'Kindleberger's classic lives on, refreshed by Aliber and, alas, still relevant to the world around us.'

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MANIAS, PANICS, AND CRASHES

A History of Financial Crises

7TH EDITION

With an updated foreword by
ROBERT M. SOLOW

percent. In contrast, the unemployment rate in Greece was above 25 percent. Five years of austerity in Athens had not led to a significant increase in the international competitiveness of the Greek economy.

One advantage of a floating currency arrangement is that the decline in the price of a country's currency may facilitate a more rapid recovery from a financial crisis, much as in Iceland, since the demand for domestic goods and services increases as the country becomes more competitive. The Irish economy recovered relatively quickly from its banking crisis even though Ireland lacked its own currency; costs and prices in Ireland were more flexible downward than they have been in Greece.

One dominant feature of a flexible exchange rate arrangement is that the differentials in interest rates on similar securities denominated in various currencies will change by larger amounts than when countries are committed to retaining parities. The changes in interest rates in each country are motivated primarily by the intent of the central bank to manage monetary policy to achieve its domestic price level and employment targets. The changes in the differentials between the interest rates in one country and those in its trading partners have led to much larger cross-border investment inflows. These inflows lead to increases in indebtedness of those borrowers that are willing to pay the higher interest rates. In Ireland and Spain, these borrowers were involved in real estate while the government was the dominant borrower in Greece. When the inflows to Ireland and Spain slowed, real estate prices declined sharply, and many of the lenders to the buyers of real estate failed. When the inflows to Greece slowed, the government was unable to make both its payments for the purchases of domestic goods and services, and its debt service payments to its foreign creditors. The financial crisis in Athens was prolonged because the governments in Northern European countries continued to provide credit to the government of Greece because they wanted to avoid the political consequences of the country's exit from the European Monetary Union.

The story of the nineteenth century is that banking crises occur when countries have anchored their currencies to gold. The story of the decades since the move to a floating currency arrangement is that banking crises are more severe and more frequent than when currencies are not anchored to parities. The variability of cross-border investment inflows is much larger when central banks are not constrained by the need to anchor their currencies to parities, since the differentials in interest rates and the changes in these differentials are much larger. These inflows induce economic booms as an integral part of the adjustment process; eventually one or several of the lenders recognize that the borrowers' indebtedness is too large or has been increasing too rapidly, and the slowdown in the inflows triggers the crises.

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FINANCIAL CRISES: A HARDY PERENNIAL

The years since the early 1970s are unprecedented in terms of the large changes in the day-to-day and month-to-month prices of commodities, currencies, bonds, stocks, and real estate relative to their long-run average prices. There have been four waves of banking crises; a large number of lenders in three, four, or more countries collapsed at about the same time as the prices of real estate and securities in these countries and the prices of their currencies fell sharply. Each country that experienced a banking crisis also had a recession as household wealth declined in response to the sharp fall in the prices of securities and real estate, and as the banks became much more reluctant suppliers of credit as their own capital was depleted. The Great Recession that began in 2008 was the most severe and the most global since the Great Depression of the 1930s.

The first wave of banking crises was in the early 1980s when Mexico, Brazil, Argentina, and ten other developing countries defaulted on their $800 billion of US-dollar-denominated indebtedness. The second wave occurred in the early 1990s and engulfed Japan and two of the Nordic countries – Finland and Sweden; Norway had had a similar crisis a few years earlier. The Asian Financial Crisis that began in mid-1997 was the third wave; initially Thailand, Malaysia, and Indonesia were involved and subsequently South Korea, Russia, Brazil, and Argentina were impacted. The banking crisis that impacted Mexico during its presidential transition at the end of 1994 was the forerunner for the crisis in Southeast Asia thirty months later, because the preconditions in the months prior to these crises were so similar. The fourth wave began in September 2008 with the failure of Fannie Mae and Freddie Mac, the two large US-government-sponsored mortgage lenders and the collapse of Lehman Brothers a few days later; the debacle of these lenders were responses to the sharp decline in the price of US real estate that had started at the beginning of 2007. Britain, Spain, Ireland, and Iceland also were involved in the fourth wave; a year later the prices of the bonds of the Greek and the Portuguese governments fell sharply.

Each of these waves of banking crises was preceded by surges in cross-border investment inflows, which led to increases in the prices of currencies and increases in the prices of securities and real estate in the countries that experienced these inflows. Thus the external indebtedness of these countries had increased for two, three, or more years prior to their crises. Moreover the domestic indebtedness of a group of borrowers also had increased at paces that often were two or three times higher than the interest rate. Usually these borrowers used the money to buy real estate – homes and commercial properties. However, the first wave of surges in cross-border indebtedness involved the rapid growth in the US dollar indebtedness of governments and government-owned firms in Mexico and other developing countries throughout most of the 1970s; the major international banks purchased the IOUs of these borrowers. Japan was the key country in the second wave of banking crises that began in the early 1990s, real estate prices and stock prices had increased by a factor of five to six in the second half of the 1980s. At about the same time the prices of both securities and real estate surged in Finland, Norway, and Sweden. The third wave of surges in cross-border indebtedness that began in the early 1990s involved Mexico and several other countries in Latin America, and Thailand and its neighbors in Southeast Asia. Real estate prices in the United States, Britain, Spain, Ireland, and Iceland began to increase sharply from about 2003 until the end of 2006.

The banks headquartered in Reykjavik were primarily involved in cross-border investment inflows to Iceland as a way to increase the amounts they could lend to Icelandic households and businesses, including many that they owned. Banks headquartered in Stockholm and Bangkok also sold their IOUs in foreign centers to obtain the funds that they could use to increase their domestic loans, because the apparent cost was below the cost of selling their IOUs in their domestic markets. The domestic counterpart of the increase in cross-border investment inflows to these countries – and the increase in the net external debtor position of these countries – was that the indebtedness of a group of domestic borrowers surged. Thus banks headquartered in many countries sold their own IOUs in a foreign banking center so they could increase their domestic loans; in some cases the loans to these domestic borrowers were denominated in a foreign currency and the borrowers incurred the currency exposure.

The indebtedness of these domestic borrowers increased at rates that were too rapid to be sustained; similarly the external indebtedness of these countries increased at rates that were too rapid to be sustained. Eventually one or several of the lenders became more cautious because the borrowers' indebtedness was increasing too rapidly relative to their incomes. When the indebtedness of a group of borrowers increases by 20 to 30 percent a year, the borrowers have an impeccable record for paying the scheduled interest in a timely way. Eventually their ability to increase their indebtedness slows, and the 'day of reckoning' occurs when one or several no longer have enough money from new loans to pay the interest on outstanding loans. Then the prices of real estate and of stocks decline. Moreover when the rate of growth of indebtedness slows, the prices of currencies decline and often very sharply.

When real estate prices decline, households are the first group to incur losses, since the market value of their homes – the most significant asset that most households own – declines. Some households default on their mortgage indebtedness, and the losses then revert to banks and other lenders. If these lenders fail, the losses then fall on their depositors and other creditors to the lenders unless the government intervenes to protect them from loss. When real estate and stock prices declined in Japan in the early 1990s, a large number of banks and other financial institutions failed. The fall in real estate and stock prices in Thailand in mid-1997 triggered declines in the prices of currencies and the prices of securities throughout Southeast Asia; recessions followed. However, there were no significant failures of US financial firms when US stock prices declined by 40 percent between 2001 and 2003, and the ensuing recession was brief and shallow.

That the range of movement in the prices of national currencies since the early 1970s has been much larger than in earlier periods when currencies were not anchored to parities is not a surprise. The major surprise has been that the deviations between the market prices of currencies and the long-run equilibrium or average prices of these currencies has been much larger than when the currencies were anchored to parities. The transition from the Bretton Woods arrangement of adjustable parities for national currencies to one of floating exchange rates began in August 1971 when the United States abandoned the gold parity of $35 an ounce that had been established in 1934. The effort to retain a modified version of the adjustable parity arrangement that was formalized in the Smithsonian Agreement of 1972 failed early in 1973 and a floating currency arrangement was adopted by default. At the beginning of the 1970s, the dominant view was that the prices of the German mark and the Japanese yen might increase by 10 to 12 percent because the inflation rates in both countries had been below the US rate in the previous few years.

Another surprise is that the prices of both the German mark and the Japanese yen increased much more rapidly than anticipated through most of the

1970s; then the prices of both currencies declined sharply in the first half of the 1980s, although not to the levels of the early 1970s. The prices of the Mexican peso, the Brazilian cruzeiro, the Argentinean peso, and of the currencies of many other developing countries declined by 30 to 40 percent or more in the early 1980s. The prices of the Finnish markka, the Swedish krona, the British pound, the Italian lira, and the Spanish peseta declined by more than a third in the last six months of 1992. The price of the Mexican peso declined by nearly 50 percent during the country's presidential transition at the end of 1994. Similarly the prices of most of the Asian currencies – the Thai baht, the Malaysian ringgit, the Indonesian rupiah, and the South Korean won – declined sharply during the Asian Financial Crisis in the summer and autumn of 1997. The price of the euro, the new currency that eleven members of the European Union adopted at the beginning of 1999, soon declined by 30 percent, and then increased by 50 percent beginning in 2002. The price of the Argentinean peso declined by more than two-thirds in the first few months of 2001. The price of the Icelandic krona fell by 50 percent in the last few months of 2008.

These changes in the prices of individual currencies were much larger than those that were suggested by the differences between the inflation rate in a country and the inflation rates in its major trading partners. The 'overshooting' and 'undershooting' of national currencies were much larger than in any previous period.

Moreover the changes in the market prices of commodities, securities, stocks, and real estate relative to their long-run average prices also have been much greater than in earlier periods. The increases in commodity prices in the 1970s were spectacular. The US dollar price of gold increased from $40 an ounce at the beginning of the 1970s to nearly $1000 ten years later; the price was $450 at the end of the 1980s and $283 at the end of the 1990s. The price reached nearly $2000 in the autumn of 2012. The price of oil was $2.50 a barrel at the beginning of the 1970s and $40 at the end of that decade; in the mid-1980s the oil price was $12 and then in 1980 the price increased to $40 after the Iraqi invasion of Kuwait. The oil price reached nearly $150 in the early summer of 2008, and then declined below $50 and then increased to the range of $80 to $110.

The number of bank failures during the 1980s and the 1990s was much larger than in earlier decades. Several of these failures were isolated events: both Franklin National Bank in New York City and Herstatt AG in Cologne, Germany, had made large bets on the changes in prices of currencies in the early 1970s that they subsequently lost. Crédit Lyonnais, once the largest bank in France and a government-owned firm, rapidly increased its loans in the effort to become a first-tier international bank and its bad loans eventually cost the

French taxpayers the equivalent of more than $30 billion. However, the failures of most banks and other financial firms resulted from systemic shocks that led to dramatic changes in the financial environment. Three thousand US savings and loan associations and other thrift institutions failed in the 1980s with losses to the American taxpayers of more than $100 billion; initially they failed because of a surge in short-term interest rates relative to long-term interest rates. Hundreds of banks in the oil-producing and grain-producing states failed when the anticipation that the US inflation rate would continue to accelerate was shattered.

Most of the banks in Japan failed in the early 1990s when the prices of Japanese real estate and stocks declined; their losses incurred were several times larger than their capital and virtually all these firms became wards of the government because there was an implicit guarantee that depositors would not lose money. Similarly, when the prices of the Mexican peso and the currencies of the other developing countries declined sharply in the early 1980s, most of the banks in these countries went under because of the combination of the large loan losses by their domestic borrowers who had liabilities denominated in the US dollar in part due to the massive revaluation losses they had incurred when the prices of their own currencies declined. Similarly, many of the banks in Finland, Norway, and Sweden went bankrupt when the prices in their real estate and stock markets declined sharply in the first half of the 1990s, after very large increases in the previous four and five years. Most of the Mexican banks failed at the end of 1994 when the price of the Mexican peso fell by 50 percent. In the same way most of the banks in Thailand, Malaysia, and South Korea, and several of the other Asian countries – except for Hong Kong and Singapore – failed after the mid-1997 Asian Financial Crisis. The sharp declines in prices of residential real estate in the United States, Britain, Ireland, and several other countries that began toward the end of 2006 led to massive government investments in the banks so they could remain open and their depositors would not incur losses. In 2008 most of the top US investment banks were wiped out or forced to seek a stronger merger partner. The British government 'nationalized' Northern Rock, the largest mortgage lender in the country in September 2007, and became the dominant shareholder in the Royal Bank of Scotland as it provided massive amounts of new capital to the bank. The Irish government made extensive investments in the six largest banks in the country in the effort to keep them from closing. The three large banks in Iceland were taken over by the government. Countrywide Financial, the largest mortgage lender in the United States, was acquired by Bank of America, which subsequently acquired Merrill Lynch, one of the largest US investment banks – but then Bank of America required a large injection of capital from the US Treasury to remain in business.

T' 'S government made a massive investment in Citibank. The Dutch gov- ment provided extensive capital to ING, the insurance–banking conglomerate.

These banking crises resulted from the sharp declines in the prices of real estate and securities and from the sharp declines in the prices of currencies. The costs of these crises were extremely high in terms of several metrics – the losses incurred by the banks as a ratio of a country's GDP and as a share of government spending, the slowdowns in the rates of economic growth, the increases in unemployment and in the output gaps in each country.

The massive number of bank failures, the large changes in the prices of currencies and sharp variability in the prices of securities were systematically related and resulted from rapid changes in the global economic environment. The 1970s was a decade of accelerating inflation, the largest-ever sustained increase in the US price level in peace-time. The US dollar price of gold surged because some investor bought the precious metal on the basis of the cliché that 'gold is a good inflation hedge'; however the increase in the gold price was many times larger than the contemporary increase in the US and world price levels. Toward the end of the 1970s investors purchased gold because its price was increasing – and its price was increasing because investors were buying more of this commodity.

The prevailing view in the late 1970s was that the US and world inflation rates would accelerate. Some analysts predicted that the gold price would reach $2500 an ounce.

The range of movement in bond prices and stock prices in the 1970s was much greater than in the several previous decades. In the 1970s the real rates of return on both US dollar bonds and US stocks were negative because the prices of both types of securities declined at a time when the goods price level increased.

The foreign indebtedness of Mexico, Brazil, Argentina, and other developing countries as a group increased from $125 billion in 1972 to $800 billion in 1982. The President of Citibank said 'countries don't go bankrupt'. The borrowers in these countries had a stellar record for paying the interest on their loans on a timely basis. Then in late October 1979 the Federal Reserve adopted a sharply contractive monetary policy; interest rates on US dollar securities surged. The US dollar price of gold peaked in January 1980 and then began to decline as inflationary anticipations were reversed. The price of the US dollar surged and continued to increase for five years. The sharp increase in interest rates on US dollar securities meant that the borrowers in Mexico and other developing countries defaulted on their indebtedness denominated in the US dollar, because their interest payments surged and they could no longer rely on money from new loans to pay the interest on their outstanding loans. Moreover, the real rates of return on US dollar bonds and US stocks av d more than 15 percent a year in the 1980s and the 1990s as the annual inflation rates declined and the prices of these securities surged.

The increase in real estate prices and stock prices in Japan in the 1980s of several hundred percent was associated with a boom in the economy; *Japan as Number One: Lessons for America*[1] was a bestseller in Tokyo. The Japanese banks increased their deposits and their loans and their capital much more rapidly than banks headquartered in the United States and in Germany and in other European countries. The Japanese banks owned both real estate and stocks, and as the prices of both types of securities increased, bank capital soared. Seven or eight of the ten largest banks in the world were headquartered in Tokyo or in Osaka. Then at the beginning of the 1990s real estate prices and stock prices in Japan crashed. Within a few years many of the leading Japanese banks and financial institutions were broke, kaput, bankrupt, and insolvent, and remained in business because of an implicit government guarantee. A striking story of a mania and a crash – but without a panic, because depositors believed that bank loan losses would be socialized and borne by the taxpayers.

The financial market developments in Finland, Norway, and Sweden followed those in Japan, although they were less dramatic. The prices of real estate and stocks increased in the late 1980s as cross-border investment inflows to each country accelerated and then Finland and Sweden experienced banking crises about the same time as the one in Japan.

Mexico had been one of the great economic success stories of the early 1990s as it prepared to enter the North American Free Trade Agreement. The Bank of Mexico had adopted a tough contractive monetary policy that led to a reduction in the country's annual inflation rate from 140 percent to less than 10 percent in four years, a truly remarkable achievement, much more impressive than the reduction in the US inflation rate ten years earlier. During the same period several hundred government-owned firms were privatized and business regulations were liberalized. Cross-border investment flows to Mexico accelerated because the real rates of return on government securities were high and because the prospective profit rates on industrial investments also were high. Investors anticipated that Mexico would become the low-cost base for producing automobiles and washing machines and many other manufactured goods for the US and Canadian markets. The price of the Mexican peso increased in real terms in response to the cross-border investment inflows, and Mexico's trade deficit climbed to 7 percent of its GDP and its external debt to 60 percent of its GDP.

Then several political incidents associated with the presidential election in 1994 led to a sharp decline in investment inflows; for many months the government of Mexico supported the price of the peso in the currency market, and then as its ability to support the peso became exhausted, the price of the peso declined sharply. Once again the decline in the price of the peso resulted in large losses for Mexican borrowers with US dollar liabilities, and most of the Mexican banks – which had been privatized in the previous several years – failed.

Real estate prices and stock prices surged in Thailand, Malaysia, and Indonesia in the first half of the 1990s; these were the 'dragon economies' that seemed likely to emulate the earlier economic success of the 'Asian tigers' – Taiwan, South Korea, Hong Kong, and Singapore. Firms based in Japan, Europe, and the United States invested in these countries as low-cost sources of supply, much as US and foreign firms had invested in Mexico as a low-cost source of supply for the North American market. European and Japanese banks rapidly increased their loans to firms and banks in these countries. Then in the autumn and winter of 1996, domestic lenders in Thailand experienced large losses on their domestic loans because they had not been sufficiently discriminating in their evaluations of the willingness of Thai borrowers to pay the interest on their credit card indebtedness. Foreign lenders sharply reduced their purchases of Thai securities, and then the Bank of Thailand, much like the Bank of Mexico thirty months earlier, did not have the money to support the baht in the currency market. The sharp decline in the price of the baht in early July 1997 led to investment outflows from other Asian countries and the prices of their currencies (except for the Hong Kong dollar and the Chinese yuan, which remained rigidly pegged to the US dollar) declined by more than 30 percent. The price of the Indonesian rupiah declined by more than 80 percent. Most of the banks in the region – except for those in Hong Kong and Singapore – would have been bankrupt in any reasonable 'mark-to-market' test.

The crisis spread to Russia, there was a debacle in the ruble, and the country's banking system collapsed in the summer of 1998. Investors then became more cautious and they sold risky securities denominated in various foreign currencies and bought safer US government securities. The changes in the relationship between the interest rates on these two groups of securities led to the collapse of Long-Term Capital Management, then the largest US hedge fund.

The 1990s surge in NASDAQ stocks

Stocks in the United States are traded on the over-the-counter market and on one of the organized stock exchanges, primarily the New York Stock Exchange. The typical pattern was that shares of young firms initially would be traded on the over-the-counter market and then most of these firms would incur the costs associated with listing their shares for trading on the New York Stock Exchange because they

believed that the market for their stocks would become broader and lead to higher prices for their stocks. Some very successful new firms associated with the information technology revolution of the 1990s – Microsoft, Cisco, Dell, Intel – were exceptions to this pattern; they chose not to list their shares on the New York Stock Exchange because they believed that trading stocks electronically in the over-the-counter market was superior to trading stocks by the open-outcry method used on the New York Stock Exchange.

In 1990 the market value of stocks traded on the NASDAQ was 11 percent of that of the New York Stock Exchange; the comparable figures for 1995 and 2000 were 19 percent and 42 percent. The annual average percentage rate of increase in the market value of NASDAQ stocks was 30 percent during the first half of the decade and 46 percent during the next four years. Several of the newer firms traded on the NASDAQ would eventually became as successful as Microsoft and Intel and higher prices for their stocks were warranted. The likelihood that all of the firms whose stocks were traded on the NASDAQ would be as successful as Microsoft was extremely small, since it implied that the profit share of US GDP would be two to three times higher than it ever had been previously.

The sharp increase in US stock prices in the second half of the 1990s was associated with a remarkable US economic boom; the unemployment rate declined sharply, the inflation rate declined, and the rate of economic growth and productivity both accelerated. The US government developed its largest-ever fiscal surplus in 2000 after having had its largest-ever fiscal deficit in 1990. The remarkable performance of the economy contributed to the surge in US stock prices that in turn led to the increase in investment spending and consumption spending, and an increase in the US growth rate.

US stock prices began to decline in the spring of 2000 and fell by 40 percent in the next three years while the prices of NASDAQ stocks declined by 80 percent.

US real estate prices began to increase at an above-average rate in 2002. Real estate prices increase in the long run, in part because of the increase in the general price level and in part because of the increase in nominal GDP. (Much of the increase in real estate prices reflects increases in the price of land.) The Federal Reserve maintained low interest rates because the US economy seemed sluggish, and house prices increased three times as rapidly as the general price level. Much of the increase in home prices occurred in sixteen states that account for 50 percent of US GDP. The sharp increase in property prices led to a construction boom, and housing starts reached two million units a year – about 500,000 more units than the number required to satisfy the growth in population and the losses due to fires, storms, the widening of highways and similar factors. Part of the increase in demand was from investors who sought profits from the continued increases in real estate prices; the rate of increase was much high tha[illegible]e interest rate.

The sharp decline in the price of residential real estate and the debacle in the prices of mortgage-related securities after 2007 has led to many US-centric books that explain the surge in prices in terms of the failure of regulation or the greed of the bankers or the vagaries of new financial instruments.

In part the large number of crashes in national financial markets in the last thirty years reflects that there are more independent countries, each with its own central bank. Nevertheless despite the lack of perfect comparability across periods, the conclusion is unmistakable that banking crises have been more extensive and pervasive.

One of the themes of this book is that the surges in the prices of real estate and stocks that often occur in several different countries at the same time have similar causes. Thus the sharp increase in the external indebtedness of developing countries in the 1970s occurred because the major international banks rapidly increased their loans to borrowers in these countries; these banks believed that commodity prices would continue to increase and that the growth rates in these countries would remain high and the revenues of their governments also would continue to increase. The likelihood that the sharp increases in real estate prices in the United States, Britain, Ireland, Iceland, Spain, South Africa, and several other countries that began in about 2002 and the subsequent crashes were independent events seems low; increases in real estate prices in each of these countries followed from rapid increases in cross-border investment inflows and the domestic supply of credit in both. There were unique idiosyncratic aspects in these different national markets; the market in subprime mortgages seems uniquely American. The rapid growth in the supply of credit led to a sharp increase in the demand for mortgage loans, which was greater than the supply of prime loans and the mortgage brokers ginned up a large increase in the supply of subprime mortgages.

A second theme is that the likelihood that the four waves of banking crises over a thirty-year period were unrelated events is low. The banking crisis in each country was preceded by a surge in the supply of credit. Several of these banking crises laid the basis for the subsequent surge in the supply of credit to borrowers in a different group of countries. The financial crises in the developing countries in the early 1980s had a knock-on effect that contributed to the three-fold plus increases in the prices of real estate and of stocks in Japan in the second half of the 1980s. The banking crisis in Tokyo in the early 1990s led to an increase in cross-border investment inflows to Thailand and Malaysia and Indonesia, which led to the increases in the prices of real estate and of securities in these countries and to higher prices of their currencies in real terms. When Thailand and its neighbors experienced their banking cr[illegible] investment flows to the United States expanded rapidly as the borrowers in these countries repaid loans; the price of the US dollar increased and the US trade deficit increased by $150 billion.

The cross-border investment inflows led to ever-higher prices for securities, as if the money from the sale of securities to foreigners was the proverbial 'hot potato' that was rapidly passed from one group of investors to others at ever-increasing prices. Moreover the price of the country's currency moved upward unless the authorities intervened to limit such increases – and even then the price of the currency often increased in real terms, that is after adjusting for the difference between the inflation rate in the country and the comparable rates in its trading partners.

The third theme centers on the source of credit, and the relation between the monetary authorities – the central bank in each country – and the banks and other private sector lenders. The policy response after every banking crisis is to apply additional regulations to the firms like Lehman and Countrywide and Northern Rock, as if they had been the villains of the crisis rather than the victims. Lehman et al. primarily are the channels for the distribution of credit; while they create credit when they buy more loans, they purchase more loans only if the monetary environment is expansive.

MANIAS AND CREDIT AND BOOKS

The production of books on financial crises is counter-cyclical. A spate of books on the topic appeared in the 1930s following the US stock market bubble in the late 1920s and the subsequent crash and the Great Depression. Relatively few books on crises appeared during the several decades immediately after World War II.

The first edition of this book was published in 1978, after US stock prices had declined by 50 percent in 1973 and 1974 following a fifteen-year bull market when there was a three-fold increase in stock prices.. The sharp decline in stock prices and the US recession led to the bankruptcies of the Penn-Central railroad, several of the large steel companies and a large number of Wall Street brokerage firms. New York City was on the verge of default on its outstanding bonds and was saved from insolvency by the State of New York. Not quite a crash, unless you were a senior official or a stockholder in one of the firms that failed or the Mayor of New York City.

The sixth edition was published after the sharp decline in the price of US real estate and the failure of the investment banks and more than 400 commercial banks and the implosion of the dot.com bubble in US stocks in the late 1990s. Banks failed at about the same time in Britain, Ireland, Iceland, and

Spain. Tl venth edition was prepared as the global economy was recovering from the Great Recession of 2008 and as the European Monetary Union was struggling because of a continuing banking crisis during a period of sluggish economic growth. Moreover, China appeared on the verge of financial meltdown after thirty years of brilliant economic achievements

Each of these surges in the supply of credit has been global, in that four, five, or more countries have been involved. Moreover, the surges in the credit supply appear to be becoming larger, judged by the absolute value of the increase in household wealth.

Books on the 2008 financial crisis

The collapse of US investment banks and commercial banks in 2007 and 2008 and 2009 has led to a large number of books on the banking crisis from three different groups of authors. Many are by journalists, including Gillian Tett, who wrote *Fool's Gold: How Unrestrained Greed Corrupted a Dream, Shattered Global Markets, and Unleashed a Catastrophe.* Andrew Ross Sorkin brought out *Too Big to Fail: The Inside Story of How Wall Street and Washington Fought to Save the Financial System – and Themselves.* Roger Lowenstein authored *The End of Wall Street*, Justin Fox wrote *The Myth of the Rational Market: A History of Risk, Reward, and Delusion on Wall Street*, and Scott Patterson produced *The Quants; How a New Breed of Math Whizzes Conquered Wall Street and Nearly Destroyed It.* The theme of market irrationality is also explored in John Cassidy's *How Markets Fail; The Logic of Economic Calamities.* Michael Lewis's *The Big Short: Inside the Doomsday Machine* focused on a few individuals who early on realized that there was a bubble in the housing market, and that exceptional profits could be achieved from short-selling mortgage-related securities. Then there was Suzanne McGee's *Chasing Goldman Sachs: How the Masters of the Universe Melted Wall Street Down ... And Why They Will Take Us to the Brink Again* and *The Meltdown Years: The Unfolding of the Global Economic Crisis* by Wolfgang Munchau, Charles R. Morris's *The Trillion Dollar Meltdown: Easy Money, High Rollers, and the Great Credit Crash*, James Grant's *Mr Market Miscalculates: The Bubble Years and Beyond*, Charles Gasparino's *The Sellout: How Three Decades of Wall Street Greed and Government Mismanagement Destroyed the Global Financial System*, Barry Rithholtz's *Bailout Nation: How Greed and Easy Money Corrupted Wall Street and Shook the World Economy*, and *Meltdown: How Greed and Corruption Shattered Our Financial System and How We Can Recover* by Katrina vanden Heuvel and the Editors of *The Nation.*

Some of the books are by academics. One of the first was Richard Posner's *The Failure of Capitalism.* Robert J. Shiller produced *The Subprime Solution* and George A. Akerlof together with Shiller wrote *Animal Spirits*; some of the chapters in this book focus on the 2008 crisis. Simon Johnson and James Kwak authored *13 Bankers: The Wall Street Takeover and the Next Financial Meltdown.* Raghuram G. Rajan wrote *Fault Lines: How Hidden Fractures Still Threaten the World Economy*, Joseph Stiglitz produced *Freefall: America, Free Markets, and the Sinking of the World Economy* and Nassim Nicholas Taleb brought out *The Theory of Black Swan Events*, a critique of the prevailing consensus in academic finance about market efficiency. Thomas Sowell's contribution was *The Housing Boom and Bust*, while a group of fifteen distinguished economists brought out *The Squam Lake Report: Fixing the Financial System*, with more than thirty recommendations for changes in regulations. Amar Bhide wrote *A Call for Judgment*, which integrates modern finance and classical economics, while Nouriel Roubini and Stephen Mihm brought out *Crisis Economics: A Crash Course in the Future of Finance.*

A third group of books are by 'insiders', individuals who had formerly been with a banking firm or with a government. One group of insiders had been with banking firms. Lawrence McDonald wrote *A Colossal Failure of Common Sense: the Inside Story of the Collapse of Lehman Brothers*, his former employer. William D. Cohan, a former banker turned journalist, brought out *House of Cards: A Tale of Hubris and Wretched Excess on Wall Street*, while Alex Pollock, another former banker, published *Boom and Bust: Financial Cycles and Human Prosperity.* George Cooper, a financial analyst, wrote *The Origin of Financial Crises.*

Most of these books are US-centric and ignore or minimize the increases and crashes in the property markets in other countries. However, there have been three books on the crisis in Iceland – *Meltdown Iceland: Lessons on the World Financial Crisis from a Small Bankrupt Island*, by Roger Boyes, a British journalist, *Why Iceland?* by Asgeir Jonsson, a former senior banker with Kaupthing, one of the fallen firms, and *Frozen Assets: How I Lived Iceland's Boom and Bust*, by Eftir Armann Thorvaldsson, a former UK head of the same bank. Moreover the government of Iceland that came to power after the collapse established an Icelandic Special Investigation Commission which produced *Causes of the Collapse of the Icelandic Banks – Responsibilty, Mistakes, and Negligence*; the authors were Pali Hreinsson, Tryggvie Gunnarsson, and Sigridur Benediktsdottir.

The US Congress established a bi-partisan, ten-member Financial Crisis Inquiry Commission, which held extensive hearings and interviewed witnesses from the leading financial firms. Both former Chairman Alan Greenspan and former Secretary of the Treasury Robert Rubin testified before the commission. The FCIC's report was published in December 2010 (and is available at www.fcic.gov/report).

The titles and subtitles of these books express common themes – greed, the malfunctioning of markets, the corruption of Wall Street and the capture of Washington and the regulators by the bankers. And more greed.

The shortcoming of most of these books is that they give no explanation for why the crisis occurred when it did, nor do they have an explanation for why some countries were involved but not others. Were the problems in Iceland a spinoff from the United States, or were the problems of the largest and the smallest affected countries a result of a common factor? Was there a sharp increase in greed of the bankers soon after the beginning of the new millennium, or was the greed always there and released by some other event?

Moreover, the focus of these books is usually micro, and centered on the failure of rationality and the inability of the lenders to foresee the consequences of the increase in indebtedness of the borrowers. Asset bubbles – most asset bubbles – are a monetary phenomenon and result from the rapid growth of the supply of credit. The view that excessively rapid increases in the prices of goods and services result from the rapid growth in the money supply is accepted – the axiom is that 'inflation always is a monetary phenomenon'. The counterpart is that 'real estate bubbles always are a credit phenomenon'.

The seventh edition of this book appears nearly forty years after the first and also after thirty of the most tumultuous years in global financial markets, a period without a good historical precedent in terms of monetary turbulence.

The big ten financial bubbles

1. The Dutch Tulip Bulb Bubble 1636
2. The South Sea Bubble 1720
3. The Mississippi Bubble 1720
4. The late 1920s stock price bubble 1927–29
5. The surge in bank loans to Mexico and other developing countries in the 1970s
6. The bubble in real estate and stocks in Japan 1985–89
7. The 1985–89 bubble in real estate and stocks in Finland, Norway, and Sweden
8. The bubble in real estate and stocks in Thailand, Malaysia, Indonesia, and several other Asian countries 1992–97 and the surge in foreign investment in Mexico 1990–94
9. The bubble in over-the-counter stocks in the United States 1995–2000
10. The bubble in real estate in the United States, Britain, Spain, Ireland, and Iceland between 2002 and 2007

The earliest mania noted in the box involved tulip bulbs in the Netherlands in the seventeenth century. Two of the manias – one in Britain and one in France – occurred at the end of the Napoleonic Wars. The manias and banking crises in the nineteenth century often occurred after an extended investment in infrastructure such as canals and railroads. Banking crises were frequent between 1920 and 1940. The percentage increases in stock prices in the past thirty years have been larger than in earlier periods, and six of the ten manias in the box have occurred in this period. Sharp increases in prices of real estate and of stocks often have occurred together, in part because many companies listed on the various stock exchanges own large amounts of real estate.

Manias are dramatic but they have been infrequent; only two have occurred in US stocks in two hundred years. Manias almost always have occurred during the expansion phase of the business cycle because the euphoria associated

with the mania led to increases in spending. During the mania the increases in the prices of real estate or stocks or in one or several commodities contribute to increases in consumption spending and in investment spending that in turn lead to a quickening of economic growth. Seers in the economy forecast perpetual economic growth and some venturesome ones even proclaim an end to recessions and declare that traditional business cycles have become obsolete. The more rapid growth induces investors and lenders to become more optimistic, and the prices of securities and real estate increase more rapidly.

Hollywood and the global banking crisis

The global banking crisis of 2008 has led to both film documentaries and to Hollywood thrillers. Charles Ferguson's ***Inside Job*** won an Academy Award as the best documentary of 2011. Ferguson interviewed money traders, academic economists, and even a New York city madam about her clients and the spending habits of the money traders. Ferguson also visited Iceland, and interviewed several individuals there. Ferguson's story is that the traders were corrupt, and the crisis resulted from too many loans going to subprime borrowers.

Too Big To Fail is based on Andrew Ross Sorkin's account of the relationship between the regulators and the large banks. Citibank and Bank of America have continued in business, but only because of the timely intervention of the US Government.

Manias – especially macro manias – are associated with economic euphoria; business firms become increasingly upbeat and investment spending surges because credit is plentiful. In the second half of the 1980s Japanese industrial firms could borrow as much as they wanted from their friendly bankers in Tokyo and Osaka; money seemed 'free' (money always seems free in manias) and the Japanese went on both a consumption spree and an investment spree. The Japanese purchased ten thousand items of French art. A racetrack entrepreneur from Osaka paid $90 million for Van Gogh's *Portrait of Dr Guichet*, at that time the highest price ever paid for a painting. The Mitsui Real Estate Company paid $625 million for the Exxon Building in New York, even though the initial asking price had been $510 million; Mitsui wanted to get in the *Guinness Book of World Records* for paying the highest-ever price for an office building. In the second half of the 1990s in the United States newly established firms in the information technology industry and in biotech had access to virtually unlimited funds from the venture capitalists who believed they would profit greatly when the shares in these firms were first sold to the public.

During these euphoric periods an increasing number of investors seek short-term profits from the increases in the prices of real estate and of stocks. Investors make down payments for the purchase of apartments in the pre-construction phase in the anticipation that they will be able to sell these apartments at handsome profits when the buildings have been completed, or even before.

Then there is a shock – perhaps a change in government policy, an unexplained failure of a firm previously thought to have been successful – that leads to a pause in the increase in the prices of securities. Soon some of the investors who had financed most of their purchases with borrowed money become distress sellers because the interest payments on the money borrowed to finance their purchases are larger than the rental income on the real estate and the dividends on the stocks. The prices of these securities decline below their purchase prices and now the buyers are 'under water' – the amounts owed on the money borrowed to finance the purchases of these securities are larger than their current market prices. Their distress sales lead to sharp declines in the prices of the securities and a crash and a panic are likely to follow.

The economic situation in a country after several years of mania-like behavior resembles that of a young bicycle rider who needs to maintain the forward momentum – if the bike stops moving forward, the rider becomes unstable and crashes. The analogy is that if the prices of securities stop increasing, they will then decline rather than remain more or less unchanged at the new and higher plateau. During the mania, the prices of real estate and securities increase, and they begin to decline immediately after they stop increasing – there is no plateau, no 'middle ground'. The decline in the prices of some securities leads to the concern that prices will decline further and that the banking system will experience 'distress'. The rush to sell these securities becomes self-fulfilling and so precipitous that it resembles a panic. The prices of commodities – houses, buildings, land, stocks, bonds – crash to levels that are 30 to 40 percent of their prices at the peak. Bankruptcies surge, economic activity slows, and unemployment increases sharply.

There is a biologic regularity in the pattern in each of these manias even though there are differences in details. The increase in prices of commodities or real estate or stocks leads to euphoria among investors; household wealth increases and consumption spending climbs. There is a sense of 'We never had it so good'. Then the prices of securities peak and begin to decline. Some banking crises were preceded by a rapid increase in the indebtedness of one or several groups of borrowers rather than by a rapid increase in the price of a security.

One theme of this book is that the cycle of manias and panics results from the pro-cyclical changes in the supply of credit, which increases rapidly in good times, and then when economic growth slackens, the rate of growth of credit declines sharply. The decline in the rate of growth of credit often triggers the beginning of the decline in the prices of currencies and securities. A mania

involves increases in the prices of securities or real estate or currencies or commodities in the present and the near-future that are not consistent with the prices of the same securities or real estate or currencies in the distant future. The forecasts that the price of oil would increase to $80 a barrel after the earlier increase from $2.50 a barrel at the beginning of the 1970s to $36 at the end of that decade was manic. During the economic expansions investors become increasingly optimistic and more eager to pursue profit opportunities that will pay off in the distant future while the lenders become less risk-averse. Rational exuberance morphs into irrational exuberance, economic euphoria develops and both investment spending and consumption spending increase. There is a pervasive sense that it is 'time to get on the train before it leaves the station' and the exceptional profit opportunities disappear. Security prices increase further and even more rapidly. An increasingly large share of the purchases of these securities is undertaken in anticipation of short-term capital gains and an exceptionally large share of these purchases is financed with credit.

The banking crises that are analyzed in this book are major in size and in effect and most are international because they involve several different countries either at the same time or in a causal, sequential way.

The term 'bubble' is a generic term for the increases in the prices of securities or currencies in the mania phase of the cycle that cannot be explained by the changes in the economic fundamentals. Surges in real estate prices and stock prices that occurred in the second half of the 1980s in Japan and in the early and mid-1990s in some of the Asian countries followed the pattern of a bubble; investors were buying real estate and stocks because their prices had been increasing, and their prices had been increasing because investors were buying these assets. The sharp increases in the US dollar price of gold and in the US dollar price of silver in the late 1970s were manic, but the increases in the price of crude petroleum in the same years were not; the distinction is that many of the buyers of gold and silver in that tumultuous and inflationary decade anticipated that the prices of both precious metals would continue to increase and that profits could be made from buying and holding these commodities for relatively short periods. In contrast many of the buyers of petroleum were concerned that the disruptions in oil supplies due to actions of the cartel and the war in the Persian Gulf would lead to shortages and increases in prices.

Ponzi finance, chain letters, pyramid schemes, manias, and bubbles

Ponzi finance, chain letters, bubbles, pyramid schemes, and manias are somewhat overlapping terms for non-sustainable patterns of financial behavior, in that the prices of securities today are not consistent with the anticipated prices at distant future dates. Ponzi schemes generally involve promises to pay an interest rate of 30 or 40 or 50 percent a month; the entrepreneurs that develop these schemes always claim they have discovered a new secret formula so they can earn these high rates of return. They make the promised interest payments for the first few months with the money received from their new customers attracted by the promised high rates of return. But by the fourth or fifth month, the money received from these new customers is less than the monies promised the first sets of customers and the entrepreneurs go to Brazil or jail or both. Bernie Madoff ran one of the largest Ponzi schemes ever, and his posted returns were in the range of ten to twelve percent – but steady. And he remained in business for more than fifteen years – probably long enough to merit the top position on the hit parade of longest-running Ponzi scheme.

A chain letter is a particular form of pyramid arrangement; the procedure is that individuals receive a letter asking them to send $1 (or $10 or $100) to the name at the top of the pyramid and to send the same letter to five friends or acquaintances within five days; the promise is that within thirty days they will receive $64 for each $1 'investment'.

Pyramid arrangements often involve sharing of commission incomes from the sale of securities or cosmetics or food supplements by those who actually make the sales to those who have recruited them to become sales personnel.

A bubble involves the purchase of an asset, usually real estate or a security, in anticipation that the asset or security can be sold to someone else at an even higher price; the term 'the greater fool' has been used to suggest the last buyer was always counting on finding someone else to whom the stock or the condo apartment or the baseball cards could be sold. The term 'bubble' suggests that when the prices stop increasing, they are likely – indeed almost certain – to decline.

The term 'mania' describes the frenzied pattern of purchases, often an increase in prices accompanied by an increase in trading volumes; individuals are eager to buy before the prices increase further.

Chain letters and pyramid schemes rarely have macroeconomic consequences, but rather involve isolated segments of the economy and involve the redistribution of income from the latecomers to those who were initially involved.

Virtually every mania is associated with a robust economic expansion, but only a few economic expansions are associated with a mania. Still, the association between manias and economic expansions is sufficiently frequent and sufficiently uniform to merit renewed study.

Some economists contest the use of the term 'bubble' because it suggests irrational behavior that is highly unlikely or implausible; instead they seek to explain the rapid increase in real estate prices or stock prices in terms that are consistent with changes in the economic fundamentals. Thus, for them, the surge in the prices of NASDAQ stocks in the 1990s occurred because investors sought to buy shares in firms that would repeat the spectacular successes

of Microsoft, Intel, Cisco, Dell, and Amgen. Perhaps one or two of these firms could repeat these successes, but it was virtually impossible for all of them to do so, because that would have meant an unprecedented increase in the profit share of GDP to an exceptionally high level.

THE POLICY IMPLICATIONS

The appearance of a mania raises the policy issue of whether governments should seek to moderate the increase in prices to reduce the likelihood or the severity of the ensuing banking crisis. Virtually every large country has established a central bank as a 'lender of last resort' to reduce the likelihood that a shortage of liquidity would cascade into a solvency crisis; otherwise the shortage of liquidity would lead to declines in the prices of securities as investors scrambled to obtain cash, and some of the banks and other lenders that were not insolvent before the decline in the price of securities might tumble into bankruptcy. The practice led to the need for an international 'lender of last resort' that would assist countries in stabilizing the prices of their currencies and reduce the likelihood that a sharp decline in the prices of currencies because of a shortage of liquidity would trigger a large number of bankruptcies by borrowers with liabilities denominated in a foreign currency.

During a crisis, many firms that recently appeared robust suddenly become bankrupt because the failure of a few lenders often leads to a decline in the prices of securities and a slowdown in the economy. When the prices of securities decline sharply, government intervention may be desirable to provide the public good of stability. During a banking crisis, the decline in prices of securities may be so large and abrupt that the price changes become self-justifying. At such times a lender of last resort can provide financial stability or attenuate financial instability. The policy dilemma is that if investors know in advance that governmental support will be forthcoming when the prices of securities fall sharply, investors will be less cautious in their purchases of securities and crises might develop more frequently.

The role of the lender of last resort in coping with a crash or panic is fraught with ambiguity and dilemma. Thomas Joplin commented on the behavior of the Bank of England in the crisis of 1825: 'There are times when rules and precedents cannot be broken; others, when they cannot be adhered to with safety.' Breaking the rule establishes a precedent and a new rule that can be adhered to or broken as occasion demands. In these circumstances intervention is an art rather than a science. The general rules that the state should always intervene or that the state should never intervene are both wrong. This same question about the wisdom of intervention reappeared with whether the government should have rescued Chrysler in 1979, whether the State of New York should have rescued New York City in 1975 and whether the federal authorities should have rescued Continental Illinois Bank in 1984. (Continental Illinois failed, although the depositors in the bank were made whole because they were covered by government-sponsored deposit insurance.). Similarly, should the Bank of England have rescued Baring Brothers in 1995 after the rogue trader Nick Leeson in its Singapore branch office had depleted the firm's capital through hidden transactions in option contracts? The question appears whenever a group of borrowers or banks or other financial institutions incurs such massive losses that they are likely to be forced to close, at least under their current owners. The United States acted as the lender of last resort during the Mexican financial crisis at the end of 1994. The International Monetary Fund acted as the lender of last resort during the Russian financial crisis of 1998, primarily after prodding by the US and German governments. Neither the United States nor the International Monetary Fund was willing to act as a lender of last resort during the Argentinean financial crisis at the beginning of 2001.

The conclusion of Charles Kindleberger's *The World in Depression, 1929–1939* was that the 1930s depression was wide, deep, and prolonged because there was no international lender of last resort.[2] Britain was unable to act in that capacity because it was exhausted by World War I, obsessed with pegging the British pound to gold at its pre-1914 parity, and groggy from the aborted economic recovery of the early 1920s. The United States was unwilling to act as an international lender of last resort; few Americans had thought through what the United States might have done if it had chosen to act in that role. (The responsibilities of an international lender of last resort are analyzed in Chapter 13.)

The monetary aspects of manias and panics are important and are examined at length in several chapters. The monetarist view – or at least one monetarist view – is that a mania would not occur if the rate of growth of the money supply were stabilized or constant. Many of the manias are associated with the surge in the growth of credit, but some are not; a constant money supply growth rate might reduce the frequency of manias but is unlikely to consign them to the dustbins of history. The rate of increase in US stock prices in the second half of the 1920s was exceptionally high relative to the rate of growth of the money supply, and similarly the rate of increase in the prices of NASDAQ stocks in the second half of the 1990s was exceedingly high relative to the growth of the US money supply. Some monetarists distinguish between 'real' banking crises that are caused by the shrinkage of the monetary base or high-powered money and 'pseudo' crises that do not. The banking crises in which the monetary base changes early or late in the process should be

distinguished from those in which the money supply did not increase significantly. Many of the surges in the prices of real estate and of stocks since the 1970s have resulted from cross-border investment inflows; the banking crises occurred when these inflows slowed.

The earliest manias discussed in the first edition of this book were the South Sea and Mississippi bubbles of 1719–20. The earliest manias analyzed in this edition are the *Kipper- und Wipperzeit*, a monetary crisis (1619–22) that occurred at the outbreak of the Thirty Years War, and the much-discussed 'tulipmania' of 1636–37. The view that the trade in tulip bulbs in the Dutch Republic constituted a mania followed from widespread recognition, even at the time, that exotic specimens of tulips are difficult to breed, but once bred propagate easily – and hence eventually their prices would decline sharply.[3]

The early-historical treatment focuses on European experiences. The most recent crises covered in this edition center on the real estate markets in the United States, Britain, Ireland, Spain, and Iceland that began in 2008. The concentration on the financial crises in Britain in the nineteenth century reflects both the central importance of London in international financial arrangements and the abundant writings by contemporary analysts. In contrast, Amsterdam was the dominant financial power for much of the eighteenth century, but events there are slighted because of the difficulties in accessing the Dutch literature.

The waves of surges in the supply of credit and the subsequent banking crises since the mid-1970s suggest that these market events have become more global than in the past. Most of the countries that have experienced surges in the supplies of credit that led to sharp increases in the prices of real estate and securities also experienced increases in cross-border investment inflows. These inflows led to increases in the prices of currencies unless they were anchored to parities and to increases in the prices of securities. Each country experienced an economic boom – 'the times could not be better'. Perhaps because of the increases in the prices of currencies, the upward pressures on prices of goods have been smaller than they would have been had the currencies been pegged. Nevertheless the central banks in many countries raised interest rates to dampen inflationary pressures due to the boom – which attracted more money from abroad.

Technological innovations in communications and computing mean that the costs of cross-border investment inflows have declined; investors shift funds to a foreign center for a small anticipated incremental return. Moreover, there is a larger pool of liquid funds denominated in the US dollar in the offshore market that investors can tap when they want to buy securities and assets in countries whose financial and economic prospects suddenly look much brighter.

One of the unique aspects of the last forty years is that 90 percent or more of the banking cri[illegible] have been associated with a currency aspect, and every currency crisis has been a[illegible]ciated with a banking crisis. During the 1950s and the 1960s, there were no significant banking crises and the currency crises were associated with the uncertainty about the ability and the willingness of the authorities in a country to adhere to the commitment to retain the parities for their currencies. Often market participants had concluded that the authorities in a country should reduce the parity of their country's currency because the country had become less competitive in international markets, and its trade deficit was becoming too large as a share of its GDP.

Since the early 1980s each of the currency crises has involved a default by the borrowers in a country on liabilities denominated in the US dollar or some other foreign currency; in some cases the liabilities were those of a government and in many other cases the liabilities were those of banks headquartered in the country that had sold its IOUs in a foreign banking center to get the money so they could increase their domestic lending. The pattern in the data is that that there is an increase in cross-border investment inflows, which always is associated with an increase in the trade deficit in the indebted country as the price of its currency increases, unless such increases are constrained by the intervention policies of the central bank.

The term 'overshooting' describes the increase in the market price of the country's currency relative to its long-term average of equilibrium price, the currency overshoots its long-term average price in response to the increase in cross-border investment inflows. The increase in these inflows also leads to an increase in the price of securities in the country.

Hence the borrowers in a country do not experience a burden or cost of paying interest on their indebtedness, since all of the money comes from the lenders in the form of new loans. Then a shock leads the lenders to become more cautious in increasing their loans to these indebted borrowers. The decline in the investment inflows leads to a decline in the price of the currency of the indebted country, although the central bank may intervene to limit or prevent this decline. Some of the borrowers in the country then will no longer be able to rely on money from new loans to pay the interest on their indebtedness.

Thus currency crises are manifestations or consequences of the decline in cross-border investment inflows on the price of its currency and the ability of indebted borrowers to pay the interest on their foreign indebtedness; the domestic counterpart of the scheduled interest payments in the foreign currency has increased as a result of the decline in the price of the country's currency. The banking crisis is the manifestation or consequence of the same decline in the cross-border investment inflows on the ability of domestic borrowers to pay the interest on their indebtedness in their own currency, because they can no longer rely on the money from new loans.

That these crises come in waves reflects that the pace of cross-border flows often is too rapid to be sustained; a decline in the investment inflows often impacts a group of indebted countries at the same time because the lenders suddenly wish to reduce the increase in their total exposure.

A stylized model of speculation, credit expansion, financ[illegible] istress, and then crisis that ends in a panic and crash is presented in Chapter 2. The model follows the early classical ideas of 'over-trading' followed by 'revulsion' and 'discredit' – musty terms used by earlier generations of economists including Adam Smith, John Stuart Mill, Knut Wicksell, and Irving Fisher. These concepts were developed further by Hyman Minsky, who argued that the financial system in a market economy is unstable, fragile, and prone to crisis. The Minsky model has great explanatory power for earlier crises in the United States and in Western Europe, for the surges in the prices of real estate and securities in Japan in the second half of the 1980s, and for the sharp increases in real estate prices in the United States, Britain, Ireland, Spain, and Iceland between 2002 and 2007. Each of these crises followed a surge in real estate prices that followed from an increase in the supplies of credit.

The mania phase of the economic expansion is the subject of Chapter 3. The central issue is whether the markets in securities and real estate are always rational, or whether speculation can be destabilizing – do investors in real estate and in stocks develop estimates of the anticipated prices on the basis of recent increases in the prices of these assets or are their anticipations of prices based on their estimates of their earning power? The nature of the outside, exogenous shock that triggers the mania is examined in different historical settings including the onset and the end of a war, a series of good harvests and a series of bad harvests, the opening of new markets and of new sources of supply and the development of different innovations – the railroad, electricity, and e-mail.. A recent shock has been financial liberalization or deregulation in Japan, the Nordic countries, some of the Asian countries, Mexico, Russia, and Iceland. Deregulation has led to both domestic monetary expansion and to increases in borrowing in foreign centers to finance domestic loans and speculative investment.[4]

Investors have speculated in commodities, agricultural land, urban building sites, railroads, new banks, discount houses, stocks, bonds (both foreign and domestic), glamour stocks, conglomerates, condominiums, shopping centers, and office buildings. Moderate excesses burn themselves out without significant damage to the economy although individual investors encounter large losses. One question is whether the euphoria of the economic upswing endangers financial stability only if it involves at least two or more objects of speculation, a bad harvest, say, along with a railroad mania or an orgy of land speculation, or a bubble in real estate and in stocks at the same time.

The monetary dimensions of both manias and panics are analyzed in Chapter 4. The occasions when a boom or a panic has been triggered by a monetary event – a re-coinage, a discovery of precious metals, a change in the ratio of the price of gold to the price of silver under bimetallism, an unexpected success of some flotation of a stock or bond, a sharp reduction in interest rates as a result of a massive debt conversion, or a rapid expansion of the monetary base – are noted. Innovations in finance, as in productive processes, can shock the system and lead to overinvestment in some types of financial services.[5] The financial sectors expanded rapidly in the United States, Britain, Ireland, and Iceland during their real estate booms because of the rapid increases in the demand for mortgages following the innovation of securitization, and the introduction of mortgage-backed securities (MBSs) that were claims to the interest income, and the principal of a large number of mortgages that were held in a trust. A sharp increase in interest rates may induce some investors to withdraw money from banks and thrift institutions, which were then squeezed because the prices of their long-term securities have declined relative to their face value when they need to downsize.

The problems associated with managing the monetary mechanism to avoid manias and bubbles is stressed in this edition. Most surges in the prices of real estate and especially those since the 1970s have resulted from the rapid increase in the credit available to homeowners and real estate developers. Monetary control by central banks limits the growth of money and credit – but investment inflows may fund domestic purchases of real estate and securities. Money is a public good but monetary arrangements often have been exploited by private parties. Banking, moreover, is difficult to regulate because new institutions develop that circumvent the regulations. Many monetarists insist that many, perhaps most, of the cyclical difficulties of the past have resulted from mismanagement of the monetary mechanism. Such mistakes were frequent and serious. The argument advanced in Chapter 4, however, is that even when the supply of money was adjusted to the demands of an economy the monetary mechanism did ensure that credit to particular groups of borrowers did not increase at a pace that in retrospect seemed too rapid. When government produces one quantity of the public good, money, the public may proceed to produce many close substitutes for money, just as lawyers find new loopholes in tax laws almost as fast as older ones are closed. The evolution of money from coins to bank notes, bills of exchange, bank deposits, and finance paper illustrates the point. The Currency School may have been right about the need for a fixed supply of money, but it was wrong to believe that fixing or limiting the money supply would guarantee that the supply of credit would not increase too rapidly.

The domestic aspects of a banking crisis are reviewed in Chapter 5. One question is whether manias can be halted by official warnings – moral suasion and jawboning. The evidence suggests that they cannot, or at least that many crises followed warnings that were intended to head them off. One widely

noted remark was that of Alan Greenspan, chairman of the Federal Reserve Board, who stated on 6 December 1996 that he thought that the US stock market was 'irrationally exuberant'. The Dow Jones industrial average was 6600; subsequently the Dow peaked at 11,700. The NASDAQ was 1300 at the time of the Greenspan remark and peaked at more than 5000 four years later. A similar warning had been issued in February 1929 by Paul M. Warburg, a private banker who was one of the fathers of the Federal Reserve system, without slowing the stock market's upward climb. The nature of the event that ultimately produces a turning point is discussed: some bankruptcy, defalcation, or troubled area revealed or rumored, or a sharp rise in the central bank discount rate to halt the hemorrhage of cash into domestic circulation or abroad. And then there is the interaction of falling prices of real estate and securities – a crash – and its impact on the liquidity in the economy.

The impacts of the mania on domestic spending and the resulting euphoria are discussed in Chapter 6. Surges in household wealth and the wealth of the community lead to extravagant expenditure. Malaysia, Dubai, and a few other places have all built 'the tallest building in the world' – to show that they could and that they had the money to pay for the building. (But each had to rely on foreign companies for the technical skills to construct the buildings.) The Japanese imported French art in the 1980s – because other Japanese were importing French art. Money seems 'free', as if the fundamental laws of economics no longer apply.

The implosion of a bubble always leads to the discovery of frauds and swindles that developed in the froth of the mania; these events are reviewed in Chapter 7. Fraud and corruption are based on mis-information – both falsification and misrepresentation; some fraud also involves the theft of private information before it becomes publicly available. Some of the fraud is personal, some is corporate. Bernie Madoff ran one of the largest Ponzi schemes ever; investors lost more than $20 billion. The owners of some business conglomerates in Iceland had 'captured' control of the banks and then borrowed from the banks to increase their consumption and their investments. The combination of failed thrift institutions and the rapid growth of junk bonds in the 1980s cost American taxpayers more than $100 billion; some of these thrifts had been acquired by individuals who relied on the junk bonds for their financing. Enron, MCIWorldCom, Tyco, Dynergy, and Adelphia were a rogue's gallery of corrupt business firms of the 1990s. Many of the large US mutual fund families were exposed because they provided favored treatment to hedge funds. Crashes and panics are often precipitated by the revelation of some misfeasance, malfeasance or malversation (the corruption of officials) that occurred during the mania. One inference is that the swindles are a response to the appetite for wealth (or plain greed) stimulated by the boom; the Smiths want to keep up with the Joneses and some Smiths engage in fraudulent behavior to do so. As the monetary system gets stretched, institutions lose liquidity and as unsuccessful swindles seem about to be revealed, the temptation to take the money and run becomes irresistible.

The international contagion of manias and crises from the seventeenth to the first half of the twentieth century is the subject of Chapter 8; two, three, four, or more countries experienced similar bubble symptoms at the same time. There are two competing narratives. One involves the metaphor of the sun and the moon, with the mania initiated in one country, often a large one, and then 'beamed' to its smaller neighbors or trading partners. Its alternative posits that these countries are subject to the same shock or innovation. There are many possible linkages among countries, including trade, arbitrage of securities, capital flows, changes in central bank reserves of gold or other international reserve assets, and direct contagion of speculators in euphoria or gloom. Some surges in the supply of credit are national, others global in that two, three or more countries are involved. Some crises are national, others international. What constitutes the difference? Did, for example, the 1907 panic in New York precipitate the collapse of the Società Bancaria Italiana via pressure on Paris communicated to Turin by withdrawals of bank deposits? There is a fundamental ambiguity – tight money in one financial center can serve either to attract funds or to repel them, depending on the expectations that a rise in interest rates generates. With inelastic expectations – no fear of crisis or that the price of the currency might decline – an increase in the discount rate attracts funds from abroad and helps provide the cash needed to enhance liquidity; with elastic expectations of changes – of falling prices, bankruptcies, or the decline in the price of the currency – raising the discount rate may suggest the need to take more funds out rather than bring new funds in. The dilemma is familiar in economic life generally. A rise in the price of a commodity may lead consumers to postpone purchases in anticipation of a decline, or to speed up purchases before prices rise further. And even where expectations are inelastic, and the increase in the discount rate at the central bank sets in motion the right reactions, lags in responses may be so long that the crisis begins before the Marines arrive.

One complex but not unusual trigger that leads to financial crisis is a sudden halt to foreign lending, perhaps because of a domestic boom; thus the boom in Germany and Austria in 1873 led to a decline in money outflows and contributed to the difficulties of Jay Cooke in the United States. Similar developments occurred with the Baring crisis in 1890, when troubles in Argentina led to a sudden decline in money flows to South Africa, Australia, the United States, and Latin American countries. The stock market boom in New York in the late

1920s led Americans to buy fewer of the new bond issues of Germany and various Latin American countries, which in turn caused these countries to slide into depression. A halt to foreign trading is likely to precipitate depression abroad, which may in turn feed back to the country that launched the process.[6]

The discussion in Chapter 9 highlights the four waves of banking crises since the early 1980s and the relationships among the successive waves. The likelihood that these four waves are independent and unrelated seems low. The first of these waves was preceded by the surge in bank loans to governments and government-owned firms in Mexico and other developing countries in the 1970s, and the second surge was in Tokyo in the second half of the 1980s; was there a connection between the developing country debt crisis and the surge in property prices in Japan? The third wave was in Thailand, Malaysia, Indonesia, Russia, and other developing countries in the mid-1990s, while the fourth wave occurred in the real estate markets in the United States, Britain, Ireland, Iceland, and Spain ten years later. The crisis in the debt of the governments of Greece and other Mediterranean countries may be a follow-on to the fourth wave. Surges in the prices of real estate cannot occur without the rapid growth of credit, either in the aggregate or to particular groups of borrowers. The theme of this chapter is that there was a systematic relationship among these waves, or at least between the first and the second, and the second and the third. The surge in the supply of credit to Mexico and other developing countries in the 1970s was *sui generis*. When these credit flows slowed sharply the prices of the currencies of these countries declined – but the Bank of Japan resisted the pressure toward the increase in the price of the yen in the second half of the 1980s, which led to a rapid increase in the money supply in Japan. When property prices and stock prices in Japan began to decline at the beginning of the 1990s, the price of the yen increased and Japanese firms rapidly increased their investments in production facilities in Southeast Asia. The prices of the currencies of these countries increased unless they were prevented from doing so, and the prices of real estate increased. When stock prices and real estate prices in Bangkok and the other Asian capitals began to decline in 1997, there was a surge in the flow of money to New York as Asian borrowers repaid their foreign loans; the prices of the Asian currencies declined sharply.

Jail time and financial penalties

Enron was the poster-child of the 1990s boom; the company had transformed itself from the owner of regulated natural gas pipelines into a financial firm that traded natural gas, petroleum, electricity, and broadband as well as owning water systems and electrical power-generating systems. The top executives of Enron felt the need to show continued growth in profits to keep the stock price high, and in the late 1990s they bega[illegible] use off-balance sheet financing vehicles to obtain the capital to grow the firm; they also put exceptionally high prices on some of their long-trading positions so they could report that their trading profits were increasing. The collapse of Enron led to the failure of Arthur Andersen, which previously had been the most highly regarded of the global accounting firms.

MCIWorldCom was one of the most rapidly growing telecommunications firms. Again the need to show continued increases in profits led the managers to claim that several billion dollars of expenses should be regarded as investments. Jack Grubman had been one of the sages in Salomon Smith Barney (a unit of the Citibank Group); he continually promoted MCIWorldCom stock. Henry Blodgett was a security analyst for Merrill Lynch who was privately writing scathing e-mails about the economic prospects of some of the firms that he was otherwise promoting to investors; Merrill Lynch paid $100 million to move the story off the front pages. Ten investment banking firms paid $1.4 billion to forestall trials. The chairman and chief executive officer of the New York Stock Exchange resigned soon after it became known that he had a compensation package of more than $150 million; the NYSE served both as a tent for trading stocks and as a regulator and the managers of some of the firms that were being regulated served as directors of the exchange and participated in determining the compensation package. Then a number of large US mutual funds were revealed to have allowed firms to trade on stale news.

A greater number of individuals have already gone to prison following these events than in the aftermath of any previous crisis, and a number are still awaiting trial. Six Enron senior managers already have been jailed. One Arthur Andersen partner who worked on the Enron account went to prison. Two of the senior financial officials of MCIWorldCom have gone to jail. As a sign of the reach of this crisis, the television and style celebrity (and former stockbroker) Martha Stewart was charged over a share deal and found guilty of obstruction of justice and imprisoned for five months.

The thrust of Chapter 10 – a new chapter in the seventh edition – is the set of crises in the euro – more precisely, the real estate and the banking crises in Ireland and Spain, and the sovereign debt crises in Greece and Portugal. The larger issue is whether one or several members may decide that the costs of membership in the euro are too high. Greece is the poster child, with unemployment rates higher than 20 percent and negative economic growth for five consecutive years. At the beginning of its crisis, Greece had a fiscal deficit of more than 10 percent of its GDP, a trade deficit of 10 percent of its GDP, and a ratio of government debt to GDP of 140 percent. The powers in the European Union were strongly against having Greece leave the euro and hence the policy was domestic deflation in Greece and serial write-offs of government debt. Economic growth has been sluggish in several other countries, the ratio of their indebtedness to their GDPs is so high that they cannot adopt more expansive

fiscal and expenditure policies. And they ceded the freedom to manage monetary policy to the European Central Bank and gave up the right and the ability to reduce the price of their currencies when they adopted the euro.

The broader issue is that the rates of economic growth in the Eurozone countries have been much below the rates in the United States and Britain, even though the US and British banking crises were much more severe. There is a curious sort of paralysis among the Eurozone countries, the imbalances are too large to be sustained, but the only means of adjustment to reduce the imbalances are declines in prices and costs in the countries with the higher costs. The European Central Bank has been very expansive and yet the rate of growth has been very slow – and the unemployment rate in Greece has remained very high. Somehow this is not the way it was supposed to be. And now some regulators want to increase bank capital requirements.

Domestic crisis management is reviewed in Chapters 11 and 12. The first of these two chapters considers the range of domestic responses to a crisis; at one extreme the government may take a hands-off position, at the other there is a range of miscellaneous measures. Those who believe that the market is rational often prefer the hands-off approach; according to one formulation, it is healthy for the economy to go through the purgative fires of deflation and bankruptcy to get rid of the mistakes and excesses of the boom. Among the miscellaneous devices are legal holidays, bank holidays, the issue of scrip, guarantees of liabilities, issuance of government debt, deposit insurance, and the formation of special institutions like the Reconstruction Finance Corporation in the United States in 1932 and the Istituto per la Ricostruzione Industriale (IRI) in Italy in 1933. The Italian literature calls the process the 'salvage' of banks and companies; the British in 1974–75 referred to saving the fringe banks as a 'lifeboat' operation.

The policy choices of a domestic lender of last resort are the focus of Chapter 13 – whether there should be such a lender, who this lender should be and how it should operate. A key topic is 'moral hazard' – if investors are confident that they will be 'bailed out' by a lender of last resort, their self-reliance may be weakened. But on the other hand, the priority may be to stop the panic, to 'save the system today' despite the adverse effects on the incentives of investors. If there is a lender of last resort, however, whom should it save? Insiders? Outsiders and insiders? Only the solvent, if illiquid? The distinction between solvent and insolvent firms depends on the scope and duration of the panic. These are political questions, and they are raised in particular when it becomes necessary to legislate to increase the capital of the Federal Deposit Insurance Corporation (FDIC) when it runs out of funds to bail out failed banks. The issue was particularly acute in the 1990s in Japan, where the collapse of the Nikkei stock bubble in 1990 uncovered all sorts of bad real estate loans by banks, credit unions, and other financial houses, confronting the government with the headache of deciding how much of a burden to put on the taxpayer. If the taxpayers didn't take the hit, then the owners of bonds and stocks would incur very large losses because the prices of these securities would decline further. Particularly troubling in this context was the catatonic state of government in Japan in the 1990s – slow to decide how to meet the crisis and even slower to act.

One of the key issues that a domestic lender of last resort must deal with is whether to extend credit to banks that may be insolvent. The Bagehot doctrine was that the lender of last resort should supply unlimited credit to illiquid but solvent institutions but not supply credit to an insolvent institution. Whether a bank is solvent depends on the prices of the securities and loans in its portfolio. During a crisis, cash is king, and the potential buyers of securities are hiding in the woodwork; a large decline in the prices of securities is necessary to induce them to part with cash. Even though the sale occurred at distress prices, the banks that own these securities must use the sales price in valuing their own portfolios, even though these prices seem exceptionally low relative to the interest income on these securities.

The role of an international lender of last resort in providing global monetary stability is the focus of Chapter 14. There is no responsible government or agency of government with the *de jure* responsibility for providing this public good of global monetary stability. The International Monetary Fund was established in the 1940s as a treaty-based arrangement to reduce the likelihood that countries would manage the prices of their currencies to secure a competitive advantage in the production of exports. But the Fund appears to have forgotten its raison d'etre, and from time to time has become the agent of one or two large countries to enable them to delay the decline in the price of their currencies.

The thrust of Chapter 15 – a new chapter for the sixth edition – is the severity of the credit crisis that began in September 2008 – after the US government decided not to provide the financial assistance that would have allowed Lehman Brothers to remain a viable concern, with a different owner. In February 2008 the US Treasury and the Federal Reserve facilitated the acquisition of Bear Stearns by JPMorganChase by agreeing that Morgan could put up to $29 billion of 'toxic securities' with the Fed. Shareholders of Bear Stearns received $10 a share – many of the shareholders were employees of Bear – and this price was viewed as a retention bonus. During the first week of September Fannie Mae and Freddie Mac, the US-government-sponsored lenders that accounted for more than 50 percent of the credit risk on home mortgages, were taken over by the US Treasury – both institutions were bankrupt and the owners of their common shares and their preferred shares lost virtually all of their money. It appeared as if the US government had in effect adopted a 'too big to fail' policy – these institutions would continue in business, although there would be a dramatic change in ownership. Then the attention turned to whether Lehman Brothers should be 'saved' – otherwise it would close with losses in the billions. The US government officials claimed that they did not have the legal authority to save Lehman – but with a little imagination, they might have been able to delay the closing of Lehman until they had been given the authority. As a minimum, it seems after the near collapse of Bear in February, the authorities should have developed some contingency plans about the appropriate responses to further declines in the prices of real estate and securities. At the outset of the crisis, the markets viewed the decision not to 'save Lehman Brothers' as a major change in policy, but a day after Lehman closed its doors, there was a run on AIG, then the largest insurance company in the world, and the 'too big to fail' policy was resurrected. Nevertheless, investors still panicked, evidenced by the sharp increase in the spreads on riskier assets.

The final chapter – 16 – seeks to answer two questions; the first is why there has been so much economic turmoil in the international economy in the last forty years, and the second is whether an international lender of last resort would have made a difference. The International Monetary Fund was established in the 1940s to act as an international lender of last resort and to fill an institutional vacuum; the view was that financial crises in the 1920s and the 1930s would have been less severe had there been an international lender of last resort. The large number of crises in the last thirty years leads to the question of whether the presence of the IMF as a supplier of national currencies to countries with financial crises encouraged profligate national financial policies. Financial arrangements need a lender of last resort to prevent the escalation of the panics that are associated with crashes in asset prices. But a commitment to the view that a lender is needed should be distinguished from the view that individual borrowers will be 'bailed out' if they become over-extended. For example, uncertainty about whether New York City would be helped, and by whom, may have been the appropriate policy in the long run, so long as help was finally provided, and so long as there was doubt right to the end as to whether it would be forthcoming. This is a neat trick: eventually always come to the rescue, in order to prevent needless deflation, but always leave it uncertain whether rescue will arrive in time or at all, so as to instill caution in other speculators, banks, cities or countries. The economic implosion triggered by the failure of Lehman Brothers could have been avoided if the firm had been acquired by another private firm much as Bear Stearns had been purchased, or if the government had taken over ownership of the firm. In Voltaire's *Candide*, the head of a general was cut off 'to encourage the others'. A sleight of hand may be necessary to 'encourage the others (without, of course, cutting off actual heads) to participate in lender-of-last-resort activities because the alternative is likely to have very expensive consequences for the economic system.

Is the fourth wave of banking crisis since the mid-1970s the last or instead is it likely that the crisis that followed the collapse of real estate prices and the measures adopted to dampen the hardships associated with the failure of many banks in various countries have laid the foundation for a fifth wave. An epilogue summarizes some of the proposals for reform of the US financial system and asks whether the surge in real estate in the United States after 2002 would have been significantly different if the legislation adopted in 2010 had been adopted in 2000.

An epilogue introduced in this edition focuses on the implosion of property prices in China that is underway. The economic achievements of China since the early 1980s have been brilliant; three hundred to four hundred million have moved into the middle class, with clean water in and dirty water out. Property prices have soared and are extraordinarily high, and at the same time, there are ten to fifteen million empty apartments. The combination of high prices and high vacancy rates suggests that the quip of the great Yogi Berra who said 'It's so expensive no one can afford to live there' is relevant. The surge in property prices in China, unlike those in every other country, has been a uniquely national event, and not impacted by investment inflows.

Memories from the top

The two most recent chairs of the Board of Governors of the Federal Reserve have provided their accounts about the US banking crisis of 2008. Alan Greenspan was chair of the Federal Reserve from 1987 to 2006; his book is *The Age of Turbulence: Adventures in a New World* (The Penguin Press). Ben Bernanke followed as Chair of the Federal Reserve from 2006 to 2014. He presented four lectures at George Washington University in March 2012; the book is titled *The Federal Reserve and the Financial Crisis* (Princeton University Press). Henry Paulson was US Secretary of the Treasury from 2006 to 2009; his volume is *On the Brink; Inside the Race to Stop the Collapse of the Global Financial System* (Business Plus). Timothy Geithner followed Paulson as Secretary of the Treasury from 2009 to 2013 and wrote *Stress Test; Reflections of Financial Crises* (Crown); previously Geithner had been President of the Federal Reserve Bank of New York. Alistair Darling was UK Chancellor of the Exchequer from June 2007 to 2011; his memoir is *Back from the Brink: 1,000 Days at Number 11* (Atlantic Press). Sheila Barr was chair of the Federal Deposit Insurance Corporation from 2006 to 2011; the title of her book is *Bull by the Horns: Fighting to Save Main Street from Wall Street and Wall Street from Itself* (The Free Press).

Each author of these tells a story, or his or her side of the 'story' and obviously each seeks to appear in a 'good light'. Each was more or less in charge of a central institution as the banking crisis developed; and each had been involved in government in the several years prior to the crisis. Paulson previously had been chair of Goldman Sachs, Geithner and Barr were Washington lifers. Generations of scholars will compare the stories of each of these policymakers with the record of the changes in the prices of securities and of currencies and of changes in government regulations and of changes in housing prices. One of the key questions these scholars will ask is when each of these policymakers became aware that a systemic crisis was developing, and when each first developed systematic understanding of the source of the 2008 banking crisis, and fishy real estate prices in both the United States and Britain had increased so rapidly in the several years prior to the crisis. Another is whether these officials had asked their staffs to prepare scenarios for the appropriate government policy responses to a sharp decline in the prices of securities and real estate. One scholar might ask whether these officials were knowledgable about Walter Bagehot's classic, *Lombard Street*, and his distinction between a liquidity crisis and a solvency crisis. One might ask whether any had read the first edition of *Manias* or the second or the fifth.

2

THE ANATOMY OF A TYPICAL CRISIS

HISTORY VS ECONOMICS

Historians view each event as unique. In contrast economists search for the patterns in the data, and the systematic relationships between an event and its antecedents. History is particular; economics is general. The business cycle is a standard feature of market economies; increases in investment spending lead to increases in household incomes and in GDP growth rates. Macroeconomics focuses on the explanations for the cyclical variations in the rates of growth of GDP around the long-run trend rates of growth and why these trend rates are higher in some countries than in others.

An economic model of a banking crisis is presented in this chapter, while the phases of the speculative manias that eventually lead to a crisis are illustrated in the following chapters. This model of a crisis covers the boom and the subsequent bust and centers on the episodic nature of the mania and the subsequent events. This model differs from those that focus on the periodicity of economic expansions and contractions, including the Kitchin inventory cycle of thirty-nine months, the Juglar cycle of investment in plant and equipment that has a periodicity of seven or eight years, and the Kuznets cycle of twenty years that highlights the rise and fall in housing construction.[1] In the first two-thirds of the nineteenth century, crises occurred regularly at ten-year intervals (1816, 1826, 1837, 1847, 1857, 1866), thereafter, less regularly (1873, 1907, 1921, 1929).

THE MODEL

A model developed by Hyman Minsky helps explain the banking crises in the United States, Britain, and other market economies. Minsky highlighted that the changes in the supply of credit were pro-cyclical; the supply of credit increased when the economy was booming and decreased as the growth rate slowed. Investors became more optimistic as an economy expanded and they revised upward their estimates of the profitability of a wide range of investments and they became more eager to borrow. At the same time, both the lenders' assessments of the risks of individual investments and their risk averseness declined and they became more willing to make loans, including some for investments that they previously had deemed too risky.

When the economy slowed, investors became less optimistic. The lenders also became more cautious as their loan losses increased, especially if these losses led to declines in their capital.

Minsky believed that the increases in the supply of credit during economic expansions and the subsequent decline in the supply led to fragility in financial arrangements and increased the likelihood of a banking crisis. His model is in the tradition of the classical economists, including John Stuart Mill, Alfred Marshall, Knut Wicksell, and Irving Fisher; they also focused on the variability in the supply of credit. Minsky followed Fisher and attached great importance to the behavior of heavily indebted borrowers, particularly those that had increased their indebtedness to buy real estate, stocks, or commodities in search for short-term profits from increases in their prices. These investors anticipated the pace of increases in the prices of the securities that they were buying would greatly exceed the interest payments on the money that they had borrowed to finance their purchases. When the economy slowed many of these investors would become distress sellers as the prices of the securities that they had purchased had declined.

Minsky suggested that the events that lead to a crisis start with a 'displacement' or innovation, an exogenous shock to the macroeconomic system.[2] If the shock was sufficiently large and pervasive, the economic outlook and the anticipated profit opportunities would improve in at least one important sector of the economy. Business firms and individuals would borrow to take advantage of the increase in the anticipated profits in this sector. Economic growth would quicken and in turn there might be a feedback to even greater optimism. It's 'Japan as Number One' or the 'The East Asian Miracle' or 'The New American Economy' or 'The Geyser Tiger' – much more profound optimism about the prospects for the economy. The tune is always the same, although the words differ across the countries.

The nature of the shock varies from one speculative boom to another. The shock in the United States in the 1920s was the rapid increase in automobile production and the development of highways together with the electrification of much of the country and the large increase in the number of households with telephones. The shocks in Japan in the 1980s were financial liberalization and the repatriation of money to Tokyo in the second half of the decade by carry trade investors that had bought US dollar securities in the prior five years, and the increase in the supplies of money and of credit. The Japanese banks rapidly increased their real estate loans; previously their ability to make loans for the purchase of real estate had been constrained by regulation. The shock in the Nordic countries in the 1980s was financial liberalization, which permitted the domestic banks to borrow in a foreign financial center; they could then use the money to increase their domestic loans. One of the shocks that preceded the Asian financial crisis in 1997 was the discovery of 'emerging market equities as a new asset class' which led to sharp increases in the purchases of these stocks by mutual funds and pension funds headquartered in the United States, Britain, and other industrial countries. The shock in the United States in the 1990s that preceded the stock market boom was the revolution in information technology and the sharp declines in the costs of communication. The shock in the US housing market in 2002 was 'securitization', which involved the packaging of mortgages with similar attributes into bundles that provided the basis for issuing collateralized mortgage obligations (CMOs) and collateralized debt obligations (CDOs). The amount of money available for home mortgages increased sharply as a result of these innovations. The shock in Iceland in 2000 was the privatization of the banks, which then rapidly increased the amounts borrowed from foreign banks so that they could increase their loans to domestic households and business firms. At times the shock has been outbreak of war or the end of a war, a bumper harvest or a crop failure, or the widespread adoption of an invention with pervasive effects – canals, railroads. An unanticipated change in monetary policy like the Federal Reserve's move to sharply reduce the supply of credit in October 1979 has been a major shock.

If the shock is sufficiently large and pervasive, the anticipated profit opportunities improve in at least one important sector of the economy and the profit share of GDP increases. In the early 1980s, US corporate profits were 3 percent of GDP; toward the end of the 1990s this ratio had increased to 10 percent. The significant increase in stock prices associated with the dot.com boom in the 1990s resulted in part from the rapid increase in corporate profits.

The expansion in the supply of credit fuels the boom in the Minsky model. In the pre-banking seventeenth and eighteenth centuries personal credit or vendor financing fueled speculative booms. Once banks had been developed they increased their loans, in the first several decades of the nineteenth century banks increased the supply of credit by issuing more bank notes and subsequently they increased the supply by adding to the deposit balances of business and other borrowers. In addition new banks were formed and their efforts to increase their market share led to rapid growth of credit because the established banks usually were reluctant to accept a decline in market share. In the 1970s the European banks began to poach on the turf of US banks in making loans to the governments of Mexico, Brazil, and other countries in Latin America.

One central policy issue centers on the control of credit from banks and from other suppliers of credit. Often the authorities in a country have applied restrictive regulations that limited the ability of banks to make certain types of loans for the purchase of real estate and consumer goods. The banks established subsidiaries that could make these loans, or their holding companies made these loans. Even if the monetary authorities were successful in controlling the supply of credit from the regulated banks, increases in the supply of credit from non-bank sources often led to a boom.

If the household demand for goods and services increases, then eventually prices increase as the greater demand presses against productive capacity, and the higher levels of profits attract both more investment and more firms. Positive feedback develops as the increase in investment leads to a quickening in the rate of economic growth that in turn induces additional investment.

Minsky noted that 'euphoria' might develop at this stage. Investors buy goods and securities to profit from the capital gains associated with the anticipated increases in the prices of these goods and securities. The authorities recognize that something exceptional is happening and while they are mindful of earlier manias, 'this time it's different', and they have extensive explanations for why it is different. The Chairman of the US Federal Reserve, Alan Greenspan, discovered a surge in US productivity in 1997, about a year after he first became concerned that US stock prices were too high because of 'irrational exuberance'; the increase in productivity meant that corporate profits would increase more rapidly, and hence the higher level of stock prices relative to corporate earnings did not seem unreasonable.

Minsky's three-part taxonomy of finance

Minsky distinguished among hedge finance, speculative finance, and Ponzi finance – on the basis of the relation between the operating income of individual firms and their debt service payments. A firm is in the hedge finance group if its anticipated operating income is more than sufficient to pay both the interest and the scheduled reduction in its indebtedness. A firm is in the speculative finance group if its anticipated operating income is sufficient to pay the interest on its indebtedness;

however, the [illegible] must use cash from new loans to pay part or all of the amounts due on maturing loans. A firm is in the Ponzi group if its anticipated operating income is smaller than the amount needed to pay all of the interest on its indebtedness on the scheduled due dates, so the firm must either increase its indebtedness or sell some assets to get the cash for these interest payments.

Minsky's hypothesis is that when the economy slows, corporate profits decline, and some of the firms that had been in the hedge finance group are shunted to the speculative finance group and some of the firms that had been involved in this group move to the Ponzi finance group.

Minsky's use of the term 'Ponzi finance' memorializes Carlo Ponzi, who operated a small 'near bank' or deposit-taking firm, in a Boston suburb in the early 1920s. Ponzi promised to pay interest on the firms IOUs at the rate of 30 percent a month and his financial transactions went smoothly for three months. In the fourth month, however, the inflow of cash from new depositors was smaller than the interest payments promised to the older depositors and soon Ponzi was on his way to prison.

Now Ponzi finance is generic term for a non-sustainable pattern of finance. The borrowers can only meet their commitments to pay the high interest rates on their outstanding loans if they can obtain cash from new loans. Initially many of the depositors are so pleased with their high rates of return that they allow their interest income to compound; the cliché is that they are 'earning interest on the interest'. Since in many Ponzi schemes the interest rates are very high, often 30 to 40 percent a year, the continuation of the arrangement requires a continuous inflow of new money and often at an accelerating rate. The arrangement can operate only as long as the cash withdrawals are smaller than the inflow of new money.

The continuation of the process leads to what Adam Smith and his contemporaries called 'overtrading'. This term is not precise and includes speculation about increases in the prices of securities or commodities, an overestimate of prospective returns, and 'excessive leverage'.[3] Speculation involves buying securities for resale at higher prices rather than for their investment income. The euphoria leads to an increase in optimism about economic growth and about increases in corporate profits.

In the late 1990s Wall Street security analysts projected that US corporate profits would increase by 15 percent a year for five years. Loan losses incurred by the lenders declined because the prices of securities are increasing and the lenders become more optimistic and reduce the minimum down payments and the minimum margin requirements. Even though bank loans are increasing, the leverage of many of the borrowers – the ratio of debt to capital or to equity – may

decline because the rapid increase in the prices of real estate and securities leads to increases in their net worth.

A follow-the-leader process develops as firms and households see that the investors make a lot of money. 'There is nothing as disturbing to one's well-being and judgment as to see a friend get rich.'[4] Unless it is to see a non-friend get richer. Similarly banks may increase their loans because they are reluctant to lose market share to other lenders. More and more firms and households begin to participate in the scramble for high profits. Making money never seemed easier. Speculation for capital gains leads from normal, rational behavior to what has been described as a 'mania' or a 'bubble'.

The word 'mania' emphasizes irrationality; 'bubble' foreshadows that the prices of some securities will eventually decline and probably sharply. The term bubble means a significant increase in the price of an asset or a security or a commodity that cannot be explained by the 'fundamentals', when the basis for projecting the price of the asset or security at a future date is the recent increase in its price. Small price variations around the values based on the fundamentals are 'noise'. In this book, a bubble is an increase in indebtedness of a group of borrowers at a rate of 20 or 30 percent a year for two, three, or more years. Someone with 'perfect foresight' should have foreseen that the implosion was inevitable because the price increases could not be sustained.

In the twentieth century most of the manias centered on real estate and stocks. There was a real estate mania in southeast Florida in the mid-1920s and an unprecedented mania in US stocks in the last three years of the 1920s; US real estate prices also increased significantly in the late 1920s although not as rapidly as stock prices. In Japan in the 1980s the speculative purchases of real estate induced a boom in the stock market because many of the firms whose shares were traded on the Tokyo Stock Market owned massive amounts of real estate; these firms were like mutual funds that owned lots of real estate. The manias in the Asian countries in the early 1990s involved both real estate and stocks, and the increases in real estate prices pulled up stock prices.

The US bubble in the late 1990s centered on stocks, although the increases in household wealth in Silicon Valley and several other regions led to surges in real estate prices. The oil price shocks of the 1970s led to sharp increases in real estate activity in Texas, Oklahoma, Louisiana, and other oil-producing areas. Similarly the rapid increases in the prices of cereals in the inflationary 1970s led to surges in land prices in Iowa, Nebraska, and Kansas, and other Midwest farm states.

INTERNATIONAL PROPAGATION

Minsky focused on the pro-cyclical changes in the supply of credit in one country. Historically euphoria has often spread from one country to others through one of several channels. The bubble in Japan in the 1980s had significant impacts on South Korea and Taiwan, because the firms in these countries were parts of the Japanese supply chain and exported to firms in Japan; when Japan experienced a high rate of growth, South Korea and Taiwan also had high growth rates. Moreover the surge in the prices of real estate in Japan had a dramatic impact on real estate prices in Hawaii, which is to Tokyo as Miami is to New York; hundreds of thousands of Japanese travel to Hawaii for rest and recreation in the sun and the state experienced a real estate boom as Japanese bought golf courses and hotels and second homes.

Arbitrage is one conduit – investors ensure that the increases in the price of a commodity in one national market lead to comparable increases in the prices of the same commodity in other national markets. Thus changes in the price of gold in Zurich, Beirut, and Hong Kong are closely tied to changes in the price of gold in London. Similarly, increases in the prices of securities in one national market lead to nearly identical changes in the prices of the same securities in other countries. The prices of securities that are more distant substitutes for each other also are affected – the cliché that 'the rising tide lifts all ships' applies.

Cross-border investment inflows constitute a third link between one country and others; the increase in the purchases of foreign securities leads to increases in their prices. And the prices of the currencies of these countries that are exporting securities will decline unless the currencies are anchored to parities.

Moreover, there are psychological connections among financial market conditions in different countries, an increase in investor euphoria in one country leads investors in other countries to become more optimistic. The declines in stock prices on 19 October 1987 were practically instantaneous in all national financial centers (except Tokyo), far faster than can be accounted for by arbitrage, changes in GDP, and cross-border investment inflows.

Changes in conditions in the credit market in one country often have echo effects in others, even though the model of the gold standard was that an increase in the flow of gold to one country and an increase in its money supply would be matched by a corresponding decline in the gold supply and the money supply in a foreign country. Then the increase in the credit supply in the first country would be offset by the contraction of credit in the other. The practical observation is that the increase in the supply of credit in one country may be followed by an increase in credit in other countries, because investors in the second country may respond to rising prices and profits abroad by demanding more credit so they can buy the assets and securities whose prices they anticipate will increase. The potential contraction from the shrinkage in the monetary base in the second country may be overwhelmed by the increase in the speculative demand for credit.

As the boom continues, interest rates, the speed of payments, and the commodity price level increase. The purchases of securities or real estate by 'outsiders' mean that the 'insiders' – those who own these assets – sell them and realize profits; if the outsiders are buyers, then the sellers must be insiders. At every moment the purchases of real estate or stocks by the outsiders are necessarily balanced by the sales of the insiders – usually at ever-higher prices. In 1928 the market value of the transactions on the New York Stock Exchange increased at an annual rate of 36 percent, and in the first eight months of 1929 at an annual rate of 53 percent. Similarly in 1998 the market value of the stocks traded on the NASDAQ increased by 41 percent and in the subsequent fifteen months the market values doubled. Investors rushed to get on the train even as it accelerated. As long as the outsiders were more eager to buy than the insiders were to sell, the prices of securities increased.

As the buyers became less eager and the sellers became more eager, an uneasy period of 'financial distress' followed; this term reflects that a firm is unable to fulfill its debt-servicing commitments. For the economy as a whole, the equivalent is the awareness by many firms and individual investors that it is time to become more liquid – to increase their money holdings. They sell real estate and stocks, and their prices may fall sharply, since the buyers of the real estate and stocks are reducing their own money holdings. Some highly leveraged investors may tumble into bankruptcy because the decline in the prices is so large that the market value of their securities and real estate declines below their indebtedness; some homeowners may have 'upside-down mortgages'. Some investors continue to hold the securities because they believe that the price decline is temporary, a hiccup.

The prices of the securities may rebound, because there are bargain hunters, at least for a while. There were four 'bear market rallies' in Tokyo in the 1990s; each involved increases in stock prices of more than 20 percent. But some investors believed that stock prices had declined too far, and they wanted to be among the first to buy the stocks while they were still 'cheap'.

As the prices continue to decline, more and more investors realize that prices are unlikely to increase and that they should sell before prices decline further; in some cases this realization occurs gradually and in others suddenly. The race from securities to money may turn into a stampede.

The specific signal that precipitates the crisis may be the failure of a bank or of a firm, the revelation of a swindle by an investor who sought to escape distress by dishonest means, or a sharp fall in the price of a security or a commodity. The rush is on – prices decline and bankruptcies increase. Liquidation sometimes is orderly but may escalate into a panic as investors realize that only a few can sell while prices remain modestly below their peak values.

The term 'revulsion' was used to describe this behavior in the nineteenth century. The banks become much more cautious in making new loans based on the collateral of commodities and securities and real estate because their prices have been declining and are more uncertain. In the early nineteenth century this condition was known as 'discredit'.

'Overtrading', 'revulsion', and 'discredit' have a musty, old-fashioned flavor; they convey a graphic picture of the decline in investor optimism. Revulsion and discredit may lead to panic (or as the Germans put it, *Torschlusspanik*, 'door-shut-panic') as investors crowd to get through the door before it slams shut. The panic feeds on itself until prices have become so low that vulture investors are tempted to buy the less liquid securities, or until trade in these securities is stopped because the management of one of the exchanges places limits on maximum daily price declines, or because the exchanges have been closed, or because a lender of last resort succeeds in convincing investors that money will be available to meet the demand for cash. Confidence may be restored even without a large increase in the volume of money once investors conclude that credit will be more readily available.

The decline in the supply of credit may reflect that the lenders have much less confidence that the borrowers are solvent today – or that even if they are solvent today they may not be solvent a week from now or a month from now because economic conditions will soften further and prices of assets and securities will decline further. When the illusions of continued upward momentum have been shattered and prices of securities and real estate are declining, 'cash becomes king'.

Whether a lender of last resort should provide liquidity to forestall a panic and the decline in prices of real estate and stocks has been debated for more than two hundred years. Those who oppose the provision of liquidity from a lender of last resort argue that the knowledge that such credits will be available encourages speculation. Those who want a lender of last resort worry more about coping with the current crisis and reducing the likelihood that a liquidity crisis will cascade into a solvency crisis and trigger a severe recession – like the one that began in 2008. There is no lender of last resort at the international level because there is neither a world government nor any world bank adequately equipped to serve in this role because it would have unlimited ability to increase

the supply of money. The International Monetary Fund has not met the expectations of its founders as a lender of last resort.

The source of credit and the increases in the prices of stocks and real estate

One of the basic propositions in monetary economics is that increases in the quantity of money should be associated with a comparable percentage increase in the goods price level. The proposition leads to two questions; one is why the increase in the quantity of money does not also lead to an increase in the prices of securities and real assets and the second whether the prices of securities and real assets can increase significantly while the quantity of money is more or less constant. Most of the surges in the prices of securities and of real estate follow from increases in the supply of credit, and most of the increases in the supply of credit are associated with expansion of loans by the banks so the counterpart of the increase in the bank credit is an increase in bank liabilities in the form of demand deposits or time deposits. But there are exceptions – the increase in the price of tulip bulbs in Holland in the 1630s was associated with an increase in credit from the sellers of the bulbs to the buyers, who accepted the IOUs or promises to pay of the buyers.

The rapid increase in the US stock prices in the second half of the 1990s was not associated with an increase in the supply of credit. But the increase in US stock prices in the 1927–1929 period was associated with an increase in the supply of credit from the brokerage firms to the buyers of stocks; the brokerage firms in turn financed their loans to the buyers of stocks with money borrowed from the banks.

Virtually all of the sharp increases in the prices of real estate have been associated with an increase in the supply of credit, especially if these booms involved significant increases in construction of new homes and commercial structures.

The almost universal policy response after every banking crisis is that the individual lenders like Lehman Brothers and Countrywide Financial have misbehaved – that they have purchased too many risky loans. These firms are financial intermediaries or middlemen, they buy more loans if monetary conditions are expansive and ask the borrowers to repay loans if these conditions are contractive.

THE VALIDITY OF THE MODEL

Three criticisms have been directed at the Minsky model. One is that each crisis is unique, so a general model is outdated. A second is that changes in the economic environment mean that this type of model is no longer relevant. A third is that asset price bubbles are highly improbable because 'all the information is in the price' – the mantra of the efficient-market view of finance.

The criticism is that each crisis is the product of a unique set of circumstances, or that there are such wide differences among banking crises that they should be arranged into various species, each with its own particular features. Banking crises were frequent in the first two-thirds of the nineteenth century and in the last third of the twentieth century. In this view, each crisis is unique and a product of a specific series of historical accidents – which was said about 1848 and about 1929,[5] and may be inferred from the historical accounts of separate crises noted throughout this book. Each crisis also has its unique individual features – the nature of the shock, the object of speculation, the form of credit expansion, the ingenuity of the swindlers and the nature of the incident that touches off revulsion. But if one may borrow a French phrase, the more something changes, the more it remains the same. Details proliferate; structure abides. Virtually every banking crisis has followed two, three, or more years when the rates of growth of the borrowers' indebtedness exceeded 20 percent a year – rates of growth that were too high to be sustainable for an extended period.

More compelling is the suggestion that the genus 'crises' should be divided into commercial, industrial, monetary, banking, fiscal, and financial (in the sense of financial markets) sub-species or into local, regional, national, and international groups. A large number of taxonomies follow this approach. This view is not accepted in this book because the primary concern is with international financial crises that involve a number of critical elements – speculation, the increase in the supply of credit, and the increase in the prices of securities and of real estate or commodities and the rapid increase in the borrowers' indebtedness. The test is whether the Minsky model provides insights about the broad features of crises.

The second criticism is that the Minsky model of the instability of the supply of credit is no longer relevant because of structural changes in the institutional features of the economy, including the rise of large corporations and of big labor unions and big governments, modern banking, and speedier communications. Alvin Hansen claimed that the Minsky model was relevant in the first half of the nineteenth century but then ceased to be so because of the dramatic changes in the institutional structure. Theories based on uncertainty of the market, on speculation in commodities, on 'overtrading', on the excesses of bank credit, on the psychology of traders and merchants, did indeed reasonably fit the early 'mercantile' or commercial phase of modern capitalism. But as the nineteenth century wore on, captains of industry became the main outlets for funds seeking a profitable return through savings and investments.[6]

Hansen – who was a foremost expositor of the Keynesian model of the business cycle and especially of persistent high levels of unemployment – wanted to downplay the significance of any explanations for declines in economic activity other than increases in household or business saving. Hansen's emphasis on the importance of the relationship between savings and investment does not require the rejection of the view that changes in the supply of credit can have important impacts on the prices of securities and the level of economic activity.

The financial debacles in Mexico, Brazil, Argentina, and more than ten other developing countries in the early 1980s are consistent with the Minsky model; the external indebtedness of these countries increased much more rapidly than their interest payments on their loans in a pattern that could not be sustained. The surges in real estate prices and stock prices in Japan in the second half of the 1980s and the subsequent sharp declines in these prices are consistent with the Minsky model since the annual increases in the prices of stocks and of real estate were three or four times higher than the interest payments on the money borrowed to buy these assets. The booms and the subsequent busts in the second half of the 1990s in Thailand and Hong Kong and Indonesia and then in Russia feature the same pattern of cash flows; initially the borrowers' indebtedness increased much more rapidly than their interest payments on the indebtedness. Similarly the external indebtedness of Iceland, Spain, and Ireland surged in the middle years of the first decade of the twenty-first century.

The third criticism is that bubbles are impossible because market prices always reflect the economic fundamentals, and that sharp declines in the prices of securities usually reflect 'policy switches' by governments or central banks. Those who take this position suggest that the surges in the prices of securities are the result of herd behavior, positive feedback, or bandwagon effects – credulous suckers following smart insiders. These critics suggest that the model is 'mis-specified', that is, that something was going on and not taken into account by the theory, and that more research is needed.[7] Some of the research that these critics want is offered in this book. The shortcoming of the efficient-market view is that the sharp declines in the prices of securities and currencies often have surprised many investors and led to massive bankruptcies.

THE RELEVANCE OF THE MINSKY MODEL IN THE TWENTY-FIRST CENTURY

The Minsky model can be readily applied to the markets for national currencies and to periods of overvaluation and undervaluation of the German mark, the Swiss franc, the Japanese yen, the euro, and other national currencies. Since the early 1970s, changes in the prices of national currencies have been large relative to long-run equilibrium or average prices even though some central banks have intervened extensively to dampen these deviations. Trading in currencies has led to surges in the revenues and profits for many large international banks although a few banks and industrial firms have incurred large losses.[8]

Consider the increase of 20 percent a year in the external indebtedness of the governments and of government-owned firms in Mexico, Brazil, Argentina, loans to these countries by 30 percent a year. The bank loans generally had a maturity of eight years and interest rates were floating and set with a specified markup over the London Interbank Offer Rate (LIBOR). The interest rates averaged 8 percent although they trended upward during the decade while the markups over LIBOR trended down. Since the money that the borrowers received from new loans was substantially larger than the interest payments on their outstanding loans, they incurred no burden or hardship in making their debt service payments on a timely basis.

These investment inflows often led to increases in the prices of the currencies of these indebted countries, which were part of the adjustment process to ensure that the increase in their trade and current account deficits would match the increase in their capital account surpluses. It was inevitable and hence predictable that at some future date the receipts of money from new investment inflows would decline; as a result the prices of the currencies of the indebted countries would fall. The continued decline in the investment inflows meant that eventually these countries would need trade surpluses so they would then earn some of the money that they would need to pay the interest to their foreign creditors. Most of these borrowers defaulted on their loans when the lenders stopped making new loans. These defaults cost the lenders $250 billion in the form of the reduction in the market value of the loans and the write-downs in the interest rates to below-market levels. The lenders had failed to ask, 'Where will the borrowers get the cash to pay us the interest if we stop supplying them with the cash in the form of new loans?'

During the 1980s real estate prices and stock prices in Japan surged; the country experienced an economic boom. Real estate investors earned 30 percent a year if they were unleveraged and much more if they were leveraged. Business firms recognized that the profits on real estate investments were substantially higher than the profits from making steel or automobiles or TV sets and they bought real estate. Real estate prices increased much more rapidly than rental incomes; in many cases the net rental income declined below the interest payments on the money borrowed to buy the real estate. Some borrowers obtained the funds to make the interest payments by increasing their loans against some of the properties that they already owned. At the beginning of 1990, the incoming governor of the Bank of Japan instructed the banks to limit the growth in real estate loans. Once the growth in bank loans for real estate slowed, some of the firms and investors that needed money from new loans to pay the interest on the outstanding loans were no longer able to make their interest payments. They sold real estate and the prices declined and often sharply.

Iceland is the smallest country – 300,000 people – with its own currency. Between 2002 and 2007, prices of residential real estate doubled, which was not exceptional, while the prices of stocks increased by a factor of nine, which was exceptional. In 2002, the value of the assets owned by the three Icelandic banks was 150 percent of the country's GDP, while in 2007 the value of these assets was eight times Iceland's GDP. Moreover Iceland's GDP in 2007 was 20 percent larger than in 2002. Iceland's banks were the most rapidly growing in the world. And then in September 2008 the prices of real estate tumbled; the price of the Icelandic krona declined by 50 percent, stock prices declined by 90 percent, and the economy went into a recession – severe by Iceland's standards but modest by those in other countries.

Because Iceland is so small, the financial processes associated with a bubble are more readily visible than in larger countries. The saga began in 1998 when a market-oriented government began to privatize the banks, a process that was completed in 2002. The buyers of the shares and the new owners of the banks were the entrepreneurs engaged in importing.

In 2002, the price of the Icelandic krona began to increase in response to an increase in the foreign demand for Icelandic securities, which was motivated by the higher anticipated returns on securities denominated in the krona. The flow of money to Iceland was part of a increase in investment inflows to the United States, Britain, Ireland, Spain, South Africa, and Australia. Subsequently the newly privatized Icelandic banks began to sell their own IOUs to banks in London and Zurich and other foreign banking centers, and they used much of the money to increase their loans to Icelandic households and firms. The conversion of the deposits denominated in the euro, the Swiss franc and the Japanese yen into the krona led to a sharp increase in the price of the krona. Iceland's trade balance morphed from a small surplus to a deficit of nearly 20 percent of its GDP. The supply of krona securities was limited, in part because the Icelandic government had had modest fiscal deficits and the Icelandic pension funds had bought many of these securities. The increase in the foreign demand for krona securities led to higher prices.

The Icelandic banks owned relatively modest amounts of stocks of Icelandic firms and as stock prices increased, both the profits of the banks from owning these shares and the capital of the banks increased. The banks increased their loans at a pace that was almost as rapid as the increase in their capital. Some of those who borrowed from the banks used the money to buy stocks. Stock prices were increasing by 65 to 70 percent a year, and bank capital was increasing at the same rate. Banks were buying Icelandic stocks, and they owned an increasingly large share of these stocks. The external indebtedness of Iceland was increasing by nearly 30 percent a year. The flow of money to Iceland was three to four times larger than the interest payments of the Icelandic residents to their foreign creditors. Similarly the domestic indebtedness of households and firms was increasing at a rapid rate, and these borrowers could readily obtain the money to pay the interest on their outstanding loans with the money from new loans.

At an early stage in this investment inflow, the entrepreneurs who owned the Icelandic banks began to lend to the Icelandic entrepreneurs who used the money to buy firms and banks in Britain and other countries in Northern Europe.

The branches of the Icelandic banks in London and elsewhere in Europe sold their IOUs to get the money to lend to the European branches of Icelandic firms. Some of the money that these branches received from the sale of their IOUs was used by the head offices to pay the interest on their indebtedness.

During this stage, there was chatter in the financial circles that Reykjavik would become a new international financial center, like Zurich, Hong Kong, or Luxembourg.

The earnings of the Icelandic banks primarily came from the increases in the prices of Icelandic stocks that they owned. The prospect that their earnings would continue to grow supported the increasingly high level of stock prices – at least for a while. Iceland experienced a consumption boom in response to the increase in household wealth.

When Lehman Brothers failed in mid-September 2008, the Icelandic banks were unable to borrow in the foreign markets, so they no longer had access to the money to pay the interest on their indebtedness to the foreign banks. Stock prices stopped increasing, and some of the borrowers were no longer able to get the cash to pay the interest on their indebtedness, and they defaulted. The loan losses of the Icelandic banks soared. The banks failed, and they were taken over by the Icelandic government.

The US international financial position after 2000 in some ways parallels that of Mexico, Brazil, and Argentina in the 1970s; during several years the ratio of the US current account deficits to US GDP was greater than 6 percent. These countries had unsustainably large current account deficits and obtained the money to pay the interest to their foreign creditors from new loans. The implication is that the US external payments position was not sustainable. But the difference is that the US current account deficits occurred because foreign central banks wanted to add to their holdings of US dollar securities; if their demand for these securities diminished, the price of the US dollar and the US trade deficit would decline.

This book is a study in financial history, not economic forecasting. But the series of spurts in cross-border investment inflows and surges in prices of real estate suggest that lenders have not learned from the experience of earlier manias and crashes. They still have not realized that the central question is the source of the money that the indebted borrowers will use to make their interest payments if they can no longer obtain the money from new loans.

3

SPECULATIVE MANIAS

RATIONALITY OF MARKETS

The word 'mania' suggests a loss of a connection with rationality, perhaps mass hysteria. The loss of connection with rationality reflects that the investors, lenders, borrowers, and the bank and financial regulators fail to recognize that a crash always is the end game for the mania. Economic history is replete with manias that involved the construction of canals, railroads, and homes and commercial properties as well as manias that involved stock prices. Economic theory assumes that men and women are rational – and hence manias would not develop. The rationality assumption is disconnected from the observation that manias occur episodically. This chapter focuses on the increases in the investor demand for a particular type of security or asset and the next chapter is centered on increases in the supply of credit.

The 'rational expectations' assumption is that investors react to changes in economic variables as if they are always fully aware of the long-term implications of each of these changes, either because they are clairvoyant or because they have Superman-like vision. Thus the cliché that 'all the information is in the price' reflects the view that prices in each market change immediately and fully in response to every news item so that no 'money is left on the table' – so that none of the market participants earns an excess return. and presumably none incurs exceptionally large losses.

Contrast the rational expectations assumption with the adaptive expectations assumption that the prices of certain securities or assets at various future dates are extensions of their recent prices – the assumption that is implicit in the view that there are 'trends' in the changes in the prices of securities. The cliché readily obtain th[illegible]oney to pay the interest on their outstanding loans with the money from new loans.

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The 'rational expectations' assumption is that investors react to changes in economic variables as if they are always fully aware of the long-term implications of each of these changes, either because they are clairvoyant or because they have Superman-like vision. Thus the cliché that 'all the information is in the price' reflects the view that prices in each market change immediately and fully in response to every news item so that no 'money is left on the table' – so that none of the market participants earns an excess return. and presumably none incurs exceptionally large losses.

Contrast the rational expectations assumption with the adaptive expectations assumption that the prices of certain securities or assets at various future dates are extensions of their recent prices – the assumption that is implicit in the view that there are 'trends' in the changes in the prices of securities. The cliché that 'the trend is your friend' reflects that prices will continue to increase if they have been increasing. In contrast the thrust of the rational expectations view is that the prices that are anticipated next week and next month determine the prices that prevail today, in effect a backward-looking view from the anticipations about the future to the present. Thus the price of gold in the spot market today is based on the anticipated prices of gold as revealed in a futures market on contracts that mature two or three or more years from now; these anticipated spot prices are discounted to the present by an appropriate interest rate, usually the one on risk-free US Treasury securities. The Canadian dollar price of the US dollar today is the anticipated price of the US dollar for a distant future date discounted to the present by the difference between US and Canadian interest rates.

If a government reduces tax rates to stimulate consumption spending or investment spending, the rational expectations view implies that investors immediately realize that the increase in the fiscal deficit today implies higher tax rates tomorrow and so they will increase the amounts they save in anticipation of the projected increase in their tax bills.

What does it mean to say that investors are rational?[1] One assumption is that most investors behave rationally most of the time. A second is that all investors behave rationally most of the time. A third is that each and every participant in the markets has the same intelligence, the same information, the same objectives and uses the same economic model. A fourth is that each investor behaves rationally all the time.

Each of these assumptions has different implications for the way that investors behave and respond to changes in the prices of securities and of commodities, including gold. Obtaining agreement on the assumption that most investors behave rationally most of the time is easier than obtaining agreement on the assumption that each investor behaves rationally all of the time. Frequently the argument is between two polar positions, one that holds that no investor is ever rational while the other asserts that all investors are always rational. Harry G. Johnson offered this description of the difference between an older group of economists and a younger group interested in international monetary reform in the 1960s:

> The difference can be encapsulated in the proposition that whereas the older generation of economists is inclined to say 'the floating rate system does not work the way I expected, therefore the theory is wrong, the world is irrational and we can only regain rationality by returning to some fixed rate system to be achieved by cooperation among national governments' while the younger group is inclined to say 'the floating rate system is a system that should be expected to operate rationally, like most markets; if it does not seem to work rationally by my standards, my understanding of how it ought to work is probably defective; and I must work harder at the theory of rational maximizing behavior and its empirical consequences if I am to achieve understanding'. This latter approach is the one that is being disseminated, and intellectually enforced, through the [younger] network.[2]

Rationality is an a priori assumption about the way the world should work rather than a description of the way the world has actually worked. The assumption that investors are rational in the long run is a useful hypothesis because it illuminates understanding of changes in prices in different markets; in the terminology of Karl Popper, it is a 'pregnant' hypothesis. Hence it is useful to assume that investors are rational in the long run and to analyze economic issues on the basis of this assumption. One interpretation of the rationality assumption is that prices in a particular market today must be consistent with the prices one and two months from now and with prices one and two years from now adjusted for the 'costs of storage'; otherwise there would be a profitable and relatively riskless arbitrage opportunity.

Ragnar Nurkse summarized his survey of changes in the prices of the French franc and of the German mark in the 1920s with the statement that speculation in the currency market had been destabilizing. Milton Friedman asserted that destabilizing speculation cannot occur – or at least is unlikely to persist – because investors that bought as prices were increasing and sold as prices were declining 'would be buying high and selling low'; because of their losses, they would either go out of business or change their strategy. The Friedman view is that since the destabilizing speculators would fail to survive, destabilizing speculation cannot occur.[3] One response is that from time to time some investors follow strategies that lead to such large losses that they go out of business.

There have been many historic episodes of destabilizing speculation, although at times the language has been imprecise and at other times hyperbolic. Consider some of the phrases in the literature: *manias ... insane land speculation ... blind passion ... financial orgies ... frenzies ... feverish speculation ... epidemic desire to become rich quick ... wishful thinking ... intoxicated investors ... turning a blind eye ... people without ears to hear or eyes to see ... investors living in a fool's paradise ... easy credibility ... overconfidence ... overspeculation ... overtrading ... a raging appetite ... a craze ... a mad rush to expand.*

Fernand Braudel used the terms 'craze' and 'passion' when he discussed everyday life in Europe from the fifteenth to the eighteenth centuries, largely in connection with consumption but also extended to spices, styles of dress, craving for knowledge, and purchases of land.[4]

The principals in the London banking firm of Overend, Gurney, which crashed on Black Friday in May 1866, were said to be 'sapient nincompoops'.[5] 'These losses,' said Bagehot, 'were made in a manner so reckless and so foolish that one would think a child who had lent money in the City of London would have lent it better.'[6]

Clapham's description of the Baring firm in 1890 is understated in a characteristic British fashion: 'They had not considered these enterprises or the expected investors in them coolly or wisely enough [but had] gone far beyond the limits of prudence.'[7]

Consider Adam Smith's comment on the South Sea Bubble: 'They had an immense capital dividend among an immense number of proprietors. It was naturally to be expected, therefore, that folly, negligence, and profusion should prevail in the whole management of their affairs. The knavery and extravagance of their stock-jobbing operations are sufficiently known [as are] the negligence, profusion, and malversation of the servants of the company.'[8]

And finally a description by the usually restrained Alfred Marshall:

> The evils of reckless trading are always apt to spread beyond the persons immediately concerned ... when rumors attach to a bank's credit, they make a wild stampede to exchange any of its notes which they may hold; their trust has been ignorant, their distrust was ignorance and fierce. Such a rush often caused a bank to fail which might have paid them gradually. The failure of one caused distrust to rage around others and to bring down banks that were really solid; as a fire spreads from one wooden house to another until even fireproof buildings succumb to the blaze of a great conflagration.[9]

RATIONALITY OF THE INDIVIDUAL, IRRATIONALITY OF THE MARKET

Manias are associated on occasion with 'irrationality' or mob psychology. The relationship between rational individuals and an irrational group of individuals can be complex. A number of distinctions can be made. One assumption is that of mob psychology, a 'group think' when virtually each of the participants in the market changes his or her views at about the same time and moves as a member of a 'herd'. Alternatively, various individuals change their views about prospective developments in markets at different times as part of a continuing process; most start rationally and then more of them lose contact with reality, gradually at first and then more quickly. A third possible case is that rationality differs among different groups of traders, investors, and speculators, and that an increasing number of individuals in these groups succumb to the hysteria as the prices of securities or currencies or commodities increase. A fourth case is that all the market participants fail to recognize the 'fallacy of composition', the view that from time to time the behavior of the group of individuals differs from the sum of the behaviors of each of the individuals in the group. The fifth is that there is a failure of a market with rational expectations as to the *quality* of a reaction to a given stimulus to estimate the appropriate *quantity*, especially when there are lags between the stimulus and the reactions. Finally irrationality may exist because investors and individuals use the wrong model, or fail to consider a particular and crucial bit of information, or suppress information that does not conform to the model that they have implicitly adopted. The irrationality of the gullible and greedy in accepting the sales chatter of swindlers is described in Chapter 7.[10]

Mob psychology or hysteria is well established as an occasional deviation from rational behavior. Some economic models highlight the demonstration effect, which leads the Smiths to spend more than their incomes – at least for a while – as they seek to keep up with the Joneses. Another is the Duesenberry effect: both the Smiths and the Joneses increase their consumption expenditures when their incomes increase and both are reluctant to reduce their spending when their incomes decline. Politics has its 'bandwagon effects' when individuals back the most probable winners (or 'rats desert the sinking ship' when they turn from losers – though if the ship is sinking the most rational rats are the first to leave). The French historian Gustave LeBon discussed this subject in *The Crowd*.[11] Charles MacKay in his review of the South Sea Bubble[12] mentioned a banker who purchased £500 worth of South Sea stock in the third subscription list of August 1720, saying, 'When the rest of the world are mad, we must imitate them in some measure'.[13] In 2008 Chuck Prince, then the Chair of Citigroup, said 'You have to keep dancing as long as the music is playing'.

Minsky highlighted a mild form of this type of irrationality in his discussion of 'euphoria' in markets. In an earlier day, such waves of excessive optimism perhaps followed by extreme pessimism might have been explained by 'sunspots'[14] or the paths of Venus or of Mars through the heavens. In Minsky's formulation these waves of optimism start with a 'displacement' or shock that leads to an increase in optimism of investors and business firms and of bank lenders. More confident expectations of a steady stream of prosperity and of an increase in profits induce investors to buy riskier stocks. Banks make riskier loans in this more optimistic environment. The optimism increases and may become self-fulfilling until it evolves into a mania.

The 1970s surge in the price of gold

On 1 January 1970 the market price of gold was less than $40 an ounce, on 31 December 1979 the price was $970. Between 1934 and 1970, the market price of gold had been linked to the US gold parity of $35 an ounce; the differences between the market prices and US parity were very small and primarily reflected transactions costs. In the early 1970s the formal link between the price of gold and the US dollar was broken and gold seemingly became 'just another commodity' like petroleum or pork bellies or eggs, freely traded on one of the commodity exchanges. (Obviously gold has had a very different history from nearly every other commodity except silver; very few books have been written about the monetary history of pork bellies or of eggs.) The decade of the 1970s was one of accelerating inflation although not in a linear way; the price of gold increased to $200 an ounce in 1973 and then declined to $110 and then surged.

One of the clichés among investors is that 'gold is a good inflation hedge'; for four hundred years the real price of gold or its purchasing power in terms of a market basket of commodities had been more or less 'constant' over the long run although not in the short run. In the 1970s, in contrast, the annual percentage increase in the market price of gold was many times greater than the annual percentage increase in the consumer price level. The prices of petroleum and copper and wheat and other primary commodities were increasing in this inflationary environment, but the price of gold increased much more rapidly.

At some stage in the late 1970s, investors were extrapolating from the increase in the market price of gold from Monday to Tuesday to project the market price on Friday; they purchased gold on Wednesday in anticipation that they could sell at a higher price on Friday. The 'greater fool theory' was at work; some of these buyers may have realized that the increase in price of gold was a transient event and anticipated that they would be able to sell at a profit before prices began to tumble.

At the end of the 1990s the US dollar price of gold was a bit less than $300 an ounce, and once again the cliché that gold is a good inflation hedge seemed valid; the price of gold had increased by a factor of fifteen since 1900 and the price of a market basket of US goods had increased by about the same amount.

The US dollar price of gold surged after 2008 because some investors believed that there was a non-trivial likelihood that national monies would become virtually worthless as banks failed; some investors wanted a secure store of value. Or maybe some investors believed that central banks would follow policies that would be inflationary as they increased the supply of credit in response to the failure of the banks.

An earlier alternative explanation for this un-sober upswing was provided by Irving Fisher and by Knut Wicksell who emphasized that from time to time the real rate of interest was too low.[15] Consumer prices increase in economic expansions and while interest rates increase they increase less rapidly so the real

rate of interest declines. Lenders have 'money illusion' and ignore the decline in the real rate of interest. In contrast borrowers do not have money illusion; they recognize that the real rate of interest has declined. (The puzzle is to explain why one group of market participants have money illusion and another does not – and while the intuition is that the lenders are more likely to be rational than the borrowers, the lenders lose their money and often their livelihoods when banks and other financial institutions fail.) Rational investors buy more stocks or real estate in this environment of increases in anticipated profits and lower real interest rates. (The Fisher and Wicksell explanations were effective descriptions of the changes in the relationship between nominal interest rates and real interest rates in the 1970s; the decline in real interest rates as the price level increased reflected that investors lagged in estimating the increases in the goods price level.)

This model relies on the ad hoc assumption that two groups of market participants systematically differ in their sensitivity to money illusion.

Too low an interest rate is a special case of what is perhaps a wider phenomenon – the pricing of financial innovations. Initially these innovations may be under-priced as 'loss leaders' so they will be more readily accepted, but the low price may lead to excess demand. Alternatively, undue risks may be taken by recent entrants in an industry as they reduce their selling prices to increase their market share. One notable example is that of Jay Cooke, the last prominent banker of the early 1870s to back a railroad, the Northern Pacific.[16] Other examples include Roger Caldwell in the municipal bond market of the late 1920s,[17] Bernard K. Marcus of the Bank of the United States in mortgages in the same era,[18] and Michele Sindona of Franklin National Bank in the early 1970s.[19]

Angelo Mozilo, the New York butcher who founded Countrywide Financial, wanted his firm to become the largest US mortgage lender, which would involve a significant increase in its market share. That meant Countrywide had to charge interest rates lower than most of its traditional competitors, and extend credit to some borrowers whose applications for loans had been rejected by other lenders.

Speculation often develops in two stages. In the first, sober stage households, firms, and investors respond to a shock in a limited and rational way; in the second, the anticipations of revaluation profits from increases in the prices of securities and assets play an increasingly dominant role. 'The first taste is for high interest but that taste soon becomes secondary. There is a second appetite for large gains to be made by selling the principal.'[20] In the 1830s US investors initially bought land to cultivate more high-priced cotton; thereafter they purchased land for the anticipated profits from the increase in the price of land.

ordinary times they bought more land than they cultivated as a hedge against the decline in the price of the acres that they planted; in booms this more or less sound basis was discarded, and farms were heavily mortgaged to buy *more* land, which in turn was mortgaged so they could buy still more land to profit from anticipated further increases in land prices.[21] The 1830s railway boom in Britain also had two stages: the first prior to 1835 when the projects were not bubbles, and a second after 1835 when they were. In the first phase, shares were sold by promoters to local chambers of commerce, Quaker capitalists, and hard-headed Lancashire businessmen, both merchants and industrialists – that is, to men of substance who anticipated that new business enterprises would flourish from the construction of the railroads. These groups were able to meet both the initial 5 to 10 percent payment and the subsequent calls for payment as the construction progressed. In the second phase, professional company promoters – many of them rogues interested only in quick profits – tempted a different class of investors, including ladies and clergymen.[22] The same stages were evident in building sites in Vienna in the early 1870s; initially these sites were bought for construction but then later were snapped up like speculative poker chips for profitable resale.[23] Ilse Mintz noted a two-stage process in the sale of foreign bonds in New York in the 1920s; these bonds were sound prior to 1924 and the Dawes loan (which touched off the boom) and inferior thereafter.[24] The loans to Mexico and Brazil in the early 1970s were based on the realistic assessments of the credit standing of the borrowers; thereafter the banks wanted to increase their loans and they had less concern with the quality of the projects that were being financed. Loans to sub-prime borrowers in the United States after 2004 surged because the supply of credit was larger than the demand for credit from prime borrowers; the lenders had to look under stones and in the woodwork for the additional borrowers.

Speculators traded titles to condominium apartments in buildings that were still under construction in the real estate boom in Florida between 2003 and 2006. One wag developed a 'Condo-Flip' website.

Essentially there was a reversal between the objective and the process, and eventually the objective became the process. The lenders became so enthusiastic about the process that they failed to appreciate the end game and provide an answer to the standard question about the source of the money that the borrowers would rely on to pay the interest when the money was no longer available from new loans. Initially the junk bond market may have been rational, but then the supply of junk bonds surged and the creditworthiness of the borrowers declined more or less continuously. A lot of attention in the US housing debacle that began in 2007 has been given to the defaults on 'sub-prime mortgages',

2004 to 20 percent in 2005 and 2006, because the supply of prime mortgage loans was too small to satisfy the lenders that wanted to buy more mortgage loans.

The markets in recently completed and in unfinished houses in southern California, sold from one person to another at ever-higher prices with the help of an active market in second mortgages, peaked in 1981 and then collapsed, with price declines of 40 percent.[25] There was a condominium 'craze' in Boston in 1985 and 1986; 60 percent of the buyers intended to sell the units. The condo market turned soft in 1988,[26] in a pattern similar to the 'flat craze' in Chicago in 1881.[27] A similar boom and dip occurred in the apartment market in Chicago in 2003.

The analysis in terms of two stages suggests two groups of investors, the insiders and the outsiders. The insiders destabilize by driving the price up and then at or near the top sell to the outsiders, whose losses are necessarily equal to the gains of the insiders. Johnson pointed out that for every destabilizing speculator there must be a stabilizing one.[28] But the professional insiders initially destabilize by exaggerating the upswings; these insiders follow the mantra that the 'trend is my friend'. At a much earlier stage, these investors were known as 'tape watchers'; more recently they have been called 'momentum investors'. The outsider amateurs who buy high and sell low are the victims of euphoria that affects them late in the day; the 'Belgian dentists' bought the bonds of the Argentinean government in 1999 and 2000 to increase their interest income. After they lose, they go back to their normal occupations to save for another splurge in five or ten years.

The evidence from the gold panic of 1869 is consistent with the hypothesis that Gould and Fisk first drove up the gold price and then sold at the top in a manner that is consistent with destabilizing speculation, although Larry Wimmer does not agree that speculation had been destabilizing.[29] The information available to the two groups of speculators differed. In the early stage, Gould tried to persuade the US government of the desirability of forcibly reducing the price of the US dollar by driving up the 'agio' or premium on gold to increase grain prices, while the outsider speculators operated on the expectation derived from past performance that the US government would seek to drive the agio down so that greenbacks would again be convertible into gold at the pre-Civil War parity. On 16 September the outsiders abandoned this expectation and adopted Gould's; they bought gold and the price went up. On 22 September Gould learned from his associate, President Grant's brother-in-law, that the outsiders originally had been right and that his plan was not going to be adopted; Gould then sold. Belatedly the outsiders saw they were wrong. The result was

Another case that involves two sets of speculators, insiders, and outsiders, is the 'bucket shop'. This term has nearly disappeared from the language since the Securities and Exchange Commission declared the practice illegal, but the men and women who run the boiler shops are the children of those who ran bucket shops. Bucket shops are described in novels; a classic picture is given in Christina Stead's excellent *House of All Nations*.[30] The insiders in a bucket shop take orders from the public to buy and sell securities but do not execute these orders because they assume that the outsider's bet will prove to be wrong. And the bucket shop has the advantage of a hedge. If the outsiders should turn out to be right by 'buying low and selling high', the bucket-shop operators decamp and leave for Brazil. In *House of All Nations*, Jules Bertillon in 1934 fled to Latvia.

Leonardo Di Caprio and *The Wolf of Wall Street*

A recent Hollywood thriller about a boiler shop is the *The Wolf of Wall Street*. Leonard Di Caprio plays the wolf; he makes his living – a high one, full of broads, booze, private jets, and his own yacht – by selling penny stocks to the dentists of Newark and Jersey City and Peoria. Leonardo and his subordinates create or buy a shell of a company with an emotive name – Fusion Biometrics might be an example. Initially they own all of the shares; then they sell a few shares to each other at slightly higher prices, and once they have a track record that shows that the prices increase day after day and week after week, they hustle the dentists and the undertakers and those who own car washes for their orders. Eventually they have sold all the shares to these investors. Their trick or skill is to sell a lot of shares to the public on the basis of the increases in prices that they have managed. And when they have no more shares to sell, they stop buying the shares, and the price falls through the floor when one of the gullible dentists seeks to sell his shares and realize his profits so he can get the money to buy a Ferrari.

Bucket shops evolved into boiler shops that hustled untutored investors with promises of quick sure-fire gains. The owners of the boiler shops had brought forth their own firms; initially they owned nearly all or all of the shares in these firms. Robert Brennan of First Jersey Securities owned and operated or was associated with a series of boiler shops; the names kept changing but the scam was always the same. Their buddies hustled increases in the prices of stocks of very small, little-known firms; once the stock prices were increasing, they used tele-marketing to sell the stocks in small towns all over America after touting how rapidly prices had been increasing.

The great Master of the Mint, Issac Newton, a world class scientist, provides another example of an outside destabilizing speculator who bought high and sold low. In the spring of 1720 he stated: 'I can calculate the motions of the heavenly

in the South Sea Company for £7000, a 100 percent profit. Later an infection from the mania gripping the world that spring and summer caused him to buy a larger number of shares near the market top and he lost £20,000. In the irrational habit of so many who experience financial disaster, he put it out of his mind and for the rest of his life he could never bear to hear the name South Sea.[31]

Yet euphoric speculation with insiders and outsiders may also lead to manias and panics when the behavior of every participant seems rational. Consider the fallacy of composition when the whole differs from the sum of its parts. The action of each individual is rational – or would be if many other individuals did not behave in the same way. If an investor is quick enough to get in and out ahead of the others, he may do well, as insiders generally do. Carswell quotes a rational participant on the South Sea Bubble:

> The additional rise above the true capital will only be imaginary; one added to one, by any stretch of vulgar arithmetic will never make three and a half, consequently all fictitious value must be a loss to some person or other first or last. The only way to prevent it to oneself must be to sell out betimes, and so let the Devil take the hindmost.[32]

'Devil take the hindmost', '*sauve qui peut*', '*die Letzen beissen die Runde*' ('dogs bite the laggards'), are variants on the 'greater fool theory' and are recipes for a panic. The analogy is someone yelling 'fire' in a crowded theater. The chain letter is another analogy; because the chain cannot expand infinitely, only a few investors can sell before the prices start declining. It is rational for an individual to participate in the early stages of the chain and to believe that all others will think they are rational too.

Closely akin to the fallacy of composition is the standard 'cobweb' demonstration in elementary economics in which demand and supply are linked with a lag rather than simultaneously as in an auction that clears the market at each moment. 'Displacement' consists of events that change the economic or financial environment, extend the horizon and alter expectations. In such cases, otherwise rational expectations of some investors fail to recognize the strength of similar responses by others. When there appears to be a shortage of physicists or mathematicians or schoolteachers many young people enter graduate school to prepare for one of these professions; by the time they have finished their studies, there may be an 'excess supply' of individuals trained for careers in this field. After the belated surge in supply, job opportunities suddenly become scarce. But the excess supply becomes known only after the long gestation period. Responses to shortages of coffee, sugar, cotton, or some other to the initial surge in demand and then declines even more rapidly as the new supply eventually becomes available.

The history of manias and panics is full of examples of destabilizing 'cobweb' responses to exogenous shocks. When Brazil opened as a market for British goods in 1808, more goods from Manchester were sent to the market in a few weeks than had been consumed there in the previous twenty years, including ice skates and warming pans that, as Clapham noted, proved to be the accepted illustration of commercial madness among nineteenth-century economists.[33] In the 1820s, the independence for the Spanish colonies triggered a boom in loans to the new Latin American governments, investments in mining shares and in exports to these countries; the surge in investment proved excessive. 'The demand is sudden, and as suddenly stops. But too many have acted as if it were likely to continue.'[34]

In the 1830s the cobweb fluctuation had a two-year periodicity. 'Each merchant would be ignorant of the amounts that other merchants would be bringing forward by the time his own merchandise was on the market.'[35] The same was true in the United States in the 1850s following the discovery of gold in California:

> The extraordinary and undue expectations entertained not only in the United States but in this country [Britain] as to the capability of California – after the 1849 gold discovery – unquestionably aided in multiplying and extending the disaster consequent on the American crisis. [It] was again and again stated, both in London and in Boston, in regard to all shipments to San Francisco, that six, or at most eight, moderately-sized or assorted cargos per month were all that were required or could be consumed; instead of that eastern shippers dispatch twelve to fifteen first-class ships a month, fully laden.[36]

A rather far-fetched line of reasoning led from the phylloxera that ruined many vineyards and set back wine production in France to the 1880s boom in brewery shares in Britain, as one after another private brewery sold shares to investors for the first time in the public company mania. Among them, Arthur Guinness and Co. was bought for £1.7 million and sold for £3.2 million.[37] 'The success of the issue was like the firing of a starting pistol; by November 1890, 86 other brewery companies had issued new shares to the public for the first time.'[38]

There was a boom in Britain at the end of World War I when businessmen thought victory would ensure the elimination of German competition in coal, steel, shipping, and cotton textiles. Prices of industrial assets, ships, stocks,

financed with large amounts of credit. Then sober realization set in from the summer of 1920 to the coal strike of the second quarter of 1921.[39]

Three more cases are on the borderline of rationality. The first – the Duesenberry effect noted earlier – deals with individuals who get used to a certain level of income and find it difficult to reduce their spending when their incomes decline. The counterpart in labor supply is the 'backward-bending supply curve', which suggests that higher wages or salaries produce not more work but less and that the way to increase effort is to lower the wage per unit of time. In economic history books, this principle is known as 'John Bull can stand many things but he cannot stand 2 percent'. John Stuart Mill put it thus:

> Such vicissitudes, beginning with irrational speculation and ending with a commercial crisis, have not hitherto become less frequent or less violent with the growth of capital and the extension of industry ... Rather they may be said to have become more so: in consequence, it is often said, of increased competition; but, as I prefer to say, of a low rate of profit and interest, which makes the capitalists dissatisfied with the ordinary course of safe mercantile gains.[40]

In France at the end of the Restoration and the beginning of the July Monarchy – that is, between 1826 and 1832 – speculation was rife despite the 'distrust that the French always feel toward ill-gotten money'. Landowners earned 2.25 to 3.75 percent on their assets; industrialists tried to earn 7 to 9 percent on their fixed investments, 2 to 4 percentage points more than the long-term interest rate. Merchants and speculators in raw materials sought returns in the range of 20 to 25 percent.[41] Charles Wilson noted that earlier the Dutch were converted from merchants into bankers (accused of idleness and greed); they developed habits of speculation because of the decline in the rate of interest in Amsterdam to 2.5 percent.[42] Large-scale conversions of public debt in 1822 and 1824, and again in 1888 led to a decline in the rate of interest and induced British investors to buy more foreign securities.[43] Andréadès observed that 'When interest goes down, the English commercial world, unable to reduce its mode of life, deserts its usual business in favor of the more profitable, but on that very account more risky undertakings ... speculation leads to disaster and ultimately must be borne by the central bank'.[44]

The boom in bank-syndicated loans to Mexico and other developing countries in the 1970s followed a sharp decline in interest rates on US dollar securities in the spring of 1970 as the Federal Reserve adopted a more expansive policy. Banks were highly liquid and looked for attractive borrowers which they found and ten other developing countries. The 1960s had been a decade of accelerating internationalization for the major US banks and they had rapidly increased the number of their foreign branches. Because commodity prices were increasing rapidly, nominal and real incomes in Mexico, Brazil, and most other developing countries were growing at above-trend rates. Commodity prices declined sharply in the early 1980s in response to the surge in interest rates on US dollar securities, and then nominal and real incomes declined in these indebted countries. Should the banks have foreseen that the decline in commodity prices was inevitable?

The second borderline case involves hanging on to an investment that has gone sour in the hope of some improvement or failing to take a specific type of action when circumstances change. Note the failures of the New York Warehouse and Security Company, of Kenyon, Cox & Co., and of Jay Cooke and Co. on 8, 13, and 18 September 1873, because of loans made to railroads (respectively, the Missouri, Kansas and Texas, the Canada Southern, and the Northern Pacific) with which they were associated. These railroads were unable to sell bonds to obtain the funds they needed to complete construction because investors in Berlin and in Vienna had stopped buying US dollar securities.[45] Similarly, American investors became much more interested in buying stocks in 1928 in the very frothy market and stopped buying German bonds, although New York banks and investment houses continued to make short-term loans to German borrowers. When riding a tiger or holding a bear by the tail, it seems rational to hang on – at least for a while.

For an error of omission, note the plight of Hamburg banks that had made large loans to Swedish banks that were financing smuggled goods into Russia during the Crimean War; the Hamburg banks failed to cancel these loans when peace came. The Swedish banks used the money to speculate in shipbuilding, factories, and mining, which helped embroil Hamburg in the world crisis of 1857.[46]

The third borderline case is to have a rational model in mind, but the wrong one. The most famous example in another field is the French 'Maginot Line psychology', though this may be thought of less as a case of irrational expectations than one of an undistributed lag. '"When a man's vision is fixed on one thing," thought Ponzi, "he might as well be blind"'.[47] Or Bagehot on Malthus: 'Scarcely any man who has evolved a striking and original conception ever gets rid of it.'[48] In the 1760s, Hamburg merchants were not hurt by the fall in commodity prices until the end of the Seven Years' War. Thus in 1799 while the Napoleonic Wars were continuing they were unprepared for the decline in prices that came with the penetration of the blockade of Napoleon's 1798

formed the copper ring in 1888, patterned after the cartel movement in iron and steel, steel rails, coal, and sugar in the early part of the decade, attracted by the successes of the diamond syndicate in South Africa and of the Rothschilds' mercury monopoly in Spain. (Many economists and analysts extrapolated from the success of the Organization of Petroleum Exporting Countries in increasing the price of petroleum in the 1970s to assume that successful price-fixing cartels would reduce the production of nearly every other raw material and foodstuff and lead to much higher prices for these commodities.) By 1890 the French syndicate owned 60,000 tons of high-priced copper plus contracts to buy more; the older mines were reworked and firms began to process scrap while the copper price was declining rapidly. The collapse of the copper price from £80 to £38 a ton in 1889 almost buried the Comptoir d'Escompte, which was saved by an advance of 140 million francs from the Bank of France, reluctantly guaranteed by the Paris banks.[50]

Financial innovation in the form of deregulation or liberalization has often been a shock. Ronald McKinnon led an intellectual attack on 'financial repression' in the early 1970s, that is, the segmentation of financial markets in developing countries from those in the global economy, which led to preferential treatment for the large firms and the government borrowers in these countries that were involved in foreign trade.[51] The message appealed particularly to Latin American countries already influenced by the Chicago doctrine of liberalism. Some countries deregulated their financial systems, which was followed by the rapid growth of new banks and surges in the supply of credit and then inflation; subsequently some of the new banks collapsed.[52] McKinnon concluded that the several steps in the process of deregulation should be staged carefully.[53]

The same question appeared again in Poland and in the former Soviet Union in the early 1990s in fierce debates over whether the shift from a command economy to a market economy should be carried through rapidly or slowly. The success of a transition from a command economy seems to depend on the extent to which individuals in the socialist economy remember the institutional arrangements of capitalism. The memory of the market economy was far greater in Poland than in Russia; long years of socialism and corruption had eradicated the memory of market institutions in Russia. Such memory is more important to transitional success than the speed of decontrol and the privatization of state monopolies.

Charlie Ponzi was alive and well and living in Tirana

The transition from command economies to market economies in what had been Eastern Europe in the early 1990s meant that the financial structures were no

Albania – started firms that promised high rates of return, often 30 percent a month. The public in these countries had accumulated lots of currency and lots of deposits in the state-owned banks; the interest rates on these deposits were extremely low. The public was attracted to the high rates of returns promised by these newly established financial institutions. Competition among the several different 'banks' kept the promised interest rates high.

Some Albanians sold their homes to get the cash to buy these bank deposits and then rented the same properties from the buyers; the 'interest income' on their deposits was much higher than the rent they had to pay for the same homes. Often the buyers of the apartments were the same entrepreneurs who owned and managed the deposit banks. Albanians in its diaspora sent money from New York and Chicago and Frankfurt to their relatives in Tirana to be deposited in these new institutions. Some Albanians stopped working because the interest income on their deposits was so much higher than their wages and salaries.

Alas it was too good to be true and it wasn't.

One purely irrational case involves a society that pins its hopes on some outstanding event of limited relevance to its current economic circumstances and another is when a society ignores evidence that it would prefer not to think about. Many Austrian enterprises had invested extensively in anticipation of the increase in business activity that would follow from the opening of the World Exhibition in Vienna on 1 May 1873; their liquid liabilities greatly exceeded their liquid assets and they had acute financial distress. The objective of each of these world fairs was to increase business activity, so there was significant investment in facilities to accommodate those who would visit. The credit at banks was stretched to the limit; a move from commodities, land, shares, and debt back into money was under way and the chain of accommodation bills was extended as far as it would go. Nonetheless the firms and the banks that had lent to them hung on, waiting for the exhibition to open, because they thought or at least hoped that the surge in revenues from the visitors would be large enough so the investments would prove to be profitable. When the exhibition opened and the increase in sales was disappointing, the market collapsed in early May.[54]

As an illustration of repression of contradictory evidence – the cognitive dissonance case – consider J. W. Beyen's analysis of the German failure to restrict short-term borrowing from abroad at the end of the 1920s. He suggested that the dangers were not faced, even by Schacht, the German finance minister, and added: 'It would not have been the first nor the last time that consciousness was being "repressed"'.[55] These examples suggest that despite the general usefulness of the assumption of rationality, markets have on occasions – infrequent occasions – acted in ways that were irrational even when each participant in the market believed he or she was acting rationally.

DISPLACEMENTS

A displacement is an outside event or shock that changes horizons, expectations, anticipated profit opportunities, behavior – 'some sudden advice many times unexpected'.[56] A surge in the oil price is a displacement. An unanticipated reduction in the parity of a currency is another – although most such reductions have been anticipated because the authorities almost always have lagged in changing the parities for their currencies. A change in financial regulations, especially the liberalization on restrictions to loans to particular groups of borrowers, is a displacement. The shock must be sufficiently large to have an impact on the economic outlook. Each day's events produce some changes in outlook, but few are significant enough to qualify as a shock.

War is a major shock. Some crises occur immediately at the beginning or end of a war, or soon enough after the end to permit a few expectations to be falsified. For beginnings, the most notable is the crisis of August 1914. The displacements at the end of wars include the crises of 1713, 1763, 1783, 1816, 1857, 1864, 1873, and 1920. Moreover, there has been an impressive series of crises seven to ten years after the end of a war, long enough for expectations formed at the end of the original crisis to be falsified; these included 1720, 1772, 1792, 1825, 1873 in the United States, and 1929.

Far-reaching political developments may also change expectations. The Glorious Revolution of 1688 gave rise to a boom in company promotion. By 1695 there were 140 joint-stock companies with a total capital of £4.5 million; more than 80 percent had been formed in the previous seven years. By 1717 total capitalization had reached £21 million.[57] The Bubble Act of July 1720 forbade the formation of new joint-stock companies without explicit approval of parliament, a limitation that lasted until 1856. Although this legislation has normally been interpreted as a reaction against speculation in the shares of the South Sea Company, Carswell asserts that it was undertaken to support the South Sea Company, as king and parliament sought to repress the development of rival companies that might attract cash that was intensely needed by the South Sea promoters.[58]

The events of the French Revolution, Terror, Directorate, Consulate, and Empire, along with incidents of the Napoleonic Wars themselves, set in motion large-scale specie movements in 1792–93 and 1797 and opening and closing markets in Europe and elsewhere for British and colonial goods. Further political events of the kind in France were the Restoration (1815), the July Monarchy (1830), the February 1848 revolution, and the Second Empire (1852). The Sepoy Mutiny in India in May 1857, followed by a Hindustan military revolution, contributed to the distress in the London financial markets.[59] These events were a precedent for the Invergordon disorder of September 1931, when a contingent of British sailors came close to striking over reductions in their pay decreed by the new national government. Continental Europeans interpreted this response as a mutiny by the navy, a great British institution, which contributed to the British decision to stop pegging the pound to gold.[60]

War, revolution, restoration, change of regime, and mutiny come largely from outside the system; they are beyond the usual set of risky events that can be modeled as a probability distribution – hence they qualify as a 'black swan'. Monetary and financial displacements are more difficult to describe as exogenous. But maladroit recoinage, tampering with gold-silver ratios under bimetallism, conversions undertaken to economize on government revenue that unexpectedly divert investor attention to other avenues, new lending that proves successful beyond all anticipation – these also are displacements.

The *Kipper- und-Wipperzeit* of 1619–23 noted earlier received its name from the actions of money changers who took the debased coins that were coming from the increase in the number of princely mints and rigged their scales as they sought to exchange bad money for good with naive peasants, shopkeepers, and craftsmen. Rapidly rising debasement spread from state to state until the coins used in daily transactions became worthless.[61]

Two later German recoinages provide a study in contrast. In 1763, Frederick II of Prussia bought silver in Amsterdam on credit to provide for a new coinage to replace that which had been debased during the Seven Years' War. He withdrew the old debased money from circulation before the new money was issued, which precipitated a deflationary crisis and the collapse of a chain of discounted bills.[62] More than 100 years later, after the Franco-Prussian indemnity, the German authorities issued new money but this time before the old money was withdrawn to save on their interest payments. In three years the circulation of coins rose threefold from 254 million thalers (762 million marks). The result was a goods price inflation.[63]

The crisis of 1893 in the United States arose from the threat to gold convertibility from the Sherman Silver Act of 1890 and has already been noted. So have the British debt conversions of 1822, 1824, 1888, and 1932, although the last was associated with a boom in housing that did not lead to a crisis. In France, conversion of the 5 percent *rente* was discussed after 1823 as the money supply expanded and the rate of interest would have fallen had investors not been reluctant to buy *rentes* at a premium. Each of three bankers had a different idea of the purpose of the conversion: Rothschild wanted to sell more *rentes*; Greffuhle (and Ouvrard) hoped to attract investors into canals while Laffitte wanted to ensure the development of industry. Political obstacles prevented passage of the

the *rente* at a premium. This sharp decline in interest rates touched off speculation.[64] Canals were built by the government with private money[65] and the faint glow of a railroad boom could be seen in France along the Loire, the Rhone, and the Seine. But the main object of speculation was building in and around the major cities – Toulouse, Lyons, Marseilles, Le Havre.[66] Honoré de Balzac's novel *César Birotteau*, written in 1830, was inspired by this experience; he recounted the doleful story of a perfumer who was enticed into buying building lots in the vicinity of the Madeleine on borrowed money for 'one quarter of the value they were sure to have in three years'.[67]

The success of loans in recycling reparations or indemnities after the Napoleonic and Franco-Prussian wars and World War I has been mentioned. Any surprising success of a security issue with a large multiple over-subscription and a quick premium for subscribers attracts borrowers, lenders and especially investment bankers. The Baring loan of 1819 – 'the first important foreign loan contracted by a British bank'[68] – led quickly to a series of issues for France, Prussia, Austria, and, later, the newly independent countries in Latin America that had been Spanish colonies. The Thiers *rente* made French banking houses salivate in the hope of foreign loans, a hunger that received a further fillip from the 1888 conversion loan for czarist Russia that bailed out German investors and sent French investors down a trail that was to end, after revolution in 1917, with a whimper rather than with a bang. The Dawes loan in 1924 opened the eyes of American investors to the romance of buying foreign securities. The Thiers *rente* was oversubscribed fourteen times, and the Dawes loan eleven times; far more important than the size of the multiple, however, was that investors became more enthusiastic about buying these securities. Rosenberg described the three French loans of 1854 and 1855 as sensational, since they were oversubscribed almost two to one (468 million francs on an offering of 250 million), four to one (2175 million francs for an issue of 500 million), and five to one (3653 million against 750 million). In Austria and Germany, however, when the speculative boom of the 1850s was under way, the Credit Anstalt opening stock sale was oversubscribed 43 times, largely by people who had stood in line all night; and when the Brunswick Bank sought 2 million thalers in May 1853, it was offered 112 times that amount in three hours.[69]

Among major recent displacements have been the deregulation of banks and financial institutions, derivatives (which existed earlier on a much more modest scale), mutual funds, and hedge funds, Real Estate Investment Trusts (REITS), bank flotation of loans and mortgages as marketable securities, and the initial public offerings (IPOs) of private companies.

The deregulation of financial institutions was a major contributory factor half of that decade. Each Japanese bank was keenly interested in its position on the hit parade of banks in terms of the size of its assets and deposits; each wanted to move to a higher position on this hit parade ladder – which meant that each had to 'grow its loans' more rapidly than one or two of the banks that had a higher position on this ladder.

The technological revolution in the 1920s – the sharp increase in automobile production, the electrification of much of America, the rapid expansion of the telephone system, the increase in the number of movie theaters – was a major shock. Investment surged. Similarly, in the 1990s, especially in the second half of the decade, there was a major technological information revolution. The venture capital firms, especially those in the San Francisco Bay area, were eager suppliers of finance to many of the engineers who had ideas. Then, at a later stage, these firms received 'mezzanine financing'. The next stage was that the firms had an initial public offering (IPO) arranged by one of the major investment banks including Merrill Lynch, Morgan Stanley, and Credit Suisse First Boston. The investment banks would arrange 'road shows' for these firms as they were about to sell their shares to the public; entrepreneurs would visit the mutual funds and the pension funds and the managers of other pools of money. Based on the demand, the investment banks would price the shares at $19 or $23 or $31, and perhaps 10 to 20 percent of the firms' outstanding shares would be sold. Often the price of the shares at the end of the first day's trading was three or four times the IPO price.

The 'pop' in the share price on the first day's trading was an advertisement that stock prices only increase, and often very rapidly. During the late 1990s an extremely high proportion of new stock issues experienced these large price surges on the first day of trading, which encouraged strong investor demand and many more new stock offerings.

'Dow at 36,000', 'Dow at 40,000', 'Dow at 100,000'

Three books with nearly identical titles were published in 1999.* Their themes were almost identical – if interest rates remained low and corporate earnings continued to increase, then eventually the Dow Jones index of stock prices would reach much higher levels than ever before. The logic was irrefutable, more or less an extension of the Archimedes principle that he could move the world if he had a large enough lever. In the long run the level of stock prices reflects three factors: the rate of growth of GDP, the profit share of GDP, and the relation of stock prices to corporate earnings or the price-earnings ratio. The profit share of US GDP has been remarkably constant in the long run at about 8 percent and the price-earnings ratio has averaged about 17 per cent.

Investors continually choose between buying bonds and buying stocks. The interest rate on bonds has averaged about 5 percent; the earnings yield on bonds, the reciprocal of the interest rate, is thus 20.

Those who forecast the Dow at 36,000 believed that the price-earnings ratio should be much higher because stocks were no more risky than bonds.

* James K. Glassman and Kevin A. Hassett, *Dow 36,000: The New Strategy for Profiting from the Coming Rise in the Stock Market* (Random House, 1999); David Elias, *Dow 40,000: Strategies for Profiting from the Greatest Bull Market in History* (McGraw-Hill, 1999); Charles W. Kadlec, *Dow 100,000: Fact or Fiction* (Prentice Hall, 1999).

OBJECTS OF SPECULATION

In the last several decades of the twentieth century investors speculated primarily in real estate or stocks; in earlier periods the objects of speculation were more diverse. The list shows the tendency for these objects to move from a few favored items at the beginning of the period of observation to a wide variety of commodities and other assets and securities at the end. The list is partial but suggestive.

How likely is it that a displacement will lead to a shock that induces individuals to invest for capital gains and especially short-term gains? Assume that destabilizing speculation can occur in a world of normally rational individuals. Then assume a shock; these individuals misjudge its impact. There are many shocks but only a relatively small proportion lead to a speculative mania.

One question is whether two or more objects of speculation such as real estate and stocks are likely to be involved before 'overtrading' reaches sufficient dimensions to lead to a crisis. Consider several occasions when two or more objects have been involved in speculation.

The South Sea and Mississippi bubbles in 1720 were related, and fueled by monetary expansion in Britain and France that supported a massive amount of speculative steam. Speculation that started in the securities of the South Sea Company and the Sword Blade Bank in England, and in those of the Mississippi Company and John Law's banques in France spread rapidly to other ventures and to commodities and to land; many of these other ventures were swindles. The South Sea Company failed because of its attempt to suppress rival speculations by bringing proceedings under the Bubble Act of June 1720 against York Buildings, Lustrings and Welsh Copper boomeranged.[70] The spread of speculation from one object to another, to generalize the rise of prices, occurred because the speculators that sold South Sea stock when prices were approaching their peak purchased banks and insurance stocks and country houses.[71] Then the price of land began to move with the price of South Sea stock.[72] In France land prices rose in the fall of 1719 as speculators started to take their profits from the Mississippi Bubble.[73]

The 1763 boom was based exclusively on government war expenditure and its finance through chains of discount bills. The DeNeufville Brothers, whose failure set off the panic, sold 'commodities, ships, and securities like so many Dutch firms',[74] with hundreds of thousands of florins in acceptance liabilities while they rarely kept more than a few thousand guilders in cash reserves.

An unparalleled drought in England in 1762 led to shortages of hay and scarcities of meat, butter, and cheese and economic conditions softened.[75] The crisis of 1772 was precipitated by speculation in Amsterdam and London in the stock of the East India Company and by the collapse of the Ayr Bank (Douglas, Heron & Co.). Numerous complex details were involved, including the political reverses of the East India Company and restriction on its credit by the Bank of England; the practice of the thrusting new Ayr Bank (which was left bad loans by the established banks) to borrow in London when its acceptances came due; and the flight in July 1772 of Alexander Fordyce, who had lost his firm's money selling East India Company stock prematurely. When the price of the stock fell in the autumn, Clifford & Co., the Dutch bank that had headed a syndicate trying to push the price up, failed. These phenomena seem superficial, however. Extensive investment in Britain in houses, turnpikes, canals, and other public works had put a strain on resources.[76] One source relates the fall in coffee prices beginning in 1770 to the financial crisis of 1772–73,[77] but this is not mentioned by Wilson, the standard source, or by Ashton, Clapham or Buist.[78]

In 1793 a flow of money to London was stimulated by several causes – the expansion of country banks, the construction of more canals, the Reign of Terror – as well as bad harvests. In 1799 the tightening and loosening of the blockade led to further flows of money to London. Contrariwise, the crisis of 1809–10 had 'two separate causes: a reaction from the speculation in South America; and a loosening and then tightening of the continental blockade'.[79] The surge in exports to Europe and the United States in 1815–16 was larger then the amount that could be sold; the economy slowed as a result of the combination of the excess supply and the fall in the price of wheat. Canals and South American government bonds and mines combined in 1825; British exports, cotton, land sales in the United States and the beginning of the railroad mania contributed to the crisis in the mid-1830s. The crisis of 1847 was caused by the railway mania, the potato blight, a wheat crop failure one year and a bumper crop the next, followed by revolution in Europe.

Thus at least two objects of speculation were involved in most of the significant crises. Just as the national markets were connected, so the speculation was connected by the underlying credit conditions. But when a crisis like that of 1847 arose from developments as disparate as railroads and wheat, there is some basis for suggesting that the crisis is accidental in origin unless the monetary conditions that fed it were systematic.

In Japan and in the Asian countries, surges in the prices of real estate and of stocks have generally occurred together. In some countries, especially small ones, the market value of real estate companies accounts for a high proportion of the market value of all stocks as a group. When real estate prices increase, the value of the properties owned by the real estate companies increases, and the market value of the real estate companies that are traded on the stock exchanges also increases. Those investors who have sold the real estate stocks have more cash to invest and much of this cash is likely to be invested in stocks of firms not involved in real estate. Moreover when real estate prices increase, then the construction business is likely to boom and the market value of the construction companies is likely to increase. The bank loan losses are likely to be below trend when real estate prices increase. And the relationship is symmetric; when real estate prices decline, stock prices also decline.

NATIONAL DIFFERENCE IN SPECULATIVE TEMPERAMENT

One suggestion is that investors in some countries are more likely to speculate than those in others. Despite Ruth Benedict's distinction between cultures with Apollonian (balancing) and those with Dionysian (orgiastic) temperaments,[80] the proposition is dubious. And despite this implausibility, the opinion among historians is that the Brabanters had a strong gambling temperament in the sixteenth century, and that those tens of thousands who migrated to the United Provinces after the sack of Antwerp in November 1576 and its devastating siege in 1585 took this temperament with them.[81] In the Dutch Republic, the gambling instinct of bankers, investors, and even common folk existed in great tension with Calvinist and Lutheran frugality and abstemiousness.[82] There may be substance to the view that banking institutions facilitate more speculation in some countries than in others; Canada did not experience the surges in property prices that preceded the US banking crisis in 2008. Juglar claims the French crises in the eighteenth century were less abrupt and less violent than those of Britain because (after the John Law affair) credit in France was less used and less abused.[83] A different view ascribes French experience to a more severe bankruptcy law:

> A high standard of business honesty prevails in France, perhaps because of education, the force of law, tradition, and roles of established institutions. The act of sons in toiling for years to pay the debts of their fathers, and of notaries in paying for the defalcations of one of their number, for the sake of the profession, although without personal association

> with him, indicates a standard of compliance with business obligations which strongly influences the material prosperity of the country. It may be surprising that the nation whose soldiers are so noted for dash in war should furnish financiers and business men who are the embodiment of conservatism in their methods, but such is clearly the case.

This author continues, 'England is the country in which a spirit of adventure and speculation has done most to promote crises and depressions'.[84]

One historian has suggested that mining and sheep grazing contributed to a love of gambling, and that Australians, starting with the gold discoveries of 1851–52, developed a particular love of gambling, expressed both through horse racing and speculation in land.[85]

A common view is that the United States is 'the classic home of commercial and financial panics', presumably because of wildcat banking.[86] This was observed in the 1830s by Michel Chevalier who contrasted French moderation with American speculation (but who believed, however, that the latter was a stimulus to the construction of canals, railroads, roads, factories, and villages).[87] Letter 25 of his letters from America to France is devoted to a discussion of speculation: 'All the world speculates and it speculates on everything. From Maine to the Red River (in Arkansas) the United States has become an immense Rue Quincampoix [the Wall Street of the Mississippi Bubble].'[88] Partly the origins lie in permissive institutions. But it is easy to find abundant and contradictory views on the demand side for other countries: 'The French nation is prudent and economical, the English nation is enterprising and speculative.'[89] 'France has not shown proofs of prudence equal to those of Scotland; its nerves are extremely susceptible, impressionable in matters of credit.'[90] 'The character of this nation [Britain] is in carrying everything to excess ... virtue, vice.'[91] After 1866, a new arrogance was said to have taken hold of the Germans, but they surpassed the French only in 'stock-market swindling and speculation horrors'.[92] Morgenstern found ten panics in France, two more than in the United States, which is 'not surprising, given the unstable character of French politics'.[93] (His remarks addresses displacements rather than the love of speculation.) Contrast, however, the opinion of a French financier who claims that 'the French love money not for the possibilities of action which it opens, but for the income it assures'.[94] Or consider two views, at the level of a Harvard–Yale debate, from a fictional Frenchman and an Englishman in 1931:

> WILLIAM BERTILLION: England's such a Christmas tree for share-pushers. Noble lords will sit on the board of any company for a couple of quid a sitting. And the public. Loco or idiotic. God, I've never

> heard of such people, except perhaps some peasants in Bessarabia, or the niggers in the from Cameroons, who believe in what they believe in. Magic. Put up any sort of business that sounds impossible and they gulp it down.[95]
>
> STEWART: England's the world's banker. Never failed yet, never failed yet. She keeps her word, that's why ... None of this – none of this speculation you get in the American stock market. Every Tom, Dick and Harry trying to make a pile – like in France.[96]

It's a stand-off. The speculative temperament may differ among countries. The amount of speculation in a country may change as the national mood swings between elation and depression.