1 Introduction

Central banks in many countries, the venerable Bank of England not excepted, have for decades published deliberately misleading statistics. . . . if the Bank of England lies and hides or falsifies data, then how can one expect minor operators in the financial world always to be truthful, especially when they know that the Bank of England and so many other central banks are not? . . . Inaccuracy as a consequence of privilege is a frequent occurrence. . . . The economist will do well to guard against an interpretation of "data" which are often anything but economic measurements; rather they are tools in the continuing struggle for power.

—Oskar Morgenstern (1965, pp. 20–21, 159, 193), Princeton University

The recent financial crisis that began to mount in 2008 followed the "Great Moderation." Some commentators and economists concluded that the decline in business cycle volatility during the Great Moderation should be credited to central bank countercyclical policy. As more and more economists and media people became convinced the risk of recessions had moderated, lenders and investors became willing to increase their leverage and risk-taking activities. Mortgage lenders, insurance companies, investment banking firms, and home buyers increasingly engaged in activities considered unreasonably risky prior to the Great Moderation. The Great Moderation did not primarily reflect improved monetary policy. The actual sources of the Great Moderation cannot be expected to produce permanent, long-run decreases in economic volatility. The misperception of permanent decrease in volatility was at the core of the financial crisis and recession.

One of this book's objectives is to expand upon the position taken by Barnett and Chauvet (2011a), with inclusion of a systematic unified presentation of the evidence and with documented discussion of the relevancy to current economic problems, but in a manner accessible to

all interested readers.[1] In that paper we found most recessions in the past fifty years were preceded by more contractionary monetary policy than was indicated by the official simple-sum monetary aggregates. Monetary aggregates produced in accordance with reputable economic measurement practices grew at rates generally lower than the growth rates of the Fed's official monetary aggregates prior to those recessions, but at higher rates than the official aggregates since the mid-1980s. Monetary policy was more contractionary than likely intended before the 2001 recession and more expansionary than likely intended during the subsequent recovery. This book also shows that monetary liquidity going into the Great Recession of December 2007 to June 2009 was much tighter than indicated by interest rates.

Low-quality and inadequate Federal Reserve data not only fed the risk misperceptions of the public, the financial industry, and the economics profession, but also likely contributed to policy errors by the Federal Reserve itself.

1.1 Whose Greed?

Many commentators have been quick to blame insolvent financial firms, investors, lenders, and borrowers for their "greed" and their presumed self-destructive, reckless risk-taking. Perhaps some of those commentators should look more carefully at their own role in propagating the misperceptions that induced those firms to take such risks.

The following comment from *The Wall Street Journal* (May 12, 2009, p. A16) editorial, "Geithner's Revelation," is informative: "The Washington crowd has tried to place all the blame for the panic on bankers, the better to absolve themselves. But as Mr. Geithner notes, Fed policy flooded the world with dollars that created a boom in asset prices and inspired the credit mania." While I agree the emphasis on expansionary policy is relevant, focusing only on that factor is an oversimplification and does not explain the unprecedented levels of risk exposure. There have been many other periods of comparably expansionary policy, during which financial firms' leverages did not reach such high levels. But I do agree with Geithner that it is time to move beyond scapegoating bankers, Wall Street firms, and just about everyone else, and to look more deeply into what induced rational firms and households to

1. Citations, such as this one to Barnett and Chauvet (2011a), refer to references contained at the end of this book in its References section.

believe that such high risk exposure was prudent. Clearly they did not intentionally "underprice" risk.

Then who is to blame for the recent crisis, which is the worst since the Great Depression? A common view is that the troubled firms and households are themselves to blame. According to much of the popular press and many politicians, Wall Street professionals and bankers are especially to blame for having taken excessive risk, as a result of "greed." Homeowners similarly are viewed as having taken excessive risk. But who are the Wall Street professionals, who decided to increase their leverage to 35:1? They include some of the country's most brilliant financial experts. Is it reasonable to assume that such people made foolish, self-destructive decisions out of "greed"? If so, how should we define "greed" in economic theory, so that we can test the hypotheses? What about the mortgage lenders at the country's largest banks? Were their decisions dominated by greed and self-destructive, foolish behavior? If the hypotheses imply irrational behavior, how would we reconcile a model of irrational behavior with the decisions of some of the country's most highly qualified experts in finance? Similarly why did the Supervision and Regulation Division of the Federal Reserve Board's staff close its eyes to the high risk loans being made by banks? Was the Federal Reserve Board's staff simply not doing its job, or perhaps did the Fed too believe systemic risk had declined, so increased risk-taking by banks was prudent? To find the cause of the crisis, we must look carefully at the data that produced the impression Fed policy had improved permanently. That false impression supported the increased risk-taking by investors, homeowners, and lenders.

The federal-funds interest rate has been the instrument of policy in the United States for over a half century. Although no formal targeting procedure has been announced by the Fed, its basic procedure for targeting that interest rate is commonly viewed to be the "Taylor rule," in one form or another. The Taylor rule puts upward pressure on the federal-funds interest rate, when inflation increases, and downward pressure on that interest rate, when unemployment increases. Rather than being an innovation in policy design, the Taylor rule is widely viewed as fitting historic Fed behavior for a half century.[2] The Great Moderation in business cycle volatility was more credibly produced by events unrelated to monetary policy, such as the growth of US

2. See, for example, Orphanides (2001). As an illustration of how oversimplified the usual views of that policy are, see Woodford (2003) for an exposition of the complexities of that approach to policy.

productivity, improved technology and communications, financial innovation, and the rise of China as a holder of American debt and supplier of low priced goods. The Great Moderation alternatively could have resulted from "good luck" in the form of smaller than usual external shocks to the economy. The Great Moderation was widely viewed as permanent—and was not. This book does not take any position on what actually did produce the Great Moderation, but does take a position on what did *not* cause the Great Moderation. This book provides an overview of the data problems that produced the misperceptions of superior monetary policy and thereby induced the increase in risk-taking. With the federal-funds rate at near zero, support for the current approach to monetary policy, which has been dominant for so long, is now declining.[3]

The focus of this book is on the need for central bank transparency, and the damage that can be done to transparency, and thereby to the economy, by poor or inadequate data. Where should we look for the source of the current economic problems? Should we look at the country's most brilliant financial experts: such as those on Wall Street and at the biggest banks, where Fed data and information were accepted and entered into formation of their expectations? Were they irrational, greedy people who foolishly were self-destructing? No, that does not get to the root of the problem. How about the stockholders in those firms, who often lost everything? Did their greed blind them to an outcome that wiped them out, but should have been obvious to them from the available data? No, I do not think so.

1.1.1 Ponzi Games, Transversality, and the Fraud Explosion

There was extensive fraud in mortgage origination, beginning in 2005, as is confirmed by the successful Federal Trade Commission (FTC) and Security and Exchange Commission (SEC) actions against Countrywide Home Loans, Inc. There also was fraud in the securitization of mortgages. Just about everyone was receiving emailed offers of unwanted mortgages. The explosion of fraud was associated with the treatment of risk as an asset class, bought and sold without concern for where it ended up. But aggregate risk does not disappear by being traded. The vehicles for the trading of risk were credit default swaps, or CDS. Once the CDS market collapsed, many assets ceased trading, and asset prices became difficult to establish. The financial crisis was on. The "players"

3. An excellent analysis of the defects of that policy can be found in Cochrane (2007).

in all this were among the world's most sophisticated investors. Is it reasonable to assume that they blindly ignored the risks they were taking out of stupidity? Did credit default swaps appear out of nowhere for no reason? Was fraud a new invention?

An even more extreme case exists: Bernard Madoff. He was perhaps the most sophisticated con man in recent history.[4] He had been president of NASDAQ and was the originator of the computer information technology that produced NASDAQ. His illegal Ponzi game grew for years.[5] At the risk of sounding pretentious, I'd like to introduce a technical term from formal mathematical economics: the "transversality condition." Dynamic mathematical models of the economy have an initial condition, explaining where the economy starts, and a terminal condition, called the transversality condition, toward which the economy approaches in the distant future. Satisfaction of the transversality condition is critical for success of an economy. Violation of the transversality condition produces bubbles and other damaging phenomena, undermining the success of a market economy. The transversality condition is normally a constraint on the growth of debt over very long periods of time. A critical transversality condition in dynamical macroeconomic models is, in fact, called the "no–Ponzi game condition," ruling out the explosion of debt produced by Ponzi game behavior. Madoff must have known he was violating the most fundamental of all transversality conditions in economic dynamics: the no–Ponzi game condition. Had his calculations told him he would end up broke, disgraced, and in prison? I don't think so. Then why did he do it?

Consider Social Security. It is not invested but is backed by an intergenerational social contract. What guarantees the contract will remain

4. In the 1700s there were perhaps more extreme confidence schemes, including John Law's Mississippi Bubble and the South Sea Bubble, while in the early 1900s there was the Ivar Kreuger pyramid scheme, which collapsed in the Depression. In explaining his famous match business bubble, Kreuger once said: "I've built my enterprise on the firmest ground that can be found—the foolishness of people" (Robert Shaplen 1960, p. 128).

5. "Ponzi game" is the technical term used in mathematics. In popular terminology, this fraudulent scam is called "Ponzi scheme," named after the famous American swindler, Charles Ponzi (1882–1949), who died in poverty in Rio de Janeiro 15 years following his release from prison in the United States. He did not originate that pyramid scheme, which carries his infamous name. He was inspired by a similar scam 20 years earlier by William F. Miller in Brooklyn, and in fact the same scheme is described in Charles Dickens' 1857 novel, *Little Dorrit*. Funds provided by unsuspecting investors are not invested but rather used to pay returns to prior investors. A "Ponzi game" pyramid, if it absorbs much of a country's wealth, can devastate the economy of an entire country, as nearly happened in Albania after its sudden privatization following the collapse of communism.

acceptable to all future generations? The system's rules prevent early withdrawal. Social Security is a Ponzi game; it does not violate the transversality condition, because of the social contract imposed across generations. But that is not enough. To be a good "investment," the pool of funds from the Social Security tax must grow at a rate faster than the rate of interest. Then future generations will receive pensions from a fund that is growing at a rate exceeding the alternative investment rate-of-return. In short, the population must grow faster than the rate of interest, as was very dramatically the case when immigration to the United States was rapid.

Analogously, Madoff screened his "investors" to accept only long-term investors, who would not withdraw early. He also must have expected available funds to grow at an adequate rate to permit him to continue paying the moderate rate of return he provided. Clearly he had all that figured out. He was too sophisticated not to have known. What he had not counted on during his lifetime was a serious recession producing net withdraws from his pool. Could the SEC have suspected what Madoff was doing, but perhaps had a similar view of the future, so was willing to close its eyes? Madoff's strategy was illegal, while the strategies in the banking industry and on Wall Street were not. But the misperception producing the failures of their plans was the same. They all believed there would never again be a major recession, and the steady economic growth that continued for many years during the Great Moderation would extend far into the future. They were wrong. All of them were wrong.

1.1.2 Conditional Expectations

In mainstream economic theory, consumers and firms are considered to be rational and to do the best they can to pursue their self-interests. But to make their economic decisions rationally, they need to form expectations about the future. Here I need to introduce more technical jargon: "conditional expectations." Conditional expectations are formed, while making use of the information available to the decision maker. To ignore relevant available information in forming expectations is not consistent with pursuit of self-interests. Why would someone intentionally ignore relevant information in forming expectations? The information available to an economic agent is called the "information set."

This is elementary in economic theory: if economic decisions seem misguided—look at the information set. That is the *first place* to look. Should we assume that the information set is just fine, but the decision

makers are irrational, greedy fools, not intelligently pursuing their self-interests? To make that assumption flies in the face of a century of mainstream economic research. I must admit to being entirely mystified by the emphasis in the popular press on the converse representation of heavily established economic theory. This book will not fall into that trap. Instead of throwing out a century of economic research, while scapegoating just about everyone in sight, this book will focus on the information set and its role in distorting expectations throughout the economy: some with well-meaning intent, and some not (e.g., Bernard Madoff).

Many considerations are relevant to the misguided actions of private firms, individuals, and central banks during the years leading up to the recent financial crisis. But one common thread applies to all of them: misperceptions induced by low quality monetary statistics, disconnected from the relevant economic aggregation theory. As has been emphasized by the theoretical literature in economics, information shocks can do much economic damage. This book documents the fact that Fed financial data do not meet the standards of best practice methodology and have been declining in quality for decades. The efficacy of economic decentralization, as is central to a private ownership economy, depends heavily upon information availability to individual decision makers. This fact is well established in a highly technical area of mathematical economics called "system design." With financial instruments growing in complexity and increased decentralization from deregulation, what was needed was more and better data and information. *The growth of financial complexity and decentralization with simultaneous decline in data quality was a toxic mix leading up to the misperceptions about systemic risk that were the root cause of the financial crisis and recession.*

1.1.3 Regulation in History and in Theory

In addition to blaming "greed," commentators also often blame deregulation. There is much truth to this point of view, but we must think more deeply to recognize the role of that problem. In economic theory, two kinds of solutions exist to the decisions of consumers and firms: "interior solutions" and "corner solutions." Interior solutions are voluntary solutions constrained only by market prices, incomes, tastes of consumers, and technologies of firms. Under idealized assumptions, a market economy can be proved mathematically to attain a form of optimal allocation of goods and services, called "Pareto optimality" in the field of "welfare economics." This fundamental mathematical proof is widely

known to economists and is used as a justification for "laissez faire" policy prescriptions by some. In contrast, regulation produces corner solutions, with binding quantity constraints on consumers and firms. Those rationing constraints are in addition to the economic system's constraints from market prices, incomes, tastes, and technology. When there are violations to the perfect-markets assumptions, used in the famous, welfare-optimality proofs, regulation can increase welfare. But otherwise the imposition of governmental constraints on private economic decisions decreases welfare. As a result the design of regulation is not a trivial matter, since poorly designed or unnecessary regulation can do damage. Examples of suboptimal economic outcomes are not hard to find in economies subject to excessive or badly designed regulation. Consider, for example, Cuba, North Korea, or recently Greece. All three have large governments and much regulation.

Indeed corner solutions might have been better in the United States than the interior solutions that produced the recent economic problems. As this book argues, the voluntary interior solutions, produced using poor information, were not consistent with the assumptions of classical optimality proofs. Regulations, constraining the economy from drifting far off course along bubbles, would have been advantageous. But far less regulation existed during much of the past century, especially prior to the Great Depression, which was survived by many of the underwriting firms that recently failed on Wall Street. During the 1920s, with less regulation, lower margin requirements, and no shortage of "greed," Wall Street leverage never reached the levels attained prior to the recent financial crisis. In the 1920s, the SEC, the Federal Deposit Insurance Corporation (FDIC), and Regulation Q, permitting the Fed to regulate saving account interest rates—didn't even exist.[6] Deregulation does not force the resulting voluntary interior solutions to incorporate excessive risk-taking exposure.

Leading up to the Great Depression of the 1930s, the "unit trusts" of the 1920s provided a vehicle to create leverage and mask growing risk exposures. See Galbraith's (1961) chapter, "In Goldman, Sachs We

6. The Glass–Steagall Banking Act was passed in 1933. The SEC was created in 1934. Other relevant congressional laws passed following the 1929 stock-market crash included the Securities Act of 1933, the Trust Indenture Act of 1939, the Investment Company Act of 1940, the Investment Advisers Act of 1940, and the Sarbanes–Oxley Act of 2002. Regulation by the Federal Reserve, which had been created in 1913, expanded in the 1930s, not just through the availability of the new Regulation Q, but in many other ways. The Gramm–Leach–Bliley Act, enacted in 1999, decreased regulation but left in place far more regulation than existed prior to the Depression. See Patrick (1993) and Meltzer (2002).

Trust." Credit default swaps, or CDSs, and especially the more fiendishly complex collateralized debt obligations, or CDOs, were similarly central to the recent crisis. Rather than decreasing risk, by permitting risk to be priced and traded in markets, the complexity of CDSs and CDOs increased the information burden on decision makers. With inadequate and distorted information within decision makers' information sets, the need existed for increased regulation, especially of the CDS and CDO markets, as poorly understood insurance markets. Instead, we incredibly got both deregulation and decreasing information availability—simultaneously. While more and better regulation could have helped, deregulation alone cannot explain what happened. Again, the place to look is the "information sets," upon which firms and consumers conditioned in making their decisions. Somewhere within those information sets lies the explanation of why private sector decisions drifted so far off the economy's optimal course.

1.2 The Great Moderation

As mentioned earlier, those who believed the Great Moderation would last forever included some of the most sophisticated people in the country. But what about the world's leading economists? In my opinion, the greatest living macroeconomist is Robert Lucas, a Nobel laureate in economics at the University of Chicago. In terms of influence on the macroeconomics profession, another great macroeconomist is a more recent Nobel Prize winner: Edward Prescott. Let's see what the two of them were saying during the Great Moderation.

In his 2003 presidential address to the American Economic Association, Lucas declared that the "central problem of depression-prevention [has] been solved, for all practical purposes." Lucas, who had become a major authority on the business cycle through his path-breaking publications in that area (e.g., see Lucas 1987), had concluded economists should redirect their efforts toward long-term fiscal policy aimed at increasing economic growth. Since central banks were presumed to have become very good at controlling the business cycle, he concluded few gains remained available from further improved countercyclical policy. In particular, he concluded that the welfare gains from further moderations in the business cycle would be small and not worth the cost of the research.

Edward Prescott, with his coauthor Ellen McGrattan, published an article in the fall 2000 *Minneapolis Federal Reserve Bulletin*, "Is the Stock

Market Overvalued?" They concluded that the stock market was properly valued. On January 1, 2001, the Dow Jones Average was at 10,788. By October 9, 2002, the Dow was 7,286, a decline of 32 percent. Lucas and Prescott are giants of the macroeconomics profession and rightfully so.[7] Were Lucas and Prescott at fault for what happened to the economy? No way. Could we accuse Lucas and Prescott of bad motives and "greed"? Of course not. But if Prescott believed the stock market was valued properly in 2000, and Lucas in 2003 concluded that the Great Moderation's decrease in volatility was permanent, why should we be throwing stones at Wall Street professionals, bankers, and homeowners for having similar views? Ben Bernanke spoke on the Great Moderation at the meetings of the Eastern Economic Association, in Washington, DC, on February 20, 2004. He argued the primary cause was improved monetary policy. Of course, Ben Bernanke is now the chairman of the Federal Reserve Board and is one of the best qualified chairmen the Fed has ever had. But the business cycle is not dead, and the Great Moderation cannot convincingly be explained in terms of superior monetary policy.

Given the views of some of the world's greatest macroeconomists at the time, the widespread misperceptions about systemic risk leading up to the financial crisis are far from surprising. The remaining question, addressed by this book, is the information upon which such views were based and whether better information might have produced different behavior, involving less risk exposure.

1.3 The Maestro

Many commentators believe Alan Greenspan should get much of the blame for what has happened. He is a disciple of Ayn Rand. His setting of low interest rates and his libertarian views, favoring decreased regulation, are often criticized. While there is some truth to those criticisms, Greenspan's primary role in contributing to the crisis lies elsewhere: in being so good at what he does best.

During Volcker's chairmanship, Alan Greenspan was on the semiannual Panel of Academic Advisors to the Federal Reserve Board,

7. Perhaps my views might be somewhat biased. I took Lucas's courses, while I was a graduate student at Carnegie Mellon University. Prescott had recently received his PhD from Carnegie Mellon and was on the faculty there, having returned from the University of Pennsylvania.

although paradoxically he had never been on the faculty of a university, so was not an "academic." I was on the staff of the Federal Reserve Board during most of those Volcker years and attended some of those Academic Advisors meetings. The meetings were held in the Board Room in the presence of the Board's Governors and some of their staff economists. Greenspan was very different from the rest of that panel. As is normal with serious academic researchers, the others tended to be cautious with their statements and rarely commented forcefully on topics and issues outside their own areas of research and expertise. Greenspan, in conspicuous contrast, was very flamboyant and presented himself as a person who could comment with great authority on anything of concern to the Board. Why the difference in approach, you ask?

Alan Greenspan ran the consulting firm, Townsend–Greenspan & Company, for nearly thirty years, since becoming the principal owner in 1958. The firm was organized in the 1930s by William Townsend and Dana Skinner. Greenspan joined the firm in 1953. The firm ceased operation, when Greenspan was appointed Chairman of the Federal Reserve Board in 1987. Writing an academic research paper for a peer-reviewed journal is very different from writing a consulting report. No customer, employing the services of a consulting firm, wants to be told that answering questions requires a couple of years of research and a government grant to fund graduate-student research assistants. The most important role of the principal owner of a consulting firm is—salesman. Townsend–Greenspan was a very successful consulting firm, largely due to the exceptional sales ability of Alan Greenspan. He did not just sell the firm and its services to clients. He sold himself and his personal authority and expertise. I saw his sales ability firsthand in some of the Academic Advisors meetings.

Others on the panel often included famous economists, such as Franco Modigliani, from whom I took a graduate course at MIT. In addition I interviewed Franco for the professional journal I edit and for the book, *Inside the Economist's Mind* (Barnett and Samuelson 2007). As I learned from personal experience as a student, an editor, and an interviewer, Modigliani was a very flamboyant and outgoing speaker. But Greenspan dominated much of the discussion at the Academic Advisors meetings, even when Modigliani was on the panel. If it had not been for his personality, Greenspan would have seemed out of place, because of his claims to know so much about everything, to be able to

predict nearly everything, and to be able to determine the best policy under all possible circumstances. With such a formidable group in the room, such claims easily could have been dismissed. But that was never the case. He was such an interesting, outgoing, friendly person that everyone in the room treated him with respect.

The few research staff members invited to attend those semiannual meetings would leave the room together and take the elevator from the Board room level on the second floor down to the first floor, while sometimes shaking their heads in disbelief at Greenspan's "performance." I was no longer on the Board's staff, when President Reagan appointed Greenspan to be chairman. At that time I was at the University of Texas at Austin. But I would guess that many staff members at the Board were surprised by Greenspan's appointment.

During his chairmanship, the whole world witnessed Greenspan's skills as a salesman. He won over large numbers of persons, including influential members of Congress. Many began referring to him as "the Maestro," following the appearance of Woodward's (2001) book by the same name. But to my knowledge, he had never published a peer-reviewed research article in a major economics journal. His PhD dissertation at the New York University School of Business (no, not the Economics Department) was never published and is virtually unknown within the economics profession. In sharp contrast, Ben Bernanke, a professor at the Princeton University Economics Department, is a highly regarded scholar, who has published extensively in major journals.[8]

I have no doubt that Greenspan did the best he could as chairman of the Federal Reserve Board, and he certainly cannot be faulted for having an exceptionally commanding sales personality. If he didn't, Townsend–Greenspan would never have become as successful as it

8. Some people think a person with business experience, such as Greenspan's business consulting experience or G. William Miller's corporate background, is better qualified to be chairman of the Federal Reserve Board than an eminent academic such as Ben Bernanke. If that is your view, I recommend that you read part II of this book. You also might want to consider the consequences of Miller's and Greenspan's chairmanships. G. William Miller was the first, and so far only, Federal Reserve chairman to come from a corporate background, rather than from economics or finance. He had previously been chairman and CEO of Textron, Inc. He was appointed in January 1978 by President Carter and removed from that office by President Carter on August 1979, as one of history's most unsuccessful and least respected Federal Reserve chairmen. When presented with staff economists' research at Board meetings, Miller's response was usually to flatter them for their presentations, which he often admitted he did not understand. We thought he was a very nice guy, who didn't have a clue.

did.[9] What set Townsend–Greenspan apart from the others was—Alan Greenspan's persona. But that was the problem. During Greenspan's chairmanship, Wall Street began talking about the "Greenspan put," according to which no need existed to worry about declining asset prices, since the Maestro could be depended upon to intervene successfully. This unjustified belief fed into the misperceptions about the Great Moderation, further increasing the widespread confidence in permanently decreased systemic risk.[10]

The economics profession knew Greenspan had never published well-regarded research in major peer-reviewed journals. It would be comforting to believe that the economics profession did not fall into the trap of viewing him as the Maestro. But sad to say, that is not the case. A primary channel for academic dissent had been the Shadow Open Market Committee (SOMC), founded by Karl Brunner at the University of Rochester and Allan Meltzer at Carnegie Mellon University. The SOMC, comprising a group of eminent economists, met at the same time as the Fed's policy-making Federal Open Market Committee (FOMC). The SOMC issued a dissenting opinion, along with its policy recommendations, following each such meeting. The SOMC opinions and reports were widely influential in the financial press, especially *The Wall Street Journal*. During the Greenspan years, criticism of the Fed by the SOMC was greatly toned down, thereby muting the most visible channel for dissent from within the economics profession. In addition, during most of the years leading up to the recent financial crisis and recession, the SOMC did not meet at all.[11] Between 1997 and 2009, the SOMC met only once, and that was not until 2006.

When I was hired by the Federal Reserve Board, I was informed that I was to fill the position left by Bill Poole, who had moved to the Boston Federal Reserve Bank and then to Brown University. He left the Board

9. That firm had a mathematical (econometric) model used in its consulting. There were other major consulting organizations, some at universities and some at banks, having well known models. The Townsend–Greenspan model was largely unknown to the econometrics profession.

10. The term, "Greenspan put," was coined in 1998, after the Fed lowered interest rates following the collapse of the firm, Long-Term Capital Management.

11. At the time that Greenspan became chairman, Karl Brunner had died. Allan Meltzer, a founder of the SOMC, is a formidable authority on monetary policy and has been working for many years on a series of important books about the history of the Federal Reserve. He is a professor at Carnegie Mellon University, from which I received my PhD. I know him well and respect him greatly. During the Greenspan years, I asked him why the SOMC's policy critique had become so muted. His reply was "Greenspan is a different kind of a guy." Clearly, Allan liked Greenspan a lot. Ah, the Maestro's sales ability again at work!

under a cloud of trouble. I was told that his departure was not entirely voluntary. As was explained to me, he had sent to *The Washington Post* a letter-to-the-editor in opposition to the Burns/Nixon wage and price controls. Arthur Burns, chairman of the Fed's Board at the time, was angry about the letter-to-the-editor and had some role in Poole's move out of Washington, DC.[12] At academic conferences there often were sessions at which former Fed staff economists would speak. It seemed to me that Poole had become the angriest, most uncompromising critic of Federal Reserve policy. He then was brought into the SOMC and acquired a regular byline in a newspaper called the *American Banker*.

Some of the Board's senior staff members were worried about Poole's byline, since they knew he was angry at the Fed and was under pressure to write a regular article for the *American Banker*. Previously, staff research economists could submit their research to peer-reviewed journals without prior approval from the Board. When Poole began his byline, a new Fed policy was instituted. Before submitting to a peer-reviewed journal, we were required to send our paper to a high ranking Board staff officer, who would edit the wording. I was puzzled by the nature of the rewording. It was always harmless, never changing my intent, and the changes never were substantive in any way. I asked what the purpose of the censorship was. I was told it was to ensure that the paper would not include wording Poole might consider to be quotable in the *American Banker*.

When Greenspan became chairman, he understood, as a business consultant, that the best way to silence dissent and minimize competition is to bring in the dissenters and merge with the competition. The St. Louis Federal Reserve Bank's Board of Directors employed a firm to search for a new president, when the bank's prior president retired. Poole was selected. To my astonishment, Greenspan did not prevent Poole from becoming president of the St. Louis Fed. At the time, I mentioned to Allan Meltzer that I was amazed Poole had been brought back into the Fed in such a high position, despite the history of bad feelings. Meltzer told me he and the SOMC had a role in that decision. [13]

12. This is what I was told at the Federal Reserve Board, when I was on its staff in Washington, DC. I have recently heard that Poole could already have been planning to leave the Board at the time he sent the letter to *The Washington Post*.

13. During the years I was at the Board, Karl Brunner and Allan Meltzer were very visible critics of Board policy through the SOMC they had founded. But there was a difference in their degree of willingness to be cooperative with the Board. Allan, who got along well with the Board, was often included among the Academic Advisors to the Board. However, Brunner, who tended to be uncompromising in his policy advocacy, was banned from

Again, recall the critical importance of the information sets in guiding expectations relevant to the success of a decentralized economic system. There was the Great Moderation; there was the "Greenspan put"; and there was the near silence of the SOMC's primary channel of dissent. Is it a surprise that so many major financial players believed the Fed had succeeded in ending the business cycle through superior monetary policy? Is it a surprise that even the great Nobel laureate Robert Lucas had reached that conclusion? So, of course, increasing private risk appeared to be prudent.

But there was a problem. It was not true. It was all a myth. There were no great improvements in monetary policy design, which was based fundamentally on the same approach used for over a half century. The sources of those appearances of improvements were developments outside the Federal Reserve System. The one genuine, noteworthy change in Fed activities was the decline in data quality. When more and better data were needed by the private sector, as the complexity of financial products grew, the quantity and quality of Fed data declined.

1.4 Paradoxes

Going back to 1974, Federal Reserve monetary data have produced a series of paradoxes, continuing to the present time. These paradoxes were purported to demonstrate that behavior by consumers and firms was irrational and thereby raised questions about the relevancy of economic theory. The paradoxes were the subject of research in major economics journals and resulted in hundreds, perhaps thousands, of published articles and books. The central banks throughout the world, and most conspicuously the Federal Reserve, used those paradoxes to justify their advocacy of increased discretionary power and less oversight, based upon the need for judgmental policy free from accountability to Congress. The story was: *you can't understand this; just trust us; we*

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the Board building. In fact the security guards at the entrances were instructed never to permit Brunner to enter the building. Brunner once confided to me that the ban had done wonders for his career.

There had been security guards at the entrance to the building, since Burns had become chairman. Anti-Semitic conspiracy theorists had threatened Burns's life, when he was appointed as the Board's first Jewish chairman. But those guards rarely interfered with the public's access until years later, while Greenspan was chairman, after the staff found a critic wandering the building with a shotgun. The ban on entry by Brunner was subsequent to the posting of guards to protect Burns and prior to Greenspan's stepped up security.

know best; even the economics profession can't understand this; only we can. In fact a high-ranking, staff officer of the Federal Reserve Board stated in a meeting that he did not trust academics, whom he considered to be "glory seekers." On the contrary, excessive confidence in the Fed, free from dissent, is inconsistent with proper functioning of a decentralized economy. But the Fed's growing influence within the profession tends to limit dissent, as has been documented by White (2005). The economy's private sector needs to have a clear understanding of the risks it is taking.

As this book establishes, the paradoxes resulted from Federal Reserve bad data, inconsistent with the economic-measurement methodology established by the profession. The paradoxes fed into the misperceptions that distorted expectations and thereby eventually damaged the economy. Internal inconsistencies exist between the way the data were produced and the way they were used. Those internal inconsistencies have become known as the "Barnett critique" (see Chrystal and MacDonald 1994; Belongia and Ireland 2010).

Recently it has become fashionable to criticize the scientific basis for modern economic theory. Such criticisms often argue that macroeconomics is founded upon distorting oversimplifications. I would not disagree. Indeed the problem is not the use of too much economic theory, but rather the use of too little theory for purposes of analytical simplification. I have published extensively on the need to bring into macroeconomics more of the recent advances from the physical sciences and mathematics in nonlinear dynamics.[14] I also believe that the economics profession should take more seriously the distribution effects of macroeconomic policy. But there is a deeper question. Why are distorting oversimplifications in macroeconomic modeling so widely acceptable to the profession? Why are we not better able to determine which simplifications provide justifiable approximations and which are distorting oversimplifications. The following simple Aristotelian syllogism could shed some light on that question:

Major premise: Good science is not possible without good data.

Minor premise: The Federal Reserve Board is not providing good data.

Conclusion: _____ (fill in the blank).

14. See, for example, Barnett and Duzhak (2008, 2010), Barnett, Serletis, and Serletis (2006), Barnett et al. (1997), and Barnett, Geweke, and Shell (1989). This literature is well established and respected in economics but is not at the center of the field. See Caballero (2010).

While this logic may appear to be harsh, I do not consider myself to be a general critic of the Federal Reserve, which I respect as being among the world's most distinguished central banks. I consider myself to be a scientist. My statements in this book are directed solely at the mathematically provable fact the Federal Reserve Board is not producing data based on best-practice principles of the economics profession. For that mathematical proof, see part II of this book.

In contrast, what the real critics of the Fed say is far harsher than what I am arguing in this book. Consider, for example, the devastating book by the great Princeton economist, Oskar Morgenstern (1965), *On the Accuracy of Economic Observations*, from which a brief quotation is provided at the start of this chapter.[15] Everything in Morgenstern's book is as relevant today as it was then.

1.5 Conclusion

Decisions are made conditionally on information. Yes, many bad decisions were made by many people and firms, as well as by central banks, economists, and governments. But insulting those who made bad decisions fails to get to the root of the problem: the information on which the decisions were made was defective. Fraud was not a new invention. Clearly, something was wrong with the information on which decisions were being made. What was it and why? How did it get transmitted throughout the economy?

This book does not seek to provide easy answers to difficult problems, but rather to deepen insight into the root causes of the economy's problems. Those causes have not been remedied by the Band-Aids applied so far.

15. I am indebted to Steve H. Hanke at Johns Hopkins University for recommending to me the Morgenstern (1965) book.