



Alan  
Greenspan

THE AGE OF TURBULENCE

ADVENTURES IN A NEW WORLD

## THE AGE OF TURBULENCE

“This book is in part a detective story. After 9/11 I knew, if I needed further reinforcement, that we are living in a new world—the world of a global capitalist economy that is vastly more flexible, resilient, open, self-correcting, and fast-changing than it was even a quarter century earlier. It’s a world that presents us with enormous new possibilities but also enormous new challenges. *The Age of Turbulence* is my attempt to understand the nature of this new world: how we got here, what we’re living through, and what lies over the horizon, for good and for ill. Where possible, I convey my understanding in the context of my own experiences. I do this out of a sense of responsibility to the historical record, and so that readers will know where I’m coming from. The book is therefore divided into halves: the first half is my effort to retrace the arc of my learning curve, and the second half is a more objective effort to use this as the foundation on which to erect a conceptual framework for understanding the new global economy. Along the way I explore critical elements of this emerging global environment: the principles of governing it; the vast energy infrastructure that powers it; the global financial imbalances and dramatic shifts in world demographics that threaten it; and, despite its unquestioned success, the chronic concern over the justice of the distribution of its rewards. Finally, I bring together what we can reasonably conjecture about the makeup of the world economy in 2030.

“I don’t pretend to know all the answers. But from my vantage point at the Federal Reserve, I had privileged access to the best that had been thought and said on a wide range of subjects. I have not been inhibited in reaching for some fairly sweeping hypotheses.”

—ALAN GREENSPAN

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THE AGE OF TURBULENCE

**FOR MY BELOVED ANDREA**

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## I N T R O D U C T I O N

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**O**n the afternoon of September 11, 2001, I was flying back to Washington on Swissair Flight 128, returning home from a routine international bankers' meeting in Switzerland. I'd been moving about the cabin when the chief of the security detail that escorted me on trips abroad, Bob Agnew, stopped me in the aisle. Bob is an ex-Secret Service man, friendly but not especially talkative. At that moment, he was looking grim. "Mr. Chairman," he said quietly, "the captain needs to see you up front. Two planes have flown into the World Trade Center." I must have had a quizzical look on my face because he added, "I'm not joking."

In the cockpit, the captain appeared quite nervous. He told us there had been a terrible attack against our country—several airliners had been hijacked and two flown into the World Trade Center and one into the Pentagon. Another plane was missing. That was all the information he had, he said in his slightly accented English. We were returning to Zurich, and he was not going to announce the reason to the other passengers.

"Do we have to go back?" I asked. "Can we land in Canada?" He said no, his orders were to head to Zurich.

I went back to my seat as the captain announced that air traffic control

had directed us to Zurich. The phones on the seats immediately became jammed, and I couldn't get through to the ground. The Federal Reserve colleagues who had been with me in Switzerland that weekend were already on other flights. So with no way to know how events were developing, I had nothing to do but think for the next three and a half hours. I looked out the window, the work I'd brought along, the piles of memos and economic reports, forgotten in my bag. Were these attacks the beginning of some wider conspiracy?

My immediate concern was for my wife—Andrea is NBC's chief foreign affairs correspondent in Washington. She wasn't in New York, which was one big relief, and visiting the Pentagon hadn't been on her agenda that day. I assumed she would be at the NBC bureau in the middle of town, heavily involved in covering the news. So I wasn't deeply worried, I told myself . . . but what if she'd gone on a last-minute visit to some general in the Pentagon?

I worried about my colleagues at the Federal Reserve. Were they safe? And their families? The staff would be scrambling to respond to the crisis. This attack—the first on U.S. soil since Pearl Harbor—would throw the country into turmoil. The question I needed to focus on was whether the economy would be damaged.

The possible economic crises were all too evident. The worst, which I thought highly unlikely, would be a collapse of the financial system. The Federal Reserve is in charge of the electronic payment systems that transfer more than \$4 trillion a day in money and securities between banks all over the country and much of the rest of the world.

We'd always thought that if you wanted to cripple the U.S. economy, you'd take out the payment systems. Banks would be forced to fall back on inefficient physical transfers of money. Businesses would resort to barter and IOUs; the level of economic activity across the country could drop like a rock.

During the cold war, as a precaution against nuclear attack, the Federal Reserve had built a large number of redundancies into the communication and computer facilities on which the money system relies. We have all sorts of safeguards so that, for example, the data of one Federal Reserve bank are backed up at another Federal Reserve bank hundreds of miles away or in

some remote location. In the event of a nuclear attack, we'd be back up and running in all nonirradiated areas very quickly. This system was the one Roger Ferguson, the vice chairman of the Fed, would be calling on this day. I was confident that he and our colleagues would be taking the necessary steps to keep the world dollar system flowing.

Yet even as I thought about it, I doubted that physically disrupting the financial system was what the hijackers had in mind. Much more likely, this was meant to be a symbolic act of violence against capitalist America—like the bomb in the parking garage of the World Trade Center eight years earlier. What worried me was the fear such an attack would create—especially if there were additional attacks to come. In an economy as sophisticated as ours, people have to interact and exchange goods and services constantly, and the division of labor is so finely articulated that every household depends on commerce simply to survive. If people withdraw from everyday economic life—if investors dump their stocks, or businesspeople back away from trades, or citizens stay home for fear of going to malls and being exposed to suicide bombers—there's a snowball effect. It's the psychology that leads to panics and recessions. A shock like the one we'd just sustained could cause a massive withdrawal from, and major contraction in, economic activity. The misery could multiply.

Long before my flight touched down, I'd concluded that the world was about to change in ways that I could not yet define. The complacency we Americans had embraced for the decade following the end of the cold war had just been shattered.

We finally reached Zurich just after 8:30 p.m. local time—still early afternoon in the United States. Swiss banking officials met me as I got off the plane and rushed me to a private room in the departure lounge. They offered to show videos of the Twin Towers coming down and the fires at the Pentagon, but I declined. I'd worked in the neighborhood of the World Trade Center for much of my life and had friends and acquaintances there. I assumed the death tolls would be horrendous and would include people I knew. I didn't want to see the destruction. I just wanted a phone that worked.

I finally reached Andrea on her cell phone a few minutes before nine, and it was a great relief to hear her voice. Once we'd assured each other we

were okay, she told me she had to rush: she was on the set, about to go on the air with an update of the day's events. I said, "Just tell me quickly what's happening there."

She was holding the cell phone to one ear while the special-events producer in New York was on her earpiece in the other ear, almost shouting, "Andrea, Tom Brokaw is coming to you! Are you ready?" All she had time to say was, "Listen up." With that, she put the open cell phone on her lap and addressed the cameras. I heard exactly what America was hearing at that point—that the missing United Flight 93 had crashed in Pennsylvania.

I was then able to get a call through to Roger Ferguson at the Fed. We ran through our crisis-management checklist, and just as I'd figured, he had things well in hand. Then, with all civilian air travel to the United States shut down, I contacted Andy Card, the White House chief of staff, to request transportation back to Washington. Finally I went back to the hotel, escorted by my security detail, to get some sleep and await instructions.

By daybreak I was airborne again, on the flight deck of a United States Air Force KC-10 tanker—it may have been the only aircraft available. The crew was used to flying refueling sorties over the North Atlantic. The mood in the cockpit was somber: "You'll never believe this," the captain said. "Listen." I put my ear to the headset but couldn't hear anything other than static. "Normally the North Atlantic is full of radio chatter," he explained. "This silence is eerie." Apparently nobody else was out there.

As we came down the eastern seaboard and entered prohibited U.S. airspace, we were met and escorted by a couple of F16 fighters. The captain got permission to fly over what had been the site of the Twin Towers at the southern tip of Manhattan, now a smoking ruin. For decades, my offices had never been more than a few blocks from there; during the late 1960s and early 1970s I had watched day by day as the Twin Towers went up. Now, from thirty-five thousand feet, their smoky wreckage was New York's most visible landmark.

I went straight to the Fed that afternoon, driven with a police escort through barricaded streets. Then we went to work.

For the most part, the electronic flows of funds were doing fine. But with civilian air traffic shut down, the transportation and clearing of good old-fashioned checks were being delayed. That was a technical problem—a

substantial one, but one that the staff and the individual Federal Reserve banks were entirely capable of handling by temporarily extending additional credit to commercial banks.

I spent most of my time in the days that followed watching and listening for signs of a catastrophic economic slowdown. For seven months before 9/11, the economy had been in a very minor recession, still shaking off the effects of the dot-com crash of 2000. But things had started to turn around. We had rapidly been lowering interest rates, and the markets were beginning to stabilize. By late August public interest had shifted from the economy to Gary Condit, the California congressman whose less-than-forthcoming statements about a missing young woman dominated the nightly news. Andrea couldn't get on the air with anything of global significance, and I remember thinking how incredible that seemed—the world must be in pretty good shape if the TV news focused mainly on domestic scandal. Within the Fed, the biggest issue we faced was how far to lower interest rates.

After 9/11, the reports and statistics streaming in from the Federal Reserve banks told a very different story. The Federal Reserve System consists of twelve banks strategically situated around the country. Each one lends money to and regulates the banks in its region. The Federal Reserve banks also serve as a window on the American economy—officers and staff stay constantly in touch with bankers and businesspeople in their districts, and the information they glean about orders and sales beats official published data by as much as a month.

What they were telling us now was that all across the country people had stopped spending on everything except items bought in preparation for possible additional attacks: sales of groceries, security devices, bottled water, and insurance were up; the whole travel, entertainment, hotel, tourism, and convention business was down. We knew the shipping of fresh vegetables from the West Coast to the East Coast would be disrupted by the suspension of air freight, but we were somewhat surprised by how quickly many other businesses were hit. For example, the flow of auto parts from Windsor, Ontario, to Detroit's plants slowed to a crawl at the river crossings that join the two cities—a factor in the decision by Ford Motor to shut down temporarily five of its factories. Years earlier, many manufactur-

ers had shifted to “just-in-time” production—instead of stockpiling parts and supplies at the plant, they relied on air freight to deliver critical components as they were needed. The shutdown of the airspace and the tightening of borders led to shortages, bottlenecks, and canceled shifts.

In the meantime, the U.S. government had gone into high gear. On Friday, September 14, Congress passed an initial emergency appropriation of \$40 billion and authorized the president to use force against the “nations, organizations, or persons” who had attacked us. President Bush rallied the nation with what will likely go down as the most effective speech of his presidency. “America was targeted for attack because we’re the brightest beacon for freedom and opportunity in the world,” he said. “And no one will keep that light from shining.” His approval ratings soared to 86 percent, and politics, if only for a short period, became bipartisan. Lots of ideas were being floated on Capitol Hill for helping the nation bounce back. There were plans that involved pumping funds into airlines, tourism, and recreation. There was a raft of proposals to extend tax breaks to businesses in order to encourage capital investment. Terrorism insurance was much discussed—how do you insure against such catastrophic events, and what role, if any, does the government have in that?

I thought it urgent to get commercial aircraft flying again, in order to abort all the negative ripple effects. (Congress quickly passed a \$15 billion air transport rescue bill.) But beyond that, I paid less attention to most of these debates, because I was intent on getting the larger picture—which still wasn’t clear to me. I was convinced that the answer would not lie in big, hasty, expensive gestures. It’s typical that in times of great national urgency, every congressman feels he has to put out a bill; presidents feel the pressure to act too. Under those conditions you can get shortsighted, ineffective, often counterproductive policies, like the gasoline rationing that President Nixon imposed during the first OPEC oil shock in 1973. (That policy caused gas lines in some parts of the country that fall.) But with fourteen years under my belt as Fed chairman, I’d seen the economy pull through a lot of crises—including the largest one-day crash in the history of the stock market, which happened five weeks after I took the job. We’d survived the real-estate boom and bust of the 1980s, the savings and loan crisis, and the Asian financial upheavals, not to mention the recession of

1990. We'd enjoyed the longest stock-market boom in history and then weathered the ensuing dot-com crash. I was gradually coming to believe that the U.S. economy's greatest strength was its resiliency—its ability to absorb disruptions and recover, often in ways and at a pace you'd never be able to predict, much less dictate. Yet in this terrible circumstance, there was no way to know what would happen.

I thought the best strategy was to observe and wait until we understood better what the precise fallout from 9/11 would be. That is what I told the congressional leadership in a meeting in the House Speaker's office on the afternoon of September 19. Speaker Dennis Hastert, House minority leader Dick Gephardt, Senate majority leader Trent Lott, and Senate minority leader Tom Daschle, along with Bob Rubin, the former secretary of the treasury under President Clinton, and White House economic adviser Larry Lindsey, all met in a plain conference room attached to Hastert's office on the House side of the Capitol. The legislators wanted to hear assessments of the economic impact of the attacks from Lindsey, Rubin, and me. There was great seriousness to the ensuing discussion—no grandstanding. (I remember thinking, *This is the way government should work.*)

Lindsey put forward the idea that as the terrorists had dealt a blow to American confidence, the best way to counter it would be a tax cut. He and others argued for pumping about \$100 billion into the economy as soon as possible. The number didn't alarm me—it was about 1 percent of the country's total annual output. But I told them we had no way of knowing yet whether \$100 billion was too much or too little. Yes, the airlines and the tourism industries had been severely impacted, and the newspapers were full of stories about all sorts of layoffs. Yet on Monday, September 17, amazingly, the New York Stock Exchange had succeeded in reopening just three blocks from Ground Zero. It was an important step because it brought a sense of normalcy back to the system—a bright spot in the picture we were still piecing together at the Fed. At the same time, the check payment system was recovering, and the stock market hadn't crashed: prices had merely gone down and then stabilized, an indication that most companies were not in serious trouble. I told them the prudent course was to continue to work on options and meet back in two weeks, when we'd know more.

I delivered the same message the next morning to a public hearing of the Senate Banking Committee, counseling patience: "Nobody has the capacity to fathom fully how the tragedy of September 11 will play out. But in the weeks ahead, as the shock wears off, we should be able to better gauge how the ongoing dynamics of these events are shaping the immediate economic outlook." I also emphasized, "Over the past couple of decades, the American economy has become increasingly resilient to shocks. Deregulated financial markets, far more flexible labor markets, and, more recently, the major advances in information technology have enhanced our ability to absorb disruptions and recover."

In fact, I was putting a better face on the situation than I feared might be the case. Like most people in government, I fully expected more attacks. That feeling went mainly unspoken in public, but you could see it in the unanimity of the Senate votes: 98-0 for authorizing the use of force against terrorists, 100-0 for the aviation security bill. I was particularly concerned about a weapon of mass destruction, possibly a nuclear device stolen from the Soviet arsenal during the chaos of the collapse of the USSR. I also contemplated the contamination of our reservoirs. Yet on the record I took a less pessimistic stance because if I had fully expressed what I thought the probabilities were, I'd have scared the markets half to death. I realized I probably wasn't fooling anybody, though: people in the markets would hear me and say, "I sure hope he's right."

In late September, the first hard data came in. Typically, the earliest clear indicator of what's happening to the economy is the number of new claims for unemployment benefits, a statistic compiled each week by the Department of Labor. For the third week of the month, claims topped 450,000, about 13 percent above their level in late August. The figure confirmed the extent and seriousness of the hardships we'd been seeing in news reports about people who'd lost their jobs. I could imagine those thousands of hotel and resort workers and others now in limbo, not knowing how they would support themselves and their families. I was coming to the view that the economy was not going to bounce back quickly. The shock was severe enough that even a highly flexible economy would have difficulty dealing with it.

Like many other analysts, economists at the Fed were looking at all



the proposed packages of spending and tax cuts, and the numbers associated with them. In each case, we tried to cut through the details to gauge the order of magnitude; interestingly, they all fell in the ballpark of \$100 billion—Larry Lindsey's initial suggestion.

We reconvened in Hastert's conference room on Wednesday, October 3, to talk again about the economy. Another week had passed, and the number of initial jobless claims had gotten worse—an additional 517,000 people had applied for unemployment benefits. By now, my mind was made up. While I still expected more attacks, there was no way to know how devastating they might be or how to protect the economy in advance. I told the group that we should take steps to offset the damage we could measure, and that it was indeed time for a constrained stimulus. What seemed about right was a package of actions on the order of \$100 billion—enough, but not so much that it would overstimulate the economy and cause interest rates to rise. The lawmakers seemed to agree.

I went home that night thinking that all I'd done was articulate and reinforce a consensus; the \$100 billion figure had first come from Larry. So I was surprised to read the media's spin on the meeting, which made it sound almost as though I were running the entire show.\* While it was gratifying to hear that Congress and the administration were listening to me, I found these press reports unsettling. I've never been entirely comfortable being cast as the person who calls the shots. From my earliest days, I had viewed myself as an expert behind the scenes, an implementer of orders rather than the leader. It took the stock-market crisis of 1987 to make me feel comfortable making critical policy decisions. But to this day, I feel ill at ease in the spotlight. Extrovert, I am not.

Of course, the irony was that in spite of my supposed persuasive power, in the weeks after 9/11 nothing worked out as I expected. Anticipating a second terrorist attack was probably one of the worst predictions I ever

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\**Time* magazine, for example, opined on October 15, 2001, "Greenspan's shift provided the green light lawmakers had been waiting for. . . . The White House and leaders of both parties have agreed with Greenspan's assessment that new spending and tax cuts should total about 1% of the country's annual income, that it should make its effects felt quickly and that it should not threaten to balloon the deficit so much down the road that it immediately raises long-term interest rates."