders and Garcia, started to express worries regarding the stock market's overvaluation. This overvaluation was a result of the growing optimism and exuberance among investors as they anticipated continuing gains.

One notable factor was the entry of new investors, especially pension funds, into the stock market in the 1980s. These institutional investors introduced significant demand into the equities market, bolstering the already rising prices. Moreover, the stock market benefited from advantageous tax policies related to corporate acquisitions. A particular tax benefit permitted companies to deduct interest expenses on debt incurred in buyouts. This fiscal incentive amplified the pool of firms viewed as possible acquisition candidates, thereby elevating their stock values. The conjunction of these factors set the stage for a climate of optimism and investment, with investors flocking to the stock market in search of substantial gains. As price-earnings ratios continued to soar due to prices outpacing earnings growth, concerns about market overvaluation became more pronounced[21].



[22]

However, as the months leading up to the crash unfolded, the macroeconomic outlook became less certain. Interest rates were on the rise globally, and the U.S. economy faced challenges, including a

[21] Derivatives and the 1987 Market Crash, Long Island University

[22] A Brief History of the 1987 Stock Market Crash, Carlson (2006)

growing trade deficit and the depreciation of the dollar. These factors raised concerns about the possibility of inflation and the potential need for higher interest rates in the United States (Winkler and Herman 1987).

Another significant development was the increasing prevalence of "program trading" strategies in financial markets. Program trading entailed employing computer algorithms to carry out predetermined trading actions based on set conditions. This technological advancement enabled the swift execution of trades involving large volumes of stocks, especially those contained within particular stock indexes.

Two program trading strategies were particularly relevant to the stock market crash. The first was "portfolio insurance," which aimed to limit potential losses in a declining market. Computer models were used to determine optimal stock-to-cash ratios at different market prices. In essence, these models advised investors to reduce their stock exposure during market declines to minimize risk, while increasing stock holdings during rising markets. Portfolio insurers often executed their strategies in the futures market due to cost-effectiveness. Trading futures provided protection against losses from declining equity prices without the need to trade actual stocks. This practice had the added benefit of cost reduction, as many institutions providing portfolio insurance lacked authorization to trade their clients' stock (Brady Report 1988).

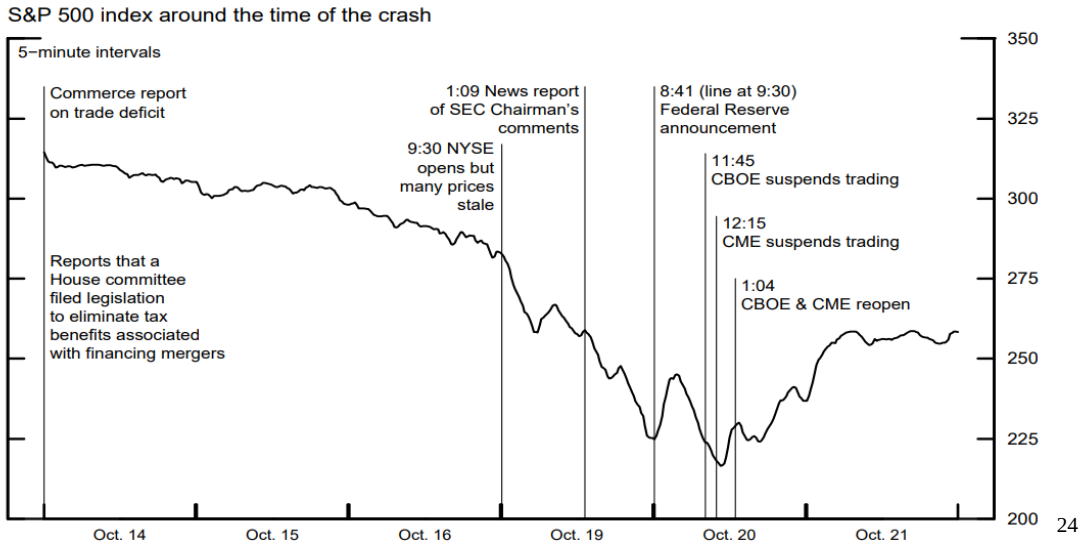
The second strategy for program trading, known as "index arbitrage," aimed to capitalize on differences between the prices of stocks in an index and the prices of corresponding stock-index futures contracts. Arbitrageurs engaged in index arbitrage would purchase stocks on the cash market and sell futures contracts when the stock prices were lower than the futures prices, anticipating that the prices would align by the expiration of the futures contracts. Conversely, if stock prices were higher than futures prices, the opposite transactions would be performed. Nonetheless, short sale restrictions posed difficulties for arbitrageurs lacking stock ownership[23].

Program trading strategies were supported by the Designated Order Turnaround (DOT) system at the New York Stock Exchange (NYSE). This system enabled NYSE member firms to dispatch extensive volumes of purchase and sale orders via their links to the NYSE common message switch, which subsequently forwarded these orders to a specific specialist/trading post. The system provided an efficient means of executing large volumes of trades and contributed to the successful implementation of program trading strategies. The combination of these factors set the stage for

[23] Derivatives and the 1987 Market Crash, Long Island University

The Financial Crisis: An Inside View, PHILLIP SWAGEL Georgetown University

both the unprecedented gains in the stock market and the vulnerabilities that would come into play during Black Monday. This period of optimism, increased investment, and the proliferation of complex trading strategies would prove crucial in understanding the events leading up to the 1987 stock market crash



[24]

2.1: Innovation, speculation, and investor's sentiment

In the years leading up to Black Monday, financial markets experienced a surge in the adoption of innovative financial instruments and technology, which played significant roles in the events leading to the 1987 stock market crash. Options Derivatives in Portfolio Insurance.

Portfolio insurance, an innovative investment strategy, relied heavily on options derivatives to manage and hedge against the risk of significant stock market declines. Options, financial instruments that grant investors the right to buy or sell an underlying asset at a predetermined price (strike price) before or on a specified expiration date, played a pivotal role in this approach. In the context of portfolio insurance, investors predominantly turned to put options. Put options provide the owner with the right to sell a specific quantity of the underlying asset at the strike price,

[24] A Brief History of the 1987 Stock Market Crash, Carlson (2006)

regardless of its current market price. These put options served as a safeguard, allowing investors to limit potential losses by selling the underlying assets at the strike price specified in the options[25].

Options derivatives, particularly put options, were central to the portfolio insurance strategy, offering a unique and innovative means of downside protection for investors. As the stock market began to show signs of instability and potential declines, the presence of these options allowed investors to manage and mitigate risk in ways that traditional investment strategies could not. This innovation introduced a new dimension to risk management in the financial markets, contributing to the complexity of the events leading up to Black Monday.

By October 1987, computerized trading, commonly referred to as program trading, had gained significant popularity in financial markets. Large institutional investors extensively utilized this technology to automatically execute substantial orders once specific market conditions were met. However, the pivotal development during Black Monday was the execution of many of these automated orders as sell orders, which further intensified the downward pressure on stock prices.

As stocks were being sold off on Black Monday, program-trading mechanisms contributed to the existing market turmoil by executing massive sell orders automatically. This created a reinforcing cycle of selling, amplifying the downward spiral in stock prices. Black Monday represented one of the first major market crashes that could be captured and broadcast on television in real-time, influencing more investors globally to liquidate their positions than would otherwise have been the case in the absence of this media coverage[26].

In the tumultuous days leading up to and during Black Monday, the phenomenon of margin calls played a significant and disruptive role. A margin call occurs when an investor borrows funds to purchase securities and the value of the securities falls below a certain threshold, triggering demands for immediate payments to cover potential losses. These margin calls presented a challenging dilemma for investors, as they had to either inject additional capital into their accounts or sell their securities to meet the margin requirements. The urgency of meeting margin calls during a market crash compounded the already intense selling pressure. The combined effect of portfolio insurance strategies, involving options derivatives to limit losses, and the surge in margin calls, intensified the market turmoil on Black Monday. Investors using portfolio insurance to protect their portfolios found themselves under increasing pressure as margin calls compelled them to liquidate

[25] Derivatives and the 1987 Market Crash, Long Island University

[26] Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

their positions to meet financial obligations[27]. This dual impact added layers of complexity to the unfolding events, exacerbating the rapid and severe decline in stock prices on that fateful day. The use of options derivatives as a risk management tool in portfolio insurance, coupled with the disruptive influence of margin calls, introduced unique dynamics to the 1987 stock market crash. These elements, among others, were pivotal in understanding the intricacies of the events leading up to Black Monday and its far-reaching consequences[28].

The events leading up to the 1987 stock market crash, were shaped by a confluence of factors, with investor sentiment playing a central and influential role. The months preceding the crash witnessed an unprecedented bull run in the stock market, fostering an atmosphere of euphoria and optimism that ultimately contributed to the creation of a fragile market bubble.

Investor sentiment during this period was characterized by an overwhelming fear of missing out on potential gains. This fear-driven optimism led investors to pay exorbitant prices for stocks, resulting in a state of overvaluation. Price-to-earnings ratios reached historic levels, indicating a significant detachment between stock prices and underlying fundamentals. This euphoric atmosphere, fueled by greed and the pursuit of quick profits, set the stage for a market environment that was susceptible to a sudden and severe reversal.

Adding complexity to the situation was the emergence of program trading, a strategy that employed computer algorithms for the execution of large-scale trades. Institutional investors and hedge funds heavily utilized program trading, and its influence played a significant role in amplifying the downward spiral on Black Monday. As market conditions rapidly deteriorated, program trading mechanisms were triggered, leading to a cascade of selling orders. The sheer volume of these automated sell orders overwhelmed the market's capacity to absorb the massive sell-off, contributing to a rapid and uncontrollable decline.

The abrupt shift in investor sentiment during Black Monday was a critical factor in the crash. Before the downturn, the mood was predominantly optimistic, marked by rampant purchasing and speculative actions. Nevertheless, an unexpected surge of adverse news and uncertainty seized the market, inciting panic selling and a swift alteration in mood. This sudden shift in investor sentiment was instrumental in exacerbating the downward momentum, culminating in the crash[29].

[27] Financial Crisis Management - Four Financial Crisis in the 1980s, United States general accounting office

[28] Financial Crisis Management - Four Financial Crisis in the 1980s, United States general accounting office

[29] Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

The influence of investor sentiment on market volatility is not limited to the 1987 crash but has been a recurring theme in various historical events. The dot-com bubble of the early 2000s is a classical example, where excessive optimism and sentiment surrounding internet-based companies led to unsustainable market conditions and a subsequent crash when sentiment shifted. Similarly, the housing market collapse and the global financial crisis of 2008 were marked by extremely positive sentiment surrounding housing prices, which eventually turned sharply negative, contributing to widespread market volatility.

Navigating market volatility caused by shifts in investor sentiment requires a multifaceted approach. Investors and traders must stay informed about market trends and news, closely monitor sentiment indicators such as the CBOE Volatility Index (VIX), and maintain a diversified portfolio to mitigate risks associated with sudden sentiment changes.

Chapter 3: Instruments involved

"This was a very new idea. Before 1987, if investors began selling aggressively 'into a falling market,' it's because they had no choice. They were getting margin calls and they had to sell," - Matt Maley on CNBC, days before Black Monday's 30th anniversary in 2017; Maley was on the Salomon Brothers trading desk at the time of the 1987 crash. *"With portfolio insurance, these people did not have to 'sell' to raise money. They were simply contractually obligated to 'sell into a falling market' due to their portfolio insurance agreements…. If the market continued to fall, they would short more futures as the S&P index broke below other certain levels. The problem came when investors from several other different areas 'had to sell' at the same time, with each obligation further exacerbating the situation."*[30]

3.1: Derivatives

In this detailed examination, we engage with the complex domain of derivative products, focusing specifically on options and portfolio insurance—two instruments of critical importance during the 1987 financial crisis. This analysis aims to elucidate the operational frameworks of these financial instruments and assess their impact during a notably volatile epoch in financial markets. Through this discourse, we endeavor to provide a nuanced understanding of how these derivatives function and their consequential role in one of the financial industry's most challenging periods.

Derivatives, in the realm of finance, are complex instruments that derive their value from a specific asset or benchmark. A quintessential component of modern financial markets, derivatives serve a multitude of purposes, including risk management, speculative trading, and price discovery. Their complexity and versatility make them integral to both institutional and retail investors for hedging, arbitrage, and leveraging strategies. There are four main kinds of derivatives[31].

Futures Contracts: Futures are types of financial derivative contracts wherein two parties agree to trade a specific quantity of an asset, which can be either financial or tangible, at a predetermined price upon the contract's maturity. These contracts are standardized and predominantly traded on exchanges, ensuring zero counterparty risk because the clearing house acts as the intermediary for

[30] International Banker, black Monday (1987), (2021)

[31] Derivatives and the 1987 Market Crash, Long Island University

all transactions. Economically, futures serve multiple purposes: they can be utilized for hedging against risks, speculative trading, arbitrage, or professional trading practices. Hedging with futures involves securing a position against potential losses on the underlying asset's value, aligning with the economic outcomes of the contract. For instance, to mitigate currency risk, a U.S.-based debtor with liabilities in euros might purchase euro futures contracts. This strategy protects against the dollar's depreciation relative to the euro, as any loss in the dollar's value could be offset by gains in the futures position. Essentially, futures are adept at safeguarding against unwanted fluctuations in the value of both real (through commodity futures) and financial assets (via financial futures). Speculative activities with futures occur when contracts are traded without an existing risk-exposed position or when the derivative position amplifies the overall risk profile. Arbitrage, in a strict sense, involves identifying mispriced contracts relative to the spot market prices of the underlying assets, other derivative products, or futures contracts with differing maturities. Ideally, if markets are efficient and complete, such arbitrage efforts would yield no profit. The formula for pricing a future, assuming no arbitrage opportunities and constant interest rates, is: F = $Se\text{^}rt$, where F represents the future price, S is the spot price of the underlying asset, e denotes the capitalization factor, r is the interest rate, and t signifies the contract duration.

Futures contracts are accessible across major global markets, covering commodities (commodity futures), financial instruments (financial futures), and even probabilities or specific events. Commodity futures encompass a broad range of goods, both industrial and agricultural, playing a crucial role in risk hedging and liquidity provision. Particularly for energy commodities like oil, futures serve as significant indicators of future spot price trends, despite some predictive challenges noted during 2007-09. The off-market (OTC) trading volume of these contracts is notably significant and on the rise. Financial futures, on the other hand, can be based on various financial assets, including currencies, interest rates, stock indices, equities, bonds, and Treasury securities. Event futures speculate on the likelihood of certain occurrences, such as credit defaults or weather conditions impacting agricultural outputs[32].

Options: Options give the buyer the right, but not the obligation, to buy (call option) or sell (put option) an concealed asset at a specified price (strike price) before or at a certain date. Unlike futures, the buyer of an option pays a premium for the right without incurring the obligation to buy or sell. Certainly, let's expand on the discussion of options to cover additional aspects and delve deeper into their strategic uses, the psychology behind their trading, and their impact on financial

[32] International Banker, black Monday (1987), (2021)

markets[33]. Options, as versatile financial instruments, serve a wide array of purposes in the financial markets, catering to the needs of hedgers, speculators, and arbitrageurs. Beyond their primary functions, options also offer insights into market sentiment and future volatility, as evidenced by various derived metrics like the implied volatility. Implied volatility, extracted from option prices, reflects the market's expectation of future volatility and can be a critical indicator for traders and investors looking to gauge market sentiment.

The strategic applications of options extend far beyond simple buy and sell strategies. They can be combined into complex trading strategies known as options spreads. These strategies involve taking multiple positions simultaneously to capitalize on various market conditions. For example, a bull spread aims to profit from a moderate increase in the prime asset's price, while a bear spread positions the trader to benefit from a decrease. Moreover, options allow for strategies that profit from sideways markets, such as the iron condor, which involves selling both a put and a call spread with the same expiration date, capturing premium as long as the underlying asset's price remains within a certain range.

As we said there are three main players in the option spectrum, with three different approaches in the use of this derivative[34].

Arbitrage involves taking advantage of price discrepancies in different markets to make a risk-free profit. Options play a crucial role in arbitrage strategies, as they can be used to exploit mismatches in the pricing of options, underlying assets, or derivatives related to the same underlying assets. For example, an arbitrageur might identify a situation where an option is underpriced in one market compared to another. By simultaneously buying the underpriced option and selling the overpriced equivalent, they can lock in a risk-free profit once the prices converge. This process not only benefits the arbitrageur but also contributes to the efficiency of financial markets by correcting price discrepancies[35].

Hedging is the practice of reducing or eliminating the risk of adverse price movements in an asset. Options are a popular tool among hedgers, as they provide a way to protect an investment against downside risk while allowing for participation in upside potential. For instance, a portfolio manager holding a significant position in a stock may purchase options to mitigate potential losses should the

[33] Derivatives and the 1987 Market Crash, Long Island University

[34] Investopedia, Portfolio insurance: what is, how it works (April 2022)

[35] Derivatives and the 1987 Market Crash, Long Island University

stock's price fall dramatically. This insurance-like characteristic of options makes them invaluable for managing financial risk. Moreover, because options can be tailored to match the specific risk profile of an investment (through the selection of strike prices and expiration dates), they offer a level of precision in risk management that is difficult to achieve with other financial instruments.

Speculation involves taking on risk with the hope of achieving a financial gain. In the world of options, speculators use their view on the future direction of market prices to make bets that can yield substantial rewards, often with a relatively small initial investment. The leverage provided by options means that a relatively small move in the underlying asset can lead to a significant profit (or loss) for the option holder. Speculators might buy options if they anticipate a move in the underlying asset's price or sell options to collect the premium, hoping the option will expire worthless and they can retain the full premium as profit. While speculative activities are often viewed with caution due to the risks involved, they also play a vital role in providing liquidity and aiding in price discovery in financial markets[36].

In corporate finance, options have applications beyond trading and investment strategies. Real options analysis, for instance, provides a framework for evaluating investment opportunities using concepts borrowed from financial options. This approach treats managerial flexibility and business development opportunities as options, providing a more nuanced valuation method that accounts for uncertainty and the timing of decisions. Real options analysis can be particularly valuable in capital-intensive industries, such as mining and oil exploration, where companies face significant uncertainty about future market conditions and project viability.

The trading of options is not just a matter of mathematical models and strategic planning; it also involves understanding the psychology of market participants. Options traders must navigate the emotional rollercoaster of market volatility, managing fear and greed to make rational decisions. The leverage effect of options can amplify these emotions, as potential gains and losses are magnified compared to trading the underlying asset. Successful options traders often emphasize the importance of discipline, risk management, and a well-thought-out trading plan to navigate these psychological challenges[37].

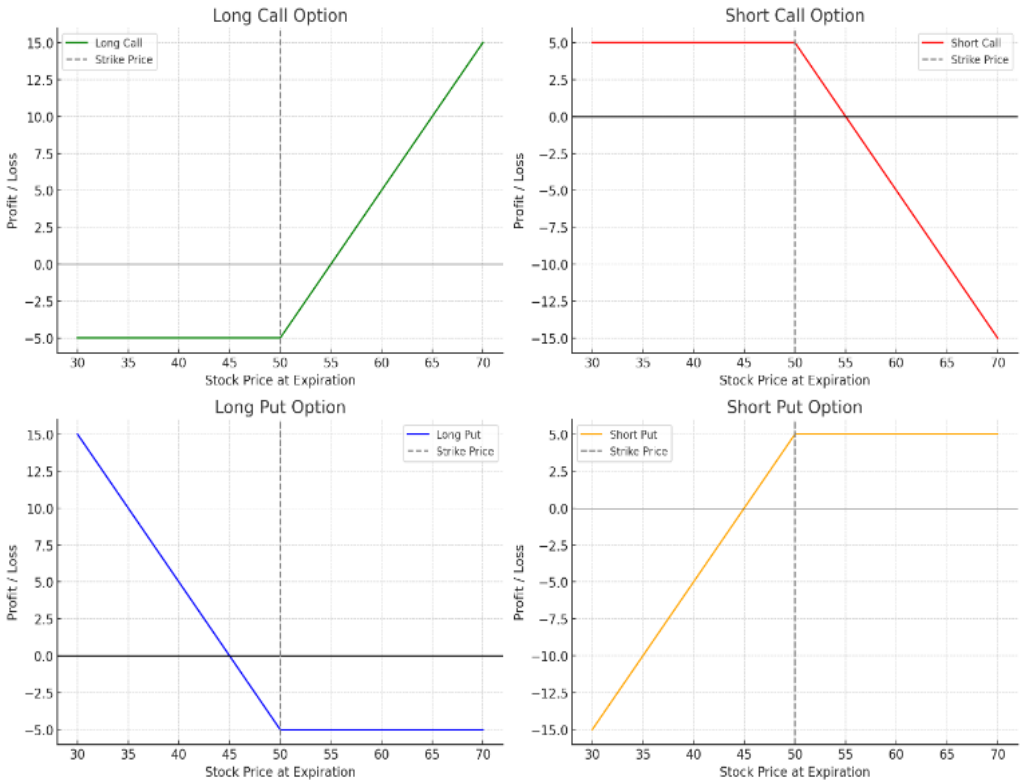
The options market, like all financial markets, operates within a framework of regulatory oversight designed to ensure fairness, transparency, and market integrity. Regulators such as the Securities and Exchange Commission (SEC) in the United States and similar bodies worldwide monitor

[36] Accounting and taxation, vol. 6, the role of derivatives in the financial crisis and their impact on security prices (2014)

[37] Derivatives and the 1987 Market Crash, Long Island University

trading activities, enforce rules against market manipulation, and protect investors from fraudulent practices. Ethical considerations also play a crucial role in options trading, as the potential for misuse and the complexity of these instruments can lead to conflicts of interest and other ethical dilemmas. Market participants must adhere to high ethical standards to maintain investor trust and the smooth functioning of financial markets. Options contribute significantly to the depth and liquidity of financial markets. They allow for the efficient transfer of risk and provide mechanisms for price discovery and hedging that benefit the broader market ecosystem. Furthermore, the options market's existence enables more accurate valuations of other financial instruments by providing additional data points and market sentiment indicators[38].

In sum, options are multifaceted financial instruments that play a critical role in modern financial markets. They offer sophisticated strategies for traders and investors, serve as tools for corporate finance decision-making, and reflect the complex interplay of economic factors, market psychology, and regulatory frameworks. As financial markets continue to evolve, the strategic importance and innovative use of options are likely to expand further, underscoring their significance in global finance. Here are four separate graphs, each illustrating the profit and loss scenario for a specific option position:



[38] Accounting and taxation, vol. 6, the role of derivatives in the financial crisis and their impact on security prices (2014)

Long Call Option: This graph shows the profit/loss for a long call option. The profit begins when the stock price exceeds the strike price plus the premium paid for the option. Below this break-even point, the loss is limited to the premium paid.

Short Call Option: This graph illustrates the profit/loss for a short call option. The maximum profit, limited to the premium received, occurs when the stock price is below the strike price. The loss increases as the stock price rises above the strike price, potentially becoming significant if the stock price increases substantially.

Long Put Option: This graph depicts the profit/loss for a long put option. Profit begins when the stock price falls below the strike price minus the premium paid. The loss is limited to the premium paid if the stock price is above the strike price at expiration.

Short Put Option: This graph shows the profit/loss for a short put option. The maximum profit is limited to the premium received and occurs when the stock price is above the strike price. Losses increase as the stock price falls below the strike price, highlighting the risk of selling put options.

Each graph demonstrates the asymmetric risk-reward profiles of these options trading strategies, emphasizing the importance of understanding these dynamics when engaging in options trading.

Swaps: Swaps are a type of financial derivative used by parties to exchange cash flows or other financial instruments over a specified period. These instruments are pivotal in managing financial risk, allowing companies and financial institutions to tailor their asset or liability streams to better suit their risk exposure or investment strategy. Unlike forwards or futures, swaps typically involve the exchange of a series of cash flows, and their value is derived from underlying variables such as interest rates, foreign exchange rates, or commodity prices. The essence of a swap lies in its ability to transform financial outcomes. For example, in an interest rate swap, one party might exchange fixed interest rate payments for floating rate payments with another party. This can be particularly advantageous for a company that has a variable-rate loan but prefers the predictability of fixed-rate payments. Conversely, a company expecting interest rates to fall might enter a swap to benefit from lower floating rate payments, exchanging its fixed-rate obligations. Swaps are not only used for hedging against risks but also for speculative purposes. Financial institutions and investment funds might engage in currency swaps to gain exposure to foreign markets without the need for direct investment in foreign assets. Similarly, commodity swaps allow parties to lock in prices for commodities, hedging against price fluctuations or speculating on market movements[39].

[39] Accounting and taxation, vol. 6, the role of derivatives in the financial crisis and their impact on security prices (2014)

One of the significant advantages of swaps is their flexibility and the ability to be customized to meet the specific needs of the contracting parties. This customization includes the notional amount, the duration of the swap, and the specific terms of the cash flow exchange. However, this flexibility comes with its own set of challenges, including counterparty risk, the risk that one party may default on their obligations under the swap agreement[40]. Despite the risks, swaps are a vital tool for financial management and risk mitigation. They offer parties the ability to manage interest rate risk, currency exposure, and other financial risks in a highly tailored manner. The market for swaps has grown significantly, with a wide variety of swaps available to meet the diverse needs of participants in the global financial markets. They are a sophisticated financial instrument offering parties the ability to exchange various financial outcomes to better align with their financial goals, risk management strategies, or speculative positions. Their use requires a thorough understanding of the underlying risks and the market dynamics of the swapped instruments. Properly used, swaps can provide significant benefits in terms of risk management and financial planning[41].

Their calculation can vary significantly based on the type of swap involved. However, the valuation often involves determining the present value of the expected future cash flows from each leg of the swap. Here's a simplified approach to how the most common types of swaps are calculated:

Interest Rate Swaps; For an interest rate swap, where one party exchanges a fixed interest rate for a floating rate (or vice versa), the value to each party can be calculated by determining the net present value (NPV) of the expected future cash flows from each leg of the swap. The formula for calculating the NPV of each leg is:

$$\text{NPV} = \sum \left(\frac{\text{Cash Flow}_t}{(1+r_t)^t} \right)$$

Where:

- Cash Flow *t* is the cash flow at time *t* (either the fixed or floating payment),

- *rt* is the discount rate applicable at time *t*, and

- *t* is the time period (in years, months, etc.).

[40] Derivatives and the 1987 Market Crash, Long Island University

[41] National Bureau of Economic Research, Portfolio Insurance and Other Investor Fashions as Factors in the 1987 Stock Market Crash (1988)

The value of the swap to one party is the difference between the NPV of the cash flows they receive and the NPV of the cash flows they pay.

Currency Swaps; For currency swaps, which involve exchanging principal and interest payments in one currency for those in another currency, the calculation is similar but must take into account the exchange rate. The NPV of future cash flows in each currency is calculated separately, using the appropriate discount rate for each currency. The initial exchange of principal amounts is often at the spot exchange rate, and the re-exchange at maturity might be at the same rate (in a fixed swap) or vary according to agreed terms.

Commodity Swaps; In commodity swaps, where fixed price payments are exchanged for payments based on the market price of a commodity, the calculation involves estimating the expected future price of the commodity and the fixed price agreed upon in the swap. The NPV of the difference between these prices, multiplied by the agreed-upon quantity, gives the value of the swap.

It's important to note that the actual calculation of swaps can be quite complex, involving assumptions about future rates, prices, and other factors. The formulas provided here offer a basic framework, but in practice, financial professionals use sophisticated models and software to accurately value swaps.

Forwards: Forwards are customized derivative contracts that allow two parties to agree on the sale or purchase of an asset at a predetermined price on a future date. Unlike futures, which are standardized and traded on exchanges, forwards are over-the-counter (OTC) contracts, offering the flexibility to tailor terms such as the asset's quantity, price, and settlement date to the parties' specific needs. This customization makes forwards particularly useful for companies looking to hedge against price fluctuations in essential commodities or financial instruments. The primary use of forwards is for hedging and speculation. Hedging is aimed at mitigating risk associated with price movements. For instance, a producer of raw materials might use a forward contract to lock in a sale price for their product, safeguarding against a drop in market prices. Conversely, a manufacturer requiring those raw materials might secure a purchase price through a forward, protecting against price increases. This way, both parties can manage their costs and revenues more predictably. Speculators, on the other hand, leverage forwards to profit from anticipated price movements. If they expect the price of an asset to rise, they might enter a forward contract to buy at today's price and sell at a higher future price. This speculative approach can yield significant gains but comes with higher risk, particularly from adverse price movements[42].

[42] Derivatives and the 1987 Market Crash, Long Island University

One of the key advantages of forwards is their cost-effectiveness and the absence of upfront payments, aside from potential margin requirements, making them a preferred tool for financial risk management. However, they also carry specific risks, such as counterparty risk, where there's a chance one party may default on their contractual obligations. Liquidity can also be a concern since these are OTC contracts and might not be as easily offset or exited as exchange-traded derivatives. Moreover, the settlement of forwards, whether through delivery of the asset or cash settlement, introduces its own set of risks, especially in volatile markets where the asset's price could have significantly shifted by the settlement date. To mitigate these risks, parties often conduct thorough due diligence, require collateral, or use third-party credit enhancements. Their flexibility and customization make them invaluable for operational planning and financial strategy. However, the inherent risks of counterparty default and market volatility require careful management and consideration.

Derivatives, with their inherent complexity and utility, serve multifaceted purposes in financial markets, ranging from risk management to speculative ventures. These instruments, by design, allow market participants to hedge against fluctuations in asset prices, thereby providing a safety net against adverse market movements. For instance, an investor holding a diverse portfolio of stocks may utilize options to protect against potential downturns, effectively insulating their investment from significant losses. On the flip side, derivatives also open avenues for speculation, enabling traders to make informed bets on the future direction of market prices. The leverage provided by derivatives means that traders can control large positions with a relatively small capital outlay, amplifying both potential gains and the risk of losses[43].

However, the deployment of derivatives is not without its challenges and risks. The volatility of derivatives can introduce market risk, where the value of these instruments can fluctuate widely in response to changes in the underlying asset's price, interest rates, or currency exchange rates. Additionally, the use of leverage, while amplifying potential returns, also magnifies losses, potentially leading to significant financial distress. The over-the-counter (OTC) nature of some derivatives introduces counterparty risk, the danger that one party in the transaction may default on their obligations, leading to losses for the other party.

Moreover, the regulatory landscape for derivatives, shaped by reforms following financial crises, seeks to mitigate systemic risks through measures such as mandatory clearing and reporting

[43] Accounting and taxation, vol. 6, the role of derivatives in the financial crisis and their impact on security prices (2014)

requirements. Despite these safeguards, the complexity of derivatives means that understanding their risk-reward profile is crucial. This complexity, coupled with rapid innovations in financial markets, necessitates continuous learning and adaptation by market participants to navigate the derivatives landscape effectively.

In essence, derivatives embody the dual nature of financial instruments—serving as tools for risk management and speculative opportunities while also posing significant challenges that demand rigorous oversight, deep understanding, and prudent management. Their role in financial markets is indispensable, facilitating hedging, speculation, arbitrage, and price discovery. Yet, the very features that make derivatives valuable also underscore the importance of caution, due diligence, and the need for robust regulatory frameworks to prevent systemic risks.

The global financial crisis of 2008 highlighted the need for stringent regulation of the derivatives market to prevent systemic risk. Reforms such as the Dodd-Frank Act in the United States and the European Market Infrastructure Regulation (EMIR) in the EU have introduced measures for increased transparency, mandatory clearing of certain derivative contracts through central counterparties, and reporting requirements to improve market stability and reduce systemic risk.

In conclusion, derivatives are a double-edged sword, offering significant benefits for risk management and financial innovation, while also posing challenges and risks that require careful management. Understanding the intricacies of derivatives is crucial for participants in the financial markets to navigate the complexities and leverage the opportunities they present effectively.

The document "The Crash of '87: Was It Expected? The Evidence from Options Markets" by David S. Bates meticulously explores the dynamics of S&P 500 futures options pricing prior to the 1987 crash. Bates delves into the unusual pricing patterns of out-of-the-money (OTM) puts, highlighting a market bracing for a downturn through heightened demand for downside protection. This anomaly, marked by a significant skew in pricing relative to calls, suggested a market sentiment heavily weighted towards anticipating a major correction. Employing jump-diffusion models, Bates articulates how these pricing trends reflected expected systematic risks, underscoring a discernible shift in market sentiment towards negative outcomes. The analysis not only provides a nuanced understanding of the pre-crash options market but also challenges the notion of the crash as an unforeseeable event, suggesting instead that the market was, to some extent, pricing in the potential for a dramatic downturn.

3.2: Portfolio insurance

Two additional pivotal elements that significantly influenced the dynamics of the 1987 financial crisis in the United States were margin calls and portfolio insurance mechanisms. These aspects were instrumental in both the amplification and propagation of market volatility during this period, underscoring their critical roles in the unfolding of events.

Portfolio insurance and margin calls are two critical concepts in financial markets, embodying strategies and mechanisms designed to manage risk and leverage investments. Both play pivotal roles in the dynamics of trading and investment management, yet they operate under distinctly different principles and contexts.

Portfolio insurance is a strategy employed by investors to hedge against market downturns, effectively limiting potential losses while preserving the upside potential of their investment portfolios. This approach leverages financial instruments, such as options, to create a protective buffer against significant declines in the value of a portfolio. At its core, the strategy involves buying put options on a stock index that closely matches the portfolio's performance. The put options increase in value as the index falls, offsetting losses within the portfolio. This mechanism allows investors to participate in market gains while providing a safety net against substantial downturns[44].

The cost of this insurance is the premium paid for the options, which can be viewed as an insurance fee against market volatility. The implementation of portfolio insurance requires careful consideration of the strike price, expiration dates, and the size of the position in put options relative to the portfolio value. These parameters determine the level of protection and the cost-effectiveness of the strategy in various market conditions[45].

To have a better overview of the concept let’s make a practical example to better understand it’s functioning. In the illustrated scenario, the portfolio starts with an equal division between equities and bonds based on the initial cushion and the multiplier. As the market fluctuates, the portfolio's exposure to equities is adjusted to either capture upside potential or protect against downside risk, ensuring that the value does not drop below the floor. This mechanism is visually represented by the

[44] Investopedia, Portfolio insurance: what is, how it works (April 2022)

[45] Research gate, portfolio insurance investment strategies: A Risk Management Tool

changes in portfolio value and the shifting allocations between equity and bond investments over time.

Key Concepts and Data Relative to the Graph:

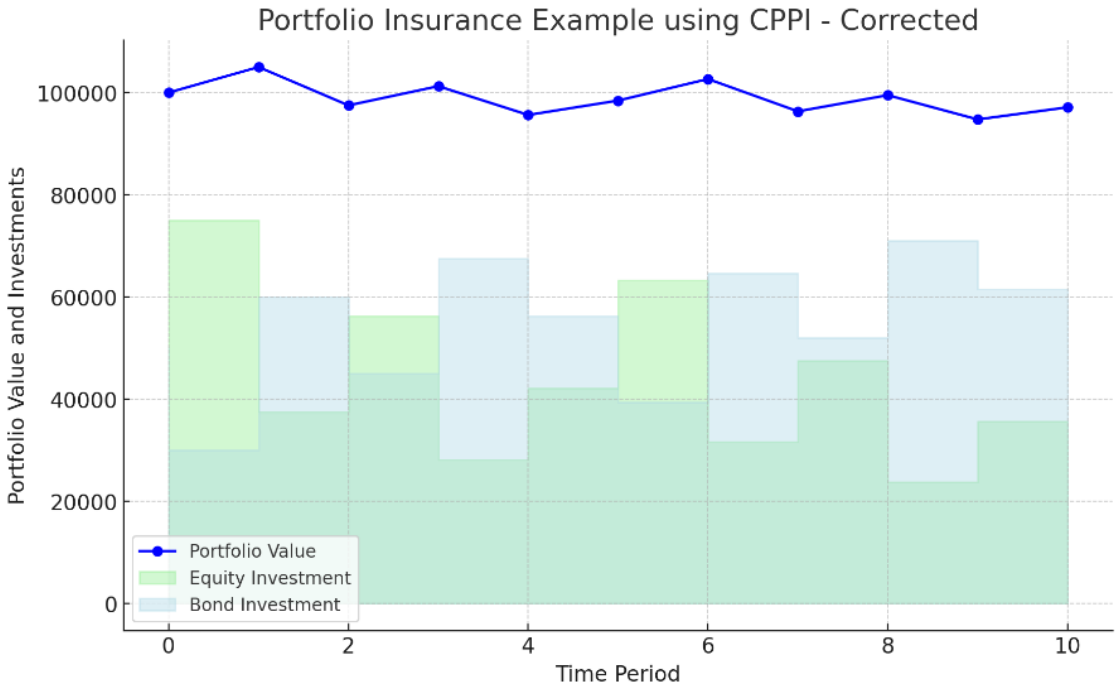
- Initial Investment: $100,000 is the starting value of the portfolio.

- Floor Value: $90,000 is set as the minimum acceptable value the investor wants to protect.

- Multiplier (m): 5, which dictates the level of aggressive investment in equities. It determines the proportion of the cushion (the amount by which the portfolio value exceeds the floor) that is invested in risky assets.

- Market Changes: The example assumes market movements with alternating gains and losses of 10% to simulate fluctuating market conditions.

- Portfolio Value Changes: The graph dynamically shows the portfolio's value adjustments in response to these market changes, demonstrating how the CPPI strategy reallocates between equities and bonds to ensure the floor value is protected.



In this case I used the Constant Proportion Portfolio Insurance (CPPI) is a financial strategy that provides a dynamic method of portfolio insurance, allowing investors to maintain exposure to the upside potential of risky assets while protecting against significant losses. The strategy hinges on

maintaining a cushion above a predetermined floor value for the portfolio, which represents the minimum acceptable value that the investor wishes to guarantee.

The CPPI strategy involves adjusting the exposure to risky assets (like equities) based on the difference between the current portfolio value and the floor value. This difference is known as the "cushion." A multiplier is applied to this cushion to determine how much of the portfolio should be allocated to risky assets. The higher the cushion, the greater the investment in risky assets; conversely, as the cushion decreases, the investment in risky assets is reduced to protect the portfolio from falling below the floor[46].

Derivative securities, particularly through the use of portfolio insurance strategies, significantly contributed to the rise in market capitalizations during the first nine months of 1987. An example of this impact is the approximately 400% increase in funds allocated to portfolio insurance in 1987, as reported by the Presidential Task Force on Market Mechanisms.[47] Portfolio insurance enables fund managers to allocate a greater proportion of their portfolio to stocks without adding to the investment risk, thereby potentially achieving higher returns, or to create a portfolio with the same expected return but at a lower risk. Having insurance against losses provides a fund with the incentive to allocate more funds to riskier assets, like stocks. This substantial increase in demand for a limited supply of risky assets leads to heightened demand pressure, which in turn causes an escalation, and in some cases, an overshooting[48], of market values before the dramatic collapse in mid-October. The role of portfolio insurance strategies during this period is particularly intriguing. These strategies, which involved dynamically hedging a portfolio against market downturns by selling stock index futures as the market declined, inadvertently contributed to the downward spiral on Black Monday. During the week leading up to October 12, several pivotal events unfolded that drove the market downwards. Notably, on Wednesday, October 12, the market saw a decline in response to a larger-than-expected U.S. trade deficit and legislative proposals that aimed to eliminate tax benefits for funds used in takeovers. Additionally, U.S. Treasury Secretary James Baker made public statements hinting at the uncertainty surrounding the U.S. dollar's value if German interest rates remained unchanged. This period also witnessed a surge in the yields of 30-year U.S. Treasury Securities to over 10 percent, partly attributable to a weakening U.S. dollar. By the end of trading on Friday, stock values had plummeted by approximately 10 percent, with the

[46] Research gate, portfolio insurance investment strategies: A Risk Management Tool

[47] Derivatives and the 1987 market crash, Long Island University

[48] Overshooting refers to a situation where asset prices exceed their fundamental values, often due to speculative trading or sudden shifts in investor sentiment, before eventually correcting.

mentioned factors, alongside selling prompted by portfolio insurance, contributing significantly to the decline.

Portfolio insurance strategies indicated that by Friday, October 16, at least $12 billion should have been sold in the futures market, 20 percent of $60 billion, considering the lower end of the range of insured funds, and up to $20 billion at the upper limit of $100 billion. However, by the end of trading on Friday, less than $4 billion had been executed[49]. As trading commenced on Monday, October 19, portfolio insurers faced immense pressure to sell securities, primarily in the futures market. This selling was a key factor in the unprecedented decline on October 19. Portfolio insurance strategies also indirectly contributed to the market downturn. Institutions, labeled as “aggressive,” were cognizant of the portfolio insurers' positions and engaged in “front-running” on October 19, anticipating the market's one-sided movement and further driving prices down. Additionally, the anticipation of further sales by portfolio insurers likely exerted as significant an influence on the public and large trading firms as the actual portfolio insurance sales did. Moreover, investors who were oblivious to the impact of portfolio insurance selling responded to the falling prices, exacerbating the market's downturn[50].

Technical analysis suggests that the widespread adoption of portfolio insurance acted as a feedback loop, amplifying market declines as automated selling triggered further selling. This mechanism highlights a critical flaw in the design and implementation of portfolio insurance: it failed to account for systemic risks and the impact of widespread, simultaneous hedging strategies on market liquidity and stability.

[49] Derivatives and the 1987 market crash, Long Island University

[50] Investopedia, Portfolio insurance: what is, how it works (April 2022)

3.3: Margin calls

Margin calls occur within the context of margin trading, where investors borrow capital from a broker to purchase securities, using the purchased securities as collateral. This practice amplifies the potential for both gains and losses, as investors can control a larger position than their capital would otherwise allow. The initial margin requirement establishes the minimum portion of the purchase price that must be funded by the investor's own capital, whereas the maintenance margin requirement specifies the least amount of equity required to maintain the open position. A margin call occurs when the equity in the margin account drops below this maintenance threshold, often as a result of depreciating asset values within the account. Under these circumstances, the investor is obliged to inject more funds or liquidate assets to satisfy the margin requisites. Inability to comply with a margin call may lead to compulsory asset liquidation at possibly disadvantageous rates, intensifying losses.

The formula for determining the market value at which a margin call occurs helps investors understand their risk exposure:

$$\text{Market Value at Margin Call} = \frac{\text{Amount Borrowed}}{1 - \text{Maintenance Margin Requirement}}$$

For example, if an investor borrows $5,000 to purchase $10,000 worth of stock (50% initial margin), with a 25% maintenance margin requirement, a margin call would be triggered if the account's total value falls to $6,666.67 or below.

$$\text{Market Value at Margin Call} = \frac{\text{Amount Borrowed}}{1 - \text{Maintenance Margin Requirement}}$$

During the crisis, margin calls emerged as a critical factor, particularly as asset prices started to fall sharply. Investors engaged in margin trading were suddenly required to provide additional collateral due to the rapid devaluation of their leveraged positions. The inherent structure of margin trading often compelled investors to sell off positions at the most inopportune moments, intensifying the market's downward spiral. This situation was aggravated by the mechanics of margin calls, which, in the face of escalating risks, prompted brokers to demand that investors either meet the shortfall in their accounts or face forced liquidations. This added further instability to an already volatile market. Both portfolio insurance and margin trading represent advanced financial tactics that demand a thorough grasp of market dynamics and risk management principles. Portfolio insurance is designed to safeguard against significant market declines, allowing investors to protect their investments through strategic options use. On the other hand, margin trading can amplify returns by using borrowed funds, albeit with the increased risk of facing margin calls that may necessitate the sale of assets under unfavorable conditions. Investors employing these strategies must carefully weigh the risks against potential returns, ensuring they fully understand the operational dynamics and the possible consequences on their investment approaches. Whether aiming to shield a portfolio from market fluctuations or to enhance gains using leverage, the effective deployment of portfolio insurance and margin management highlights the delicate balance between minimizing risks and engaging in speculative ventures to achieve financial goals[51].

From a technical analysis perspective, the market dynamics leading up to and during Black Monday were characterized by a confluence of factors that exacerbated the crisis. The valuation of financial instruments, particularly derivatives and options, reflected a market on edge, with implied volatilities reaching unprecedented levels. The technical behavior of these instruments, especially the pricing disparities in options markets, provided early warning signals of the impending volatility.

Moreover, the crisis underscored the interconnectedness of financial markets and the cascading effects that can result from the interplay between automated trading strategies, leverage, and market liquidity. The sharp decline in prices revealed vulnerabilities in market structures and the need for more robust risk management practices, particularly regarding the use of leverage and the implementation of automated trading strategies. In discussing these events, it's crucial to appreciate

[51] National Bureau of Economic Research, Portfolio Insurance and Other Investor Fashions as Factors in the 1987 Stock Market Crash (1988)

the complexity of the financial ecosystem and the multifaceted drivers behind the 1987 crisis. The lessons learned from analyzing the technical behaviors of financial instruments during this period have had a lasting impact on financial theory and practice, influencing the development of more sophisticated risk management tools and regulatory frameworks designed to mitigate systemic risk and enhance market resilience[52].

[52] National Bureau of Economic Research, Portfolio Insurance and Other Investor Fashions as Factors in the 1987 Stock Market Crash (1988)

Chapter 4: Responses to the crisis

Following the market crash, numerous studies were initiated to analyze the event, understand its causes, and suggest measures to avert similar occurrences in the future. A notable study, requested by the President, identified the abrupt downturn in mid-October as being sparked by a significantly high merchandise trade deficit, which elevated interest rates to unprecedented levels, and by proposed tax legislation that resulted in the downfall of stocks for several companies considered acquisition targets. The initial drop led to automated selling by institutions using portfolio insurance strategies and mutual funds facing investor withdrawals for cash. This study recommended that a single agency should oversee regulatory matters affecting various market segments and the entire financial system, suggested the unification of clearing systems to mitigate financial risk, advocated for standardized margin requirements to limit speculation and leverage, proposed the implementation of circuit breaker mechanisms to safeguard the market system, and called for the development of information systems to monitor transactions and market conditions[53].

Further studies by the SEC, CFTC, GAO, and trading platforms highlighted additional issues and proposed solutions. A particular analysis pointed out urgent problems, such as deficiencies in the New York Stock Exchange's systems impacting trade executions and pricing information, and the lack of formal intermarket contingency planning by federal and self-regulatory bodies.

In response, the President established the Working Group on Financial Markets in March 1988, comprising top officials from the Treasury, Federal Reserve, SEC, and CFTC, to address the critical concerns and suggestions from these studies. The group focused on circuit breakers, clearance and settlement systems, margin payments, contingency plans, capital sufficiency, and trade processing systems, fostering ongoing high-level discussions on interagency financial regulatory matters[54].

The Market Reform Act of 1990, influenced by these events, granted the SEC additional powers, including the temporary suspension of trading and the ability to modify trading rules to ensure market stability. Coordinated circuit breaker mechanisms were introduced across securities and derivatives markets, along with improvements in computer systems, teleconferencing facilities for market and regulatory bodies, and a shortened securities settlement period to reduce default risk.

[53] The Financial Crisis: An Inside View, PHILLIP SWAGEL Georgetown University

[54] Financial Crisis Management - Four Financial Crisis in the 1980s, United States general accounting office

The Federal Deposit Insurance Corporation Improvement Act of 1991 made it clear that, under exceptional circumstances, the Federal Reserve could extend credit through its discount window to any borrower, subject to certain conditions, including the necessity of the loan for ongoing operations, the inability to secure financing elsewhere, and the provision of adequate collateral[55].

4.1: Federal Reserve response

The Federal Reserve (the Fed) took its initial action in response to the stock market disaster on Tuesday, October 20, 1987, prior to the opening of markets. A succinct statement was made public to reassure investors that the Fed will supply cash to sustain the financial and economic system. The System Open Market Account (SOMA) provided reserves to the banking system earlier and in greater amounts than typically observed through repurchase agreements. After the stock market decline, the federal funds rate decreased from above 7.5 percent just prior to October 19 to 7 percent and lower. This was reflected in the Effective Federal Funds Rate and the Overnight Repo Rate during the latter half of 1987.

Investor withdrawal from the equity markets resulted in a dramatic spike in demand for US Treasury securities with certain maturities. To alleviate pressures in the Treasury market, the Federal Reserve removed the size restrictions on securities loans to individual dealers and the stipulation that these loans should not be associated with short sales. With the principal dealers, the Federal Reserve essentially went into reverse repurchase arrangements. The major dealers would get loans from the Federal Reserve for Treasury securities with highly sought-after maturities. The Federal Reserve Treasury securities with maturities that weren't in high-demand would be provided by the primary dealers as security for the loan[56].

Fedwire, the payment system run by the Federal Reserve, has had its hours of operation extended multiple times.

[55] Oxford journal, 'Solvency rule' versus 'Taylor rule': an alternative interpretation of the relation between monetary policy and the economic crisis

[56] The Financial Crisis: An Inside View, PHILLIP SWAGEL Georgetown University

Margin calls went up at Chicago Mercantile Exchange (CME) member companies and the Chicago Board of Trade, Inc. The member companies took out large loans from settlement banks located in Chicago. Historically, the money from their parent company, broker-dealers headquartered in New York, was used by the member firms to reimburse the Chicago banks. There were worries that the margin calls wouldn't be met because of

the rise in both the number and size of margin calls. The Federal Reserve Banks of Chicago and New York communicated to commercial banks within their districts that the Federal Reserve would support liquidity for loans to facilitate smooth credit extensions and fund transfers. Banks were advised to maintain a focus on the broader financial landscape, which underpins all their operations. In personal phone calls to several major banks in New York, the president of the Federal Reserve Bank of New York encouraged these institutions to provide loans to the financial system as necessary, emphasizing the importance of the global financial system on which their business relies. A short-lived increase in borrowing from the Federal Reserve Bank of New York's discount window, amounting to approximately $2 billion, concluded by the subsequent week. During the week of October 19, the ten largest banks in New York managed to almost double their loans to securities firms, thanks in part to this. Not a single significant change was seen by the central banks.

First Options of Chicago Inc., a subsidiary of Continental Illinois (the bank that was bailed out in 1984 and gave origin to the term "too big to fail"), suffered significant losses on Black Monday. First Options sought emergency assistance from Continental Illinois; nevertheless, when Following Continental Illinois' acquisition of First Options, lenders were limited in how much money they could give to First Options. Greenspan moved swiftly to allow the bank's holding company, Continental Illinois Corp., to put money into the options subsidiary. The options exchange would have shut down in the absence of that action. Additional bank examiners had been stationed at *"major bank institutions [to] monitor bank developments," Fed Chair Greenspan then announced to Congress.* From October 19–October 22, the Federal Open Market Committee, conducted daily conference calls to evaluate the noteworthy advancements in the financial markets.

The Federal Reserve's Response to the 1987 Market Crash: United States Context	
GDP (SAAR, Nominal GDP in LCU converted to USD)	$4,657.6 billion in 1986 $5,008.0 billion in 1987 *Source: Bloomberg*
GDP per capita (SAAR, Nominal GDP in LCU converted to USD)	$19,071 in 1986 $20,039 in 1987 *Source: Bloomberg*

[57]

By Wednesday, October 21, 1987, the market had regained fifty-eight percent of its losses from Black Monday.

But it wouldn't rise above the peak in August 1987 until May 1989. The financial markets' devastation did not extend to the whole economy. GDP grew even more in 1987, 1988, and 1989. Up to the unrelated 1990 recession, the unemployment rate decreased. Furthermore, the inflation rate stayed constant in spite of the system's increased reserves as a result of open market activities. There was not a notable run on deposits during the week of the market meltdown.

Size of banking system	$3,062.9 billion in total assets in 1986 $3,313.8 in total assets in 1987 *Source: Bloomberg*
Size of banking system as a percentage of GDP	65.8% in 1986 66.2% in 1987 *Source: Bloomberg*
Size of banking system as a percentage of financial system	Banking system assets equal to 27.5% of financial system in 1986 Banking system assets equal to 26.5% of financial system in 1987 *Source: Flow of Funds, Federal Reserve*

[58]

Key decisions on this matter where:

[57] Yale School of Management, journal of financial crisis, The FED response to the 1987 market crash (2020)

[58] Yale School of Management, journal of financial crisis, The FED response to the 1987 market crash (2020)

1. The Federal Reserve publicly announced its commitment to providing necessary liquidity in a brief statement. This announcement came ahead of the market opening on Tuesday, October 20, 1987, with the following message: "*Today, the Federal Reserve, in line with its duties as the national central bank, confirmed its willingness to act as a source of liquidity to uphold the economic and financial system*". On the preceding day, October 19, 1987, Chair Greenspan was in Dallas for a scheduled speech at the American Bankers Association. Meanwhile, the Federal Reserve's Vice Chair, Manuel Johnson, convened a team at the Board of Governors' Washington, DC office. This team, comprising Donald Kohn, director of monetary affairs division; Edwin Truman, director of international finance division; William Taylor, director of bank regulation and supervision division; and General Counsel Michael Bradfield, kept an eye on international markets through the night and prepared a liquidity statement. Before its Tuesday morning release, the statement received approval from Greenspan and Gerald Corrigan, president of the Federal Reserve Bank of New York.
2. Through reverse repurchase agreements, the Federal Reserve supplied the market with Treasury securities having maturities in high demand. As investors moved away from equity markets, the demand for US Treasury securities of specific maturities surged. To mitigate pressures in the Treasury market, the Federal Open Market Committee decided to temporarily lift the following restrictions: 1) The cap on the size of securities loans to individual dealers, and 2) The rule against using these loans for short sales. This approach allowed the Federal Reserve to inject more Treasury securities with sought-after maturities into the market by engaging in reverse repurchase agreements with primary dealers. In these transactions, the Federal Reserve lent Treasury securities with preferred maturities to primary dealers, who, in return, provided the Federal Reserve with Treasury securities of less demanded maturities as collateral.[59]
3. The Federal Reserve facilitated a decrease in the federal funds rate by around 50 basis points, leading to a drop from just above 7.5 percent prior to October 19 to below 7 percent following the stock market crash. Initially, the central monetary policy aimed at regulating the money supply, with short-term interest rates being of secondary importance. The Federal Open Market Committee (FOMC) monitored the federal funds rate, yet was more flexible with its fluctuations than it would become later, when the policy emphasis shifted towards directly controlling short-term interest rates[60]. The minutes from the subsequent FOMC

[59] Federal Reserve History, stock market crash of 1987 (1987)

[60] The Financial Crisis: An Inside View, PHILLIP SWAGEL Georgetown University

meeting post-market crash indicated a consensus to narrow the intermeeting range for the federal funds rate from 5-9 percent to 4-8 percent. This adjustment aimed to facilitate more effective consultation of the Committee should the set boundaries be consistently surpassed.

4. The Federal Reserve intervened to allow Continental Illinois, a bank holding company, to provide credit to its subsidiary, First Options of Chicago Inc., beyond legal restrictions, noting that it was the largest options clearinghouse at the time. After the bailout in 1984 that led to the coining of the term "too big to fail," Continental Illinois faced a dilemma when its subsidiary, First Options of Chicago Inc., incurred significant losses on Black Monday. First Options sought emergency funding from Continental Illinois, but regulatory restrictions had been imposed on the amount Continental Illinois could lend to First Options following its acquisition. Reports indicate that Greenspan swiftly facilitated measures allowing Continental Illinois Corp. to transfer funds to its options subsidiary, averting a potential shutdown of the options exchange, as noted by one official[61].

The measures implemented by the Federal Reserve are widely acknowledged for their role in ameliorating market conditions following the Black Monday crash. Detailed analyses of the crash and its subsequent effects, highlighted by two significant reports, emphasize the critical role of the Federal Reserve's actions. The Division of Market Regulation at the Securities and Exchange Commission recognized the efforts of the Federal Reserve Board and the Federal Reserve Bank of New York in encouraging major banks to continue their prudent financing of securities firms as key to averting a possible liquidity crisis. Similarly, the Brady Report, an investigation by the federal executive branch, observed, *"Without the Federal Reserve's prompt action, much graver outcomes might have been a tangible threat"*[62]. Ben Bernanke, an academic economist at the time, encapsulated the Federal Reserve's actions, stating, "*By executing its role as the lender of last resort, the Fed effectively redistributed risks within the system to the collective advantage. It's as though the Fed offered retrospective insurance to the clearinghouse against a scenario believed to potentially overwhelm the clearinghouse's own insurance capacity, thereby positioning the Fed as the 'insurer of last resort*'"[63]

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[61] The Financial Crisis: An Inside View, PHILLIP SWAGEL Georgetown University

[62] Federal Reserve History, stock market crash of 1987 (1987)

[63] Federal Reserve History, stock market crash of 1987 (1987)

In the years leading up to Black Monday, both corporate and consumer debt levels experienced significant growth. This trend was driven by the confidence stemming from steady economic expansion and a flourishing stock market, which led businesses and individuals to increase their leverage. This escalating debt, coupled with the speculative nature of financial markets, introduced an element of risk to the economic framework.

As debt levels rose, so did the potential for financial instability. Should an economic downturn occur, the responsibility of managing the accrued debt could place considerable stress on both corporate and individual finances. This delicate equilibrium between economic growth and the escalating debt burden emerged as a crucial factor in the vulnerability of the financial system.

Furthermore, the dependency on borrowing to stimulate economic growth positioned market participants at a heightened risk of exposure to shocks. Any disturbances within the financial markets or unforeseen economic incidents had the capacity to set off a domino effect, precipitating widespread economic distress.

4.2: Aftermath of the crash and capitalism's evolution

In the aftermath of the crash, there was a reassessment of regulatory and supervisory frameworks governing financial markets. This period saw the implementation of measures designed to enhance the resilience of the financial system, including improvements in risk management practices and the introduction of circuit breakers to prevent excessive volatility in the stock markets. The 1987 crash underscored the interconnectedness of global financial markets. In response, there was an increased emphasis on international cooperation among central banks and financial regulators. This coordination aimed to ensure that policies were aligned and that actions taken in one country would not have adverse effects on others. The inherent instability of capitalist economies, particularly illustrated by the 1987 financial market crash, can be understood through several key concepts. This instability is not merely a byproduct of external shocks but is deeply rooted in the structural and systemic features of capitalism itself. The 1987 crisis shedding a huge value in a very short time, serves as a stark example of this inherent instability[64].

Capitalist economies are characterized by constant financial innovation and an increasing complexity of financial instruments. These innovations, while designed to spread and manage risk,

[64] Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

often contribute to systemic vulnerabilities. Derivatives, high-leverage positions, and other financial instruments can amplify risks, making markets more susceptible to crises. In the run-up to the 1987 crash, markets were increasingly interlinked with complex financial products, making them more volatile and prone to panic selling. The crisis highlighted the role of market psychology and herd behavior in driving economic instability. The rapid spread of panic among investors can lead to sudden and massive sell-offs, exacerbating market declines. This phenomenon is partly driven by the speculative nature of financial markets, where investment decisions are often based on expectations of future price movements rather than underlying economic fundamentals[65].

Capitalist economies often experience regulatory failures, where oversight mechanisms are unable to keep pace with financial innovation or are hindered by deregulation trends. Prior to the 1987 crash, there was significant deregulation in financial markets, which, while intended to promote growth, also increased vulnerability to shocks. The lack of adequate regulatory oversight allowed for the buildup of risky positions that could not be sustained. High levels of leverage, where investors borrow heavily to finance investments, can magnify the impact of market corrections. When market prices start to fall, leveraged investors may be forced to sell assets to cover their debts, leading to a downward spiral in prices. This was evident in the 1987 crash, where the widespread use of margin buying (purchasing stocks with borrowed money) exacerbated the market's downturn.

The globalization of financial markets means that crises can quickly spread from one country to another, as was the case in 1987. Financial markets are interconnected, so a significant drop in one major market can lead to global repercussions. The rapid spread of the 1987 crash across different countries underscored the systemic risks posed by the interconnected nature of global finance. These factors collectively illustrate how the structural and systemic features of capitalist economies can lead to inherent instability. The 1987 financial market crash serves as a case study in how financial innovation, deregulation, market psychology, high leverage, and globalization can converge to create significant economic disruptions[66].

Capitalism's evolution, particularly in the aftermath of financial crises, reflects a dynamic interplay between market forces, government interventions, and the inherent instability of financial systems. The 1987 crisis exemplified this evolution by highlighting several key aspects:

[65] Financial Crisis Management - Four Financial Crisis in the 1980s, United States general accounting office

[66] Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

1. Government Intervention and Market Adjustments: The 1987 crisis showcased the significant role of government intervention in stabilizing financial markets. The Federal Reserve, under the leadership of Chairman Alan Greenspan, took immediate action to assure liquidity in the markets, thereby averting what could have escalated into a much deeper financial crisis. This intervention was a clear illustration of how capitalist systems have evolved to incorporate more active roles for central banks and government entities in crisis management.

2. Financial Innovation and Complexity: The evolution of capitalism has been marked by increasing financial innovation and complexity, aspects that were at the forefront during the 1987 crash. As we said in previous chapters, new financial instruments, such as derivatives and portfolio insurance, played a role in both the rapid decline of stock values and the subsequent recovery efforts. These innovations have led to a more interconnected and complex financial system, necessitating more nuanced and sophisticated responses from regulators and policymakers.

3. Resilience and Adaptation: The relatively swift recovery from the 1987 crash, without a significant impact on the real economy, demonstrated the resilience of the capitalist system. It highlighted how capitalism has evolved to better absorb shocks through mechanisms such as diversified investment strategies, global financial integration, and the development of more robust financial infrastructure.

4. Shifts in Economic Policy and Theory: The crisis and its management also reflected shifts in economic policy and theory. The response to the 1987 crash underscored a departure from laissez-faire[67] principles, acknowledging the essential role of regulatory oversight and the need for a safety net in the financial system. It prompted a reevaluation of economic theories regarding market efficiency and the risks associated with financial innovation.

Capitalism, especially in its modern incarnation, exhibits a remarkable capacity for adaptation and resilience. This resilience is not an inherent quality of capitalism but a result of deliberate policy interventions, regulatory frameworks, and the evolution of financial markets that learn from past crises. The ability of capitalist economies to bounce back from shocks, such as the 1987 financial crash, illustrates this point vividly[68].

Capitalist systems have evolved mechanisms that allow them to adapt to changing economic conditions and shocks. These mechanisms include flexible markets, innovation in financial products

[67] Literally “let it be” symbol of economic liberalism believe that transactions between private groups of people are free or almost free from any form of economic interventionism.

[68] Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

and services, and the ability of firms to pivot in response to market demands. The dynamic nature of capitalism ensures that it is constantly evolving, seeking efficiency and profit opportunities even in the aftermath of a crisis. Policy interventions play a crucial role in the resilience of capitalism. Central banks and governments have learned from past crises, developing tools and strategies to mitigate the impacts of economic downturns. The Federal Reserve's response to the 1987 crash, for instance, included swift action to provide liquidity to the financial system, reassuring markets, and stabilizing investor confidence. Such interventions are designed to contain the fallout of financial crises, preventing them from spiraling into deeper economic depressions. The development of more robust regulatory frameworks following financial crises is another aspect of capitalism's adaptation and resilience. Regulations such as those implemented after the 2008 financial crisis aim to increase the transparency, accountability, and stability of financial institutions, reducing the risk of future crises. By learning from past failures, capitalist systems strengthen their resilience against future shocks. Financial markets themselves have become more resilient and adaptable. Innovation in financial instruments, risk management practices, and the global integration of markets contribute to this resilience. Markets have developed mechanisms to absorb shocks, distribute risks more efficiently, and recover from downturns more rapidly[69].

Criticisms of prevailing economic theories in the context of the 1987 financial crisis, highlighting the failure of these theories to adequately predict, explain, or prevent financial crises. Prevailing economic theories at the time, such as monetarism and supply-side economics, were heavily criticized for their inability to foresee or account for the possibility of a financial crisis as severe as the one in 1987. These theories, rooted in a general equilibrium framework, suggested that markets would inherently move towards equilibrium, underestimating the potential for systemic financial disruptions, standard economic theories lacked a comprehensive understanding of the complexities and dynamics of financial markets. This includes an underappreciation of the role of investment, financing, and the banking sector in shaping economic outcomes. The theories were criticized for not considering the economy as a structure that generates cash flows through time, which is crucial for understanding financial stability and the propagation of shocks.

The critique[70] extends to the neoclassical synthesis, which was dominant at the time, for reducing all economic behavior to the outcome of individual maximizing decisions. This approach was seen as overly simplistic and not reflective of the actual decision-making processes within markets and

[69] Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

[70] Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

institutions, especially in the context of financial investments and the management of capital assets. The prevailing theories were also criticized for their neglect of the inherent fragility within the financial system. The 1987 crisis underscored the vulnerability of financial markets to sudden shocks and the insufficiency of existing economic models to account for such vulnerabilities. The theories did not adequately consider the interconnections within the financial system and how these could lead to widespread instability. Critics also were moved for the lack of insight from prevailing theories into the critical role that governments and central banks play in stabilizing the economy during financial crises. The response to the 1987 crisis involved significant intervention by central banks, including the Federal Reserve, which was not well explained or anticipated by the economic models of the time. This gap highlighted the need for economic theories that incorporate the potential for active and effective intervention in financial markets.

These criticisms reflect a broader debate about the adequacy of economic models and theories to capture the complexities of financial markets and the role of institutions in managing economic stability. The 1987 crisis served as a catalyst for reevaluating and developing more sophisticated approaches to understanding financial crises and the mechanisms for preventing and mitigating their impacts.

Other than the immediate response of the government to the crash, other than critics to the system, some long-term actions were taken in order to settle some order in the economic playground, one in particular was proposed by economist John B. Taylor in 1993. The Taylor Rule, as it is called, is a monetary policy guideline that suggests how central banks should adjust interest rates in response to changes in economic conditions, particularly inflation and the output gap. The rule is designed to stabilize the economy by adjusting the nominal interest rate in response to deviations of actual inflation rates from the target inflation rate, and the deviations of actual GDP from potential GDP (output gap).

The Taylor Rule is typically expressed in the following formula:

$$i_t = r_t^* + \pi_t + 0.5(\pi_t - \pi^*) + 0.5(y_t - y_t^*)$$

Where:

- it is the nominal interest rate that the central bank should set.

- r^*t is the real equilibrium interest rate (assumed to be constant).

- πt is the current inflation rate.

- π^* is the target inflation rate set by the central bank.

- y_t is the logarithm of real GDP.

- y^*_t is the logarithm of potential GDP (the level of GDP when all resources are fully employed).

- $(y_t - y^*_t)$ represents the output gap, indicating whether the economy is underperforming or overperforming.

The rule suggests that central banks should increase interest rates when inflation is above the target or when GDP is growing faster than its potential (indicating an overheated economy), and decrease rates when inflation is below the target or the economy is growing slower than its potential.

The "Solvency Rule", proposed as an alternative[71], emphasizes the importance of maintaining the solvency of firms and workers, rather than focusing solely on inflation stability and output stabilization. The Solvency Rule implies a monetary policy framework that prioritizes preventing insolvencies and ensuring economic stability by considering the financial health of businesses and individuals. This approach suggests adjusting monetary policy to maintain solvency across the economy, which could involve a variety of tools beyond just setting interest rates, including regulatory measures, direct support to sectors facing solvency issues, and broader fiscal policy coordination.

The 1987 crash indeed underscored the necessity for implementing plans or regulations to stabilize the market, highlighting the broader need for a systematic approach to monetary policy, which is what the Taylor Rule aims to address. The crash served as a pivotal moment that prompted both policymakers and economists to reevaluate the tools and strategies used to maintain financial stability and prevent such crises from occurring in the future. The Taylor Rule, proposed in the early 1990s, can be viewed as part of the broader response to the need for a more rule-based, systematic approach to monetary policy that emerged in the aftermath of the 1987 crash and other economic disturbances. By providing a clear, formulaic guideline for setting interest rates based on deviations from inflation targets and output gaps, the Taylor Rule offers a method to preemptively address economic imbalances that could lead to instability. In this context, the 1987 crash highlighted the

[71] Oxford journal, 'Solvency rule' versus 'Taylor rule': an alternative interpretation of the relation between monetary policy and the economic crisis

importance of having mechanisms in place that could automatically adjust monetary policy to counteract economic volatility. The Taylor Rule embodies this principle by suggesting a systematic approach to interest rate decisions, aiming to smooth out the fluctuations in the economy and prevent the kind of shock experienced in 1987. Furthermore, the aftermath of the crash saw increased attention on the part of central banks, including the Federal Reserve, towards more proactive and transparent monetary policy frameworks. The adoption of rules-based approaches like the Taylor Rule can be seen as part of a broader shift towards policies designed to enhance market stability, reduce uncertainty, and provide clear guidance to market participants about the direction of monetary policy in response to changing economic conditions[72]. Thus, while the Taylor Rule itself was not a direct response to the 1987 crash, the principles it espouses for stabilizing the economy through systematic, rule-based monetary policy adjustments align with the lessons learned and the needs that arose from managing and preventing financial crises like the one experienced in 1987.

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Conclusions

In conclusion, the 1987 stock market crash serves as a poignant example of the profound influence of investor sentiment on financial markets. The convergence of market euphoria, significant overvaluation, the widespread adoption of program trading, and a sudden, dramatic shift in sentiment created a perfect storm, culminating in one of the most precipitous market downturns in history.

This event underscores the critical importance of recognizing the role of investor sentiment in the dynamic interplay of factors that can precipitate such financial crises. It highlights the necessity of understanding the complexities of market behaviors and the pivotal role that psychological factors play alongside economic fundamentals. Moreover, the aftermath of the crash served as a catalyst for significant regulatory reforms and innovations in risk management practices. It prompted a reevaluation of the regulatory framework governing financial markets, leading to the implementation of mechanisms designed to prevent future crashes, such as the introduction of circuit breakers to halt trading in times of excessive volatility. This period of introspection and subsequent action has offered invaluable lessons on the importance of prudence and strategic insight in navigating the ever-changing landscape of financial markets. It has also underscored the necessity for continuous vigilance and adaptability in regulatory practices to safeguard against the complex, multifaceted risks inherent in global financial systems.

Reflecting on the 1987 crash, it is evident that the events leading up to and following the downturn have had a lasting impact on how financial markets operate. They have shaped an increased awareness of the potential for rapid shifts in investor sentiment to precipitate significant market disruptions. Consequently, this historical episode serves not only as a reminder of the vulnerabilities of financial markets but also as an instructional guide that informs current and future market participants and regulators. By dissecting the causes, effects, and responses to the 1987 crash, we gain critical insights into the intricate nature of financial markets and the imperative of fostering resilience against unforeseen challenges. As we move forward, the lessons gleaned from the 1987 stock market crash remain ever relevant. They remind us of the importance of rigorous risk management, the need for robust regulatory frameworks, and the crucial role of informed, discerning investment strategies. In navigating the complex and often turbulent waters of financial markets, these insights provide a compass by which we can steer towards greater stability and prosperity.

References

A Brief History of the 1987 Stock Market Crash, Carlson (2006)

https://www.federalreserve.gov/pubs/feds/2007/200713/200713pap.pdf

Accounting and taxation, vol. 6, the role of derivatives in the financial crisis and their impact on security prices (2014)

file:///C:/Users/avell/Downloads/SSRN-id2391346%20(1).pdf

American Economic Association, the aftermath of financial crises (may 2009)

https://www.aeaweb.org/articles?id=10.1257/aer.99.2.466

Federal Reserve History, stock market crash of 1987 (1987)

https://www.federalreservehistory.org/essays/stock-market-crash-of-1987

FRBSF, weekly letter, monetary policy 1987, (feb 1988)

https://fraser.stlouisfed.org/files/docs/historical/frbsf/frbsf_let/frbsf_let_19880212.pdf

Faster capital, investor sentiment: the psychology behind the 1987 stock market crash (dec 2023)

https://fastercapital.com/content/Investor-Sentiment--The-Psychology-Behind-the-1987-Stock-Market-Crash.html#The-Domino-Effect-of-Investor-Sentiment

International Banker, black Monday (1987), (2021)

https://internationalbanker.com/history-of-financial-crises/black-monday-1987/

Investire.biz, 19 ottobre 1987: 33 anni dal lunedì nero di wall street (2020)

https://investire.biz/analisi-previsioni-ricerche/indici-di-borsa/19-ottobre-1987-il-luned-nero-di-wall-street-stroria-crollo-motivi-conseguenze

Investopedia, what caused the black Monday, the 1987 stock market crash? (April 2023)

https://www.investopedia.com/ask/answers/042115/what-caused-black-monday-stock-market-crash-1987.asp

Investopedia, Portfolio insurance: what is, how it works (April 2022)

https://www.investopedia.com/terms/p/portfolioinsurance.asp

National Bureau of Economic Research, American economic policy in the 1980s

https://www.nber.org/system/files/chapters/c7753/c7753.pdf

National Bureau of Economic Research, Portfolio Insurance and Other Investor Fashions as Factors in the 1987 Stock Market Crash (1988)

https://www.nber.org/system/files/chapters/c10958/c10958.pdf

Political Science Quarterly, vol.102, The confidence gap during the Reagan years

https://www.jstor.org/stable/pdf/2151482.pdf

Principle of navigating big debt crises, part 1,the archetypal big debt cycle

https://www.bridgewater.com/big-debt-crises/principles-for-navigating-big-debt-crises-by-ray-dalio.pdf

Research gate, portfolio insurance investment strategies: A Risk Management Tool

https://www.researchgate.net/publication/352212135_Portfolio_Insurance_Investment_Strategies_A_Risk_Management_Tool

Startin Finance, le cause del crollo del 1987 (2018)

https://startingfinance.com/approfondimenti/cause-del-crollo-1987/

The silent revolution, the IMF 1979-1989, the crisis erupts

https://www.imf.org/external/pubs/ft/history/2001/ch08.pdf

The journal of finance, The crash of ’87: was it expected? (July 1991)

https://www.jstor.org/stable/pdf/2328552.pdf?refreqid=fastly-default%3Aac57db8ea9473ced609825afd3dbd119&ab_segments=&origin=&initiator=&acceptTC=1

Yale School of Management, journal of financial crisis, The FED response to the 1987 market crash (2020)

https://elischolar.library.yale.edu/cgi/viewcontent.cgi?article=1109&context=journal-of-financial-crises

U.S. monetary policy and international risk spillover, Șebnem Kalemli-Özcan

https://scholar.google.it/scholar?cites=15367253552737163107&as_sdt=2005&sciodt=0,5&hl=it

Over-the-counter and systemic risk to the global financial system, Michael R. Darby

https://www.nber.org/system/files/working_papers/w4801/w4801.pdf

A Short History of Derivative Security Markets

https://core.ac.uk/download/pdf/6406616.pdf

Derivatives and the 1987 Market Crash

https://www.semanticscholar.org/paper/Derivatives-and-the-1987-market-crash-Baigent-Massaro/d0a37b613b8b75d636a31626d46352e746e176a5

The Federal Reserve Responds to the Crises: September 11 Was The Federal Reserve Responds to the Crises: September 11 Was Not the First Christopher J. Neely

https://elischolar.library.yale.edu/cgi/viewcontent.cgi?article=2277&context=ypfs-documents

Financial Crisis Management - Four Financial Crisis in the 1980s, United States general accounting office

https://elischolar.library.yale.edu/cgi/viewcontent.cgi?article=1475&context=ypfs-documents2

Financial Crises and the Evolution of Capitalism: The Crash of'87-What DoesitMean?1 Hyman P. Minsky

https://digitalcommons.bard.edu/hm_archive/462/

The Financial Crisis: An Inside View, PHILLIP SWAGEL Georgetown University

https://www.brookings.edu/wp-content/uploads/2009/03/2009a_bpea_swagel.pdf

Oxford journal, 'Solvency rule' versus 'Taylor rule': an alternative interpretation of the relation between monetary policy and the economic crisis

https://www.jstor.org/stable/23601922