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The Debate over the Origin of the Great Recession in the United States

El debate acerca del origen de la Gran Recesión de Estados Unidos

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ABSTRACT

This article analyzes the debate over the origins of the Great Recession in the United States. The author analyzes three perspectives: the first is the position spearheaded by John B. Taylor, who proposes the Great Deviation. The second is that of Alan Greenspan, Donald L. Khon, Ben S. Bernanke, Frederic S. Mishkin, and Lars E. O. Svensson, who attribute the crisis to a global imbalance between savings and investment. The third is the point of view of Robert Hetzel, Anna Schwartz, and Alan Meltzer, well-known inheritors of the monetarist tradition, who all accuse the authorities of having provoked the crisis and implemented the wrong responses. In conclusion, the author presents the opinion of two Nobel Prize winners in economics, Paul Krugman and Joseph Stiglitz.

Key words: Federal Reserve System, monetary policy, economic crisis, central bank, United States

RESUMEN

Este artículo analiza el debate que existe en torno de los orígenes de la Gran Recesión de Estados Unidos. El autor aborda tres perspectivas: la primera es la posición encabezada por John B. Taylor, quien habla acerca de una "Gran Desviación". La segunda es la que proponen Alan Greenspan, Donald L. Khon, Ben S. Bernanke, Frederic S. Mishkin y Lars E. O. Svensson, quienes atribuyen la crisis a un desequilibrio global entre ahorro e inversión. Y la tercera se refiere al punto de vista de Robert Hetzel, Anna Schwartz, and Alan Meltzer, conocidos herederos de la tradición monetarista, quienes acusan a las autoridades de haber provocado la crisis e implementar soluciones erróneas. Para concluir, el autor presenta la opinión de dos premios Nobel en Economía: Paul Krugman y Joseph Stiglitz.

Palabras clave: Sistema de la Reserva Federal, política monetaria, crisis económica, banco central, Estados Unidos.

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The mortgage crisis that exploded in August 2007, put an end to more than two decades of economic growth in the United States, a period known as the Great Moderation. The worst moment of the crisis came in September 2008, when Lehman Brothers, the fourth major investment bank, declared bankruptcy, unleashing a huge wave of financial panic that hit every stock market on the planet very hard. The financial crisis sparked an economic crisis that had real impact on growth and employment, kicking off what in economic literature became known as the Great Recession. While the economy was still shaky and in the months following its reconstruction, an extensive body of literature was produced on the topic to elucidate what had put a stop to an era of high economic growth in the United States.

In this context, studies emerged from within the field of standard economic theory that —albeit with different nuances— represent the most widely accepted accounts by most monetarist experts. These accounts can be grouped into three blocks. The first is the perspective headed by Stanford University professor John B. Taylor, who maintains that the Federal Reserve System (FED) deviated from a policy framework that had been working well, a theory known as the Hypothesis of the Great Deviation. Second are the points of view of Alan Greenspan, Donald L. Khon, Ben S. Bernanke, Frederic S. Mishkin and Lars E. O. Svensson, all renowned experts and members of the first circle of the central bank, who claim that the crisis was due to a global imbalance between savings and investment, which created a prolonged cycle of low interest rates and abrupt risk-taking. In third place come the monetarists Robert Hetzel, Anna Schwartz, and Allan Meltzer, who, with certain differences, accuse the authorities of having caused the crisis and then, at its worst point, having responded erroneously.

This article encompasses three components: I. The section “The Hypothesis of the Great Deviation” presents Taylor’s thesis accusing the Fed of deviating from the Taylor rule and creating an environment of high liquidity; II. “Institutional Approaches to the Crisis” presents the arguments of the duos Greenspan–Khon and Bernanke–Mishkin and of Svensson, about the origin of the crisis; and III. “The Monetarists Face the Crisis” lays out the arguments of the founders of the monetarist tradition, created by Milton Friedman in the twentieth century, regarding the origin of the crisis. Although with certain differences, Hetzel, Schwartz, and Meltzer all hold the Fed responsible for having created the crisis. For Hetzel the Fed implemented a contractionist monetary policy in 2008, while Schwartz and Meltzer coincide with Taylor, asserting that a highly lax monetary policy in the period leading up to the crisis created the conditions that precipitated its outbreak years later.

THE HYPOTHESIS OF THE GREAT DEVIATION

The starting point for this analysis of the discussion on the origins of the U.S. crisis is the central thesis of John Taylor (2009),¹ who formulated the Hypothesis of the Great Deviation. Taylor asserts that a combination of erroneous Fed monetary policies generated the crisis. In his opinion, the economic crisis began gestating years before, in the period from 2002 to 2004, when the central bank's policies on federal funds rates, the signal instrument of its monetary policy, were well below those recommended by the Taylor rule.

The excessively relaxed monetary position during those years accelerated the boom in the housing sector, generating strong financial pressures on the United States and other countries, which then sparked and ignited the crisis. Due to this, decisions to lower U.S. interest rates influenced other nations' decisions to lower tax rates, creating a global interaction between central banks that resulted in excessive lowering of interest rates worldwide. Those nations that deviated most radically from the Taylor rule experienced the most powerful dynamism in their housing sectors. Indeed, this correspondence was sufficiently profound to establish a direct relationship between the size of deviation from the rule and the mortgage increase experienced.

In the period when interest rates were at their lowest, in relation to the dictates of the Taylor rule, the number of mortgages grew because borrowing became extremely attractive. This drew more and more families into the housing market, in turn pushing up housing prices. At the same time, low interest rates and rising housing prices attracted increasing numbers of investors, enticed by risk-taking, with nothing to deter them. In addition to all this, a government policy, headed by the institutions Fannie May and Freddie Mac, supported lower-income families in acquiring credit.

Investors in the housing sector went much too far and began granting credit to lower-income families with variable credit rates. These contracts were securitized via highly complex instruments, promising high returns for their holders. The qualifying agencies underestimated those obligations' risk due to incompetence and irresponsibility, as well as the difficulty of evaluating such complex risks. In the end, mortgage-backed securities detonated the crisis in the housing sector and eventually the financial crisis.

However, Taylor emphasizes that the worst was yet to come. Once the financial crisis began, authorities diagnosed problems of liquidity, when in reality the prob-

¹ John Taylor is considered by many to be the most influential monetary economist in the world. His research on the use of policy rules is among the most widely consulted and studied, and his work has had notable influence on many, if not most, global monetary policy managers. Many of the analytical instruments currently studied in the monetary arena bear his last name. For example, the Taylor curve, the Taylor tripod, the Taylor principle, and, most notably, the Taylor rule.

lems lay in counterpart risk. If the problem had been a lack of liquidity, providing it through streamlining loans in the discount window or putting new facilities into operation would have been appropriate. However, if the problems were due to counterpart risk, then focusing direct attention on the quality and transparency of the balance sheets of the banks involved would have been called for. This would have required more transparency, dealing directly with the growing number of unpaid mortgages, or attempting to attract more capital to the banks or other financial institutions.

Nonetheless, the financial confusion in the inter-bank markets was not due to a liquidity problem or to a problem that could be solved using the central bank's liquidity tools. On the contrary, it was due to problems of counterpart risk, to which the causes of the financial crisis were linked. However, this was not the diagnosis that drove economic policies during the crisis. Consequently, it continued. The government's liquidity-injection programs did not work according to the Taylor rule, notable among which was the Term Auction Facility (TAF),² which failed to i) diminish the spread in the money market; ii) increase the flow of credit; and, iii) lower interest rates.

Another policy response that, from Taylor's point of view, failed to work was the Economic Stimulus Act, passed in January 2008. The majority of this package consisted of sending more than US\$100 billion in checks to individuals and families in the United States. The fundamental rationale was to provide them with spending money, which would drive up consumption and in turn stimulate the economy. This failed to work because it did not address the origin of the crisis. Another failed response was the drastic slash in federal interest rates during the first semester of 2008. The target of the federal funds rate plummeted from 5.25 percent to 2 percent from April to August 2008; this prompted a brisk depreciation of the dollar and an enormous increase in the price of oil and other commodities, dealing a blow to the economy and prolonging the crisis.

The crisis continued for more than a year and then worsened; the announcement of the US\$700-billion aid program for bad securities was poorly received by financial market participants, who realized the situation was even worse than they had thought. This, in turn, generated mistrust in the effectiveness of the government's actions to bolster the economy, and the program's operations lost clarity. A lack of knowledge and clarity surrounding the procedures and criteria whereby the government could intervene in business were constants at the time. Another point that Taylor highlights is that the rules the government followed to decide to intervene in some businesses, such as Bear Stearns and American International Group (AIG),

² This program was established to encourage banks to ask for loans from the Fed. Using it, banking institutions could avoid going to the discount window and could make public offers on Fed resources. The principle objective was to reduce the differential in lending rates.

and not in others, such as Lehman Brothers, were never clarified. The unpredictability of the Fed and Treasury's intervention policies led to a worsening of the crisis in September 2008.

INSTITUTIONAL APPROACHES TO THE CRISIS

The Perspective of the Greenspan-Khon Duo

According to Allan Greenspan (2007),³ the origin of the crisis that put an end to the period of the Great Moderation in 2007 dates back to the end of the 1980s, when the Cold War had reached an end and the socialist bloc countries began to transform themselves into free market economies. The incorporation of the old centralized economies expanded the capitalist world and the global market, growing the specter of the capitalist economy. One group of developing countries took off so successfully that in a few years their growth rates would more than double those of developed nations. China in particular replicated the Asian Tigers' export model with great success.

This group of developing countries based its growth on education, attracting First-World technology, growing exports, constantly increasing productivity, the rule of law, and taking advantage of low wages to compete internationally. Globalization unleashed new forces that vigorously propelled global competition. Creating and incorporating new technology in business and government considerably diminished production costs and, in turn, the cost of goods and services. Agents' expectations about inflation dropped considerably across almost the entire world, expectations that were closely linked to global interest rates.

Nevertheless, consumption in the developing world lagged compared to the explosion in income experienced among considerable segments of the developing world's population due to its economic success. Consequently the savings rate in those countries increased significantly, reaching 24 percent of gross domestic product

³ Alan Greenspan was president of the U.S. Federal Reserve during from 1987 to 2006. His mandate marked an entire era at the helm of that institution. In 1968, he became an economic advisor to then-candidate Richard Nixon and was appointed to lead the Fed by Presidents Ronald Reagan, George H. Bush, Bill Clinton, and George W. Bush. Only William McChesney Martin, Jr. has been president of the Federal Reserve for a period almost equal to that of Greenspan. Greenspan is an unorthodox economist who does not accept the use of policy rules as mechanisms for containing variations in inflation of output. Moreover, he maintains that inflation is not simply a monetary phenomenon. The former Fed president has been pulled into a number of paradoxes involving his position on economic theory and his action as central banker of the world's main economic power and, finally, as a driving force behind international monetary policy. This is to say that, through his unorthodox position and negation of the use of policy rules, he successfully faced down U.S. inflation for almost 20 years, preferring low inflation to reductions in unemployment rates.

(GDP) in 1999 and 33 percent in 2006. Output growth in real terms for the developing world was double that of the developed world.

As a result, global savings greatly exceeded global investment. More specifically, according to Greenspan, global savings intentions had greatly exceeded global investment intentions, and with the natural market forces at work, the global interest rate began to fall in the early 1990s. The world experienced this even more powerfully at the beginning of the twenty-first century, when abundant, low-cost capital was available almost everywhere.

These low interest rates powerfully engendered the speculative environment and, for Greenspan, are at the heart of the mortgage crisis experienced not only in the U.S. but also in many other countries previously enjoying a dynamic housing sector. In Greenspan's view, the interest rates that drove a rise in housing were not the Fed's federal fund rates but rather the long-term fixed rates on mortgages. In 2000, the Fed began a cycle of monetary easing in response to the deceleration of output. However, as the years passed, it focused on decreasing the cost of money to such an extent that by mid-2003, it had reached 1 percent. This reflected the Fed's concern that the U.S. would fall into deflation with devastating consequences for the economy.

After the U.S. faced corruption scandals in 2000 and the extreme terrorist attacks of 2001, by 2003 Greenspan's Fed was preoccupied with the threat of deflation such as that recently experienced in Japan; it took the Japanese 10 years to get out of theirs. It was in mid-2004 when the U.S. central bank began to tighten the economy's liquidity. This began a new cycle, but one centered on monetary toughening, which would put a freeze on the economy and on housing prices, which had been rising rapidly due to the strong demand for houses in the U.S. When the Fed began to increase the federal funds rates on short-term rates, the long-term interest rates did not follow. Instead what happened was a decoupling of the curve of long-term interest rates with respect to short-term rates.

The experts hoped that long-term interest rates, including mortgage rates, would begin to grow as they normally do when faced with a tougher monetary policy. However, long-term rates only began to move upward the following year, in 2005. Short-term interest rates in the U.S. as well as mortgage rates had been permanently tied together for decades. Between 1971 and 2002, the correlation between them was 0.85 percent; whereas, between 2002 and 2005, that correlation diminished to practically zero percent.

For Greenspan, the prevailing monetary policy between 2002 and 2004, characterized by extreme laxity, can be explained by the Fed's concern at the time about the possibility that the U.S. could face deflation. Once the risk of extremely weak output passed, the Fed began to tighten its monetary policy, increasing the federal funds rate. However, long-term rates, the reference for mortgage rates, did not follow. In

Greenspan's opinion the Fed was facing global forces that were overpowering domestic monetary policy.

With respect to the proposition opportunely put forward by Taylor (2009) regarding the Fed's responsibility for the crisis, Greenspan (2008a), who refers to him as "...John Taylor, with whom I rarely disagree," asserts that the Fed had held down short-term interest rates below levels indicated by the Taylor rule because it believed that to be the best approach given the economic problems then facing the country. With respect to the Taylor rule, Greenspan asserts that it is useful to establish the path for monetary policy; however the parameters and predictions derived from the models have proved incapable of pinpointing the start of recessions or financial crises. Moreover, economics, including tools such as the Taylor rule, cannot be the hard core of the analysis of the decision-making behind the Fed's monetary policy.

Continuing with Greenspan, one characteristic of monetary policy is uncertainty, in that the distribution of probability of results is unknown. In practice, the type of uncertainty the central banker is confronting in real time remains unknown, and consequently the handling of monetary policy in the U.S. has involved, as part of its hard analysis, elements pertaining to risk management. This focal area emphasizes the knowledge and evaluation of diverse sources of risk facing policymakers, the quantification of those risks when possible, and the valuation of the costs associated with each of them. According to this point of view, focusing on risk management is considered superior to relying on econometrics models, such as the Taylor rule, that utilize fixed parameters.

According to Donald Khon (2010),⁴ although the low levels of short-term interest rates probably spurred the demand in housing and housing prices for a specific period, the decrease in the cost of money helped counteract economic deceleration and mitigate unemployment. However, the power of monetary policy to accelerate speculation in a single sector of the economy remains unclear. The studies that have tried to measure the contribution of monetary policy to the growth in home prices in the period leading up to the crisis have encountered difficulties; and added to this is a weak understanding of what makes up the transmission channel between interest rates in the economy and housing prices.

Similarly, if the accommodative monetary policy fueled demand for housing and housing prices in 2003, why, then, did these elements disappear when the fed-

⁴ The Greenspan era had the support of Donald Lewis Khon, who acted as vice-president of the Board of Governors and, in practice, as the principal advisor and managing director for Alan Greenspan at the Fed. Khon was Greenspan's right hand in managing U.S. monetary policy, contributing so much that Ben Bernanke highlighted that the Federal Reserve and the U.S. owed him tremendous gratitude. Accordingly, Khon's analysis complements the Greenspan's explanation of the crisis.

eral funds rate began to rise? According to Khon, the rise in the interest rate must have limited the desire of families for loans, and consequently limited the rise of housing prices. At the same time, most sub-prime mortgages were created after interest rates had reached standard levels; this assignment of mortgages reflects serious deficiencies in the functioning of financial markets.

The fact that the initial rise and subsequent fall of housing prices was not exclusive to the U.S. must also be taken into consideration. In fact, some countries experienced even greater oscillations in housing prices. In the period prior to the crisis, central banks in the majority of countries did not ease monetary policies to the extent that the Fed did, and consequently they enjoyed low interest rates. However, this pronounced, generalized low, experienced across different parts of the developed and developing world, was due to the excess of global savings that strongly predominated in the first years of the twenty-first century.

Something that undoubtedly fed the crisis was complacency. With the start of the Great Moderation, in the 1980s, families and firms in the U.S. and other parts of the world enjoyed a long period of reduced volatility of output and low, stable inflation. These calm conditions probably contributed to making many private agents cease being prudent and underestimate the risks associated with their actions. While no consensus exists on the causes of the end of the Great Moderation, many analysts consider that this was one decisive factor, and if this is the case, then the central bank had probably contributed to the crisis accidentally.

Nevertheless, a more restrictive monetary policy on the part of the Fed could have reversed the financial and credit conditions in the years leading up to the crisis and limited this complacency. According to Khon, this would have been difficult, however, since central banks would probably have produced recessions by forcing agents to reevaluate the costs of risk-taking. In Khon's opinion, rather than using monetary policy, an unsuccessful tool for limiting prudence, analyses must focus on the use of prudential regulation and supervision of over-leveraging and other risky behavior.

The Point of View of the Bernanke-Mishkin Duo

For Ben Bernanke (2009a),⁵ the origin of the crisis coincides with Greenspan's assertion that it was rooted in the global wave of savings that notably appeared in developing

⁵ Ben Bernanke succeeded Greenspan as head of the Fed in 2006, amidst growing financial instability and economic anxiety over the recent bursting of the housing bubble that put an end to growth in the U.S. housing sector. Bernanke became the thirteenth president of the Fed, following a robust career in academia due to his influential research in economics. This influence can be felt around the world in the promotion of the

countries during the 1980s, and most forcefully in the U.S., inducing substantial changes in credit markets. The amount of external savings earned by the U.S. oscillated around 1.5 percent of GDP in 1995, surpassed 6 percent in 2006, and, by 2008, was around US\$285 billion. The huge amount of global savings that entered the U.S. sparked declines in traditional output in the short term, principally in treasury securities, inciting investors to develop other, more profitable investments.

The income from external savings might have been beneficial for the country if it had in turn been well invested. This, however, did not occur. The financial institutions very aggressively opposed this plethora of capital, making credit for families and businesses extremely cheap and easy to access. This rise of credit fed the dynamism of the housing sector, unleashing a mortgage boom. However, many of these loans were given under inadequate or adverse conditions for the borrowers, including in many cases little or no down payment for those wanting a home. Moreover, the regulators did not foresee these bad practices, due in part to the fact that many of these deficient loans were granted by institutions subject to little or no federal regulation.

In this search for profitability, financial institutions developed new investment instruments that were characteristically complex in form and difficult to understand. These new assets implied new forms of risk that neither investors nor the financial institutions that designed them were capable of calculating with certainty. For Bernanke (2009b), the epicenter of the crisis was the mortgage-cycle debacle in the U.S. and the risk associated with the delinquency of sub-prime mortgages, which imposed substantial losses on many financial institutions, shaking investor confidence across all credit markets.

The Fed's actions in confronting the development of the crisis have been the object of many critiques; outstanding among them is John Taylor's (2009). Taylor maintained that the Fed generated an environment of enormous certainty when it decided, along with the Treasury Department, to save financial institutions. But perhaps the worst damage was caused when it saved some of the biggest U.S. firms, such as the investment bank Bear Stearns and the insurance company American International Group (AIG), and let others, such as Lehman Brothers, the fourth major

monetary focus on inflation targeting, which can be understood by experts as a type of "bounded discretion," on monetary management, and his work on the Fed's actions during the Great Depression. Appointed by Republican President George Bush in 2006 and ratified for a second period by Democratic President Barack Obama in 2009, Bernanke was not far removed from the important decisions made by Greenspan in the period prior to the crisis. In fact, he collaborated, in that he was a member from 2002 to 2005 of the Fed's Monetary Policy Committee, acting in the role of governor. Since his arrival, the Fed has fervently pushed for the central bank to focus on inflation targeting, which highlights among other things the use of explicit inflation targets. However, the implementation of this strategy has encountered strong resistance among some members of the Fed.

investment bank in the United States, fail. The public did not know who would survive and who would not, due to the authorities' highly discretionary actions.

Bernanke's (2009a) position on this is that, as a general rule, any firm that cannot fulfill its obligations must face the consequences and disappear; however, the circumstances of the crisis were extraordinary and different. Large, complex financial institutions are connected with other firms and markets and AIG was especially interconnected. For example, AIG had insured many billions of dollars of loans and assets maintained by banks around the world, and its fall would have left those contracts valueless, generating huge losses in the global banking system and perhaps the global financial system.

In September 2008, AIG was facing pressures that would drive it to bankruptcy; at that point the threat to the global financial system was extreme, and the confidence of participants in the financial system was rapidly deteriorating. The Lehman Brothers investment bank had declared bankruptcy one day before and the mortgage giants Fannie Mae and Freddie Mac, after suffering losses that threatened their solvency, had been supported by the government two weeks before. Moreover, the Lehman Brothers collapse the previous day, which the Fed and the Treasury had tried unsuccessfully to prevent, changed the credit markets in ways that had consequences for the entire global economy.

For Bernanke, the Fed and the Treasury had by that point become extremely worried about the stability of other financial institutions. Historical experience shows that once global financial panic begins, it can spread rapidly. The collapse of AIG could have driven the global banking system into even greater decline. As a result, the Fed, with the support of Treasury, made a loan to AIG to prevent its collapse. In the words of Bernanke, "preventing the failure of AIG was the best of the very bad options available" (2009c). Nonetheless, the action was considered unjust in the light of the collapse of thousands of small businesses (Bernanke, 2009b).

For Frederick Mishkin (2010),⁶ the crisis was due to a bubble in the mortgage sector fed by a rise in the U.S. housing sector, in turn fed by a substantial increase in credit. The bursting of this mortgage bubble generated losses in one segment of the financial system. The financial crisis worsened with the fall of Lehman Brothers, the collapse of AIG, bank runs in the U.S. shadow banking system, and the uncertainty

⁶ Mishkin is a notable figure in the U.S. and global financial world. He is a U.S. American economist and professor at several universities, acclaimed for his academic work, his research, and his work as a Fed official. Mishkin has collaborated closely with Bernanke, and together they wrote the famous paper *Inflation targeting: a new framework for monetary policy?* As a leading Fed official, he has played the role of executive vice-president, director of research at the Fed Bank of New York, economist in the Federal Open Market Committee (FOMC), and member of the Fed's Board of Governors. For this reason, Mishkin's research complements and reinforces Bernanke's explanation.

caused by the difficulty in negotiating an assistance program for institutions with problems. A mortgage crisis turned into a financial crisis, which ended up infecting the performance of the real economy.

The strong demand for housing drove up home prices, which reached their peak in 2005; from that point began the decline and problems in the housing sector. Active mortgage-backed financiers experienced increasing losses, which came to US\$500 billion in 2008. The source of the problem was that institutions had short-term liabilities tied to mortgage-backed securities as collateral. As the value of that collateral diminished, its future value became less certain and supported fewer loans, generating a massive wave of sales; this, in turn, accelerated the fall in the collateral's value.

The massive wave of deeds that were backed by mortgages generated financial disorder, reduction of credit in the construction sector, and further diminished housing prices. The financial uncertainty was evidenced in the differential of LIBOR interest rates and three-month Treasury deeds. Short-term credit practically dried up, and against this lack of financing, Bear Stearns investment bank collapsed in March 2008. In response, the Fed arranged its purchase by J. P. Morgan and took over US\$30 billion of Bear Stearns's poor quality assets.

For Mishkin, the uncertainty and the credit crunch in the financial system continued and overtook the investment bank Lehman Brothers, which had a market value of US\$600 billion and a workforce of 25 000. This was considered the greatest collapse in U.S. history. It was followed by the problems at AIG and its rescue by the Fed, as well as the imminent failure of the Reserve Primary Fund. On the critical question of Lehman Brothers, Mishkin maintains that the government could not rescue it. Instead, what it could and in fact did do was arrange its sale to Barclays. However, British banking regulators were skeptical, and the Fed declined to take on more bad assets in its balance sheet.

The infection of the economy was inevitable. The recession had commenced in December 2007 and had become the worst contraction in the U.S. since World War II. In the fourth quarter of 2008 and the first quarter of 2009, real output fell to an annual rate of 5.4 percent and 6.4 percent, respectively. Unemployment reached 10 percent in October 2009, and the recession expanded to the rest of the world. In the fourth trimester of 2008 and the first quarter of 2009, world output diminished to an annual 6.4 percent and 7.3 percent, respectively (Mishkin, 2010).

According to Mishkin, the authorities managed only an unprecedented average response: conventional and unconventional monetary actions, banking stress tests, the rescue of a few financial institutions, and fiscal policy measures. That said, the effectiveness or lack thereof, of those actions remain part of an intense debate. For some, those policies were ineffective, and in some cases even fueled further risk in

the financial market (Taylor, 2009). For Mishkin (2009), the answer had to be found using a counterfactual and asking what would have happened if the authorities' actions to deal with the crisis had not been taken. In Mishkin's view, the actions helped prevent a deeper recession and even helped the U.S. avoid a depression.

Svensson's Perspective

Lars Svensson's interpretation of the recent U.S. crisis is part of a sustained polemic between Ben Bernanke and John Taylor, in which the latter accuses Greenspan and Bernanke, two former Fed presidents, of being directly responsible for the crisis.⁷ For his part, Svensson sides with Greenspan on some points and with Bernanke on others. However, there are also elements of Svensson's own analysis that differentiate his position from that of most other economists who have taken up this polemic. Specifically, Svensson (2010a) argues that the mortgage crisis that exploded in September 2007 was the result of the macroeconomic conditions prevailing in the years leading up to the crisis.

Svensson points out that, before the crisis, the economic environment, which could be qualified as exceptional, was characterized by low interest rates in international markets. These were the result of an enormous global imbalance between savings and investment, as well as a period of prolonged growth with low, stable inflation due to the Great Moderation. This generated highly favorable investment conditions, prompting economic agents to systematically and persistently underestimate the excessive risk-taking in the financial markets.

Moreover, this extensive period, characterized by very low interest rates not only in the U.S. but in the majority of European nations as well, distorted the incentive environment within the real economy. This created conditions in which financial agents were powerfully induced to notably increase their risk positions in different markets, especially in real estate, which exhibited elevated growth rates caused by

⁷ Together with Mario Draghi, president of the European Central Bank and his counterparts Mark Carney, governor of the Bank of England and Jens Weidmann, president of Deutsche Bank, Lars Svensson may be considered among the most influential monetary economists in Europe. He is a pioneer in the development of the inflation targeting framework, dominant in most of the world's central banks, including the Bank of Mexico, a focus to which three decades of low levels of inflation around the world may be attributed. Svensson is a member of the generation of professionals who revolutionized the science of economics by developing and incorporating rational expectations into economic theory. He has an excellent theoretical education, a long academic career, and is a successful formulator of policies at the international level. His academic career began at the University of Stockholm, Sweden; a short time later he obtained his doctorate in economics in 1996. He was a professor at Princeton University in the United States until 2007, the year when he was appointed deputy governor of Sveriges Riskbank, Sweden's central bank.

an almost global rise in housing prices. At the same time, another factor that contributed to housing sector growth was an auspicious U.S. government policy designed to support lower-income families in purchasing homes.

Continuing with Svensson's analysis, large commercial and investment banks strongly increased their positions of risk and were attracted to including in their investment portfolios sophisticated investment instruments promising high earnings. This was possible thanks to the absence of an adequate regulatory and supervisory policy that would enable authorities to inhibit such practices. Those responsible for investments had begun to trade a significantly high number of funds through such products, backed by sub-prime mortgages. What ultimately dynamited the foundations of the financial institutions was excessive risk-taking and an absence of adequate regulation and supervision.

While, on one hand, Taylor opportunely put forth his controversial hypothesis of the Great Deviation to explain the crisis, Svensson maintained a somewhat different position. In his view, in the period under consideration (from 2001 to 2005), which Taylor refers to precisely, the Fed kept the federal funds rate target very low because the authorities had a profound fear that the economy might enter into a period of deflation very similar to the one that Japan suffered in the 1980s. Given this scenario, a policy of monetary expansion such as that adopted by Japan at that time was the best recommendation. Moreover, Svensson considers that, even if in a retrospective analysis the alleged risk of deflation was overly exaggerated, it was impossible to know this in advance. Therefore, at the time, the types of expansionist monetary policy actions the Fed took from 2001 to 2005 were correct.

Furthermore, Svensson notes that the growth of credit and the rise in housing in the U.S. and around the world were very powerful factors, as were global inequalities, the abundance of global savings, and the lack of investment, which generated low real interest rates. Only a small portion of the increase in housing prices can be attributed to monetary policy. To further strengthen this argument, he claims that no relationship existed between the mortgage rate and the price of housing. Rather, for him, what influenced housing sector growth was the development and extensive use of complex instruments that fostered mortgages. That was more important than the low levels of short-term interest rates.

In accordance with this point of view and to detain the growth of credit and the rise in housing, it would have been necessary to increase interest rates, which would have caused considerable damage. That is why interest rates higher than those prevailing before the crisis might have had a null effect on the regulatory problems, distorted incentives, and information problems already discussed. On the contrary, an increase in interest rates probably would have pushed the U.S. economy toward

profound deflation such as that suffered by the Japanese and finally drawn the economy into a liquidity trap (Svensson, 2010b).

Svensson's assertions about the Fed's management of monetary policy before and after the crisis are the result of exhaustive, sweeping research that he carried out with distinguished bankers and central institutions. This examination consisted of analyzing whether the federal funds rate target from 2001 to 2005 was the main element that generated the crisis and whether the low-rates policy could have contributed to the growth of credit and the bubble in housing prices, as Taylor asserted. Svensson's study began by analyzing how to evaluate a central bank in terms of its management of monetary policies. In his view, what ought to be taken into consideration is the information available *ex ante*, discarding the *ex post* information, since this would have been totally unknown to policy-makers.

THE MONETARISTS FACE THE CRISIS

Robert Hetzel's Perspective

For Robert Hetzel,⁸ the origin of the crisis that put an end to the Great Moderation cannot be explained as a result of the Fed's having deviated from the 2002-2004 policy rules—particularly from the Taylor rule—and having maintained an overly lax monetary policy, in turn engendering a runaway appetite for risk-taking that fed the growth of the housing sector, as Taylor (2009) asserted with his hypothesis of the Great Deviation. Neither can the crisis be explained by an excess of savings that far surpassed global investment needs, and in turn made interest rates fall, particularly in the U.S., limiting the impact of the Fed's actions when it raised interest rates to cool down the economy in 2004, as argued by Greenspan (2008b) and Khon (2010) on one side and Bernanke (2009a) and Mishkin (2009, 2010) on the other.

According to Hetzel (2009), the crisis arose because Bernanke's Fed deviated from its standard procedure in the summer of 2008. This deviation prevented the Fed from making additional reductions to the federal funds rate in this period to respond to a considerable decline in economic activity. In the absence of larger cuts to

⁸ Robert Hetzel is without a doubt today's main representative of the quantity theory of money best known as monetarism. His teacher, Milton Friedman, considered by many the most influential monetary economist of the twentieth century, strongly influenced his formal education. It is precisely Hetzel who continues to develop economic studies that most closely adhere to the monetarism theories that characterize Friedman's work. Currently, Hetzel is employed as head of research at the Federal Reserve Bank of Richmond. From there he has focused his energy on criticizing Bernanke's performance as Fed chairman and particularly his management of the crisis.

the rate, specifically between April 30 and October 8, 2008, the Fed caused a monetary shock that aggravated the modest recession that had begun in the U.S. in 2007, as a result of a reduction in families' real wealth due to the fall of housing prices and increased food and energy prices in 2007 and 2008.

Although a moderate recession started in the U.S. at the end of 2007, it intensified the following year due to the Fed's orchestration of a contractionist monetary policy. The actions that intensified the 2007 economic recession were similar to the Fed's measures at the end of the 1960s and 1970s that caused stop-go cycles. The Fed's mistake was to consider a lax or relaxed monetary policy sufficient when the federal funds rate is low and a restrictive policy when the rate is high. Instead, the central bank should have been worried about having a consistent procedure—which is to say, a rule—that would make the real funds rate equal to the natural rate.

With the crash in energy prices that began in the summer of 2008, central banks initially permitted underlying inflation to grow, reducing people's real income. In the summer of 2008, despite the deterioration of economic activity, the Fed did not have the will to lower the federal funds rate due to fears that the underlying inflation would exceed core inflation and this would end up increasing inflationary expectations. The result was that the federal funds rate did not drop and, in the face of falling natural interest rates, monetary policy became restrictive, turning a moderate recession into a major recession.

The recession intensified in the third quarter of 2008. This fact supports Hetzel's assertion that, prior to the destruction of significant wealth production due to the sudden fall in securities markets after September 2008, the real funds rate had already exceeded the natural rate. The enormous destruction of wealth after that period should have depressed natural interest rates and made overall monetary policy more restrictive. From this, it follows that the fundamental reason for the decline in economic activity in the fourth quarter of 2009 was inertia in the federal funds rate relative to a decline in the natural rate, sparked by the continuing fall of real income due to falling housing prices, the inflationary crash in energy, and an abrupt drop in the securities markets.

In the period indicated by Hetzel, the directors of the world's central banks (principally England, Europe, and Japan), with the exception of the Fed, increased their interest rates in response to an inflationary scare caused in part by the depreciation of the dollar in the first quarter of 2008, in order to begin to lower them in October 2008. This combined action further decelerated their already weak economies. In turn, this caused a severe contraction in output in those countries, starting in the second quarter of 2008. This is explained due to a more restrictive common monetary policy between them and, to a lesser extent, by contamination from the

recession in the U.S. By the third quarter of 2008, the recession had spread throughout the world.

In the third quarter of 2008, the bankruptcy of the fourth largest investment bank in the U.S. collapsed the world's securities markets, generating a substantial fall in the financial wealth of families. Family income dropped 19.9 percent between the third quarter of 2007 and the fourth quarter of 2008, and only 9 percent in the fourth quarter of 2008. The unemployment rate went from 5 percent in April 2008 to 8.1 percent in February 2009, inducing pessimism in the population. The decline in income lowered consumption. This, from Hetzel's point of view, suggests that people considered this lower income permanent and these factors should have produced a decline in the natural rate.⁹

Hetzel is critical of the government and central bank's intervention to deal with the crisis. In his view, if the crisis had intensified due to the financial market –as Bernanke (2009a) thought– then the intervention in the credit market should have increased brokerage in credit markets that were taken over or subsidized. Those subsidies from the authorities should have reduced the aggregated risk to such levels that the total cost of funds would fall sufficiently to stimulate investment, business, and consumption. Clearly, this did not happen, which demonstrates that the intervention by the government and the Fed, designed to attend to a malfunction in the credit market, was a mistaken strategy. Their efforts to influence aggregate demand failed because such interventions generally do little to reduce the public's uncertainty and the population's pessimism about the future (Hetzel, 2009).

Anna Schwartz's Perspective

Like Taylor (2009), Anna Schwartz (2009)¹⁰ accuses the Fed of having provoked the crisis by maintaining an accommodating monetary policy since 2001 and only beginning to reverse this excess liquidity very slowly. In addition, she highlights factors that heightened the crisis, such as the role of the government in facilitating

⁹ According to Hetzel, family wealth has declined significantly at other times, for example 1969-1970, 1974-1975 and 2000-2003; however these drops were smaller and relatively stable.

¹⁰ Anna Schwartz began money supply studies together with Milton Friedman in the 1970s. Her research was published in the widely known *A Monetary History of the United States 1867-1960*, which she co-authored with Friedman, and which lends empirical support to monetarist theory. Among their conclusions is the suggestion that the Fed was responsible for the 1929 crisis in the U.S. due to its total passivity during the banking panic of the Great Depression and its failure to carry out its role as lender of last resort to prevent it. Three decades later, Bernanke (2002) would cede them this point at a public Fed event. Schwartz collaborated intensely at the U.S. National Bureau of Economic Research and was always active in academia. She died in June 2012 at the age of 97.

mortgages, particularly sub-prime mortgages; financial institutions using sophisticated investment instruments; the lack of regulation and supervision of financial institutions; and the collapse of the credit market for some investment instruments. With respect to the first element, Schwartz suggests that the Fed's policy remained overly accommodating for too long, and only in June 2004 did it begin to restrict its monetary actions. This concluded in August 2006 and she highlights the fact that increases in rates were too small and ended too quickly.

Schwartz rejects Greenspan's argument that no central bank could have eliminated the asset price boom because to do so would have sunk the economy in a recession (Greenspan, 2008). For Schwartz, this argument is a fallacy. From her point of view, Greenspan does not explain why the Fed could not have adopted a less expansive monetary policy than the one it did, with lower interest rates, making the buying and selling of houses a low-risk activity and stimulating housing prices. Furthermore, if the policy had been more restrictive, the asset price boom in housing could have been avoided.

The government played an active role in driving the demand for houses. Through Congress, it created and funded the twin mortgage institutions Fannie Mae and Freddie Mac for political ends. It encouraged the granting of sub-prime loans so that people with low incomes could acquire homes, without considering whether they would be able to pay them back. In 1992, Congress ordered the mortgage twins to increase their mortgage purchases. In 1996, it mandated that 42 percent of their portfolio should be to low-income borrowers; in 2000 they upped it to 50 percent; and in 2005, to 52 percent.

Continuing with Schwartz, in her view, another element that favored the outbreak of the crisis was the wide-scale adoption of sophisticated investment instruments that had not existed before. These instruments had various characteristics; among the most salient were the difficulties in determining prices and the risks of default. The banking innovations, in particular the practice of these sophisticated instruments, made lending activities on mortgages extremely complex, in that the risk inherent in these financial instruments changed to such a degree that neither the buyer nor the seller understood the risk that the use of such instruments entails, and the values of the mortgages that backed them up were then difficult to determine.

Moreover, financial institutions resorted to the practice of packaging on a discretionary, arbitrary basis. Mortgage loans of different qualities were bundled together, including sub-prime loans, with commercial paper, student loans, auto loans, and all kinds of other loans. The authors of such packaging never explained to investors how to calculate the price or risk of these investments. According to investors, these calculations could be done by the rating agencies; however, this was not true.

The worst of all this was that the authorities charged with regulating and supervising the financial institutions knew about the packaging practices and the uses to which they were put, and tolerated them, letting the actions continue with the consequences that are now widely known.

Likewise, the collapse of the market for some financial instruments, in particular the market that determines the value of interest rates through auction, negatively influenced the spread of the crisis due to a debt market looking for long-term funds with a degree of short-term liquidity. Their function is vital since it is one of the world's most liquid markets. The principal issuers are municipal governments, hospitals, museums, and authorities looking for financing. The Fed's role in the period prior to the crisis is fundamental to understanding the end of the Great Moderation. Other elements such as the role of government and the authorities charged with regulation and supervision were also important determinants in prolonging the economic contingency.

Allan Meltzer's Perspective

As for Schwartz (2009), for Allan Meltzer (2009)¹¹ Fed is responsible for the crisis. In Meltzer's view, Greenspan made a mistake by keeping interest rates extremely low for too long. Meltzer argues that Greenspan (2008b) was wrong if he feared that the U.S. could suffer deflation. The risk of deflation in an economy with budgetary deficits and dollar depreciation is, from a long-term perspective, minimal. In any case, Greenspan thought he was facing deflation; hence, he maintained an overly monetary policy for a long time, which was an error. Nevertheless, although the Fed helped to stimulate a climate in which credit was abundant, the decision to take risks remained with the private sector.

Another element to consider is the uncertainty generated by the Fed through its management role at the forefront of the crisis. Meltzer, an expert on the history of the Federal Reserve, argues that in more than 100 years, it has never enunciated its policy as the lender of last resort. However, history shows that the Fed has rescued banks in some instances and let banking institutions fail in others and has at times taken intermediate measures. Hence, the absence of a clear policy generates uncertainty, particularly in managing crises. In the midst of the financial crisis under anal-

¹¹ Allan Meltzer is a prestigious monetary economist who early on disseminated Milton Friedman's monetarist theories. His greatest work, *A History of the Federal Reserve*, consists of several volumes that describe the Fed's monetary history. Meltzer is a supporter of the use of policy rules to restrict discretionary actions and the concentration of power that a central bank can exercise in the administration of money.

ysis, the Fed more or less rescued the giant Bear Sterns, but, on the other hand, let Lehman Brothers fail. This created uncertainty for investors.

From Meltzer's point of view, if an investor is managing an investment portfolio, he/she wants to know what the next step will be and the next step will depend on whether the Fed helps a business in their portfolio in the midst of crisis or not. But how can he/she know? Creating financial uncertainty is a mistake, and thus needs to be corrected. For this reason, the Fed needs to define its policy of lender of last resort. In Meltzer's opinion, the Fed needs to undo its too-big-to-fail policy. If a bank is too big to fail, then it must fail. During the time the crisis lasted, Meltzer strongly criticized the government's intention of wanting to change the bankruptcy law to fit the circumstances.

As a strict defender of rule-based versus discretionary actions, Meltzer maintains that the rules must be clear to all and not change for a long time. The benefit of a bankruptcy law is that instills in people the idea they can always wait for circumstances to change. If that law changes according to the circumstances, it would be a violation of the rule of law. At the same time, he criticizes government handling of the twin mortgage giants, among other reasons because it permitted waiving down-payments on mortgages, which is evidence of political pressures to get people into houses even if they could not make the payments.

Two Nobel Prize Winners Confront the Crisis

Paul R. Krugman's Opinion

For Krugman (2008),¹² the crisis that broke out in the U.S. had multiple origins. Nevertheless, unlike the group of central bank economists, Krugman focuses on the state, the Fed, Washington, the market, big financial institutions, and, of course, Wall Street. For him, both the state and the market are culpable for the crisis that had its epicenter in the U.S.

In terms of the market, in Krugman's words, "The financial innovations were precisely those which brought the financial system to the edge of the abyss" (2012:

¹² Paul Robin Krugman is a world-famous economist and is without doubt polemical. If someone were asked to think of a financial expert, surely the name Paul Krugman would come to mind. In 1991, he received the greatest prize granted to financial geniuses, the John Bates Clark Medal, and in 2008 he was awarded the world's highest honor, granted by the Swedish government, the Nobel Prize in Economics. Krugman is known as a polemical economist, coming close to economic heterodoxy, but without negating the classical bases of economics. Many may consider him a neo-Keynesian, although as always there are differences that belie such comparisons. He defines himself as follows: "I see myself as someone close to neo-Keynesianism" (2012: 56).

32). Examples of such innovations were the collateralized credit obligations comprised of bad quality mortgages, which then formed AAA-rated credit securities that were acquired by investors from the U.S. and around the world. These securities enabled the banks to continue expanding their credit and make huge profits. Supposedly these holdings were backed by recognized institutions such as the American International Group against all losses.

Government regulators gradually relaxed the norms, establishing fewer controls and offering greater opportunities for creating sophisticated financial instruments that few understood, but many preferred. Deregulation, which began in the 1980s, was coupled with inaction in the face of the new challenges to the U.S. financial system in the first years of the twenty-first century (Krugman, 2008).

Krugman highlights the authorization of the merger of commercial banking with investment banking, banned after the Great Depression. Parallel banking also grew and was not subject to the same regulation as traditional banking, allowing it to grow even larger. An additional element was that the appetite for risk increased. Similarly, at the time of the financial crisis, banks had very low percentage levels of capital to underwrite their liabilities, making them very vulnerable and allowing bankers to fall into mortal risk. In short, a less regulated financial system led to increased debt and risk-taking.

Krugman does not place the blame on Fannie Mae and Freddie Mac for having driven home purchases with mortgages among low-income sectors and above all among those without co-signers or collateral. For him, Fannie Mae and Freddie Mac were simply doing business; they allowed these things to happen but they did not drive the sale of mortgages as other economists have claimed.

In a typical critique characteristic of Krugman, he takes a hard position against modern conservative thinking, noting that its representatives claim that unrestricted markets and the unregulated search for personal and economic gain are the keys to prosperity, but, on the other hand, blame the state and its efforts to regulate sectors of the economy (Krugman, 2008).

Joseph E. Stiglitz's Opinion

According to Stiglitz (2010),¹³ an unregulated market inundated with liquidity and low-interest products, a global housing bubble, and high-risk loans were the roots of

¹³ Joseph Eugene Stiglitz is another famed economist and polemicist, known for his strong declarations against markets, globalization, and the functioning of international organizations like the International Monetary Fund. His early works earned him the John Bates Clark Medal (1979) and years later the Nobel

the crisis. To all this were added public and commercial deficits in the U.S. and the accumulation in China of enormous quantities of dollars. Low interest rates and lax regulation fueled the housing bubble. As Stiglitz argues, between $\frac{2}{3}$ and $\frac{3}{4}$ of the U.S. economy was linked to the housing industry. Consumption increased and debts and savings rates were close to zero. When the bubble burst, the noxious effects multiplied. Banks had supported sophisticated financial products (a good part of which were bad debt) in order to continue increased lending.

The U.S. real estate bubble burst and house prices fell, and this, in turn, paralyzed the construction sector. Sales in businesses ceased, people were fired and left unemployed, and economic activity halted. Stiglitz blames financial system deregulation, driven by Alan Greenspan, appointed by Ronald Reagan in 1987. Stiglitz attributes the responsibility for the crisis to markets and financial institutions. As he notes, businesses lobby administrations through offers of incentives and large payouts.

The new financial products generated serious problems, which were exacerbated by high-risk mortgages backed by instruments with debt guarantees. This created a bubble and that bubble burst. The bubble was supported by bad banking practices that used bad quality assets, inflated by the bubble itself, as guarantees. Financial innovations allowed banks to hide their balances of bad credits, increasing the risk of collapse when the economy lost dynamism (Stiglitz, 2010).

History dates the origins of the crisis back to the dot-com tech industry; according to Stiglitz, Alan Greenspan (then president of the Fed) allowed its bubble to grow and then to burst. Months later the U.S. economy found itself in recession. The contingency plan response from the federal executive, in the hands of George W. Bush, was to lower taxes. At the same time, Greenspan's Fed lowered interest rates and, in Stiglitz's words, "inundated the market with liquidity." This excess liquidity generated a housing bubble, which strong drove consumption and the real estate sector. Added to this were escalating international oil prices. The financial market developed sophisticated mortgages with variable rates and elevated risks for the consumer, as well as strong gains for the banks. However, productive businesses that create employment were forgotten.

According to Stiglitz, those culpable for the crisis are the greedy bankers who commercialized financial titles based on bad quality mortgages backed by prestigious ratings agencies. The banks acted with the confidence that, if problems arose, the Federal Reserve and the Treasury would bail them out. For Stiglitz, these practices elicited Alan Greenspan and Ben Bernanke's protection, as well as that of financial system regulators.

Prize in Economics (2001). Stiglitz is one of the United States' most quoted economists in academia, is invited as a guest of honor at international forums, and has been economic advisor to many countries in the Americas, Asia, Africa, and Europe. Among his books are *Globalization and Its Discontents* and *Free Fall*.

Stiglitz argues that in contrast to Bernanke's claims, he could have intervened to avoid the growth of the bubble in the real estate sector, increasing the reserve's margin requirements. Similarly, Stiglitz is critical of Greenspan for affirming that the abundance of liquidity coming from Asia kept interest rates very low. He also highlights the deficiencies of the regulating agency and lax regulations in line with the deficient regulation over financial institutions (Stiglitz, 2010).

CONCLUSIONS

The authors cited in this article are recognized monetary experts. Together, they have written the new analytic precepts for the manuals of modern monetary theory used around the world. Though they seem quite divergent, in truth their arguments over the origin of the Great Recession have a great deal in common. First off, we can say that all of them, except Krugman and Stiglitz, who are considered production economists, are seen as monetary economists. As such, it is no coincidence that, for all of them except those two, the origin of the Great Recession, which lasted for more than eight years according to renowned economists, was monetary. That is to say, their attention focused on the administration of money by the U.S. central bank, the Federal Reserve System, founded in 1913.

At the very least, all these economists agree on the following points: i) inflation is a fundamental monetary phenomenon, which is to say that its control rests with the central bank and not with any governmental office; ii) a natural unemployment rate exists that is independent of monetary factors; iii) the supposition of rational expectations; and, iv) the problem of the inconsistency dynamic. They all agree that economic growth obeys real rather than monetary factors, and that, therefore, money must remain a perturbation factor in the economy. On the other hand, some agree with the proposition of the ineffectiveness of monetary policy, while others think the focus should be on inflation targets, recognized as good monetary policy.

During the twentieth century, the United States was a global monetary laboratory and exported theoretical and practical knowledge about monetary issues to the rest of the world. As with the Great Depression, the Great Inflation and the Great Moderation, the origin of the Great Recession was attributed to the Federal Reserve's monetary policy. In the case of the Great Recession, whether the analyst is in favor of or opposed to this argument, the problem revolved around how money is converted into a source of perturbation in the economy or, on the contrary, how monetary management regulated behavior, and that it is advisable to achieve price stabilization and feed prolonged cycles of economic growth.

In my opinion, the Great Recession has a monetary origin; that is, its causes can be found in U.S. Federal Reserve monetary policy, considered by many to be the most powerful monetary instrument on the planet. The monetary activism that the Federal Reserve undertook in the twentieth century and the first years of the twenty-first have without doubt led to both favorable outcomes like the Great Moderation and unfavorable ones, like the Great Depression, the Great Inflation, and, now in addition, the Great Recession. Milton Friedman, the twentieth century's most influential monetary economist, tirelessly supports the use of rules for managing monetary policy to prevent money from destroying the bases of a market economy.

In the last years of the Greenspan era, cheap money policies that fed bubbles in diverse sectors of the economy predominated, including the immense bubble in the housing sector. Greenspan's policies had impacts on the global economy. Financial globalization favored the coordination of policies among the central banks of the world's foremost economies. Added to these cheap money policies was the deregulation of the financial system that had begun in the 1980s. When the crisis broke out in the financial sector, the real economy was rapidly infected, affecting the production of goods and services as well as employment.

Containing the economic emergency was Ben Bernanke's responsibility; years earlier he had publicly proclaimed that the Federal Reserve had acted poorly during the Great Depression. Bernanke dealt with abrupt drops in the world's stock exchanges by coordinating synchronized responses from the globe's foremost central banks, something never seen before. Nevertheless, some of the actions taken were inadequate. For example, they decided to rescue some financial institutions while allowing others to collapse; and the target rate for federal funds rapidly dropped to zero, generating an abrupt depreciation of the dollar, an appreciation of the rest of the currencies, and collateral effects on the prices of some commodities.

The arsenal of standard monetary policy was exhausted, and, in an unprecedented move, the Federal Reserve implemented non-conventional monetary policy. The U.S. economy underwent eight years of very low interest rates, something never before seen in the modern era. However, this did not translate into a timely fortification of production and employment. On the contrary, economic growth remained weak to mediocre for many years. It would not be long before the economic literature would come to name this period in U.S. economic history the "Great Recession."

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