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Recurring Storms: Weathering the Future by Understanding the Past

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RECURRING STORMS: WEATHERING THE FUTURE BY UNDERSTANDING THE PAST

ROBERT L. BROWN

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In this article, I describe the major financial crises that evolved into economic crises during the past four hundred years in Europe, the United States, and Asia, before turning to the 2007-10 global financial and economic crisis. My focus will be Tulipmania of 1637, Mississippi Scheme of 1720, South Sea Bubble of 1720, Great Crash of 1929, Crash of 1987, Asian Financial Crisis of 1997, Dot-com Bubble of 2000, and Financial Crisis of 2007-10. I identify commonalities as well as distinguishing characteristics among the events. In the discussion and description that follows, I note that the tendency is for more common features than distinguishing ones to exist. To put all of this in perspective, let's start with a quote:

The arrogance of officialdom should be tempered and controlled, and assistance to foreign hands should be curtailed, lest [we] fall.¹

As current as the topic and the description, it is amazing to understand in the actual quote that the bracketed “we” would be replaced by “Rome” since it was written by Marcus Tullius Cicero in 55 B.C. The sentence itself underscores the tendency for economic financial crises to repeat, and in doing so, to repeat in similar patterns.

I. TULIPMANIA 1637

Tulipmania is one of the best known examples of financial bubbles and has become a euphemism for booms and busts. As such, it is a good opening act for the first three bubbles, all of which occurred in Europe. This financial bubble occurred in Holland.

A. *Boom*

The origin of Tulipmania has been traced to Conrad Gesner, who in 1559 saw a tulip in an Augsburg garden belonging to Counselor Herwart, known for his collections. Counselor Herwart had received the tulip from a friend in Constantinople “where the flower had long been a favorite.”² Tulips quickly became popular among the upper classes in Holland. Wealthy residents of Amsterdam, for instance, were willing to purchase bulbs from Constantinople, and pay extravagant prices for them. Eventually, the tulip increased in reputation to such an extent that it was considered bad taste for prominent families not to have a collection. By 1634, the rage among the Dutch to own tulips was so great that business and industry in the country became neglected, with most of the population involved in the tulip trade.

As the bubble increased, prices rose until by 1635 many owners had invested a fortune in tulips. It was not uncommon for individuals to have committed more than

¹ *Cicero's Budget Plan of 55 B.C.*, TRUTHORFICTION.COM, <http://www.erumors.net/rumors/c/cicero-plan.htm> (last visited Sept. 8, 2010).

² CHARLES MACKAY, EXTRAORDINARY POPULAR DELUSIONS AND THE MADNESS OF CROWDS 92 (Harmony Books, 1980).

100,000 florins in tulip roots. At the exorbitant price for tulips, this amount would buy less than 50 roots.

Tulips were sold by their weight in perites, a weight less than a grain. For instance, a tulip of the species called Admiral Lifken weighing 400 perites was worth 4,400 florins.³ By 1636, the demand for tulips of a rare species had increased so much that regular markets for their sale were established on exchanges in Amsterdam, Rotterdam, Haarlem, Leyden, Alkmaar, Hoorn, and other towns. A market dealing largely in tulips also became active.

Dutch investors assumed that the passion for tulips would last forever and that wealthy individuals from other parts of the world would turn to Holland for tulips. As a result, people of all income levels and from many European countries converted their property into cash, which they invested in tulip flowers. The tulip trade became so active that a code of laws for guidance of tulip dealers was adopted.

B. Bust

By late 1636, however, some prudent investors began to fear that the demand would not last forever. Some owners began to sell their tulips, rather than keep them in their gardens to admire. In its early stages, this sell off meant prices were no longer booming, and profit margins began to decline. As profits diminished, investors were less willing to speculate, which decreased demand. This soon led to prices beginning to fall, and with the decline confidence fell. Quickly, universal panic seized owners and purchasers. Over time, many merchants were reduced almost to begging, and the fortunes of many noble families were destroyed.

Seeking a solution to the problem, representatives from all over Holland consulted with the government. The government refused to intervene and advised tulip holders to agree on a plan among themselves. Representatives eventually agreed that all contracts made at the height of the mania, or prior to November 1636, should be declared null and void.

For contracts made after that date, purchasers would be excused from their obligations on paying ten percent of the purchase price to sellers. As we will see in a subsequent section, this solution was adopted by England following the collapse of the South Sea Bubble. By the end of the bubble, tulips which had been selling for 6,000 florins could be purchased for 500 florins.⁴ This meant the bailout plan was inadequate for purchasers who bought at the peak. For instance, purchasers who bought at 6,000 florins would be discharged by paying 600 florins, but this was still 100 florins more than the market value.

Actions for breach of contract were brought in all Dutch courts, but the courts refused to take cognizance of them, considering them unenforceable gambling debts. The government did not take any further steps to resolve the crisis. As a result, those who were unlucky enough to have tulips on hand at the time of the collapse were ruined. Those who had made profits, however, were allowed to keep them.

C. Aftermath

The Dutch economy suffered a severe shock that may have resulted in the transition of the industrial revolution from the Dutch to the English economies.

³ *Id.* at 94.

⁴ *Id.* at 99.

D. Summary

A summary of Tulipmania 1637, as well as the other crises discussed, appears in Chart 4 near the end of this article. Among the factors considered, the stronger ones are highlighted in gray and the lesser ones in black. Tulipmania involved a bubble, with human emotion and greed prevalent in both the speculative upswing and the downturn. Foreign direct investment was not a factor, other than some non-Dutch investors becoming involved, but this was not a driving force in the boom. Similarly, exchange rates were not relevant since the crisis only involved florins, the Dutch currency. Poor economic fundamentals existed as business people abandoned industry for the tulip trade, but it was not a driving force behind the crisis. Investors were uneducated, since tulips, stocks, and the market were new products being offered. Program trading and technology development, which did not arise until the 19th and 20th centuries, respectively, were not relevant. Similarly, mergers and acquisitions were not involved, since investors were buying tulips, not companies. Sadly, the effect was limited to Holland, which lost its leadership in the upcoming industrial revolution, and did not spill over to its principal competitors, France and England.

II. MISSISSIPPI SCHEME 1720

The Mississippi Scheme was a French crisis involving a Scot and the Americas. It had its origins when John Law, a transplant from London to Edinburgh, established Banque Generale in Paris and sold stock in the Mississippi Company, which was given development rights in North America. John's father was the younger son of an ancient family, who became a leading goldsmith and banker in Edinburgh. As such, he amassed considerable wealth that allowed him to purchase estates in several parts of Scotland.⁵

John was the oldest son and started working in his father's counting house at the age of 14 where he labored for three years learning the banking business. He was extremely good with numbers. Upon the death of his father in 1688, he turned from the business world to society life. As a young, vain, and good-looking wealthy member of society, he moved to London, where he spent his money lavishly. Because of his skill with math, he was very good at gambling. Unfortunately, his luck did not last and he ultimately lost most of his fortune.⁶

Soon thereafter, an affair resulted in a challenge, the death of his challenger, and his arrest. After escaping, he fled to the continent, where he traveled for three years, devoting himself to monetary and banking affairs. In 1700, he returned to Edinburgh where he published a book, *Proposals and Reasons for Constituting a Council of Trade*.⁷

He also called for the establishment of what he called a land bank. Notes to be issued by the bank, under his plan, would never exceed the value of land owned by the state, would pay ordinary interest and, if unpaid, would entitle the holder to enter into possession of land securing the notes. The project received a lot of attention from the Scottish Parliament with a motion for the establishment of such a bank being presented by a neutral party. Parliament, however, ultimately passed a

⁵ *Id.* at 2.

⁶ *Id.* at 2-3.

⁷ *Id.* at 4.

resolution stating that the establishment of any kind of paper credit was an improper approach for the nation.⁸

Following this failure, Law returned to the continent and gambling. For 14 years, he traveled through Flanders, Holland, Germany, Hungary, Italy, and France where he became acquainted with the trade and resources of each. In the gambling salons of Paris, he met the Duke d'Orleans. When a proposed finance scheme incorporating his land bank, which he presented to the French, was rejected, he moved to Italy where he unsuccessfully proposed a land bank for that country.⁹

On the death of Louis XIV in 1715, since the heir was only seven years of age, the Duke d'Orleans assumed control of government as regent. The regent found France's finances in considerable disarray. The deceased king had been corrupt and extravagant, and his expenditures had brought France almost to the verge of ruin. The national debt was 300 million livres; but revenue was 145 million livres with expenses of 142 million livres. This only left 3 million livres to service the debt. While some leaders, including the Duke du St. Simon encouraged the regent to consider national bankruptcy, this measure was rejected.¹⁰

Instead, a recoinage was ordered under which the currency was depreciated by one-fifth. The plan required citizens to turn in their gold and silver coins, for which they received a reduced amount of coins.¹¹ If, for instance, they brought in 1,000 pieces, they only received 800 in return. By this measure, the Treasury earned 72 million livres, but created great disorder in the markets.

The next step in trying to solve this problem was a call for the Chamber of Justice to investigate tax collectors. The resulting investigation was followed by the conviction of corrupt tax collectors and confiscation of their assets. Unfortunately, government corruption did not end with the tax collectors, since most of the money collected during the confiscation was misspent and not used to reduce the debt. It is estimated that out of about 180 million livres collected, only 80 million livres was used to pay down the debt.¹²

A. Boom

At this time, Law returned to renew his acquaintance with the Duke d'Orleans. His solution for the crisis was to set up a bank that would manage the royal revenues, and issue notes on the revenues with state-owned land serving as security. He also proposed that the bank be administered in the king's name, but subject to control of commissioners to be named by the Estates Generale, the French parliament. To support his arguments, he had his book translated into French.¹³

On May 5, 1716, a royal edict was published pursuant to which Law was authorized to establish a bank under the name of Law and Company, the notes of which could be used to pay taxes. Its capital was 6 million livres, based on 12,000

⁸ *Id.*

⁹ *Id.* at 6.

¹⁰ *Id.* at 7.

¹¹ *Id.*

¹² *Id.* at 9.

¹³ *Id.* at 10.

shares of 500 livres each. The shares could be purchased by putting 25% down – one-fourth had to be in cash, with the remainder in the form of a note.¹⁴

Law made all his notes payable at sight in the coin current at the time they were issued. This meant his notes retained their value and would not depreciate, which made them more valuable than government notes. The latter were constantly being depreciated by the government's spending habits, since they could be paid off with future depreciated currency. After declaring that bankers deserved death for issuing paper without sufficient security against all demands, his notes traded at one percent more than government notes.

Quickly, the French economy began to improve. Commerce began to rise, taxes were paid, and confidence returned to the market. Within a year, Law's notes traded at a 15% premium, while notes issued by the government as security for debts contracted by the extravagant Louis XIV traded at a 78% discount. Branches of his bank were established at Leone, Rochelle, Tours, Amiens and Orleans.¹⁵

Soon, thereafter, Law proposed that his company receive the exclusive privilege of trading in the province of Louisiana, which France had created along the Mississippi River. Purportedly, the area was rich in precious metals. Under the proposal, his company would be the sole collector of taxes and coiners of money in the province. In August 1717, letters patent were issued incorporating a new company, the Mississippi Company, with exclusive rights in this province. The company's capital was divided into 200,000 shares, with stated capital value of 500 livres each. The purchase price had to be paid in government currency at its normal value. The market value per share at the time of issue was 160 livres.¹⁶

A frenzy of speculation soon seized the nation. Law's bank had done so much good and was perceived as having such potential that any future promises he made were believed. Another factor driving this enthusiasm was the regent, who continued to grant new privileges. Law's bank, for instance, obtained a monopoly on the sale of tobacco, received the sole right to refine gold and silver, and was renamed the Banque Generale.¹⁷

Once the bank shifted from a private to a public institution, the regent took over control and management and began to issue notes, estimated at 1 billion livres in value. This was in contrast to its earlier financings. During the time it was under Law's control, its issues did not exceed 60 million livres.

Unfortunately, Law had to contend with a jealous Estates Generale that was resentful of his success and influence, particularly as a foreigner. This antagonism hardened when the regent dismissed the chancellor, Henri François d'Aguesseau, for opposition to the vast increase of paper money and the resulting depreciation of gold and silver. His replacement, Marc René de Voyer de Paulmy, Marquis D'Argenson, was willing to follow the regent's financial leadership, and continued to increase coinage. For instance, persons bringing into the mint 4,000 livres in specie (paper money backed by gold and silver) and 1,000 livres in paper received 5,000 livres in new currency. Although the Estates Generale tried to prevent the continuation of the

¹⁴ *Id.* at 11.

¹⁵ *Id.*

¹⁶ *Id.* at 12.

¹⁷ *Id.*

policy by issuing a decree to that effect, the regent annulled the decree, although he had to do it several times.¹⁸

Becoming more antagonistic, the Estates General passed a decree dated August 12, 1718 stating that Banque Generale was prohibited from having any involvement with administration of government revenue. The decree also prohibited foreigners from being involved in management and finances of the state. Following the decree, Law fled to the Royal Palace where he sought protection from the regent, who promptly arrested the president and two of the Estates Generale's counselors. This move dissipated parliament's objection for the time. With this threat solved for the moment, Law returned home and the value of the bank's shares began to rise again.¹⁹

In 1719, an edict granted Mississippi Company the exclusive privilege of trading in the East Indies, China, and the South Seas, as well as all the possessions of the French East India Company, which had been established by Jean-Baptiste Colbert, minister of finance under Louis XIV. To finance this expanded role, the company issued 50,000 new shares at 500 livres each. Law promised a yearly dividend of 200 livres on each share.²⁰ Enthusiasm for his company, which had been rising for a long time, accelerated. Three hundred thousand applications were made for the 50,000 new shares, and Law's house was deluged with eager applicants. As a result, Law had to move to a larger house, but the crowds continued to follow him. Demand for the shares was so great that shares sometimes rose 10% to 20% within a few hours.²¹

B. Bust

The bubble flourished until the beginning of 1720. Up to this time, warnings by the Estates Generale that the creation of too much paper would sooner or later lead the country into bankruptcy had been disregarded. The regent, who did not understand finance, continued to support Law who issued certificates to keep pace with the rising value of Mississippi Company stock.

The first alarm occurred in 1720 when the Prince de Conti, who was offended by Law's refusal to issue him new shares following the grant of the East Indies, China, and South Seas rights, had his bank sell all his existing Mississippi Company shares, demanding repayment in specie of such an enormous quantity of notes that three wagons were required for its transport.²² Other investors soon followed suit, and Mississippi Company stock ceased its rise.

Some of the investors who sold their Mississippi Company stock sent gold and silver that they received to England or Holland in anticipation of a collapse. Others began to hoard their gold and silver. The cumulative effect was that little specie was left in circulation.²³ With money in short supply, trade became very difficult since there was no money to pay for goods and services.

In February 1720, an edict was issued, which instead of restoring credit in France, destroyed it. Under the edict, citizens were forbidden from possessing more

¹⁸ *Id.* at 13.

¹⁹ *Id.* at 14.

²⁰ *Id.*

²¹ *Id.* at 19.

²² *Id.* at 28.

²³ *See id.* at 30.

than 500 livres of coin. They were also forbidden from buying jewelry and precious metals. As a result, buyers could not pay more than 500 livres in coins when making purchases. Since no one would take paper, the means of payment in France disappeared in 1720. With the economy in decline, Mississippi Company shares followed suit and declined in value.²⁴

Later that month, a new edict required all payments to be made in paper. To fund such payments, the government printed 1.5 billion livres in notes.²⁵ The increase in supply, and lack of exchangeability into metal, drove down the economy even further, as well as the value of notes.

The regent called a meeting of his council at the beginning of May, at which Law and all ministers were present. During the meeting, it was estimated that the total amount of notes in circulation was 2.6 billion livres. Coins in circulation equaled less than half that amount. Law opposed depreciating the outstanding notes; however, on May 21 an edict was issued by which shares and notes of his bank would gradually diminish in value until, by the end of the year, they would only be worth half their nominal worth. Parliament refused to register the edict, and demanded that the regent and his council publish an edict restoring the notes to their original value.²⁶

Events quickly accelerated and values began to collapse quickly. On May 27, the Banque Generale stopped payment in specie. Law and d'Argenson were dismissed from the ministry, with the regent putting the blame on Law for the emerging crisis. On June 1, an order was published abolishing the law that made it criminal to hold coin in excess of 500 livres. Everyone was permitted to have as much specie as they pleased. To make certain that sufficient bank notes would be available, 25 million livres in new notes paying 2.5% interest were created on the security of the revenues of the city of Paris. These new notes were not popular with holders of Mississippi Company stock who still hoped that their stock would rebound.²⁷

To encourage purchase of the new notes, on August 15, an edict was passed restricting the use of old Banque Generale notes between 1,000 and 10,000 livres to the purchase of annuities and opening bank accounts. Any other usage was prohibited. In October, another edict was passed which deprived the old notes of any value after November. In addition, the advantages and privileges of the Mississippi Company were removed, and the company was privatized.²⁸

This was the death blow for the Mississippi Company. Shares, which had originally issued at 500 and risen to 18,000 livres, became worthless by 1720.

C. Aftermath

It can be argued that the dissatisfaction of French citizens in 1720 made them less tolerant of government and its mistakes, and made them more susceptible to revolt, leading to the French Revolution of 1789-99. Another aftermath of the Mississippi Scheme may be the greater involvement of government in the French

²⁴ See *id.* at 30-31.

²⁵ *Id.* at 32.

²⁶ *Id.* at 33.

²⁷ See generally *id.* at 34-35.

²⁸ *Id.* at 40.

economy today, since government could not rely on business to manage what was best for society.

D. Summary

A summary of the Mississippi Scheme of 1720 appears below in Chart 4. The scheme obviously involved a bubble driven by human emotion and greed in both the speculative upswing and the downturn. Foreign direct investment became relevant with the establishment of the Mississippi Company, although the underlying cause did not start with Mississippi, but the bank. There was also an outflow of money to other European markets to avoid the collapse, but again it was not an underlying cause. Poor economic fundamentals existed, as well, but did not cause or create the crisis. Investors were uneducated, since stocks and the stock market were new products being offered. Obviously, the result was an economic crash following the panic selling in the stock market crash. The effect, however, was limited to France, and did not spill over to other countries.

III. SOUTH SEA BUBBLE 1720

The South Sea Bubble was an English crisis that involved Asia and Latin America, both of which were considered the “next big thing.”

A. Boom

The South Sea Company was created by Harley Earl of Oxford in 1711, and given a monopoly on trade with the South Seas.²⁹ Enthusiasm for the new company was based on the belief that it would be able to do business, not only with the South Seas, but also with South America where gold and silver mines of Peru and Mexico were located. Soon afterwards, however, Philip V of Spain announced that he had no intention of allowing the English to enter and trade in Spanish American ports.

After negotiations with the Spanish, however, a contract was signed that gave South Sea Company the privilege of supplying the Spanish colonies with slaves for 30 years and sending vessels once a year to Mexico, Peru and, Chile. The vessel tonnage and value, however, were limited, and South Sea Company was required to give the King of Spain one-fourth of the profits and pay a tax of five percent on the remainder.³⁰ Nevertheless, confidence in the new company was not shaken.

Soon after a speech by King George I to the opening session of Parliament in 1717, the South Sea Company and the Bank of England made competing proposals to finance the nation’s existing debt. Their proposals were intended to restore public credit that had collapsed during Robert Walpole’s preceding Whig Administration, and to ensure payment of Army and Navy debentures, as well as other parts of England’s floating debt. At the time, the total debt was over 10 million pounds.³¹

The South Sea Company requested an increase of its capital stock from 10 to 12 million pounds in exchange for assuming the nation’s debt, with the government paying six percent interest on the debt. The interest of 600,000 pounds per annum would be secured by government duties on wine, vinegar, India goods, silks, tobacco, whale fins and other articles. The Bank made similar requests. After

²⁹ *Id.* at 49.

³⁰ *Id.* at 47.

³¹ *Id.* at 46.

considerable debate in the House of Commons, three acts were proposed called the South Sea Act, the Bank Act, and the General Fund Act. Under the South Sea Act, the government would pay down the debt by 2 million pounds and accept South Sea Company's proposal to finance the balance. Under the second act, some of the Bank's debt would be cancelled and the interest rate on some of the remaining Bank debt would be reduced. The General Fund Act recited the various financial problems that were affecting the nation.³²

On January 22, 1720, the House of Commons resolved itself into a committee of the whole to consider a revised proposal from South Sea Company, which specified that debts of the state, recalculated as 30,981,712 pounds, would be assumed by the company with the government paying five percent interest on the debt through 1727. After that date, all or any part of the debt could be redeemed by Parliament at its option, with interest reduced to four percent on any remaining balance. The Bank of England objected, wanting to participate in the financing scheme. To gather support for its proposal, the South Sea Company made concessions, offering to allow the government to redeem its debts after four years instead of seven. The Bank also improved its offer.³³

On February 2, the South Sea Company's proposal was accepted. During the period that the House of Commons had debated the bill, the South Sea Company directors, especially its chairman, Sir John Blunt, worked to boost the company's stock price. Rumors were circulated, for instance, that a treaty between England and Spain would soon be signed granting free trade for England to all Spanish colonies. Through such methods, the stock price rose to 400 pounds, but eventually settled about 330 pounds.³⁴

In the House of Lords, the bill was passed on April 7. When the bill was given royal assent, however, South Sea Company stock fell to around 290 pounds. To counter the price decline, rumors were again circulated by company officials. One rumor was that England had received overtures from the Spanish government to exchange Gibraltar and Port Mahon for places on the coast of Peru and that the Company's authorized trade in the South Sea would be expanded. In addition, rumors circulated that instead of one annual ship, Spain would increase the number and not charge any percentage of the profits.³⁵

In response, the stock rose again. In a few days, the stock price advanced to 340. To raise the price even higher, it was announced on April 21 that a mid-summer dividend of 10 percent would be issued. On May 29, South Sea Company stock rose as high as 500 pounds with approximately two-thirds of government annuitants exchanging state securities for South Sea Company securities. By the first of June, its stock price had risen to 890 pounds.³⁶

³² *Id.* at 48.

³³ *Id.* at 49-50.

³⁴ *Id.* at 51.

³⁵ *Id.* at 53.

³⁶ *Id.*

B. Bust

Although many people felt that the stock could rise even higher, some investors increasingly began to sell. Eventually, the number of sellers exceeded the number of buyers, and, with more sellers than buyers, the stock price began to fall. By June 3, the stock had fallen from 890 pounds to 640 pounds. Company directors were alarmed by this drop and gave their agents orders to buy. These efforts succeeded and by the evening, confidence in the company had returned. The shares continued to hold at this level through June 22.³⁷

During the month of August, however, the stock price began to fall and by September 2 was quoted at 700 pounds. At this point, investors' mood shifted from worry to panic. To abate the problem, the directors summoned a general shareholders meeting for September 8. Several resolutions were passed at that meeting, but they had no effect on public opinion or company share price. That evening, its stock price fell to 640 pounds and by the next day had fallen to 540 pounds. The price continued to fall until it was as low as 400 pounds. On September 12, several conferences were held between directors of the company and directors of the Bank of England. A report was soon circulated that the Bank had agreed to redeem 6 million pounds of South Sea Company's bonds. This caused the company's stock to rise to 670 pounds. In the afternoon, when the report was found to be groundless, the stock fell to 580 pounds, the next day to 570 pounds, and then gradually to 400 pounds. At this point, the Bank of England attempted to restore confidence by finally offering to redeem bonds issued by South Sea Company.³⁸

By the afternoon of September 20, there was little interest among investors in purchasing South Sea Company stock or bonds. The company became so discredited that a run commenced on goldsmiths and bankers who had lent money on South Sea Company stock. Many of these businesses soon shut their doors. One company that had been a chief cashier of South Sea Company bonds stopped payment on the bonds. This occasioned a run on the Bank of England, which, as noted above, had agreed to redeem bonds issued by South Sea Company. South Sea Company stock continued to fall – to 150 pounds and gradually after fluctuations to 135 pounds.³⁹

Once the Bank realized its offer to redeem South Sea Company bonds was not restoring public confidence, it announced that it would no longer support the bonds. The state of affairs was so alarming at this point that King George I returned from Hanover to England, arriving on November 11. Parliament was summoned to meet on December 8. In its session, Parliament passed a bill keeping in effect all South Sea Company subscriptions and contracts. Another bill restricted South Sea directors, governors, sub-governors and other employees from leaving England.⁴⁰

During this time, many directors were taken into custody, particularly Sir John Blunt, who was considered the original author and creator of the scheme. On February 16, 1721 Parliament's committee of secrecy made its report to the House of Commons. The report stated that the books of the company were false and fictitious with many entries showing blanks for the names of stockholders. It also noted that

³⁷ *Id.* at 65.

³⁸ *Id.* at 67-68.

³⁹ *Id.* at 69.

⁴⁰ *Id.* at 74.

there were frequent erasures and alterations and that in some of the books pages had been torn out. It also found that some books of particular importance had been destroyed. In addition, the committee found bribes had been paid to government officials.⁴¹

After taking steps to punish the directors, the company's remaining assets, including cash held by South Sea Company, were distributed to its owners. This was not sufficient to cover their losses, however, since the company's capital account was 37.8 million pounds, of which 24.5 million pounds was raised and 13.3 million pounds was profit earned by the company. The cash available for distribution was only 8 million pounds, or about 33 pounds per share.⁴² This was a small percentage of what the company's stock price had been, and what purchasers had paid. The difference was value lost by investors.

Parliament sought to minimize investors' losses, and, in doing so, restore public credit. It adopted a solution similar to that used by the Dutch during the Tulipmania collapse – any person who borrowed money secured by South Sea Company stock would be discharged on payment by the debtor of ten percent of the sum borrowed.⁴³

C. *Aftermath*

With this, England gradually began to work its way out of the crisis and to move forward, although it was a long time before public credit was restored. Unlike the French economy, however, the government did not become more involved with managing the economy. Entrepreneurship remained an individual pursuit.

D. *Summary*

A summary of the South Sea Bubble of 1720 appears below in Chart 4. As with the Mississippi Scheme, the South Sea Bubble involved a bubble, with lots of human emotion and greed in both the rise and fall of the stock price. Foreign direct investment was not relevant since the emphasis on the South Seas and South America concerned trade, not investment. Poor economic fundamentals existed, as well, but they were not an underlying cause of the crisis. Investors were uneducated, since stocks and the stock market were new products being offered, just as they had been in the Mississippi Scheme. Obviously, the result was an economic crash following the panic selling in the stock market crash. The effect, however, was limited to England, and did not spill over to other countries.

IV. GREAT CRASH 1929

The Great Crash, which began in 1929, was the start of the Great Depression, which lasted in the United States from 1929-1939. It is the standard by which economic and financial crises, including the most recent 2007-10 crisis, are measured. There is a reason for its status as the reference point for such crises. Industrial production did not return to pre-1929 levels until the late 1930s. Similarly, gross domestic product (GDP) did not return to 1929 levels until the late 1930s.

⁴¹ *Id.* at 80-81.

⁴² *Id.* at 87.

⁴³ *Id.* at 87-88.

While unemployment during the 2007-10 crisis exceeded ten percent, during the Great Depression it exceeded twenty percent.⁴⁴

A. Boom

The lead-up to the Great Crash follows the patterns previously observed in Holland, France, and England. The boom started in November 1927 when the United States came out of a recession that began in October 1926. The recovery was facilitated by the New York Federal Reserve Bank lowering its discount rate by half a point and purchasing \$230 million of government securities.⁴⁵ The rate reduction made loans less expensive, thereby encouraging businesses and consumers to borrow and use the money for purchases. The government securities purchase injected money into the economy. Both approaches are common economic recovery methods.⁴⁶

The Achilles heel of the economic boom, however, was already in place. On April 28, 1925, Britain announced its return to the gold standard for the pound, setting the value of the pound at its pre-World War I value of \$4.86. This increased the value of the pound, making exports more expensive.⁴⁷ Three years later, in June 1928, France also returned to the gold standard, setting the franc at 25.51 per dollar.

As the economy began to rebound prior to 1927, the stock market followed, and soon became a bull market (upswing in stock market prices). In turn, this attracted even more investors.⁴⁸ In 1928, the stock market boom accelerated.

Supporting the stock market surge was an explosion of technological developments, which made life and society easier. Consumers could now fly, drive, talk on a telephone, and use electricity to operate appliances. Items that never existed or would have seemed impossible in the past, now were possible and expected.

A decline in real estate markets also encouraged the rising stock market. Many stock market investors had cashed out their investments in real estate when those returns declined. Interest in Florida and Florida land, for instance, which began to flourish in the 1920s, had waned by the late 1920s.⁴⁹

The emergence of mega-corporations at this time also encouraged the bull market. Some of the major corporations created were U.S. Steel (1901),⁵⁰ General Motors (1908),⁵¹ and General Foods (1895, but renamed in 1929 after mergers).⁵²

⁴⁴ JAMES D. GWARTNEY, RICHARD L. STROUP, RUSSELL S. SOBEL & DAVID A. MACPHERSON, *ECONOMICS: PRIVATE & PUBLIC CHOICE* 340 (11th ed. 2006).

⁴⁵ *Timeline: A Selected Wall Street Chronology*, PBS <http://www.pbs.org/wgbh/amex/crash/timeline/timeline2.html> (last visited Sept. 8, 2010).

⁴⁶ THOMAS A. PUGEL, *INTERNATIONAL ECONOMICS* 350 (14th ed. 2009).

⁴⁷ JOHN KENNETH GALBRAITH, *THE GREAT CRASH* 9 (1979).

⁴⁸ *Dow Jones Closing Prices 1921 to 1930*, AUTOMATION INFORMATION, http://www.automationinformation.com/DJIA/dow_jones_closing_prices_1921_to_1930.htm (last visited Jan. 4, 2011).

⁴⁹ GALBRAITH, *supra* note 47, at 5.

⁵⁰ U.S. STEEL, <http://www.uss.com/corp/company/profile/history.asp> (last visited Jan. 4, 2011).

⁵¹ GENERAL MOTORS, <http://www.gm.com/corporate/about/company.jsp> (last visited Jan. 4, 2011).

Corporate founders used readily available funds in the stock market to fund these acquisitions and mergers,⁵³ which in turn increased corporate assets⁵⁴ and stock prices.

Another development behind the rising market was the increasing purchase of stocks on the margin.⁵⁵ Buyers without sufficient cash to pay the full market price of stocks could buy on the margin, which allowed buyers to pay some of the purchase price in cash with the rest borrowed from brokers. In the 1920s, buyers only had to put down 10% of the purchase price.⁵⁶ This created major risks, since if the price fell, the broker would have to issue a margin call, which meant that the buyer had to pay the entire balance owed. In an attempt to slow up the increasing use of margins, the Federal Reserve announced in February 1929 a ban on bank loans for securities margin trades, but this had little impact on the bull market.⁵⁷

These changes and the rising stock market affected the American psyche in three ways. First, the market began to be seen as a low-risk investment vehicle. Economist Irving Fisher, for instance, stated, “Stock prices have reached what looks like a permanently high plateau.”⁵⁸ Second, the boom shifted investors’ time perception of the market. It was no longer seen as a long-term investment, but as a means for short-term gains and a way to become rich.⁵⁹ Third, interest in the stock market became a part of the American psyche, with stocks a favorite issue for discussion, not just among wealthy classes, but also among the middle class and anyone with available cash. This was fed by newspaper stories of ordinary people making millions off the stock market. An article in *Ladies’ Home Journal* in 1929, for instance, was entitled “Everyone Ought to be Rich.”⁶⁰

By early 1929, investors had one goal – get into the stock market. Many companies reinvested profits in the stock market instead of expanding production or sales, since stock market returns were higher than sales returns.⁶¹ Banks even used funds to purchase securities rather than making them available for loans. Both developments reduced money available for and spent on economic growth.

A precursor of the Great Crash occurred on March 25, 1929 when the stock market suffered a mini-crash. The timing was unfortunate for Herbert Hoover, who was sworn in as U.S. president earlier that month on March 4. When prices fell,

⁵² GENERAL FOODS, http://en.wikipedia.org/wiki/General_Foods (last visited Jan. 4, 2011).

⁵³ GALBRAITH, *supra* note 47, at 43.

⁵⁴ *Id.* at 43-44.

⁵⁵ *Id.* at 20-21.

⁵⁶ Peter Fortune, *Margin Requirements, Margin Loans, and Margin Rates: Practice and Principles*, NEW ENGLAND ECONOMIC REVIEW, Sept-Oct, 2000, at 23, available at <http://www.bos.frb.org/economic/neer/neer2000/neer500b.pdf>.

⁵⁷ PBS, *supra* note 45.

⁵⁸ Edward Teach, *The Bright Side of Bubbles*, CFO MAGAZINE, May 1, 2007, available at http://www.cfo.com/article.cfm/9059304/c_9064230?f=magazine_alsoinside.

⁵⁹ See GALBRAITH, *supra* note 47, at 11-12.

⁶⁰ *Id.* at 52.

⁶¹ *Id.* at 31.

margin calls were made, and panic set in. The mini-crash was averted when a leading banker, Charles Mitchell, president of National City Bank (now Citibank), announced that his bank was still lending money to buy stocks. His reassurance worked in March, although we will see that it did not work later that year in October.⁶²

Later, in the spring of 1929, signs that the economy was slowing began to emerge. Steel production dropped, house construction slowed, and car sales fell. Nevertheless, the public perception remained that the economy and stock market would continue to grow. As it did so, those advising caution were dismissed as pessimists to be ignored.⁶³

During the summer of 1929, the stock market boomed. From June through August, stock market prices set new record highs. By August, the economy peaked, although no one recognized it at the time.⁶⁴

The stock market reached its peak on September 3 when the Dow Jones Industrial Average (DJIA) closed at 381.17 and the New York Times index of industrial stocks reached 452.⁶⁵

B. Bust

Two days later, on September 5, the market started dropping. The decline, however, was not noticeable since significant fluctuations hid the trend.

On October 24, more commonly known as Black Thursday, investors panicked and sold 12,894,650 shares.⁶⁶ This was double the previous record for stock sales. The resulting margin calls increased sales as investors sold stock to cover their margin calls. There was some reprieve in the afternoon when a group of bankers, including Charles Mitchell of National City Bank, pooled their own money and invested in the stock market.⁶⁷ This gesture reassured many investors, who started to buy back into the market at what was considered bargain prices. The market continued to rally the next day.

The following week, however, was the death knell of the stock market as the decline continued and then accelerated. Investors, who had been scared by almost losing their savings on Black Thursday and had thought about it over the weekend, began to sell shares on Monday, October 28.⁶⁸ The Dow's decline of 13% that day was a record. Losses for the day were \$16 billion.⁶⁹

On October 29, also known as Black Tuesday, 16,410,030 shares were sold,⁷⁰ a volume record that was not broken for nearly 40 years in 1968. Sales volume was so

⁶² *Id.* at 37.

⁶³ *Id.* at 85.

⁶⁴ *Id.* at 88.

⁶⁵ PBS, *supra* note 45.

⁶⁶ GALBRAITH, *supra* note 47, at 99.

⁶⁷ ROBERT GOLDSTON, THE GREAT DEPRESSION: THE UNITED STATES IN THE THIRTIES 39-40 (1968).

⁶⁸ GALBRAITH, *supra* note 47, at 39-40.

⁶⁹ PBS, *supra* note 45.

⁷⁰ GALBRAITH, *supra* note 47, at 112.

great that the stock ticker fell two and half hours behind the market. The New York Times index of industrial stocks dropped nearly 40 points or another 12% that day.⁷¹ Even though William C. Durant, members of the Rockefeller family, and other financial giants bought large quantities of stock, the market slid downward, losing another \$14 billion, bringing its two-day losses to \$30 billion.⁷²

In hopes that investors would come to their senses given time, the stock market was closed on Friday, November 1, for a few days. The hope was ill founded. When it reopened on Monday, November 4, the decline continued. On November 13, stock market prices reached their low for the year, with the New York Times index of industrial stocks at 224, down from 452.⁷³ By November 23, stock prices seemed to stabilize, but only temporarily. The market continued to fall for another three years until July 8, 1932, when it reached its lowest level in the 20th century with the Dow Jones Industrial Average closing at 41.22.⁷⁴

As fascinating as is the story of the Great Crash, the false steps of the United States in addressing it, many of which forced the economy into a depression, are equally intriguing. For instance, in 1930, the United States made what many economists considered a critical mistake in trying to address the economic crisis. On June 17, the Smoot-Hawley Tariff Act, which raised tariffs on imported goods and set off a round of escalating world-wide tariffs, was passed.⁷⁵ By the end of the year, 1,350 banks had been suspended or closed.⁷⁶

In 1931, the U.S. and other nations continued to make critical mistakes. On March 31, the Davis-Bacon Act, which required prevailing union wages to be paid on federal construction projects and forced labor rates up, became law. On September 21, Britain went off the gold standard. It was followed by Japan in December of the same year. Domestically, the New York Federal Reserve Bank raised its discount rate from 1.5% to 2.5% on October 16, and from 2.5% to 3.5% on October 23. This is contrary to presently accepted economic principles, which emphasize lowering the cost of money to spur economic growth.⁷⁷ On December 11, the New York Bank of the United States collapsed, joining 2,293 banks that suspended operations during the year.⁷⁸

In 1932, the U.S. adopted additional practices contrary to what are now considered appropriate means to address economic slowdowns. On June 6, the Revenue Act of 1932 was passed, which was the largest peacetime tax increase in U.S. history to that point.⁷⁹ In August, the Norris-La Guardia Act was passed, which

⁷¹ Linton Weeks, *History's Advice During a Panic? Don't Panic*, NPR (Sep. 8, 2010), available at http://www.nyse.com/about/history/ieline_trading.html.

⁷² PBS, *supra* note 45.

⁷³ GALBRAITH, *supra* note 47, at 135.

⁷⁴ PBS, *supra* note 45.

⁷⁵ JAMES D. GWARTNEY, RICHARD L. STROUP, RUSSEL S. SOBEL, DAVID A. MACPHERSON, *ECONOMICS: PRIVATE & PUBLIC CHOICE* 350 (2006).

⁷⁶ PBS, *supra* note 45.

⁷⁷ GWARTNEY, STROUP, SOBEL & MACPHERSON, *supra* note 75, at 350.

⁷⁸ PBS, *supra* note 45.

⁷⁹ GWARTNEY, STROUP, SOBEL & MACPHERSON, *supra* note 75, at 350.

outlawed yellow-dog contracts, protected unions from antitrust actions, and raised labor rates. The Glass-Steagall Act was also passed that year, which eliminated competition between banks and securities companies by keeping each industry separate, thereby eliminating competition that could have driven down prices.⁸⁰ By the end of 1932, another 1,493 banks had failed.⁸¹

C. Aftermath

Unlike the previously discussed Dutch, French, and English financial crises which were domestic events, the Great Crash, which led to the Great Depression, was a world-wide event, and was felt throughout the world.

D. Summary

Certainly, the lead-up to the Great Crash was a classic bubble, with human emotion and greed driving prices up. The same human factors drove prices down in the days, months, and years following the crash. Foreign direct investment was not a factor, although some economists argue that foreign trade was a factor since higher tariffs greatly reduced foreign markets. According to some economists, exchange rates were somewhat relevant since many countries returned to the gold standard in the years before the crash, which appreciated their currencies thereby increasing the cost of their goods and reducing their exports. Poor economic fundamentals existed as business people and bankers abandoned industry and lending to invest in the stock market, and in the months before the crash economic indicators slowed. Of course, this may have been a self-reinforcing factor, since investors seeing the lower economic numbers may have been more encouraged to panic. Unlike previously discussed crises, there was a real estate boom before the crisis. Investors reinvested stock profits in real estate. Many investors were uneducated, since for the first time the middle and lower classes began to participate in the stock market. Program trading, which did not arise until computers and the 20th century, was not relevant, but technology was. This was the era of many new technological developments and integration into society, including airplanes, automobiles, telephones, electricity, and appliances, all of which increased the sense of wonder and expectation of continued growth. Mergers and acquisitions were involved, since founders were using both to drive up the prices of their stocks. Obviously, the result was an economic crash following the panic when shares could not be sold for anything approaching their acquisition costs. Sadly, the effect spread throughout the world, with most countries affected by the crisis.

V. CRASH 1987

The year 1987 also hosted its version of “Black” October stock market days. While 1929 gave us Black Thursday (October 24) and Black Tuesday (October 29), in 1987 it was Black Monday (October 19)⁸² when stock markets around the world crashed. Unlike the previously discussed crashes, this one started in Asia,

⁸⁰ *Glass-Steagall Act – Further Readings*, JRANK (Sep. 10, 2010), <http://law.jrank.org/pages/7165/Glass-Steagall-Act.html>.

⁸¹ PBS, *supra* note 45.

⁸² In Australia and New Zealand, the 1987 crash is also referred to as Black Tuesday because of the time zone difference.

specifically Hong Kong. From there it followed the business day west through Europe and ultimately to the United States.

A. Boom

The origins of this boom can be traced to investor attitudes and beliefs, similar to those in the previous crashes. In 1986, the U.S. economy was growing, but at a slower rate than in the past, in what was called a “soft landing.” Investors and the stock market, however, continued to be positive through August 1987, when the Dow Jones Industrial Average (DJIA) peaked at 2722.4 on August 25.⁸³ This was 44% over the previous year’s closing on December 31, 1986. A brief summary of some of the key events of 1987 indicates why it can be summarized as the year of cheap money, mergers, greed, and insider trading.

January 1 opened with bond yields near their lowest levels in nine years. Corporations were taking advantage of the cheap money by issuing tremendous amounts of debt. In the previous year, for instance, more than \$200 billion in notes were issued, which was twice the amount issued in 1985. This was also the time when junk bonds (bonds offering high returns and high risk, and for this reason considered below “investment grade”) became popular.⁸⁴ On January 8, the DJIA broke the 2,000 level for the first time in its history, closing at 2,002.25. Trading was 194.5 million shares, with most other stock indices setting records. Later that month on January 22, DJIA jumped 51.60 points to 2145.67, the largest one-day point rise ever. Although not a percentage record, the increase reinforced the public’s attitude that stocks were a great investment. The euphoria only lasted a day, as the Dow dropped 114 points in 71 minutes the next day. Since program trading was blamed for the drop, confidence in the market remained strong.⁸⁵

In February, the Securities Exchange Commission (SEC) began to put its stamp on the year. On February 5, the SEC announced an extension of its insider trading investigation beyond Ivan Boesky to Drexel Burnham Lambert and others. On the 9th, former Lazard Frères & Co. investment banker Robert M. Wilkins was sentenced to two concurrent prison terms for participating in insider trading with Dennis B. Levine. On the 12th, three members of Goldman, Sachs, and Kidder were arrested for insider trading. On the 13th, Martin Siegel of Kidder Peabody and Drexel Burnham pleaded guilty to insider trading.⁸⁶ Many doubted whether the underlying merger mania could continue, since investment bankers who made it possible were tarnished.

March continued the insider-trading saga, as the SEC charged Merrill Lynch’s Nahum Vaskevith on March 11 with insider trading for giving information to Israel-based David Sofer about pending mergers. The next day, PaineWebber broker Gary Elder and other employees were indicted for tax evasion for assisting clients to filter

⁸³ *Dow Jones Industrial Average Chart*, YAHOO (Sep. 10, 2010), <http://finance.yahoo.com/echarts?s=%5EDJI+Interactive#chart1:symbol=%5EDJI;range=my;indicator=volume;charttype=line;crosshair=on;ohlcvvalues=0;logscale=on;source=undefined>.

⁸⁴ *Raging Bull, Stock Market’s Surge is Puzzling Investors; When Will it End?*, WALL ST. J., Jan. 19, 1987, § 1, at 1.

⁸⁵ YAHOO, *supra* note 83.

⁸⁶ *Black Monday (Ten Years Later): 1987 Timeline*, THE MOTLEY FOOL (Sep. 10, 2010), <http://www.fool.com/Features/1997/sp971017CrashAnniversary1987Timeline.htm>.

money out of their accounts to avoid gains and taxes. On March 19, Boyd Jeffries, president of Jeffries & Co., a West Coast broker, pleaded guilty to manipulating stock prices. On March 21, American Express Shearson Lehman Brothers and Salomon Brothers were subpoenaed for stock manipulation. Nevertheless, the quarter ended on a positive note, with stock prices surging 22% worldwide. Companies took advantage of the stock price increase to issue new shares, estimated at \$87.7 billion in the first quarter, a 27% increase year-over-year. However, as the dollar continued to decline in value, stock and bond holders were hurt. The Dow Jones fell 57.39 to 2278.41 on March 30, and bond prices fell to their lowest levels since the previous fall.⁸⁷

On April 9, a former director of the Federal Reserve Bank, Robert Rough, was accused of leaking information to Bevill, Bresler, & Schulman. Treasury bond rates began to rise – up to 8% for the first time in 13 months. On the 23rd, bond fund redemptions accelerated. Many investors were concerned that the falling dollar could revive inflation. By the 27th, the SEC's Drexel Burnham Lambert investigation was focusing on the Beverly Hills office of Michael Milken, who was considered the originator of junk bonds. On the 29th, dollar and bond prices fell after the U.S. House of Representatives passed a bill designed to reduce trade surpluses held by many Asian nations, particularly Japan. Investors feared that foreign investors would cease to participate in the Treasury's quarterly funding auction, which would drive bond prices up even further.⁸⁸

In May, the focus was on stocks, stock prices, and rising values. Unfortunately, some of the best performers had great stories but limited or no sales. On the other hand, some investment banks were considering personnel cuts in expectation of a coming economic slowdown.⁸⁹ The emerging pessimism was blamed on widening insider trading scandals, increasing inflation and rising bond yields that made corporate loans more expensive.

In June, the insider trading scandal continued, with Kidder Peabody on June 4 paying a record \$25.3 million to settle insider trading charges against it.⁹⁰

In July, inflation became an issue, as crude oil prices hit \$22.39 per barrel, up from \$16.40 in March. This 11% year-to-date rise increased inflation concerns. The anxiety drove yields on 30-year government bonds higher. On July 22, bond rates reached 8.79%, the highest since June. This was the start of a rise that would continue until rates reached 10.22% on August 15.⁹¹

The month of August saw more of the same – increasing stock and bond prices. On August 24, 30-year government bonds hit 8.98%, while on the 25th the Dow hit 2722.42, as noted, its high for the year, and a number that would not be equaled again until August 24, 1989.⁹²

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² Jason Manning, THE EIGHTIES CLUB, <http://eightiesclub.tripod.com/id92.htm> (last visited Jan. 4, 2011).

Behind the stock market rise was the continuing mergers mania, which had accelerated in 1986 and became even stronger in 1987, as shown in Charts 1 and 2 of the ten largest transactions in those two years. The ten largest transactions in 1986 totaled \$28.94 billion for an average of \$2.894 billion per transaction. In 1987, the ten largest transactions totaled \$34.179 billion or an average of \$3.418 billion. This was an 18% increase in one year.

Chart 1: 1986 Mergers and Acquisitions

Seller	Buyer	Purchase Price (\$ Million)
Sperry	Burroughs	4,394
Safeway	SSI Holdings	4,198
Borg-Warner	Minstar	3,856
Owens-Illinois	Kohlberg Kravis	3,632
Allied Stores	Campean	3,500
Viacom	National Amusements	3,400
Chesebrough-Pond's	Unilever	3,093
Celanese	American Hoechst	2,867
Total		28,940
Average		2,894

Chart 2: 1987 Mergers and Acquisitions

Seller	Buyer	Purchase Price (\$ Million)
Standard Oil (Ohio)	British Petroleum	7,565
Southland	Thompson	4,004
Borg-Warner	Private group	3,764
Owens-Illinois	Private group	3,688
Viacom	National Amusements	3,107
Chesebrough-Pond's	Unilever	3,095
Celanese	American Hoechst	2,726
Burlington	Private group	2,156
Hospital Corp.	HealthTrust	2,100
Cadillac Fairview	JMB Realty	1,974
Total		34,179
Average		3,418

B. Bust

On September 29, 1987, 30-year Treasury bills sold at 9.77%, the highest since December 1985. Stock prices were beginning their decline, however, with the Dow falling 4.8% to 2590.6 from its high in August.⁹³

On October 6, the Dow fell 3.47% to 2548.63 on heavy volume of 175.6 million shares. By October 12, confidence among major investment banks was deteriorating. Salomon, for instance, dismissed 12% of its municipal bond staff. The next day, Kidder Peabody announced it would cut its municipal bond trading operations by 35%.⁹⁴

Many commentators, including the Federal Reserve Bank, trace the 1987 collapse to Wednesday, October 14, when two events occurred.⁹⁵ First, the Ways and Means Committee of the U.S. House of Representatives filed legislation eliminating tax benefits for financing mergers.⁹⁶ The proposal would eliminate tax deductions for some interest expenses and would tax “greenmail” – payments made by companies to corporate raiders to buy back their stock at above-market prices in exchange for the raider agreeing not to take over the company. Investors realized, if the proposed legislation passed, companies would be less valuable as take-over targets. Second, the U.S. Commerce Department announced the trade deficit for August, which was considerably above expectations. As a result of these two events, the dollar declined amid expectations that the Federal Reserve would tighten monetary policy.⁹⁷ Interest rates also rose, putting further downward pressure on equity prices since higher interest rates meant lower profits. The net effect was that on October 14, the DJIA dropped 95.46 points (a then record) to 2412.70.⁹⁸

On Thursday, October 15, equity markets continued to decline. The DJIA fell another 58 points, which meant it was down over 12% from its August 25 all-time high. Some of this decrease was attributed to anxiety among institutions, especially pension funds, and among individual investors, leading to a movement of funds from

⁹³ *Motley Fool, supra* note 86.

⁹⁴ *Id.*

⁹⁵ Mark Carlson, *A Brief History of the 1987 Stock Market Crash with a Discussion of the Federal Reserve Response 6* (Fed. Reserve Bd., Fin. and Econ. Discussion Series, Div. of Research & Statistics and Monetary Affairs, Working Paper No. 2007-13, 2006), available at <http://www.federalreserve.gov/pubs/feds/2007/200713/200713pap.pdf>.

⁹⁶ THE OCTOBER 1987 MARKET BREAK, SEC STAFF REPORT, SPECIAL REPORT NO. 1271 (Feb. 9, 1988) [hereinafter *SEC Staff Report*].

⁹⁷ See Rose Gutfield et al., *Sinking Feeling: Trade-Gap News Sends Stock Market Reeling Into a Record Tailspin--Washington Stays Sanguine, But the Dollar Declines and Interest Rates Soar--The Dow's Drop: 95.96 Points*, WALL ST. J., Oct. 15, 1987, at 1.

⁹⁸ *Motley Fool, supra* note 86.

stocks into the relative safety of bonds.⁹⁹ There was also heavy selling during the last half hour of the day amid heavier-than-usual activity by portfolio insurers.¹⁰⁰

On Friday, October 16, the markets in London were closed due to what became known as the Great Storm of 1987.¹⁰¹ In the U.S., ongoing anxiety among investors was augmented by technical factors. Various stock index options expired on Friday; since price movements during the previous two days had eliminated many at-the-money options, investors could not roll over their positions into new contracts for hedging purposes. This pushed investors into futures markets, where they sold futures contracts as a hedge against falling stocks, a technique similar to that used by portfolio insurers. Increased sales of futures contracts created a price discrepancy between the value of stocks in the futures market and their value on the New York Stock Exchange (NYSE). Index arbitrage traders reportedly took advantage of this price discrepancy to buy futures and sell stocks, which created increased additional downward pressures on the NYSE.¹⁰²

By the end of the day on Friday, markets had fallen considerably. The DJIA closed down another 108.35 points to close at 2246.74 on record volume, while the Standard and Poor's Index (S&P) 500 was down over nine percent for the week. The decrease was one of the largest one-week declines in decades, and helped set the stage for turmoil the following week.¹⁰³ As in 1929, investors worried over the weekend about their stock investments and whether they should stay in the market.

Additionally, following Friday's close, computer models used by portfolio insurers suggested that they should sell more stocks and futures contracts on Monday.¹⁰⁴ As a result of perceived stock overhangs (sizeable blocks of shares which if released would flood the market and put downward pressure on prices), mutual funds also wanted to sell shares.¹⁰⁵ Some institutions anticipated these portfolio insurance sales and mutual fund redemptions, and prepared to pre-empt them by selling first on Monday.¹⁰⁶

When Monday, October 19, finally arrived, additional events occurred that influenced the crash. First, stock prices in Far Eastern markets began to fall in the morning of October 19, as Asian investors indicated they had also spent the weekend worrying about their investments. Later that morning, two U.S. warships shelled an Iranian oil platform in the Persian Gulf in response to Iran's missile attack on the

⁹⁹ Alan Freeman et al., *Stock Prices Plunge Again in Very Heavy Trading; White House Acts to Calm Jitters on Rate Increases--Industrials Fall 57.61 Points, Mostly on Late Sell-Off, As Rally Attempts Fail*, WALL ST. J., Oct. 16, 1987, at 3.

¹⁰⁰ REPORT OF THE PRESIDENTIAL TASK FORCE ON MARKET MECHANISMS (Jan. 1988), available at <http://www.archive.org/details/reportofpresiden01unit> [hereinafter *Brady Commission Report*].

¹⁰¹ *Motley Fool*, *supra* note 86.

¹⁰² *Brady Commission Report*, *supra* note 100, at 12.

¹⁰³ *Market at a Crossroads—The Day the Dow Fell: Brokers Trade Stocks, Fists; Bulls and Bears Are Joined by Ducks and Chickens*, WALL ST. J., Oct. 19, 1987, at 15.

¹⁰⁴ See *SEC Staff Report*, *supra* note 96, at 2-10.

¹⁰⁵ *Brady Commission Report*, *supra* note 100, at 29.

¹⁰⁶ See *id.*

U.S. flagged ship MV Sea Isle City, giving rise to concerns over the stability of oil supply.¹⁰⁷

The result of these developments during the previous week, over the weekend and on that day was substantial selling pressure on the NYSE at the Monday opening with a large imbalance between the number of sell and buy orders.¹⁰⁸ As a result, many specialists did not open for trading during the first hour.¹⁰⁹ According to the SEC, “by 10:00, 95 S&P stocks, representing 30% of the index value, were still not open.”¹¹⁰ The Wall Street Journal reported that 11 of the 30 stocks in the Dow Jones Industrial Average opened late.¹¹¹ Since the value of stock market indices are calculated using most recent price quotes for underlying stocks, with stocks not trading, some of the quotes were stale, which meant that the values of these indexes did not decline as much as they should have.¹¹² By contrast, the futures market opened on time with heavy selling. With stale quotes in the cash market and declining prices in the futures market, a gap grew between the value of stock indexes in the cash market and the futures market.¹¹³ Many index arbitrage traders took advantage of the gap and entered sell-at-market orders on the NYSE.

As prices fell, index arbitrageurs discovered they had sold stocks considerably below what they had been expecting. Since they would not be getting as much from the sales as anticipated, they tried to cover the remaining exposures by buying in the futures market. This precipitated a temporary rebound in prices.¹¹⁴ As stocks prices continued to fall, however, portfolio insurers’ models prompted them to sell in both the cash and futures markets.¹¹⁵ These sales eliminated the temporary rally.

Some NYSE specialists reportedly tried to lean against the wind and support their stocks. The SEC reported that many specialists were heavy buyers early on Monday.¹¹⁶ However, as prices fell and their positions deteriorated, the specialists lost the ability to defend the stocks they were assigned.¹¹⁷

¹⁰⁷ *Motley Fool*, *supra* note 86.

¹⁰⁸ *See SEC Staff Report*, *supra* note 96, at 2-13.

¹⁰⁹ NYSE regulations allowed specialists to delay opening the stock for trading or suspend trading during the day with the permission of a floor official if the specialist believed that the amount of buying or selling needed to resolve an order imbalance exceeded its obligation to provide an orderly market.

¹¹⁰ *See SEC Staff Report*, *supra* note 96, at 2-13.

¹¹¹ Kenneth H. Bacon, *The Crash of '87: Stocks Plunge 508.32 Amid Panicky Selling---A Repeat of '29? Depression is Not Expected---Banking System Safeguards and Federal Mechanisms Are Viewed as Adequate*, WALL ST. J., Oct. 20, 1987, at 1.

¹¹² *See SEC Staff Report*, *supra* note 96, at 2-13.

¹¹³ *See CHICAGO MERCANTILE EXCH., COMM. OF INQUIRY, PRELIMINARY REPORT OF THE COMMITTEE OF INQUIRY 18-29 (1987)*.

¹¹⁴ *See Brady Commission Report*, *supra* note 100, at 30.

¹¹⁵ *See SEC Staff Report*, *supra* note 96, at 2-15—2-16.

¹¹⁶ *See id.* at 4-9.

¹¹⁷ *See Brady Commission Report*, *supra* note 100, at 29.

Government reaction to the decline unfortunately adversely affected the market. In comments following a speech on Monday, the SEC Chairman reportedly said that “there is some point, and I don’t know what point that is, that I would be interested in talking to the New York Stock Exchange about a temporary, very temporary, halt in trading.”¹¹⁸ This news broke shortly after 1:00 p.m. and started rumors in futures exchanges that the NYSE would close, prompting further sales as traders reportedly worried that a market close would lock them into their existing positions.¹¹⁹

The Black Monday decline was the largest one-day percentage decline in stock market history.¹²⁰ On Tuesday, October 20, 1987, before the opening of financial markets, the Federal Reserve issued a short statement: “The Federal Reserve, consistent with its responsibilities as the Nation’s central bank, affirmed today its readiness to serve as a source of liquidity to support the economic and financial system.”¹²¹ This statement reportedly contributed significantly toward supporting market sentiment.¹²² Perhaps spurred by this event and despite precipitous declines in foreign stock markets overnight, the NYSE rebounded at the open.¹²³

Nevertheless, trading on Tuesday was impaired. Over the course of the day, about seven percent of stocks, including some of the most active, were closed for trading by specialists as order imbalances made maintaining orderly markets difficult.¹²⁴ In addition, prior to the start of trading, the NYSE had moved to prevent index arbitrage program traders from using the designated order turnaround (DOT) system to execute trades, which may have affected the depth of the market.

Program trading patterns were also impaired. If portfolio insurers are active sellers in the futures market and push down prices there, index arbitrageurs use this as an opportunity to buy in the futures market and sell in the cash market. Their action mitigates pressure in the futures market. However, index arbitrage traders were not active, due, in part, to NYSE’s restrictions regarding use of the DOT system. This further decoupled prices in the futures and cash markets.¹²⁵

With a number of trading halts for individual stocks on the NYSE and the possibility that the exchange might close, trading of many stock-index derivative products was suspended on the Chicago Board Options Exchange (CBOE) at 11:45 a.m. and on the Chicago Mercantile Exchange CME at 12:15 p.m.¹²⁶ These closures completed the de-linkage between the futures and cash markets, and stocks on the NYSE began to rebound. The rise in the market was attributed in part to the removal of a “billboard” effect as the futures quotes had continually suggested that futures

¹¹⁸ Editorial, *Managing a Crisis*, WALL ST. J., Oct. 21, 1987, at 36.

¹¹⁹ *See id.*

¹²⁰ *Motley Fool*, *supra* note 86.

¹²¹ Alan Murray, *Stock Market’s Frenzy Puts Fed’s Greenspan In a Crucial Position*, WALL ST. J., Oct. 21, 1987.

¹²² *Id.*

¹²³ *Brady Commission Report*, *supra* note 100, at 36-40.

¹²⁴ *Id.* at 45.

¹²⁵ *Id.* at 22-26.

¹²⁶ *SEC Staff Report*, *supra* note 96, at 2-20, 2-21.

market participants expected the cash market to decline, and to a further reduction in selling associated with portfolio insurance.¹²⁷

However, the stock market declined again once the futures markets re-opened just after 1:00 p.m.. Later in the afternoon, there was a sustained rise in financial markets as corporations announced stock buyback programs to support demand for their stocks.¹²⁸ Corporations had started announcing these programs Monday afternoon, but it was not until part way through Tuesday that a critical mass had formed.

Ironically, the DJIA was positive for the 1987 calendar year. It had opened on January 2, 1987, at 1,897 points and closed on December 31, 1987, at 1,939 points. The DJIA, however, did not regain its August 25, 1987 closing high of 2,722 points until almost two years later.

Various explanations for the crisis have been suggested. To some observers, the reason for the collapse was unstable international financial conditions. Richard Sylla, for instance, points to macroeconomic causes, such as international disputes about foreign exchange and interest rates, and fears about inflation.¹²⁹ Other writers point to the dispute in monetary policy among G7 industrialized nations, in which the United States, wanting to prop up the dollar and restrict inflation, tightened policy faster than the European nations. Similarly, some writers point to U.S. pressure on Germany to change its monetary policy as one of the factors that unnerved investors in the run-up to the crash.¹³⁰ A similar view looking at underlying causes is that the crash was caused when the dollar-backed Hong Kong stock exchange collapsed, causing a crisis in confidence. Some technical analysts claim that the cause was the collapse of the U.S. and European bond markets, which caused interest-sensitive stock groups like savings and loans and money center banks to plunge as well. In this inter-market relationship, bond markets affect interest-rate-sensitive stocks, which in turn lead the general stock market turns.¹³¹

C. Aftermath

As noted, similar to 1929, the crash affected major financial markets around the world. By the end of October, stock markets in Hong Kong had fallen 45.5%, Australia 41.8%, Spain 31%, the United Kingdom 26.4%, the United States 22.68%, and Canada 22.5%. New Zealand's market was hit especially hard, falling about 60% from its 1987 peak, and taking several years to recover.¹³² Because the collapse

¹²⁷ *Brady Commission Report*, *supra* note 100, at 40; *SEC Staff Report*, *supra* note 96, at 2-24.

¹²⁸ *Brady Commission Report*, *supra* note 100, at 41.

¹²⁹ Annelena Lobb, *Looking Back at Black Monday: A Discussion With Richard Sylla*, *WALL ST. J.*, Oct. 15, 2007, available at <http://online.wsj.com/article/SB119212671947456234.html>.

¹³⁰ Alan Wheatley, *Analysis: G20 Doesn't Even Try to Put Brave Face on Debt Mess*, *REUTERS*, June 6, 2010.

¹³¹ ROY J. RUFFIN & PAUL R. GREGORY, *PRINCIPLES OF ECONOMICS* 544 (7th ed. 2001).

¹³² *Share Price Index, 1987-1998*, NEW ZEALAND OFFICIAL YEARBOOK 2000, <http://www2.stats.govt.nz/domino/external/web/nzstories.nsf/0/1ea7f51215015a74cc256b1f0004f99a?OpenDocument> (last visited Oct. 23, 2010).

was world-wide, particularly since it started in Asia where program trading is limited, the collapse cannot be treated as the sole result of technology. Certainly, technology augmented the downward spiral, but it did not start the spiral.

D. Summary

Chart 4 summarizes the Crash of 1987. The rise in value up to the crash was driven, in large part, by human emotion and greed. A popular quote of the year was, "Greed is good," which was a simplification of the actual quote.

Greed, for lack of a better word, is good. Greed is right. Greed works. Greed clarifies, cuts through, and captures, the essence of the evolutionary spirit. Greed, in all of its forms; greed for life, for money, for love, knowledge, has marked the upward surge of mankind and greed, you mark my words, will not only save Teldar Paper, but that other malfunctioning corporation called the USA."¹³³

Foreign direct investment, however, was not a factor, although some economists believe that one of the underlying causes was concern about increasing trade imbalances, foreign exchange reserve increases, and the desire of the U.S. to protect the dollar. These issues, however, concern foreign trade, not investment. Poor economic fundamentals do not seem to be a key issue. Although the economy was undergoing a soft landing, as noted above, it was still growing – just not as fast as in the past. There may, however, have been some underlying issues in the international financial markets. There was no significant real estate boom before the crisis, so this was not an element. Many investors were not well educated, many of whom were putting money into 401(k) investment plans and entering the stock market for the first time. Program trading was a very strong factor, although as noted above, not the only factor. It had more of an impact on the downward spiral, but was still significant for that reason. Similarly, technology innovation was important since computers were behind the program trading. Unlike the other crises, however, technology did not drive prices up during the bubble as a reason or incentive to invest. Instead, it drove the prices down through program trading. Mergers and acquisitions were involved, since many companies were being acquired at this time. It was the era of the Barbarians at the Gate¹³⁴ and other major acquisitions. On the downside, the result was an economic crash following the panic selling of shares by individuals and institutions. This spilled over to all major financial markets throughout the world, with most countries affected by the crisis.

VI. ASIAN FINANCIAL CRISIS 1997

The Asian Financial Crisis was primarily focused in Asia. It struck some of the strongest and fastest growing economies, not only in Asia, but in the world. As we

¹³³ Gordon Gekko, a fictional character, was the main character and antagonist in the 1987 film, *Wall Street*. He reappeared in the 2010 remake, *Wall Street: Money Never Sleeps*, which was released during another financial crisis covered by this article. Both movies were directed by Oliver Stone. Gekko was portrayed by Michael Douglas, who won an Oscar for his 1987 performance. *Wall Street*, THE INTERNET MOVIE DATABASE, <http://www.imdb.com/find?s=all&q=wall+street> (last visited Oct. 23, 2010).

¹³⁴ BRYAN BURROUGH & JOHN HELYAR, *BARBARIANS AT THE GATE: THE FALL OF RJR NABISCO* (1990).

will see, in many ways it had a more significant impact than any of the other crises described in this article.

A. Boom

Until 1997, two-thirds of all developing-country foreign direct investment (FDI) went to South, East and South-East Asia. The area was particularly attractive to foreign investors looking for high rates of return. In 1995, for instance, the area received an estimated \$65 billion of inflows.¹³⁵ Asia was also home to most of the fastest growing economies in the world.¹³⁶ In the 1970s and 1980s, for instance, Hong Kong, Singapore, South Korea, and Taiwan generated growth rates of 8-12%, and were known as the Asian Tigers.¹³⁷ Along with Indonesia and Malaysia, they became the models for other emerging economies on how to create growth. The World Bank and others referred to them as the Asian economic miracle.¹³⁸

Preliminary to the collapse is a common story seen in each of the previous crises, with the high rate of money inflow leading to predictable economic results. In the perfect definition of inflation, with too much money chasing a limited number of assets, prices rise. This meant higher interest rates, which attracted even more investors seeking higher rates. As a result, the region's economies received a large inflow of money, but experienced a dramatic run-up in asset prices.

Thailand's economy, for instance, developed into a bubble fueled by "hot money". Short-term capital flow, however, was expensive (requiring high rates) and demanded quick profit and quick return. A similar situation developed in Malaysia and Indonesia, the latter of which had the added feature of "crony capitalism".¹³⁹ Under crony-capitalism, development money was invested in a largely uncontrolled manner based not on credit analysis but ties to political decision makers.¹⁴⁰

By the mid-1990s, Thailand, Indonesia, and South Korea were using high interest rates and fixed exchange rates to encourage foreign inflows of money, most of which came in as short-term debt denominated in dollars rather than long-term equity in local currencies. The disadvantage of this approach was that excessive borrowing meant excessive exposure to foreign exchange risk in both the financial and corporate sectors, since devaluations would mean increased debt load.

Unfortunately, much of the money was being invested in real estate and not in industrial growth. As a result, the money inflow drove up asset prices without leading to economic growth.

¹³⁵ U.N. CONFERENCE ON TRADE & DEV., WORLD INVESTMENT REPORT 1996, U.N. Sales No. E.96.II.A (1996), at xvii.

¹³⁶ *World Development Indicators 2010*, WORLD BANK, available at <http://data.worldbank.org/data-catalog/world-development-indicators/wdi-2010> (last visited Oct. 23, 2010).

¹³⁷ Robert J. Barro, *The East Asian Tigers Have Plenty To Roar About*, BUSINESS WEEK, Apr. 24, 1998, at 24.

¹³⁸ WORLD BANK, THE EAST ASIAN MIRACLE: ECONOMIC GROWTH & PUBLIC POLICY (1993).

¹³⁹ Helen Hughes, *Crony Capitalism and the East Asian Currency and Financial 'Crises'*, POLICY, Spring 1999, at 3.

¹⁴⁰ PAUL BLUESTEIN, THE CHASTENING: INSIDE THE CRISIS THAT ROCKED THE GLOBAL FINANCIAL SYSTEM AND HUMBLED THE IMF 73 (1st ed. 2001).

B. Bust

In the mid-1990s, changes in the U.S. economy had a serious impact on the Asian economic environment. As the U.S. economy recovered from recession in the early 1990s, the U.S. Federal Reserve Bank under Alan Greenspan raised U.S. interest rates to head off inflation. This made the U.S. a more attractive investment destination relative to Southeast Asia, and raised the value of the U.S. dollar. For Southeast Asian nations that had currencies pegged to the U.S. dollar, the higher U.S. dollar caused their exports to become more expensive and less competitive in the global markets. It also meant that imports such as oil became more expensive. Both factors created (or in some cases, increased) trade deficits, deteriorating current accounts and causing balance of payment problems.

As a result, excessive asset prices began to collapse, causing individuals and companies to default on debt obligations. The resulting panic among foreign lenders led to a large withdrawal of credit from the crisis countries, causing a credit crunch and further bankruptcies. In addition, as foreign investors attempted to withdraw their money, foreign exchange markets were flooded with the currencies of the crisis countries, putting further depreciative pressure on their exchange rates.

To prevent currency values collapsing, these countries' governments increased domestic interest rates to exceedingly high levels (to help diminish flight of capital by making domestic lending more attractive to foreign and domestic investors), and intervened in the exchange market by using their foreign exchange reserves to buy excess domestic currency at the fixed exchange rates. Neither of these policy responses was adequate to remedy the problem. The high interest rates, which are risky even in healthy economies, damaged the fragile economies in Asia. Also, the central banks only had limited foreign reserves, which they soon began to exhaust. When it became clear that the countries could not stop the tide of fleeing capital, government officials stopped defending their fixed exchange rates and allowed their currencies to float. As noted above, the resulting depreciated value of those currencies meant that foreign currency-denominated liabilities grew even more expensive in domestic currency terms. This caused more bankruptcies and further expanded the crisis.

A number of explanations for the crisis have been suggested. To some economists, increasing Chinese exports contributed to export growth slowdown for members of the Association of Southeast Asian Nations (ASEAN).¹⁴¹ They note that China had begun to increase exports in the 1990s following the adoption of export-related reforms, which could have reduced exports from other Asian countries. Other economists disagree, noting that both ASEAN and China experienced simultaneous rapid export growth in the early 1990s.¹⁴²

Another possible argument is that the sudden shock could be attributable to the handover of Hong Kong sovereignty on July 1, 1997. During the 1990s, hot money flew into the Southeast Asia region but investors were often ignorant of the actual fundamentals or risk profiles of the respective economies. The uncertainty regarding the future of Hong Kong led investors to shrink even further from Asia, exacerbating

¹⁴¹ Gabriel Palma, *The Routes to Financial Crises: The Need for Capital Controls* 31, (Ctr. for Econ. Policy Analysis, Working Paper No. 18, Nov. 2000).

¹⁴² BERNARD ECCLESTON, MICHAEL DAWSON, & DEBORAH MCNAMARA, *THE ASIA-PACIFIC PROFILE* (1998).

economic conditions in the area, and subsequently leading to the devaluation of the Thai baht the next day on July 2, 1997.¹⁴³

To ASEAN government leaders, the crisis was caused by currency manipulators. Malaysian Prime Minister Mahathir Mohammad, for instance, accused George Soros of ruining Malaysia's economy by "setting the fires that turned South East Asia into a Haze Zone."¹⁴⁴ Blaming foreign exchange traders enjoys little support among economists, who argue that no single investor had enough impact on the market to successfully manipulate the currencies' values. More likely, the crisis was a result of ASEAN members' failure to prepare. For instance, at the 30th ASEAN Ministerial Meeting in Subang Jaya, Malaysia, the ministers emphasized the importance of international financial cooperation by signing a joint declaration on July 25, 1997 expressing serious concern and calling for further intensification of ASEAN's cooperation in this regard.¹⁴⁵ Unfortunately, on that same day, the central bankers of most of the affected countries were at the EMEAP (Executive Meeting of East Asia Pacific) meeting in Shanghai, but failed to make operational their New Arrangement to Borrow. This failure was not a recent one. A year earlier, the finance ministers of these same countries had attended the 3rd Asia-Pacific Economic Cooperation (APEC) finance ministers meeting in Kyoto, Japan on March 17, 1996, but were unable to double the amounts available under their General Agreement to Borrow and their Emergency Finance Mechanism.

Many writers have considered behavioral reasons for the crisis. To some, such as Joseph Stiglitz, behavior was more important than any underlying economic factors.¹⁴⁶ Several, including Jeffrey Sachs, have described the Asian Financial Crisis as a classic bank run prompted by a sudden risk shock.¹⁴⁷ Others, such as Frederic Mishkin, refer to the "herd mentality" among investors that magnified a small risk in the real economy.¹⁴⁸ Another group of economists, including Paul Krugman, argue that the Asian crisis was created not by market psychology or technology, but by policies that distorted lender-borrower incentives. The increase of money inflows meant increased credit was available, which increased asset prices to an unsustainable level. While the latter authors do not refer to this as market psychology, and prefer to call it distorted lender-borrower incentives,¹⁴⁹ the essence was a flow of money not justified by the underlying financials. In this sense, it was excessively speculative money.

¹⁴³ Jose Stiglitz, *Some Lessons From The East Asian Miracle*, THE WORLD BANK RESEARCH OBSERVER, 151 (Aug. 1996).

¹⁴⁴ Abdullah Marafet, *Mahathir Charges George Soros With Arson*, RADIO ISLAM, available at <http://radioislam.org/islam/english/jewishp/finance/sorosasia.htm> (last visited Oct. 23, 2010).

¹⁴⁵ Joint Communique of The Thirtieth ASEAN Ministerial Meeting, July 24-25, 1997, available at <http://www.aseansec.org/3662.htm>.

¹⁴⁶ Jose Stiglitz, *supra* note 143.

¹⁴⁷ Steven Radelet & Jeffrey D. Sachs, *The East Asian Financial Crisis: Diagnosis, Remedies, Prospects*, BROOKINGS PAPERS ON ECONOMIC ACTIVITY, 1998, at 1, 82.

¹⁴⁸ Joon-Ho Hahm & Frederic S. Nussgrub, *The Korean Financial Crisis: An Asymmetric Information Perspective*, EMERGING MARKETS REVIEW, 2000, at 21.

¹⁴⁹ Paul Krugman, *Fire-sale FDI*, <http://web.mit.edu/krugman/www/FIRESALE.htm> (last visited Oct. 23, 2010).






C. Aftermath

The crisis had significant macro-level effects, including sharp reductions in currencies values, stock markets, and other asset prices of several Asian countries.¹⁵⁰ More long-term consequences included reversal of the relative gains made in the boom years preceding the crisis.

Nominal U.S. dollar GDP of ASEAN fell by \$9.2 billion in 1997 and \$218.2 billion (31.7%) in 1998. The South Korea decline in 1998 of \$170.9 billion was equal to 33.1% of its 1997 GDP. Nominal U.S. dollar GDP per capital fell in 1997 42.3% in Indonesia, 21.2% in Thailand, 19% in Malaysia, 18.5% in South Korea, and 12.5% in the Philippines.¹⁵¹ Per capita income (measured by purchasing power parity) in Indonesia declined from \$4,600 to \$3,700; in Thailand it declined from \$8,800 to \$8,300 between 1997 and 2005; in Malaysia it declined from \$11,100 to \$10,400.¹⁵² In contrast, over the same period, world per capita income rose from \$6,500 to \$9,300.¹⁵³ In 2005, the economy of Indonesia was smaller than it had been in 1997, an impact, that we will see is greater than the Great Depression on the U.S.

The decline in GDP reflects the great number of businesses that collapsed. As a consequence, millions of people fell below the poverty line in 1997–1998. Indonesia and Thailand were the countries most affected by the crisis, as indicated in Chart 3.

Chart 3: Effect of Asian Financial Crisis 1997 on Various Countries¹⁵⁴

Country	Currency	GNP (US\$1 billion)		%	Exchange Rate (per US\$1)		%
		June 1997	July 1998		June 1997	July 1998	
 Indonesia	Rupiah	205	34	83.4	2,380	14,150	83.2
 Malaysia	Ringgit	90	55	38.9	2.5	4.1	39.0
 Philippines	Peso	75	47	37.3	26.3	42	37.4
 South Korea	Won	430	283	34.2	850	1,290	34.1
 Thailand	Baht	170	102	40.0	24.5	41	40.2

The economic crisis also led to a political upheaval, most notably culminating in the resignations of President Suharto in Indonesia and Prime Minister General Chavalit Yongchaiyudh in Thailand. There was a general rise in anti-Western sentiment, with George Soros and the IMF in particular targets for criticisms. Heavy U.S. investment in Thailand ended, replaced by mostly European investment, though

¹⁵⁰ Rajnish Tiwari, *Post-Crisis Exchange Rate Regime in Southeast Asia*, GLOBAL INNOVATION, July 2003, at 1-3.

¹⁵¹ Key Indicators of Developing Asian and Pacific Countries, ASIAN DEVELOPMENT BANK, http://www.adb.org/Documents/Books/Key_Indicators/2001/rt11_ki2001.xls (last visited Sept. 10, 2010).

¹⁵² CIA FACTBOOK, www.cia.gov (last visited September 10, 2010).

¹⁵³ Janet L. Yellen, President and CEO, Federal Reserve Bank of San Francisco, *The Asian Financial Crisis Ten Years Later: Assessing the Past and Looking to the Future* (Feb. 6, 2007).

¹⁵⁴ R. Cheetham, *Asia Crisis*, School of Advanced Int'l Studies, Johns Hopkins Univ. (June 7–9, 1998).

Japanese investment was sustained. Islamic and other separatist movements intensified in Southeast Asia as central authorities weakened.¹⁵⁵

Politically, there were some benefits. In several countries, particularly South Korea and Indonesia, there was renewed push for improved corporate governance. Rampaging inflation weakened the authority of the Suharto regime and led to its toppling in 1998, as well as accelerating East Timor's independence.¹⁵⁶

Within East Asia, the bulk of investment and a significant amount of economic weight shifted from Japan and ASEAN to China and India.¹⁵⁷

Outside Asia, after the Asian crisis, international investors were reluctant to lend to developing countries, leading to economic slowdowns in developing countries in many parts of the world. The powerful negative shock also sharply reduced the price of oil, which reached a low of \$8 per barrel towards the end of 1998, causing a financial pinch in the Organization of the Petroleum Exporting Countries (OPEC) nations and other oil exporters. This reduction in oil revenue contributed to the 1998 Russian financial crisis, which in turn caused long-term capital management in the United States to collapse after losing \$4.6 billion in 4 months. A wider collapse in the financial markets was avoided when Alan Greenspan and the Federal Reserve Bank of New York organized a \$3.625 billion bail-out. Major emerging economies Brazil and Argentina also fell into crisis in the late 1990s.¹⁵⁸

The crisis in general led to a global backlash against the Washington Consensus ("Stabilize, privatize, and liberalize")¹⁵⁹ and institutions such as the IMF and World Bank. A number of critiques were leveled against the conduct of the IMF during the crisis, including by former World Bank economist Joseph Stiglitz.¹⁶⁰ Four major rounds of world trade talks since the crisis in Seattle, Doha, Cancún and Hong Kong have failed to produce a significant agreement as developing countries have become more assertive, and nations are increasingly turning toward regional or bilateral free trade agreements (FTAs) as alternatives to global institutions. Many nations learned from the crisis and quickly built up foreign exchange reserves as a hedge against attacks, including Japan, China and South Korea. Pan Asian currency swaps were introduced in the event of another crisis. Many nations, such as Brazil, Russia, and India, and most of East Asia, began copying the Japanese model of weakening their currencies, and restructuring their economies to create a current account surplus to

¹⁵⁵ S. Radelet, J.D. Sachs, R.N. Cooper & B.P. Bosworth, *The East Asian Financial Crisis: Diagnosis, Remedies, Prospects* 5-6 (Brookings Papers on Economic Activity, 1998).

¹⁵⁶ Mark Weisbrot, *Ten Years After: The Lasting Impact of the Asian Financial Crisis*, CENTER FOR ECON. AND POL'Y. RES. 6, Aug. 2007, available at http://www.cepr.net/documents/publications/asia_crisis_2007_08.pdf.

¹⁵⁷ Andrea Kilgour, *The Changing Economic Situation in Vietnam: A Product of the Asian Crisis?*, PACIFIC NEWS, Feb. 12, 1999 available at <http://www.pacific-news.de/pn12/vietnam.html>.

¹⁵⁸ See generally *Frontline: The Crash*, PBS (June 1999), <http://www.pbs.org/wgbh/pages/frontline/shows/crash/>.

¹⁵⁹ Dani Rodrik, *Goodbye Washington Consensus, Hello Washington Confusion? A Review of the World Bank's Economic Growth in the 1990s: Learning from a Decade of Reform*, 44 J. Econ. Literature 973 (2006).

¹⁶⁰ JOSEPH STIGLITZ, *GLOBALIZATION AND ITS DISCONTENTS*, (W. W. Norton & Company 2003).

build large foreign currency reserves. This has led to an ever increasing funding for U.S. treasury bonds, allowing or aiding housing (in 2001–2005) and stock asset bubbles (in 1996–2000) to develop in the United States.

D. Summary

Chart 4 summarizes the Asian Financial Crisis of 1997. The bubble was driven by a number of factors, including human emotion and greed, but also by non-alignment of debtor and creditor interests. Foreign direct investment was a very important factor as many currencies collapsed when Asian borrowers tried to repay short-term loans denominated in dollars from long-term assets purchased with the loans. The result was further weakening of exchange rates. Hidden under the veneer of apparent strong economic growth were a number of economic issues, including concerns over the transfer of Hong Kong (the center of Asia's growth) to China, trade imbalances, rising interest rates due to too much foreign money chasing too few Asian goods, and nonperforming loans as the crisis continued. There was a limited real estate boom before the crisis, as many investors had diversified their holdings into Asian real estate. Many foreign investors were not knowledgeable about Asian markets, but were following the herd instincts of other investors. Many had never traveled to Asia and knew little more about the area than newspaper stories. Technology innovation was important since many investors became interested in Asia due to U.S. and European companies outsourcing, including sophisticated and highly-technical parts and components, to Asia. Mergers and acquisitions were not involved, since most investors were putting the money into domestic companies in Asia as debt, rather than equity. The result of the collapse was economic crashes as exchange rates collapsed. The resulting company and bank closings forced economies further downward. There was, however, no panic selling, but rather a gradual depreciation of currencies and stocks. The Asian Financial Crisis was centered in Asia, as its name implies, but managed to have some spill over to other countries around the world.

VII. DOT-COM BUBBLE 2000

Also known as the information technology (IT) bubble¹⁶¹ or technology-media-telecoms (TMT) bubble, the dot-com bubble was a speculative bubble covering roughly 1995–2000. It reached a climax on March 10, 2000 when the NASDAQ index peaked at 5132.52. During the bubble, the equity value of stock markets in the U.S. and England rose rapidly, driven primarily by growth in the emerging Internet and hi-tech sectors. The period was marked by the founding (and, in many cases, spectacular failure) of new Internet-based companies commonly referred to as dot-coms. Many companies found it possible to increase their stock prices by simply adding an “e-“ (for electronic) prefix to their name, which one author called “prefix investing,”¹⁶² or a “.com” suffix to their name. Many dot-coms also named themselves with onomatopoeic nonsense words that they hoped would be memorable and not easily confused with a competitor.

¹⁶¹ James K. Galbraith & Travis Hale, *Income Distribution and the Information Technology Bubble* (Univ. of Texas Inequality Project, Working Paper No. 27, 2004).

¹⁶² Mike Maznick, *Nanotech Excitement Boosts Wrong Stock*, TECHDIRT, <http://www.techdirt.com/articles/20031204/0824235.shtml> (last visited Nov. 30, 2010).

A. Boom

Low interest rates in 1998 and 1999 increased the availability of start-up capital. Combined with the novelty of hi-tech stocks and the difficulty of valuing them, the result was rapidly increasing stock prices. An unprecedented amount of personal investing also occurred during the boom, and the press reported the phenomenon of people quitting their jobs to become full-time day traders.¹⁶³

As the stock valuation of dot-com companies rose at record-setting rates, venture capitalists and other investors moved faster and with less caution than usual. Price/earning (P/E) ratios, for instance, became less important than first to market and risk mitigation by starting many companies and letting the market decide which would succeed.

Although a number of the new entrepreneurs had realistic plans and administrative ability, many more of them lacked these characteristics but were able to sell their ideas to investors because of the novelty of the dot-com concept. A prototypical "dot-com" company's business model, for instance, relied on networking effects, while operating at a sustained net loss to build market share (or mind share). In the pursuit of a larger share, companies offered their services or end products for free in the expectation that they could build enough brand awareness to charge profitable rates later for their services. The motto "get big fast" reflected this strategy.¹⁶⁴ A similar phrase was "Get large or get lost."¹⁶⁵

The dot-com model was inherently flawed: a vast number of companies all had the same business plan of monopolizing their respective sectors through network effects. Even if the approach was sound, there could only be one network-effects winner in each sector. Most companies in the same sector would have to fail. In fact, many sectors could not support even one company powered entirely by network effects.

The concept of sustained net loss while building share was made possible by outside investor money. The most common methods were venture capital investments and initial public offering (IPO) of stock to raise a substantial amount of money, even though the dot-com had never made a profit or, in some cases, earned any revenue. These funds were then used to pay expenses during the loss period. As a result, a company's lifespan was measured by its burn rate, that is, the rate at which a non-profitable company lacking a viable business model ran through its capital.

Many company founders made vast fortunes when their companies were bought out at an early stage in the dot-com stock market bubble. These early successes made the bubble even more buoyant as investors looked for the next take-off business.

Historically, the dot-com boom was similar not only to the other crises described in this article, but to a number of other technology-inspired booms of the past

¹⁶³ Daniel Kadlec, *Day Trading: It's a Brutal World*, TIME, Aug. 9, 1999, available at <http://www.time.com/time/magazine/article/0,9171,991726,00.html>; Ray Johns, *Daytrader Trend*, PBS, (Mar. 4, 1999), <http://www.pbs.org/newshour/forum/february99/daytraders.html>; Robert X. Cringely, *There's A Sucker Born Every 60,000 Milliseconds*, PBS, Dec. 16, 1999, available at http://www.pbs.org/cringely/pulpit/1999/pulpit_19991216_000634.html.

¹⁶⁴ ROBERT SPECTOR, GET BIG FAST (HarperBusiness, 2000).

¹⁶⁵ Paul Graham, How to Start a Startup, Speech at the Harvard Computer Society, Mar. 2005, available at <http://www.paulgraham.com/start.html>.

including railroads in the 1840s, automobiles and radio in the 1920s and transistor electronics in the 1950s.

B. Bust

During 1999 and early 2000, the U.S. Federal Reserve increased interest rates six times.¹⁶⁶ As it did so, the economy began to lose speed. The dot-com bubble peaked, numerically, on March 10, 2000, when the technology heavy NASDAQ Composite Index¹⁶⁷ reached 5,048.62 (intra-day peak 5,132.52), more than double its value just a year before.

The NASDAQ fell slightly after that. One reason for the collapse of the NASDAQ (and all dot-coms that collapsed) was the adverse findings of fact in the *United States v. Microsoft* case in federal court.¹⁶⁸ The findings, which declared Microsoft a monopoly, were widely expected in the weeks before their release on April 3.

Another cause was massive, multi-billion dollar sell orders for major high tech stocks (CISCO, IBM, Dell, etc.) that were coincidentally processed simultaneously on the Monday morning following the March 10 weekend. This selling resulted in the NASDAQ opening roughly four percentage points lower on Monday, March 13, from 5,038 to 4,879 – the greatest percentage pre-market selloff for the entire year. The massive initial batch of sell orders processed triggered a chain reaction of selling that fed off itself as investors, funds, and institutions liquidated positions. In just six days, the NASDAQ lost nearly nine percent, falling from roughly 5,050 on March 10 to 4,580 on March 15.¹⁶⁹

A third reason for decline was accelerated business spending in preparation for the Y2K switchover, which had run its course by March 2000. Once the New Year had passed without incident, businesses found themselves with all the equipment they needed for some time, and business spending quickly declined. This correlates quite closely to the peak of U.S. stock markets. The Dow Jones peaked on January 14, 2000 (closing at 11,722.98)¹⁷⁰ and the broader S&P on March 24, 2000 (closing at 1,527.46).¹⁷¹ Even more dramatically, the UK's FTSE 100 Index peaked at 6,950.60 on the last day of trading in 1999 (December 30). Hiring freezes, layoffs, and consolidations followed in several industries, especially in the dot-com sector.

A fourth reason for the bursting of the bubble was poor results of Internet retailers during the 1999 Christmas season. This was the first indication that the "Get Rich Quick" Internet strategy was flawed for most companies. The retail results were made public in March when annual and quarterly reports of public firms were released.

¹⁶⁶ FRB: *Monetary Policy, Open Market Operations*, FEDERAL RESERVE, <http://www.federalreserve.gov/fomc/fundsrate.htm> (last visited Dec. 2, 2010).

¹⁶⁷ Historical Prices:Dow Jones Industrial Average Stock, YAHOO! FINANCE, <http://finance.yahoo.com/q/hp?s=%5EDJI> (last visited Dec. 2, 2010).

¹⁶⁸ *U.S. v. Microsoft*, 97 F.Supp.2d 59 (D.C. 2000).

¹⁶⁹ YAHOO! FINANCE, *supra* note 167.

¹⁷⁰ *Id.*

¹⁷¹ Historical Prices: S&P 500 Index, YAHOO! FINANCE, <http://finance.yahoo.com/q/hp?s=%5EGSPC> (last visited Dec. 2, 2010).

By 2001 the bubble was deflating at full speed. A majority of the dot-coms ceased trading after burning through their venture capital, many having never made a net profit. Investors referred to these failed dot-coms as "dot-bombs."

The impact of the dot-bomb bubble was significant. The stock market crash of 2000-2002 caused the loss of \$5 trillion in the market value of companies from March 2000 to October 2002.¹⁷²

C. Aftermath

The aftermath was also significant. The bubble affected communication providers. Convinced that the future economy would require continuing increases in broadband access, they went deeply into debt to improve their networks with high-speed equipment and fiber optic cables. Companies that produced network equipment, such as Nortel Networks, were irrevocably damaged by such over-extension; Nortel declared bankruptcy in early 2009. Companies such as Cisco, which did not have any production facilities, but bought from other manufacturers, were able to exit the market quickly and avoid the bubble burst. One of the more significant players, WorldCom, was found practicing illegal accounting practices to exaggerate its profits to meet market expectations. Following the disclosure, WorldCom's stock price fell drastically and the company was eventually forced to file for bankruptcy – the third largest corporate bankruptcy in U.S. history. Other examples of companies filing for bankruptcy protection include NorthPoint Communications, Global Crossing, JDS Uniphase, XO Communications and Covad Communications.

The long-term impact was similarly significant. As noted in the previous section, some analysts suggest that the Asian Financial Crisis led into the 2008-10 financial crisis. Similarly, some economists believe the crash of the dot-com bubble mutated into the housing bubble in the U.S., which transformed into the subprime mortgage crisis starting in late 2007.¹⁷³

D. Summary

Chart 4 summarizes the Dot-com Bubble of 2000. It was driven by a number of factors, including, as in the previous crises, human emotion, greed and speculation. Foreign direct investment was an important factor, but not the most important, as investors sought to invest in U.S. technology companies. Foreign investment flows, however, were not material enough to affect exchange rates, which were not an important factor. Poor economic fundamentals were underlying start-up and technology companies, most of which had no viable business or financials. There was a limited real estate boom during the crisis, as many investors diversified their holdings into real estate. It became an issue, however, after the crisis and may have led to the 2007-10 crisis. Since the relevant technology behind the hi-tech companies was new, few investors understood it, meaning they were not educated about the businesses in which they invested. Mergers were important since the goal of start-

¹⁷² Chris Gaither & Dawn C. Chmielewski, *Fears of Dot-Com Crash, Version 2.0*, L.A. TIMES, July 16, 2006, available at <http://articles.latimes.com/2006/jul/16/business/fin-overheat16>.

¹⁷³ Jonathan R. Laing, *The Bubble's New Home*, BARRON'S, June 20, 2005, available at <http://online.barrons.com/article/SB111905372884363176.html>; RALPH BLOCK, INVESTING IN REITS: REAL ESTATE INVESTMENT TRUSTS 268 (Bloomberg Press 2006).

ups was to generate sufficient interest to be bought out, and enable founders to cash out. The result of the bubble collapse was panic selling, a drop in the stock market, and slowing of the U.S. economy, which carried over somewhat to regional and global markets.

VIII. FINANCIAL CRISIS 2007–10

The financial crisis of 2007 to 2010 was caused by speculation that led to asset overvaluation, which, in turn, triggered a liquidity shortfall in the United States banking system.¹⁷⁴ It resulted in the collapse of large financial institutions, the bailout of banks by national governments, and downturns in stock markets around the world. In many areas, the housing market suffered, resulting in numerous evictions, foreclosures, and prolonged vacancies. Although it is considered by many economists to be the worst financial crisis since the Great Depression of the 1930s, when we compare the crises in this article we will see that it was not.¹⁷⁵ It contributed to the failure of key businesses, declines in consumer wealth estimated in the trillions of U.S. dollars, substantial financial commitments incurred by governments, and a significant decline in economic activity.¹⁷⁶

A. Boom

The immediate cause of the pre-2007 bubble was low interest rates and large investment flows,¹⁷⁷ a pattern similar to that observed in the previous crisis. The low cost loans created easy credit conditions for a number of years prior to the crisis. This fueled a housing construction boom and encouraged debt-financed consumption.¹⁷⁸ Loans of various types (e.g., mortgage, credit card, and auto) were easy to obtain, and consumers assumed an unprecedented debt load.¹⁷⁹

¹⁷⁴ Bob Ivry, *Paulson Seeks Mortgage Value That Eluded Bear, Lehman*, BLOOMBERG, Sept. 24, 2008, http://www.bloomberg.com/apps/news?pid=20601170&refer=home&sid=aGT_xTYzbbQE.

¹⁷⁵ *Three Top Economists Agree 2009 Worst Financial Crisis Since Great Depression; Risks Increase if Right Steps are Not Taken*, BUSINESS WIRE, Feb. 13, 2009, <http://www.businesswire.com/news/home/20090213005161/en/Top-Economists-Agree-2009-Worst-Financial-Crisis>.

¹⁷⁶ Martin Neil Baily & Douglas J. Elliott, *US Financial and Economic Crisis: Where Does It Stand and Where Do We Go From Here?*, INITIATIVE ON BUSINESS AND PUBLIC POLICY, June 2009, available at http://www.brookings.edu/~media/Files/rc/papers/2009/0615_economic_crisis_baily_elliott/0615_economic_crisis_baily_elliott.pdf.

¹⁷⁷ Thomas Philippon *The Future of the Financial Industry*, STERN ON FINANCE (Oct. 16, 2008), <http://sternfinance.blogspot.com/2008/10/future-of-financial-industry-thomas.html>.

¹⁷⁸ *President Bush's Speech to the Nation on the Economic Crisis*, N.Y. TIMES, Sept. 24, 2008, available at http://www.nytimes.com/2008/09/24/business/economy/24text-bush.html?_r=3&pagewanted=1&oref=slogin.

¹⁷⁹ Ben S. Bernanke, Chairman, Federal Reserve System, Address at Morehouse College: Four Questions about the Financial Crisis (April 14, 2009), available at <http://www.federalreserve.gov/newsevents/speech/bernanke20090414a.htm>; see Paul Krugman, *Revenge of the Glut*, N.Y. TIMES, Mar. 1, 2009, available at <http://www.nytimes.com/2009/03/02/opinion/02krugman.html>.

In turn, this contributed to a housing bubble in the U.S. Between 1997 and 2006, the price of the typical American house increased by 124%.¹⁸⁰ During the two decades ending in 2001, the national median home price ranged from 2.9 to 3.1 times median household income. This ratio rose to 4.0 in 2004 and 4.6 in 2006.¹⁸¹ The housing bubble resulted in homeowners refinancing their homes at lower interest rates, or financing consumer spending by taking out second mortgages secured by the price appreciation.

As part of the housing and credit booms, the number of financial agreements called mortgage-backed securities (MBSs) and collateralized debt obligations (CDOs), which derived their value from mortgage payments and housing prices, greatly increased. An MBS is any form of security backed by one or more securities. A CDO essentially places cash payments from multiple mortgages or other debt obligations in a single pool, from which the cash is allocated to specific securities in a priority sequence. Those securities obtaining cash first receive investment-grade ratings from rating agencies. Lower priority securities receive cash thereafter, with lower credit ratings but theoretically a higher rate of return on the amount invested.¹⁸²

Such financial innovation attracted institutions and investors from around the world to invest in the U.S. housing market, which increased the boom. The result was a giant pool of money (representing \$70 trillion in worldwide fixed income investments) seeking higher yields than those offered by U.S. Treasury bonds. This pool of money had doubled in size from 2000 to 2007, yet the supply of relatively safe, income-generating investments had not grown as fast. Investment banks on Wall Street answered this demand with MBSs and CDOs. In effect, Wall Street connected this pool of international money to the U.S. mortgage market, with enormous fees accruing to those throughout the mortgage supply chain, from the mortgage broker selling the loans, to small banks that funded the brokers, to the large investment banks behind them.

By approximately 2003, the supply of mortgages originated at traditional lending standards had been exhausted. However, continued strong demand for MBSs and CDOs began to drive down lending standards, as long as mortgages could still be sold along the supply chain. Eventually, this speculative bubble proved unsustainable.¹⁸³

¹⁸⁰ Cover Story, *CSI: Credit Crunch*, THE ECONOMIST, Oct. 20, 2007, at 4.

¹⁸¹ Ben Steverman & David Bogoslaw, *The Financial Crisis Blame Game*, BLOOMBERG BUSINESSWEEK, Oct. 18, 2008, available at http://www.businessweek.com/investor/content/oct2008/pi20081017_950382.htm?chan=top+news_top+news+index+-+temp_top+story.

¹⁸² See Peter Eavis, *CDOs Explained: How These Debt Vehicles Led to Big Losses at Big Banks – and Why There May be More to Come*, FORTUNE, Nov. 26, 2007, available at http://money.cnn.com/2007/11/24/magazines/fortune/eavis_cdo.fortune/index.htm; see generally Felix Salmon et al., *What's a C.D.O.?*, PORTFOLIO.COM, Dec. 2007, at <http://www.portfolio.com/interactive-features/2007/12/cdo> (last visited Sept. 10, 2010).

¹⁸³ *PRI's This American Life: Giant Pool of Money*, NATIONAL PUBLIC RADIO, available at <http://www.pri.org/business/giant-pool-of-money.html>.

B. Bust

Many causes of the financial boom and subsequent bust have been suggested, with varying weight assigned by experts.¹⁸⁴ Several economists point to increases in loan packaging, marketing and incentives such as easy initial terms, and the long-term trend of rising housing prices. Both had encouraged borrowers to assume difficult mortgages in the belief they would be able to quickly refinance at more favorable terms. However, once interest rates began to rise and housing prices started to drop moderately in 2006–07 in many parts of the U.S., refinancing became more difficult.

The problem was facilitated by credit rating agencies and investors who failed to accurately price the risk under these new circumstances, and governments who did not adjust their regulatory practices to address 21st century financial markets.¹⁸⁵

As a result, defaults and foreclosure activity increased dramatically as easy initial terms expired, home prices failed to go up as anticipated, and adjustable rate mortgage's (ARM's) interest rates reset higher. Rising default rates on "subprime" mortgages and ARM began to increase quickly thereafter. In turn, this led to falling home prices, which resulted in homes being worth less than the mortgage loan, thus providing the mortgagor a financial incentive to enter foreclosure.

As defaults rose, major global financial institutions that had borrowed and invested heavily in subprime MBSs reported significant losses. The ongoing foreclosure epidemic in the U.S. that began in late 2006 drained wealth from consumers and eroded the financial strength of banking institutions. Defaults and losses on other loan types also increased significantly as the crisis expanded from the housing market to other parts of the economy. Total losses were estimated in the trillions of U.S. dollars globally.¹⁸⁶

Compounding the housing crisis was the increasing importance of banks and non-banks in the economy, a process called financialization. As they become more important, they also became more vulnerable. This was particularly true of non-bank financial institutions, such as investment banks and hedge funds. Known as part of the shadow banking system, these institutions had become as important as commercial (depository) banks in providing credit to the U.S. economy. For instance, in early 2007 asset-backed commercial paper conduits, structured investment vehicles, auction-rate preferred securities, tender option bonds, and variable rate demand notes, had a combined asset size of roughly \$2.2 trillion. Assets financed overnight in triparty repo were \$2.5 trillion. Assets held in hedge funds were roughly \$1.8 trillion. The combined balance sheets of the then five major investment banks totaled \$4 trillion. Thus, the total amount of credit provided by the shadow banking system was at least \$10.5 trillion. In comparison, the total assets of the top five bank holding companies in the United States at that point were just over \$6 trillion, with total assets of the entire banking system about \$10 trillion.

¹⁸⁴ Bernanke, *supra* note 179.

¹⁸⁵ Press Release, Declaration of the Summit on Financial Markets and the World Economy (Nov. 15, 2008), *available at* <http://georgewbush-whitehouse.archives.gov/news/releases/2008/11/20081115-1.html>.

¹⁸⁶ *Crisis and Recovery*, WORLD ECONOMIC OUTLOOK, *available at* <http://www.imf.org/external/pubs/ft/weo/2009/01/pdf/text.pdf>.

Shadow banks, unfortunately, were not subject to the same regulations as regulated banks.¹⁸⁷ As a result, they assumed significant debt burdens while providing loans, but did not have a financial cushion sufficient to absorb large loan defaults or MBS losses.¹⁸⁸ When their ability to remain solvent and survive came into doubt, investors' confidences were shaken. When Lehman Brothers took the next step and filed for bankruptcy on September 15, 2008, investor confidence in all banks was further weakened.¹⁸⁹

Initially, the financial institutions affected were those directly involved in home construction and mortgage lending, such as Northern Rock and Countrywide Financial, as they could no longer obtain financing through the credit markets. Over 100 mortgage lenders went bankrupt during 2007 and 2008. Concerns that investment bank Bear Stearns would collapse in March 2008 resulted in its fire-sale to JP Morgan Chase. The crisis hit its peak in September and October 2008. Several major institutions failed, were acquired under duress, or were subject to government takeover. These included Lehman Brothers, Merrill Lynch, Fannie Mae, Freddie Mac, Washington Mutual, Wachovia, and AIG.¹⁹⁰

During September 2008, the crisis hit its most critical stage, with the equivalent of a bank run on the money market mutual funds, which frequently invest in commercial paper issued by corporations to fund their operations and payrolls. Withdrawals from the money markets totaled \$144.5 billion during one week, compared to \$7.1 billion the week prior. These withdrawals interrupted the ability of corporations to rollover (replace) their short-term debt. The U.S. government responded by extending insurance for money market accounts analogous to bank deposit insurance via a temporary guarantee,¹⁹¹ and with Federal Reserve programs to purchase commercial paper. The TED (an acronym formed from T-bill and ED, the ticker symbol for Eurodollar futures) spread, an indicator of perceived credit risk in the general economy, spiked in July 2007, remained volatile for a year, then spiked even higher in September 2008,¹⁹² reaching a record 4.65% on October 10, 2008.

¹⁸⁷ Timothy F. Geithner, President and Chief Executive Officer, Federal Reserve Bank of New York, Remarks at The Economic Club of New York: Reducing Systemic Risk in a Dynamic Financial System (June 9, 2008), available at http://www.newyorkfed.org/news_events/speeches/2008/tfg080609.html.

¹⁸⁸ See generally Alan Greenspan, *We Need a Better Cushion Against Risk*, FINANCIAL TIMES, Mar. 26, 2009, available at <http://www.ft.com/cms/s/0/9c158a92-1a3c-11de-9f91-0000779fd2ac.html>.

¹⁸⁹ Andrew Ross Sorkin, *Lehman Files for Bankruptcy; Merrill Is Sold*, N.Y. TIMES, Sept. 14, 2008, at A1, available at <http://www.nytimes.com/2008/09/15/business/15lehman.html>.

¹⁹⁰ See generally Roger C. Altman, *The Great Crash, 2008: A Geopolitical Setback for the West*, FOREIGN AFFAIRS., Jan./Feb. 2009, available at <http://www.foreignaffairs.com/articles/63714/roger-c-altman/the-great-crash-2008>.

¹⁹¹ See Diya Gullapalli & Shefali Anand, *Bailout of Money Funds Seems to Stanch Outflow*, WALL ST. J., Sept. 20, 2008, at A2, available at <http://online.wsj.com/article/SB122186683086958875.html?mod=article-outset-box>.

¹⁹² *TED Spread*, BLOOMBERG.COM, <http://www.bloomberg.com/apps/quote?ticker=.TEDSP:IND> (last visited September 15, 2010) (this page is a constantly updating ticker with current data and provides interactive tools for making historical comparisons).

Unlike the 1929 depression, the U.S. government reacted in accordance with generally accepted economic principles by trying to put money into the economy. In a dramatic meeting on September 18, 2008, U.S. Treasury Secretary Henry Paulson and Federal Reserve Chairman Ben Bernanke met with key legislators to propose a \$700 billion emergency bailout. Chairman Bernanke stated, "[i]f we don't do this, we may not have an economy on Monday."¹⁹³ The Emergency Economic Stabilization Act, which implemented the Troubled Asset Relief Program (TARP), was signed into law on October 3, 2008.¹⁹⁴ Similarly, to offset the decline in lending capacity, the U.S. government and U.S. Federal Reserve committed \$13.9 trillion, of which \$6.8 trillion was invested or spent by June 2009.¹⁹⁵

C. Aftermath

According to the International Monetary Fund (IMF), large U.S. and European banks lost more than \$1 trillion from toxic assets and bad loans from January 2007 to September 2009. These losses were approximately \$2.8 trillion from 2007-10. U.S. bank losses were estimated at \$1 trillion and European bank losses at \$1.6 trillion.¹⁹⁶

Individuals also suffered. Between June 2007 and November 2008, Americans lost an average of more than a quarter of their collective net worth. By early November 2008, the S&P 500 was down 45 percent from its 2007 high. Housing prices had dropped 20% from their 2006 peak, with futures markets signaling a 30-35% potential drop. Total home equity in the U.S., which was valued at \$13 trillion at its peak in 2006, dropped to \$8.8 trillion by mid-2008 and fell through late 2008. Total retirement assets, Americans' second-largest household asset, dropped by 22 percent, from \$10.3 trillion in 2006 to \$8 trillion in mid-2008. During the same period, savings and investment assets (apart from retirement savings) lost \$1.2 trillion and pension assets lost \$1.3 trillion. Taken together, these losses total \$8.3 trillion.¹⁹⁷ Since peaking in the second quarter of 2007, household wealth was down \$14 trillion.¹⁹⁸

Further, U.S. homeowners had extracted significant equity in their homes in the years leading up to the crisis, which they could no longer do once housing prices collapsed. For instance, free cash used by consumers from home equity extraction doubled from \$627 billion in 2001 to \$1,428 billion in 2005 as the housing bubble built, a total of nearly \$5 trillion over that period. U.S. home mortgage debt relative

¹⁹³ Joe Nocera, *As Credit Crisis Spiraled, Alarm Led to Action*, N.Y. TIMES, Oct. 1, 2008, at A1, available at http://www.nytimes.com/2008/10/02/business/02crisis.html?_r=1.

¹⁹⁴ Emergency Economic Stabilization Act of 2008, CANADASPACE.COM, <http://reference.canadaspace.com/search/Emergency%20Economic%20Stabilization%20Act%20of%202008/> (last visited Oct. 13, 2010).

¹⁹⁵ *A Year in Bank Supervision: 2008 and a Few of Its Lessons*, FDIC, available at http://www.fdic.gov/regulations/examinations/supervisory/insights/sisum09/si_sum09.pdf.

¹⁹⁶ David Cutler et al., *European Bank Writedowns, Credit Losses*, REUTERS, Nov. 5, 2009, available at <http://www.reuters.com/article/marketsNews/idCNL554155620091105?rpc=44>.

¹⁹⁷ Altman, *supra* note 190.

¹⁹⁸ Tami Luhby, *Americans' Wealth Drops \$1.3 Trillion*, CNNMONEY, June 11, 2009, available at http://money.cnn.com/2009/06/11/news/economy/Americans_wealth_drops/?postversion=2009061113.

to GDP increased from an average of 46% during the 1990s to 73% during 2008, reaching \$10.5 trillion.

In the U.S., real gross domestic product, the output of goods and services produced by labor and property located in the United States, decreased at an annual rate of approximately 6% in the fourth quarter of 2008 and first quarter of 2009, from activity in the respective prior year's period.¹⁹⁹ For all of 2009, GDP growth was -2.6%.²⁰⁰ The U.S. unemployment rate increased to 10.1% by October 2009, the highest rate since 1983 and roughly twice the pre-crisis rate. In August 2010, it was still high at 9.5%.²⁰¹ The average hours worked per week declined to 33 hours, which is the lowest level since the government began collecting the data in 1964.²⁰²

Globally, the crisis rapidly developed and spread into a world-wide economic shock, resulting in a number of European bank failures, declines in various stock indexes, and large reductions in the market value of equities²⁰³ and commodities.²⁰⁴ Derivatives such as credit default swaps also increased the linkage between large financial institutions. Moreover, the de-leveraging of financial institutions, as assets were sold to pay back obligations that could not be refinanced in frozen credit markets, further accelerated the solvency crisis and caused a decrease in international trade.

In 2009, the downturn continued. For 2009, the annualized rate of decline in GDP was 14.4% in Germany, 15.2% in Japan, 7.4% in the UK, 9.8% in the Euro area, and 21.5% for Mexico.²⁰⁵ Some developing countries that had seen strong economic growth saw significant slowdowns. Reductions in growth could be attributed to falls in trade, commodity prices, investment, and remittances sent from migrant workers (which reached a record \$251 billion in 2007, but have fallen in

¹⁹⁹ See Press Release, Bureau of Econ. Analysis, Gross Domestic Product: Fourth Quarter 2008, Mar. 26, 2009, available at <http://www.bea.gov/newsreleases/national/gdp/2009/gdp408f.htm>.

²⁰⁰ CIA, *United States Economy*, THE WORLD FACTBOOK, <https://www.cia.gov/library/publications/the-world-factbook/geos/us.html> (last visited Sept. 15, 2010).

²⁰¹ BUREAU OF LABOR STATISTICS, *LABOR FORCE STATISTICS FROM THE CURRENT POPULATION SURVEY (2009)*, available at http://www.google.com/publicdata?ds=usunemployment&met=unemployment_rate&tdim=true&dl=en&hl=en&q=us+unemployment+rate (last updated October 22, 2010).

²⁰² Moira Herbst, *Even the Employed Lose with Hour and Wage Cuts*, BLOOMBERG BUSINESSWEEK., July 10, 2009, available at http://www.businessweek.com/bwdaily/dnflash/content/jul2009/db20090710_255918.htm.

²⁰³ See Floyd Norris, *United Panic*, N.Y. TIMES.COM BLOG (Oct. 24, 2008, 8:52 AM), <http://norris.blogs.nytimes.com/2008/10/24/united-panic>.

²⁰⁴ See Ambrose Evans-Pritchard, *Dollar Tumbles as Huge Credit Crunch Looms*, TELEGRAPH, July 25, 2007, <http://www.telegraph.co.uk/money/main.jhtml?xml=/money/2007/07/25/cnusecon125.xml>.

²⁰⁵ Bally & Elliot, *supra* note 176, at 17.

many countries since).²⁰⁶ The stark implications led to a dramatic rise in the number of households living below the poverty line.²⁰⁷

D. Summary

Chart 4 summarizes the financial crisis of 2007–10. The bubble was driven by a number of factors, including human emotion, greed, and speculation. Foreign direct investment was a factor as many foreign investors spurred the bubble on by investing in the U.S., particularly U.S. real estate. Exchange rates, however, were not a driving force as all economies moved downward at the same time. Underlying the crisis was poor economic fundamentals. In the U.S., for instance, readily available money had driven up real estate prices that could not be supported. The new sophisticated financial instruments were not well understood by the market, which in turn meant that investors, regulators and government officials were dealing with something they did not comprehend. The result was panic selling and stock market crash, followed by an economic crash that affected not only developed countries, but ultimately the entire world.

IX. SUMMARY OF FINANCIAL CRISES

Chart 4 summarizes the financial and economic crises discussed in this article. A score of “1” reflects each incident highlighted in gray, and a score of “.5” reflects each incident in the previous crises charts highlighted in black. In all eight incidents, a bubble (8) was generated by human emotion and greed (7.5) which led to speculation (7.5). In four of the crises, including the last three, foreign direct investment (2.5) was a factor. Changes in exchange rates, however, were relevant in only two of the eight incidents (1.5). Poor economic fundamentals were relevant in all of the crises, but scored low (4.5) since it was not a material factor. Real estate booms were important in half (3) of the crises. Uneducated investors, frequently uneducated about new product offerings, were relevant in all cases (6.5). While new products existed in all the crises (7.5), program trading, one form of new technology, was relevant in only one case (1). Overall technology innovation was relevant about half of the incidents (3.5). Notwithstanding the usual perception, mergers and acquisitions were usually not involved (2). Stock market crashes (7.5) leading to economic crashes (8) were involved in all instances. The effect was felt in various regions (3) and throughout the world (3.5) in all of the last four crashes.

²⁰⁶ Dirk Willem te Velde, *The Global Financial Crisis and Developing Countries: Taking Stock, Taking Action*, ODI BRIEFING PAPERS, No. 54, Sept. 2009, at 2.

²⁰⁷ *Id.* at 3.

Chart 4: Comparison of Major Financial Crises

Elements of Crises	Tulipmania	Mississippi Scheme	South Sea Bubble	Crash 1929	Crash 1987	AFC	Dot.Com Bubble	Financial Crisis 2007-10	Number of Incidents	%
Bubble									8	100
Human emotion and greed									7.5	93.75
Speculation									7.5	93.75
FDI									2.5	31.25
Changes in exchange rate									1.5	18.75
Poor economic fundamentals									4.5	56.25
Real estate boom before crises									3	37.5
Uneducated investors									6.5	81.25
New product offered									7.5	93.75
Program trading									1	12.5
Technology innovation									3.5	43.75
Mergers and acquisitions									2	25
Panic selling									7	87.5
Stock market crash									7.5	93.75
Economic crash									8	100
Affected group of countries									3	37.5
Worldwide effect									3.5	43.75
Total	8.5	9	8.5	13.5	13	10	11	10.5		

As can be seen in Chart 4, the highest number of factors analyzed in this article occurred during the two crises closest to the midpoint of the 20th century. The highest number was observed during the Great Crash of 1929 (13.5). It was followed closely by the Crash of 1987 (13). A second tier is composed of the three most recent events – Dot-com Bubble of 2000 (11), Financial Crisis of 2007-10 (10.5), and Asian Financial Crisis of 1997 (10). The earliest crises were more limited, with comparatively more limited factors – Tulipmania of 1637 (8.5), South Sea Bubble of 1720 (8.5), and Mississippi Scheme of 1720 (9).

This is confirmed by the information in Chart 5. Although the recent crisis involving the U.S. has certainly been serious, it ranks at the bottom of the list in terms of severity. The Financial Crisis of 2007-10 was the mildest at 31.60%, followed by Dot-com Bubble of 2000 at 35.24% and Crash of 1987 at 36.13%. The Great Crash of 1929, in comparison, was over twice as large at 87.17%. Tulipmania, however, was more dramatic than the 1929 crash at 91.67%, as were the Mississippi Scheme of 1720 and the South Sea Bubble of 1720, both of which witnessed 100% declines. The black hole, however, was the Asian Financial Crisis of 1997 witnessing currency increases of more than 100%. The rupiah, for instance, appreciated by over 475%. Granted the rupiah had been appreciating for many years, but the appreciation accelerated in 1997 and 1998. Looking at averages in the last column, we see that increasing markets take an average of 737 days, while recoveries only take an average of 480 days or 65% of the duration of increases.

The common elements can then be brought together in three categories – characteristics of individuals, market, and crash:

Underlying individual characteristics:

- Bubble (100%)
- Human emotion and greed (93.75%)
- Speculation (93.75%)

Underlying market characteristics:

- Poor economic fundamentals (56.25%)
- Uneducated investors (81.25%)
- New product offering (93.75%)

Crash:

- Panic selling (87.5%)
- Stock market crash (93.75%)
- Economic crash (100%)

The lesson for all of us as individuals and investors is to be wary of individual and market behavior that includes these key characteristics:

Chart 5: Comparison of Stock Market Crashes

	Tulipmania	Miss. Scheme	South Sea Bubble	Crash 1929	Crash 1987	AFC	Dot.Com Bubble	Financial Crisis 2007-10	Average
Market	Tulips	Shares	Shares	Dow Jones	Dow Jones	Rupiah	Dow Jones	Dow Jones	
Origin Price	500	500	130	152.73	1767.58	2,361/\$1	4157.69	7591.93	
Date	1634	5/5/1716	2/2/1720	1/25/1927	7/1/1986	1/1/1997	1/3/1995	7/1/2002	
High Price	6,000	18,000	1,000	381.17	2722.4	2,432/\$1	11722.98	13,895.63	
Date	1636	1/1/1720	6/22/1720	9/3/1929	8/25/1987	5/1/1997	1/14/2000	7/2/2007	
Duration Days	730	1,335	140	951	420	120	379	1827	737
Low Price	500	0	33	42.84	1738.74	14,000/\$1	7591.93	7,608.92	
Date	1637	11/1/1720	12/31/1720	4/1/1932	10/19/87	6/17/1998	7/1/2002	1/2/2009	
Drop Price	5,500	18,000	967	338.33	983.66	11,400	4131.05	6286.71	
Drop %	91.67	100	96.7	88.77	36.13	475.65	35.24	31.60	
Duration Days	365	304	192	1,067	54	413	897	549	480