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# The Intellectual and Political Background to the Crisis

*If it was meself that was going to Letterfrack, faith, I would not start from here.*

—Traditional Irish saying

In *The Structure of Scientific Revolutions*, Thomas Kuhn (1962) argues that scientific progress is rarely slow and gradual, that it happens in fits and starts. A consensus model of thought works for a long time. It shows cracks here and there but is still believed to be the best paradigm. Research is conducted at the margins, extending the central paradigm in several directions. Then, at some point, there is a model crisis. A sudden event shows the deep cracks in the model. The intellectual castle of cards collapses. When it does, people are lost. The paradigm is gone, issuing in what Kuhn calls the “revolution phase.”

Competition for a new paradigm starts. Some want to preserve the status quo. Others try new approaches. Confusion ensues for a long time. Success in the revolution phase requires something very difficult to do: mental purging. If the old paradigm does not work, mental structures need to change, the scale of values and preferences needs to be reworked. These mental shackles are difficult to shed.

The intellectual background that preceded the global financial crisis was too rigid and too asymmetric—to a large extent a victim of its own success. It would have been much better to have arrived at the crisis with a different background. But if the background had been different, perhaps the crisis would have never happened.

## **It All Started in the 1970s: The Anti-Inflation Consensus**

The Great Inflation of the 1970s suddenly ended the economic peace dividend of the 1960s. The sudden acceleration of inflation from the 2 percent

of the 1960s to the double digits of the late 1970s left a deep mark on the current generation of economists in positions of responsibility, all educated in an environment in which the major challenge was not to reduce unemployment or boost growth but to restrain inflation.

Beating inflation meant that monetary policy became the main policy tool. Economists had discarded Keynes' idea of fiscal demand management—deficit expansion during recessions coupled with austerity during boom times—because of its uncertain response times. Because democratic processes are usually long and slow, by the time fiscal decisions materialize, it is typically too late. Active fiscal policy created more problems than it solved.

The consensus was that monetary policy would manage the business cycle and stabilize unemployment and growth, grounded in the existence of a natural rate of unemployment. This natural rate, and by extension the rate of potential GDP growth, was assumed to be independent from monetary policy. The cornerstone of monetary policy was the relationship between unemployment and inflation. If unemployment increased above the natural rate, inflation was expected to decline, and vice versa. But that relationship entailed a danger: Governments could be tempted to opportunistically boost inflation to reduce unemployment, and it would be self-defeating. During the 1970s, Nobel Laureate Robert Lucas showed that if the public expected the central bank to cut interest rates to boost employment, the relationship between inflation and unemployment broke down: Taking action created inflation with no boost to the real economy, because workers, rationally expecting inflation, demanded higher wages, neutering the expected increase in employment.

From the inflation travails of the 1980s emerged the so-called new classical consensus (also called real business cycle theory), which argued that cyclical policies had no effect on the real economy. In this framework economic cycles are the result of changes in productivity growth. During downturns, lower productivity growth leads to lower wages, and workers offer less labor as a result. Unemployment is the natural reaction to lower wages. These models featured fully flexible prices. As a result, prices always adjusted, and the economy always returned to equilibrium. There was no need for stabilization policy. A depression was just a bigger shock, supposed to happen rarely, that would also self-correct. These models were good laboratory machines, but they were too perfect and unrealistic to be useful for policy analysis.

Against this new classical view emerged the new Keynesian view. New Keynesian models incorporated more realistic frictions, such as price and wage rigidities. Economies in these models may not return to equilibrium after a shock; monetary policy can play a role in stabilizing employment and growth during recessions. Booms are followed by busts; recessions are the

necessary medicine to cool overheated economies. These models asserted that the firm anchoring of inflation expectations was critical to ensure the effectiveness of monetary policy and the stability of inflation. The anchoring of inflation expectations had an asymmetric meaning for most economists—anchoring to prevent too high inflation, not too low inflation.

The independence of central banks—their ability to adopt politically difficult decisions to reduce inflation—was critical to achieving the credible anchoring of expectations. Cooperation or coordination between monetary and fiscal policy was considered a dangerous enterprise. Governments could not be trusted because, to be reelected, politicians would be tempted to renege on their commitments in order to generate more growth, even if at the cost of higher inflation.

Over time the methodologies and concepts of both strands merged in the new neoclassical synthesis, which comprised intertemporal optimization, rational expectations, and price and wage rigidities. In these models monetary policy can affect output in the short run but not the long run; money is neutral. Inflation has negative welfare effects. Price stability—defined as zero inflation, plus some small buffer to take into account measurement errors—is therefore a key policy objective.

With the development of inflation targeting as a policy framework, some consensus emerged that an inflation target of 2 percent, or a bit lower, was optimal. But context mattered. Inflation was above 2 percent almost everywhere, and inflation targeting was developed mostly as a disinflationary framework, to help countries reduce inflation toward price stability. The consensus on 2 percent inflation was not unanimous. For example, during Federal Open Market Committee (FOMC) discussions about the right inflation objective, Alan Greenspan liked to describe price stability in qualitative terms, as a situation in which “expected changes in the general price level do not effectively alter business or household decisions” (Mallaby 2016, 489).

Monetary policy in the new neoclassical synthesis was typically modeled as a policy rule, in which short-term interest rates were a function of the output gap (the difference between current and potential output) and the inflation gap (the difference between actual or forecast inflation and the inflation objective). A key result of these models was the “divine coincidence”—the fact that stabilizing inflation at the target implied closing the output gap and stabilizing output at potential (Blanchard and Galí 2005). Therefore, a single price-stability mandate for monetary policy was enough to achieve potential growth. This result was a very important driver of monetary policy decisions during the crisis.

Two important elements were largely absent in the new neoclassical synthesis: an active role for fiscal policy and a dynamic role for the financial sector. In this consensus the role of governments was to meet their long-

run budget constraint: to ensure balanced budgets and stable debt ratios. There was no role for discretionary fiscal policy to smooth the business cycle. Smoothing was accomplished by so-called automatic stabilizers—the automatic reaction of government spending and tax revenues to the business cycle. During good times, revenues increase (because tax receipts are a function of economic activity) and spending declines (because expenditures such as unemployment benefits decline), automatically reducing the fiscal deficit. During bad times, the opposite happens, and deficits expand. Discretionary fiscal policy should therefore be neutral or, if anything, contractionary, to unleash “expansionary fiscal contractions.”

This view of fiscal policy, based on the German ordoliberal tradition and the early work of Alberto Alesina and Roberto Perotti (1997), argues that fiscal contractions, even during downturns, are expansionary because they improve the sustainability of public finances and, as a result, improve private sector confidence and reduce long-term interest rates. The strong consensus around this idea, built over many decades of deficit reduction, was at the heart of the austerity drive that took place after 2010 and left monetary policy as the only game in town. When, in early 2009, the managing director of the IMF, Dominique Strauss-Kahn, gave an interview to the *Financial Times* in which he advocated a large, coordinated fiscal expansion, the surprise could be felt across the globe. The IMF, the guardian of the essences of the expansionary fiscal contraction doctrine, had changed its view. Unfortunately, the International Monetary Fund (IMF) would remain a lone voice in its support for active fiscal policy.

The financial sector also played a secondary role in these macroeconomic models. It was just a veil, a black box that appeared in the models, not a relevant source of fluctuations or an amplification mechanism. Sadly, this secondary role was largely a consequence of segmentation in economic research, not lack of knowledge. Corporate finance and banking models allowed for nonlinearities, runs, crises, or contagion, with excessive risk taking the result of limited liability, asymmetric information, and leverage. However, most of these developments remained on the periphery of macroeconomics, because they introduced complications that interfered with the elegance and precision of standard macroeconomic models (see Caballero 2010). In those standard macromodels, banks were just intermediaries that ensured the smooth transmission of monetary policy actions. They included just one interest rate and assumed that the spread between the short-term policy interest rate and the interest rate charged by banks to the private sector was constant.

One of the rare exceptions was research by Ben Bernanke and Mark Gertler (1995) on the “financial accelerator.” It is revealing that their paper was entitled “Inside the Black Box: The Credit Channel of Monetary Policy

Transmission.” Bernanke and Gertler tried to incorporate some of the results from the banking and finance literature into macroeconomics. One of the most important ones was the balance sheet channel of monetary policy, whereby changes in interest rates affect the balance sheet of both borrowers and lenders, via, for example, changes in interest rate expenses and asset price values. But this line of research was intended more to assess empirically its existence than to incorporate it in macroeconomic models; the channel was not considered a major potential source of shocks or of amplification of their effect. This lack of attention to the potential amplification effect from financial markets gave a false sense of comfort to policymakers early in the crisis.

In hindsight, another element of consensus was critical in determining the initially tepid policy reactions to the crisis. Inherited from the new classical school, the economics profession had converged toward the use of dynamic stochastic general equilibrium (DSGE) models as the workhorse model for economic analysis and simulations. These models had some attractive features, such as microfoundations (relationships based on the optimizing behavior of economic agents) and elegant mathematical properties that permitted the analysis of the impact of economic shocks on the economy. However, a side effect of these properties made these models unfit for what was coming: To function properly, they usually required that the economy return to equilibrium after a shock, regardless of the size of the shock. There was no hysteresis. This belief was a major determinant of the timid initial response when the crisis hit.

The inflation of the 1970s had created a school of economic thought that focused on beating inflation. In its models, the central bank’s only worry was to lower inflation; for a generation of economists, the only experience was beating inflation down. Central banks had to be independent and never coordinate their actions with fiscal policy. Fiscal policy was a bad instrument to use during recessions, financial markets were not considered critical elements for understanding macroeconomic fluctuations, and the models used for policy analysis had a natural tendency to return to equilibrium after a shock. Monetary policy could do nothing to improve potential growth. These mental shackles were critical in designing the response to the crisis and delaying the adoption of the right policies.

## **Deflation and Zero Interest Rates? That’s Such a Japanese Thing**

Before the crisis the intellectual consensus on the risk of deflation and hitting the zero lower bound of interest rates, and how to deal with it, was based largely on the Japanese experience with QE. The theoretical research devoted to it was scarce. Paul Krugman (1998a) was one of the first to warn

of the potential consequences of falling into a liquidity trap as a result of zero interest rates (for other early research on this issue, see Reifschneider and Williams 2000; Benhabib, Schmitt-Grohé, and Uribe 2001; and Eggertson and Woodford 2003). Bernanke showed how central bankers looked at the deflation risk from a distance.<sup>1</sup>

Studies of the BoJ experience suggested that its QE did not have a major impact beyond signaling that interest rates would remain at zero for a long time, for two reasons. First, the BoJ's asset purchases focused on short-term government bonds, which were very close substitutes for bank reserves and thus served solely to increase the quantity of money rather than reduce term premia (chapters 3 and 4 discuss the different channels of operation of asset purchases). Second, the BoJ leadership had not been very enthusiastic about the QE program, putting more emphasis on the moral hazard it created for fiscal consolidation and the need for structural reforms to lift potential growth. Presenting QE as temporary dampened its effect (see, e.g., Ugai 2007; Krugman 1998a, 2000; and Eggertsson and Woodford 2003).

After the 2000–01 recession, inflation in the United States and Europe declined to a bit below 2 percent. Its drop spurred more research and debate on how to deal with the risk of deflation. Alan Greenspan warned about the risk of “corrosive deflation.” Ben Bernanke, Vincent Reinhart, and Brian Sack (2004) provided a guide on dealing with the risk of zero interest rates. The conclusion was that it would be better to avoid zero interest rates but that, if interest rates would fall that low, monetary policy would still have the tools to stimulate the economy.

The sentiment within the economics profession was that zero interest rates were mostly an intellectual curiosity that would materialize only following a policy mistake, as the Japanese situation was assessed to have been (see Bernanke 2000 and Ito and Mishkin 2006). In hindsight a key reason behind this assessment was the “curse of the Great Moderation”: Because most economic research was based on the post–World War II period, when shocks were “small” and nonpersistent, all of the conclusions in the literature were limited to a specific subset of possible macroeconomic paths. This curse of the Great Moderation explains why, based on the economic projections performed with models estimated with data available through 2007, the crisis was deemed essentially “impossible” (what actually happened in 2008 was outside the probability distribution of possible paths generated by most models) and why the economics and central banking profession

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1. Ben Bernanke, “Deflation: Making Sure ‘It’ Doesn’t Happen Here,” speech before the National Economists Club, Washington, November 21, 2002.

had to improvise as events unfolded.<sup>2</sup> It also explains why markets, lacking a model and a set of credible outlooks on which to base risk management, overshot to the downside while preparing for the worst possible scenario. Macroeconomic expectations became unanchored, compounded by the incentive structure of analysts and pundits, who looked wiser the gloomier they were and the more catastrophic the scenarios they could imagine. It had become clear that risk management failures had been a failure of imagination—of imagining a Lehman Brothers type of scenario. There was thus a premium on considering the implausible.

The policy prescription that arose from the precrisis literature was that, facing a scenario in which interest rates may have to be cut to zero, policy should be eased aggressively precisely to avoid getting to zero; interest rates should then be kept low for longer than a standard policy rule would suggest, in order to build enough cushion and avoid a relapse (see, e.g., Reinhart 2004). The underlying assumption was that monetary policy at zero interest rates, including QE, would be less efficient than standard interest rate policies and that its impact would be largely unknown (and, based on the Japanese experience, possibly very small). It was therefore better to avoid having to try it. This conclusion was the opposite of the suggestions to “keep the powder dry”—namely, delay cutting rates to avoid reaching zero—that would become part of the debate as the crisis unfolded and unduly delay the necessary easing.

The precrisis consensus had also abandoned the view that money growth was the main determinant of inflation. With the notable exception of the ECB, most central banks had stopped monitoring monetary aggregates as part of their evaluation of the inflation outlook—and even the ECB had downgraded its emphasis on money. Back in 1998 the ECB had adopted a two-pillar strategy to assess the inflation outlook. The first pillar focused on money developments; the second on economic developments. After a difficult period in the early 2000s—when the ECB had to devote a large amount of research to explain that the acceleration in money growth was not inflationary but the result of portfolio rebalancing that introduced instability in money demand—the ECB decided to change its strategy and downgrade the monetary pillar. It remains part of its formal framework of analysis but only as a second pillar to complement the economic analysis.

However, old ideas have lasting power. When, in 2007, the moment came to expand central bank balance sheets by large amounts, monetarism suddenly reappeared, even in the United States (see, e.g., the caution

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2. See Simon Potter, “The Failure to Forecast the Great Recession,” Liberty Street Economics (blog), November 25, 2011, [libertystreeteconomics.newyorkfed.org/2011/11/the-failure-to-forecast-the-great-recession.html](http://libertystreeteconomics.newyorkfed.org/2011/11/the-failure-to-forecast-the-great-recession.html) (accessed on March 28, 2017).

expressed in Bullard 2010), and worries about high inflation became a central part of the debate, with some apocalyptic warnings.<sup>3</sup>

Ironically, skepticism about QE came from both sides—from people who thought it might not work (based on the Japanese experience) and from people who thought it may work too well and generate rampant inflation (based on the monetarist view). This two-sided skepticism was central to explaining central bank actions during the crisis, as discussed below.

## **The European Obsession with Competitiveness and Reforms**

Economic views in Europe had some idiosyncratic nuances. The consensus thinking had two additional anti-inflation characteristics. The first was a heightened sensitivity toward inflation, especially in Germany. The legacy of the hyperinflation of the early 1920s—when the value of the deutsche mark plummeted from 4.2 per dollar to 4.2 trillion per dollar—had left deep scars, reinforced by the view that, in the eyes of many Germans, the political upheaval created by the hyperinflation opened the door to Hitler’s rise to power. The process of construction of the euro added to the sensitivity toward inflation.

Adopting the euro meant that Germany had to surrender monetary policy to the ECB, a new institution that lacked the strong anti-inflation credentials of the Bundesbank. The added fear that countries like Italy could take advantage of this new central bank to impose a higher inflation regime generated a strongly asymmetric view of inflation in the euro area. The ECB was created with the most independent statute in the world. Its independence was enshrined in the Maastricht Treaty and could be changed only by a unanimous decision of all countries, thereby giving veto power to Germany. But the treaty also explicitly forbade countries from engaging in monetary financing of government deficits. Later on this fear of fiscal dominance, of a situation in which governments could force central banks to finance their debts, became an additional political impediment to the adoption of a program of purchases of government bonds. The heightened sensitivity toward inflation materialized in the ECB’s adoption of an asymmetric definition of price stability: below 2 percent. It was later revised to “close to, but below, 2 percent,” but the asymmetry remained in the ambiguity and would become an important reason why the ECB tolerated a larger decline in inflation than other central banks.

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3. See Cliff Asness et al., “Open Letter to Ben Bernanke,” Real Time Economics (blog), *Wall Street Journal*, November 15, 2010, [blogs.wsj.com/economics/2010/11/15/open-letter-to-ben-bernanke](https://blogs.wsj.com/economics/2010/11/15/open-letter-to-ben-bernanke) (accessed on March 28, 2017).

The second anti-inflationary element was rooted in the imperfect institutional framework of the euro area. Because the euro area was a monetary union with a common currency and monetary policy but national fiscal policies, which were constrained by the Stability and Growth Pact, an integral part of the intellectual consensus among euro area policymakers was the need to achieve internal convergence. A key element of this process of convergence was convergence in competitiveness indicators. Because euro area countries could not devalue within the monetary union, convergence was expected to be achieved through gains in productivity, containment of costs, and moderation of salary increases.

Convergence was expected to increase the synchronicity of the business cycles of the different euro area countries, reducing asymmetries and making the euro area a more perfect monetary union. However, the combination of German unification in the 1990s and the worldwide reduction in interest rates of the 2000s (amplified in the euro area by the common monetary policy, which generated a significant reduction in interest rates in euro area periphery countries) threw a curve ball to this objective of internal convergence. The process of German unification disrupted the synchronicity of the German economic cycle with the rest of the euro area. While the countries that would later join the euro languished economically in the 1990s, Germany experienced a postunification boom. Its housing market appreciated significantly and, because of the decision to convert the East German currency at parity with the deutsche mark, its cost structure appreciated significantly. In sum, Germany experienced a significant competitiveness loss when it joined the euro in 1998. As a result, its growth weakened in the 2000s while the rest of the euro area was booming. In fact, at the time Germany was called the sick man of Europe.

To address this competitiveness loss, Germany embarked on a process of competitive disinflation via wage moderation. At the same time, some euro area countries, such as Spain, Ireland, and Greece, experienced very strong growth and significantly higher inflation than Germany, as a result of the triple positive shock of low interest rates, strong capital inflows, and an initially weak exchange rate (the euro was launched at an exchange rate of 1.17 but rapidly depreciated to 0.87 to the dollar, forcing intervention by the ECB to arrest the decline). This inflation divergence raised alarms at the ECB, which worried that these widening inflation differentials posed a threat to internal convergence and therefore the stability of the monetary union. At Eurogroup meetings (the regular meetings of European finance ministers), Jean-Claude Trichet, the president of the ECB, used to display a set of charts and tables with measures of competitiveness (such as the evolution of wages, unit labor costs, or real effective exchange rates) of each of the euro area countries, highlighting the dangerous divergence that was

taking place (Papaconstantinou 2016). This need to recover competitiveness via competitive disinflation and wage moderation became one of the main driving forces of economic thinking in the euro area once the crisis erupted. It added to the anti-inflation bias of the ECB's policy framework and higher tolerance for low inflation.

The sequence of events that led to the euro area crisis amplified this anti-inflation bias of European policymaking. The euro area was a club that was supposed to be built on trust, but trust was very weak. Rules (such as the complex web of rules of the Stability and Growth Pact) were pervasive because trust was thin. And there was a moral characterization of policies: Saving was good, borrowing was bad, "excessive" deficits were subject to sanctions. The fact that the euro area crisis started with an episode of misreporting of growth and fiscal data in Greece set the tone for the subsequent policy response. Very quickly the consensus narrative of the euro area crisis became a crisis of excessive public debt and deficits, compounded by the need to discipline untrustworthy governments. The worst fears of the German public—that the euro area would become a transfer union in which German savings went to bail out irresponsible Southern governments—were at risk of materializing. The concept of a transfer union was a loaded term in German politics, as it referred to the cost of unification (the transfers West Germany made to East Germany). This process was not to happen in the euro area. There could not be mutualization of the cost of solving the euro area crisis.

Sharp discipline was needed for the countries that had committed excesses, and monetary policy would quickly become the means to impose it. The ECB became part of the Troika (the group, composed of the IMF, the European governments, and the ECB, that managed the rescue packages for Cyprus, Greece, Ireland, Portugal, and Spain). During the early stages of the euro crisis, avoiding moral hazard and forcing reforms on countries became more important for the ECB than the achievement of price stability, and financial conditions were kept too tight. The subsequent collapse of inflation expectations, which put price stability at serious risk, was the result of this strategy. Ironically, the most independent central bank became the most politically driven central bank.

## **The Diabolical Politics of Rescue Programs**

In his book on the financial crisis, *Stress Test*, former US Treasury Secretary Timothy Geithner (2014, 9) writes, "Uncertainty is at the heart of all financial crises. They do not end without governments assuming risks that private investors won't, taking catastrophe off the table." He is right. Over and over in history, financial crisis have been crises of confidence—about

the ability of a country to repay its debt, about the ability of banks to meet withdrawals at the window. Lack of confidence morphs into panics and, before one knows it, the situation is out of control.

The solution, as Geithner argues, is simple: When the private sector panics, the public sector must step in and take the risk that the private sector does not want to take. The public sector must sell insurance on the future, calm the panickers and ensure that everything will be okay. The public sector is well placed to perform this role because, if the crisis is of confidence about the domestic banking sector, the government and the central bank have potentially unlimited amounts of money to deploy. They can credibly say that everything will be okay.

Of course, providing this assurance is easier said than done. Managing and solving a systemic banking crisis requires a complex set of decisions—about which banks are insolvent (and therefore need to be closed), which banks are solvent but illiquid (and therefore need to be rescued), and which banks may be insolvent but too big to unwind in an orderly fashion (and therefore need to be rescued as well). Nonperforming assets on the banks' balance sheets need to be dealt with, preferably by taking losses as early and credibly as possible, so that investors can have a good sense of the true value of the bank and recapitalization can proceed. A banking crisis generates losses; its management is essentially the process of deciding how to allocate them.

Doing so is a political minefield, because of two main objections to rescuing a bank. The first is that doing so is morally wrong. According to this view, the sinners must pay, period. The second objection is that bailing out banks creates moral hazard. If banks do not suffer the consequences of their mistakes, they will engage in the same behavior in the future. Because bailouts often implied expanding the fiscal deficit and issuing debt to finance them, very quickly the narrative became “privatizing profits, socializing losses.”

These concerns are valid. But a decision to bail out a bank should not be based only on these concerns. If the bank in trouble is small and the economy is healthy, its failure will likely have little impact on the rest of the economy, and the moral view can prevail. But if the whole financial system is in trouble, the guiding principle must change. The question to ask is: What is the course of action that minimizes the cost in terms of forgone GDP, in terms of welfare for citizens? If the problem is systemic enough, if it has metastasized through the economy, bailouts are likely to be a better solution for all citizens than allowing banks to fail on moral grounds. The objective must always be to protect the innocent, even if sometimes the troublemakers have to be rescued.

Politicians dislike bank rescues, because they are difficult to explain to voters. They therefore dither and load the burden on central banks. In the United States, the Fed had to find creative ways to lend to investment banks in trouble while the Congress sat idly by. When the Fed could not justify lending to Lehman for lack of collateral, it had to let it fail. But immediately afterward, it arranged the rescue of the insurer AIG, the collapse of which threatened to bring down the US financial system. After much dithering, and a dramatic first negative vote on September 29, 2008, that sent global equity markets down a cliff, on October 3, 2008, Congress finally approved the request to fund the Troubled Asset Relief Program (TARP). Tellingly, opponents of the TARP noted the lack of public support for bailing out banks and the potentially large size of the program.

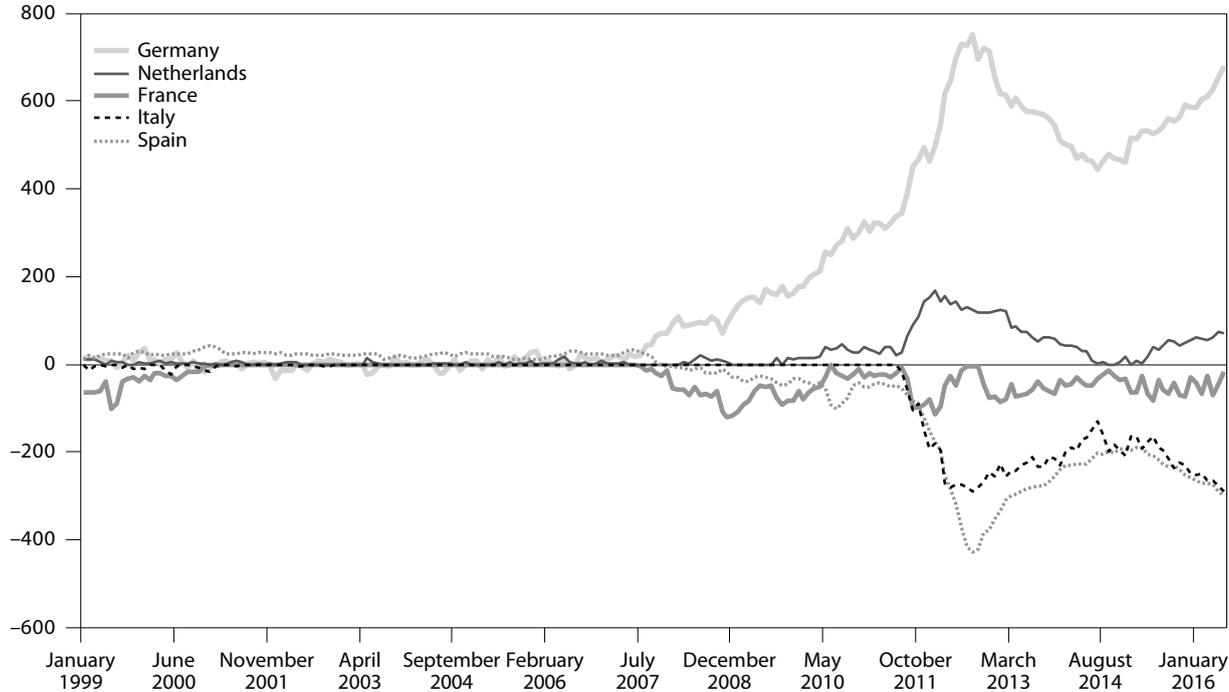
In the end, TARP was a success. Although it ended up being used for something slightly different than originally planned—the original plan was to use the money to buy toxic assets, but Treasury secretary Henry Paulson soon changed the strategy, redirecting it toward bank recapitalization—it was a major contributor to arresting the loss of confidence in the US banking sector (as it was a credible backstop to the recapitalization of banks). It generated a small profit (about \$15 billion) for the US taxpayer. One of the best-kept secrets of banking crises is that bank bailouts typically make money. If properly designed, governments buy at fire sale prices and sell at higher prices, after confidence has been restored.

In the euro area, the diabolical politics of rescue programs applied mostly to relationships across countries. As the ECB adopted its policy of unlimited provision of liquidity to all banks at its regular weekly auctions, this liquidity started to redistribute itself across euro area countries based on the characteristics of each country's banking system as well as market pressures. Banks in weak countries had to increase their reliance on ECB liquidity. Because the total amount of liquidity that a central bank creates cannot leave the system (unless it is converted into foreign currency), heavy borrowing from the ECB by some banks in debtor countries had its mirror image in large deposits at the ECB by some banks in creditor countries. To a large extent, this liquidity distribution mapped the relative economic performance of countries, especially of their external sectors. The result was large deposits by banks in Germany and large borrowing by banks in the periphery countries under stress. These flows were intermediated by the Target 2 system (the interbank payment system of the euro area). They became very large as the ECB pumped liquidity into the system (figure 2.1).

Germany's creditor balance accelerated rapidly. Very quickly these Target 2 flows became the source of political conflict. German politicians and academics started to point to these flows as a backdoor bailout of the ECB to the periphery countries that created a large potential liability

**Figure 2.1 Target 2 balances in selected European countries, 1999–2016**

billions of euros



Source: Bloomberg.

for Germany if one of those countries were to default. This criticism was mostly theoretical and largely unfounded. The large creditor position of Germany in Target 2 largely reflected its current account surplus versus the rest of the euro area countries; Germany was at risk of losing money only if a country were to leave the euro and default on those loans. Moreover, these large inflows drastically reduced German interest rates, boosting German growth. But these facts did not matter. The ECB had become too juicy a target for German politicians; the campaign was very effective in initiating a negative narrative in Germany against the policies of the ECB that has only increased over time.

The ECB's decision to be part of the Troika in the rescue programs of the crisis countries added to the political dimension—and room for criticism—of monetary policy in the euro area. The Troika used the ECB's monopoly over liquidity provision to exert leverage over problem countries. Ratings downgrades implied that the debt of these countries was at risk of not being eligible as collateral for the ECB's open market operations unless the troubled countries agreed to a rescue program. The ECB justified its actions as prudent risk management: It could not continue to accept as collateral assets at serious risk of default. From the point of view of the affected countries, however, its decision was tantamount to blackmail, as the risk of being cut off from the ECB's liquidity contributed to the risk of default. The fact that banks from core countries, especially Germany, unloaded a large part of their holdings of periphery bonds before the Troika's decision to restructure Greece's debt added to the controversy. The result was heightened political criticism of the ECB and its policies—in Germany because the ECB was doing too much to help the crisis countries, in the crisis countries because it was not doing enough.

## **Lean versus Clean—or How the Deep Origin of the Crisis Lies in a Bathtub**

An important element of the precrisis consensus dates back to a bathtub in Washington, DC during late 1996. The effect of Alan Greenspan's famous "irrational exuberance" speech, concocted during one of his morning baths, was the opposite of what he had intended. Greenspan wanted to warn markets that equity valuations were becoming frothy, hoping to slow their appreciation. In his address at the annual gala of the American Enterprise Institute, he wondered: "How do we know when irrational exuberance has unduly escalated asset values?" Markets ignored his warning; after a brief blip, they continued to roar forward.

The Dow reached 6,000 in mid-October 1996. Greenspan gave his speech in early December; by January 1997 the Dow was at 7,000. Rate increases did little to slow the stock market, cementing Greenspan's view

that monetary policy was not the instrument for dealing with potential financial market excesses.

In fact, according to his thinking, it could be counterproductive. Interest rates are too coarse an instrument to affect financial markets; unless the central bank is ready to act aggressively and trigger a recession, small moves in interest rates intended to slow asset prices run the risk of failing and negatively affecting the credibility of the central bank. Additionally, at times of rapid technological change, it is difficult to tell whether markets are properly valuing assets. Central banks have no advantage over markets in distinguishing true technological progress from asset bubbles. They can make mistakes and create unnecessary recessions, stifling innovation along the way. With these concerns in mind, most central banks decided that rather than leaning against financial markets, it was better to be ready to clean up after the fact. Monetary policy should focus on price stability; regulatory and supervisory policies should deal with financial stability risks.

The “clean” view was validated, to some extent, by the aftermath of the burst of the Nasdaq bubble in 2000. The stock market suffered severe losses, but the economic impact was small. In fact, the recession of 2001 is one of the shortest and mildest in postwar US history. To a large extent, irrational exuberance had been harmless.

This assessment was not shared elsewhere. From a quiet town in Switzerland, the “lean” view was gathering support. Economists at the Bank for International Settlements (BIS), in Basel, were worried that rapid credit growth was becoming a major economic risk. Household debt was increasing briskly, and annual housing price appreciation was approaching double digits in several countries. Global interest rates were low, the result of a combination of low inflation that was keeping short-term interest rates low and a steady increase in savings in emerging markets, as they accumulated foreign exchange reserves to better manage their currencies. Ben Bernanke called this phenomenon the “global savings glut.” These excess savings were being invested mostly in developed countries’ government bonds, reducing long-term interest rates, creating what Greenspan called the “conundrum” of low long-term interest rates: The Fed and other central banks were gradually raising rates in an attempt to tighten monetary conditions, but long-term rates refused to respond. The result was a growing concern about global imbalances, with the US current account deficit ballooning to a peak of 6 percent of GDP in 2006 while the current accounts of China and commodity-producing countries increased steadily and their holdings of foreign exchange reserves reached record highs. Worries about a US dollar crisis became widespread. In the “lean” view, the Fed’s focus on low inflation and disregard for financial stability were

partly responsible; monetary policy should lean against the wind of financial risks and tighten policy beyond what would be necessary to achieve price stability. Prevention was better than the cure.

In 2005 Raghuram Rajan, at the time chief economist of the IMF, gave what perhaps was the most articulated version of the “lean” view, in a speech at the annual conference of the Federal Reserve Bank of Kansas City in Jackson Hole, Wyoming. His main point was that a combination of technology, deregulation, and low interest rates could be creating a situation in which, although the number and diversity of financial market participants able to absorb risks had increased, the financial risks that were being created were increasing as well. Combined with a higher correlation of behaviors induced by competition, these factors could increase the probability of a catastrophic meltdown. Rajan worried that low interest rates could be creating perverse incentives among financial market participants and that central banks should therefore balance these costs against the benefits of avoiding deflation. However, he stopped short of advising a material tightening of monetary policy. He had an intuition but not a practical strategy for how monetary policy should respond to it.<sup>4</sup>

During this time, financial markets were developing at breakneck speed. The strong demand for risk-free assets generated by the rapid accumulation of foreign exchange reserves in emerging markets and the widespread development of private pension schemes met the dearth of issuance of government bonds, as fiscal deficits across the world were declining. How times have changed. Only a decade ago central banks were debating how to run monetary policy without a deep and liquid market for government bonds (see, e.g., Wheelock 2002). The relative scarcity of government bonds, of public risk-free assets, led to the development of private risk-free assets. Government bonds are considered risk free because of the taxing capacity of the government and the backstop role played by the central bank. To create private risk-free assets, financial engineering was needed. One could create assets divided into tranches; tranches with the highest priority were considered risk free, tranches at the bottom of the priority scale were considered risky. Thus were created credit derivatives, initially promoted in the US mortgage market to facilitate the securitization of mortgages guaranteed by Fannie Mae and Freddie Mac (and in some European countries to facilitate the liquidity management of mortgages issued by their savings banks). Increasingly complex and sophisticated credit derivatives were soon available for all types of assets.

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4. During the question and answer session at the conference, he was heavily criticized—even called a Luddite—for what some people in the audience interpreted as a critique of financial innovation.

The “clean” view saw this rapid development of derivatives as a positive development, because it contributed to financial market deepening, the diversification of risks, and market monitoring. The “lean” camp was less sanguine, worrying about rapid credit growth, greater complexity and opacity, and a deterioration in credit quality.

When the financial crisis erupted, the “lean” view felt vindicated. Never mind that the main event that the “lean” view had forecast—a collapse of the dollar as a result of the growing global imbalance and the large US current account deficit—never happened. Never mind that in its 2007 annual report, the BIS worried about the low saving rate in the United States and the high investment rate in China as the main sources of risks, only to then wonder in its 2008 report “how could problems with subprime mortgages, being such a small sector of global financial markets, provoke such a dislocation?” (BIS 2008, 3). The “lean” view just connected the dots and concluded that low interest rates and easy monetary policy were dangerous and created financial risks and that financial development and derivatives were sources of instability.

This narrative would become an integral part of the crisis policy framework: It is fine to cut rates, but always be mindful of potential financial stability risks. It created a schizophrenic environment. The main channel of transmission of many of the monetary policies implemented during the crisis was to encourage the private sector to take more risk, but policymakers were constantly cautioning against the risks of higher inflation and financial risk taking and engaged in a widespread process of financial sector regulatory tightening to limit the risky activities of financial market participants. It was like pushing and pulling at the same time. No wonder the public was confused.

## **Bayesian Inference Meets Politicians in a Rush—and Austerity Is Born**

When your only tool is a hammer, everything looks like a nail. People’s attitudes toward an issue depends on their preconceptions; no one starts with a clean slate. The British statistician Thomas Bayes conceptualized the way people form beliefs. The concept he developed—Bayesian inference—implies that how one reacts to new evidence depends not just on what the evidence shows, but on how much one believed the initial hypothesis to begin with. If people believe that all the balls in an urn are red and they draw a red ball, their belief in their theory increases, although the red ball that was drawn may actually be the only red ball in the urn. People have a set of “prior beliefs.” After an event occurs, they update their degree of belief in different theories, generating “posterior probabilities.” The priors

describe the beliefs before the event occurs, the posteriors describe the beliefs after the event occurs. They then become the new priors.

Now imagine one's economic priors are based on the German ordoliberalism doctrine. Under this doctrine the role of the state is just to provide a framework for markets to operate. A combination of effective regulation and budgetary discipline generates a framework of order and stability in which the private sector can thrive. State intervention is permitted to make markets possible but not to offset their undesirable consequences. Crises happen because of policy failures generated by excessive government action or large fiscal deficits. Discipline is paramount. Discipline bolsters confidence for the private sector to invest, create jobs, and boost growth. When a crisis occurs, fiscal discipline is key to restoring confidence. Fiscal support for the economy only precludes the necessary adjustment from happening, delaying resolution of the problems. Fiscal discipline, combined with structural reforms to enhance the operations of the private sector, solves the crisis.

These ordoliberal priors are the source of the European policy framework, which comprises an independent central bank, rules to ensure fiscal discipline, and an obsessive focus on structural reforms. When European policymakers discovered the large fraud in the Greek public deficits, they saw a fiscal crisis in an uncompetitive economy creating a financial crisis and putting the euro area at risk. At that point Bayesian inference kicked in: The degree of belief in the ordoliberal priors increased, as this new evidence confirmed that fiscal profligacy and lack of competitiveness created crises. The politics of austerity were thus born: A package of fiscal adjustment and reforms was needed to solve the crisis. Never mind the depth of the recession or the lack of an exchange rate to cushion its impact via depreciation. Fiscal adjustment and structural reforms, the ordoliberal package, would boost confidence and restore growth.

The impact of the Greek events on the mindset of policymakers across the globe cannot be stressed enough. Not becoming Greece became the rallying cry of politicians across the political spectrum. Deficits and debt were bad, period. For conservative governments keen on reducing the size of government, it was political manna from heaven. In the United Kingdom, the Conservative government presented a very aggressive program of fiscal consolidation, with the tacit approval of the BoE. In the United States, the Tea Party faction of the Republican Party saw the opportunity to advance its small government program, unleashing a sharp fiscal tightening that greatly complicated efforts by the Federal Reserve to boost growth and inflation. The brief period of Keynesianism that followed the G-20-coordinated fiscal stimulus of 2009 died with the discovery of the Greek fiscal fraud. Research by Carmen Reinhart and Kenneth Rogoff

(2009) suggesting that debt ratios above 90 percent of GDP were a recipe for a fiscal crisis provided the mental anchor for the fiscal adjustment movement. Never mind that Reinhart and Rogoff's research was shown to have errors and that the evidence only partly supported their conclusions. The damage was done. It made little economic sense to engage in fiscal adjustment in the middle of a severe economic contraction, with the euro area entering a deep existential crisis. But the priors were very strong, and the evidence was confirming them. Growth was not going to be enough to reduce debt levels. Fiscal austerity, spending cuts, and tax increases were needed.

Politicians were in a hurry to find a narrative to navigate the crisis, and the fiscal adjustment strategy provided it. It could be explained in simple terms that the general public could understand—the government should behave like a prudent household and not spend more than it earns—even if the economics of this analogy were wrong. Simple trumped accurate. The message was clear: To restore confidence, adjustment was needed. The political reputational risk of any government that failed to follow this strategy was very high. The power of peer pressure among policymakers and politicians is enormous.

Alberto Alesina, one of the fathers of the research on expansionary fiscal contractions, was invited to give a presentation to the Ecofin meeting in Madrid in April 2010. His conclusion was clear: Fiscal adjustment was needed, the more “credible” the better. “Credible” was code for a large and frontloaded adjustment. The composition of the adjustment was critical: His research showed that permanent spending cuts, especially in government payrolls and social safety nets, were more credible and effective than tax hikes. These conclusions gave academic credentials to the political strategy, completing the process of Bayesian updating for policymakers. Austerity was going to deliver growth. This language was adopted by the Ecofin, the ECB, the UK Treasury, and eventually the G20 at its June 2010 meeting in Toronto, which called for “countries to put in place credible, properly phased and growth-friendly plans to deliver fiscal sustainability” (see the in-depth discussion in Blyth 2013). “Growth-friendly fiscal adjustment” became the political version of the expansionary fiscal contraction doctrine. Little attention was paid to the fact that most of the case studies supporting the expansionary fiscal contraction thesis had featured large exchange rate depreciations, which are a form of expansionary monetary policy. Despite the weakness of the global economy, and the existential crisis in the euro area, a program of global fiscal adjustment was put in place that lasted until 2014. Bayesian inference made monetary policy the only game in town.

## Markets and the Crisis: In Search of Analogues

While policymakers were dealing with their demons of preventing inflation, avoiding risk taking, and consolidating the public finances, markets were trying to figure out how to navigate uncharted waters. The 2007 crisis was a systemic banking crisis that risked toppling the global financial system and triggering a Great Depression. Monetary policy had become unpredictable, public debt levels were rising rapidly. The euro area crisis had the potential to unravel the euro, with consequences that no one could imagine. Because there was no roadmap for the effects of the bankruptcy of a major investment bank, no collective memory in markets of the dynamics of the Great Depression, and no precedent for the unpacking of a monetary union of the size and complexity of the euro area, markets were at a loss. Knightian uncertainty took over and amplified the impact of the shocks that were hitting global markets. Scenarios of potential losses in global banking sectors flowered everywhere, with ever larger numbers but very little confidence in the scenarios. Measures of the size of the needed rescue packages for euro area countries grew by the day. At the same time, Congress did not want to authorize enough money to buy nonperforming assets and clean up the balance sheets of US banks. Euro area policymakers were building new institutions as the problems arose. The firehouse was being built as the fire was raging, and the sense of despair in markets was growing.

Markets lacked direction. They had no framework to think about the future, making the pricing of financial assets and the transmission of the monetary policy actions difficult. Markets were used to the Greenspan put, the belief that central banks, especially the Fed, would always be able to come to the rescue. But reality crashed in. Markets realized that, this time, they had to take matters into their own hands.

Markets like analogues. They find comfort in exploring similar situations from the past as a guide for the future. They prefer case studies that can narrow the specifics of a problem to a situation already lived in the past to econometric regressions that average over long periods of time and different scenarios. If they cannot find analogues, they create them.

Ray Dalio, manager of Bridgewater, one of the largest hedge funds, compiled a sequence of news events and market prices from the period of the Great Depression and conducted exercises in which he was fed news and market prices from that period and traded against them. He wanted to experience the Great Depression, the reaction of markets and news to the events of that era, to be able to better understand the Great Recession.

Other hedge funds went even farther. In a castle on the outskirts of Paris, a group of traders, academics, and former policymakers gathered in 2011 to play a war game of the euro area crisis. The range of actors involved—

the IMF, the ECB, debtor and creditor countries, domestic banks, and investors—was too large and complex for mathematical models. The interactions among them were impossible to predict and, more importantly, lacked a good historical precedent. A war game was created to generate analogues, profiles of market action and reaction that could serve as a guide for future events.

At research houses around the world, analysts were busy compiling tables ranking the euro area countries by degrees of vulnerability. Markets were scrambling for information after a decade of paying no attention to the macroeconomic details of individual euro area countries (they were all now part of the euro, so national differences were supposed to matter little; sectoral differences inside the euro area were supposed to be more relevant). Markets were scrambling for information, and these tables had a profound anchoring effect. The countries rated most vulnerable became the targets of financial markets. These tables were the new anchor, the new framework of reference that guided investor behavior. Based on public and external deficits and debt ratios, the ranking was soon clear: Greece, Ireland, Portugal, Spain, and Italy. The PIIGS (Portugal, Italy, Ireland, Greece, and Spain) were born.

They were the countries that could be at risk of needing a bailout, the next domino to fail. Fairly or unfairly, these countries became the center of attention. When euro area policymakers started to discuss the possibility of debt restructuring as a condition for bailouts, traders started to price the bonds of these countries as credit, not bonds. The prices of these bonds became a function of expected default probabilities, not expected nominal GDP growth. Rating agencies responded to the menace of debt restructurings by downgrading the bonds of these countries. With the ECB firmly opposed to QE, bond yields among the PIIGS skyrocketed, sharply tightening financial conditions in these countries and, as a result, in the euro area.

## **I Wouldn't Start from Here**

Policymakers arrived at the crisis worrying about inflation, debt, deficits, moral hazard, and excessive financial risks. Markets quickly shifted to worry about recession, deflation, and defaults. Despite the rapid and unprecedented expansion of central bank balance sheets, financial markets never expected inflation much above 2 percent, let alone runaway inflation. Despite the overall increase in fiscal deficits and public debt, markets priced meaningful probabilities of default only in countries that were explicitly threatened by the Troika with debt restructuring as a condition for rescue packages. In the biggest irony for the deficit worriers, when the

United States lost its AAA rating, bond yields declined, not increased, as bond markets worried about the potential implications for growth, not the potential probability of default.

When Congress threatened not to extend the debt ceiling, bond yields also declined: Only the yield of very short-term bills, which could be directly affected by a suspension in debt service, rose. Politicians, policy-makers, and pundits were arguing over the inflationary, financial stability, and moral hazard potential of their actions while markets were looking in the opposite direction, worried about not enough growth and not enough inflation.

Politicians and policymakers were worried about taking too much risk. In doing so, they did not take enough, and made the recovery riskier and more fragile. This is the paradox of risk.