The Evolution of Thinking about Monetary Policymaking: Six Themes over Four Decades

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I am honored to take part in this distinguished gathering in memory of Luis Ángel Rojo. Many of us outside Spain are aware of the important role Governor Rojo played in the development of central banking, and of the Banco de España in particular. I was lucky enough to know Governor Rojo personally – not as an intimate of course, since I was a much younger man, but I appreciated his personal kindness to me and I respected his intellect and his energy. He was clearly a man of ideas as well as of action. No doubt the high esteem in which he is held today within this institution reflects his commitment to both.

And, importantly for those of us who are research economists, he was also deeply interested in the development of research ideas and the research process, including the education of young researchers. I remember with some fondness that one day, when CEMFI, which I always regarded as Governor Rojo's personal creation, was about to move into its current quarters, then just an empty building, Governor Rojo and Rafael Repullo and I walked through the building together. I was treated to Governor Rojo's exposition of exactly what would go where, and how the new institution would flourish in this splendid new setting. It was obvious that the governor had a keen personal interest in this academic enterprise, one that I have always regarded as not just laudable but, at least in my experience, quite unusual among top-level officials of important public policy institutions. As I think back on Governor Rojo today, the memory of that afternoon's conversation while walking through an empty building rises sharply for me. Ángel Rojo was a builder, and what he built has lasted.

In my remarks this morning, I would like to reflect on some of the major trends that have dominated the evolution of thinking about monetary policy over a span of years beginning some time before Governor Rojo's tenure at the Bank and extending since then, to the present day. I will emphasize six themes in the evolution of ideas about monetary economics that bear in particular on monetary policymaking.

The Role of Expectations. The first of these themes is the role of expectations. Governor Rojo's entry into the practice of central banking coincided with the empirical failure of the paradigm, built around the idea of a stable Phillips curve, that had dominated professional macroeconomic thinking during the early decades following World War II. By the time Governor Rojo was assuming a leadership position within the Banco de España, the mainstream of the monetary economics profession had incorporated into its thinking a major role for forward-looking behavior, and therefore expectations, including in particular expectations about inflation.

An important consequence of this new emphasis on the role of expectations was the emergence, roughly a decade later, of the concept of time inconsistency. The central idea was that once the public understood that a central bank would *not* maintain price stability, price stability would come unravelled on its own even without the central bank's actually implementing an inflationary monetary policy. In effect, the pivotal role of expectations heightened in parallel the importance of the policymaker's commitment.

Time inconsistency was a new and arresting idea at the time, and it in turn bore a variety of further implications, some of which are still playing themselves out in the world of monetary policymaking today. One, which follows not just from time inconsistency but even more directly from the so-called New Keynesian Phillips Curve – or, for that matter, from any construct in which price- or wage-setting depends on what people today expect will be the price or wage that prevails in the future – is that the short-run trade-off that the central bank faces between loss of output and gain in price stability ought to be mitigated by its commitment to price stability itself.

But although we now have a large amount of accumulated evidence documenting forward-looking behavior in both the goods market and the labor market, just as the New Keynesian Phillips Curve suggests, to my knowledge there has never been any serious evidence for the advanced industrialized economies indicating that the short-run trade-off between output and price stability depends in any direct way on the central bank's commitment to price stability. Some evidence along these lines does exist for developing economies, but not for countries like Spain, or the Euro zone more generally, or for the United States. Nonetheless, the focus of monetary policymaking, ever since this earlier period, has continued to be on expectations and on the central bank's role in shaping the expectations of the private sector in a way that – if this proposition were true – would make the short-run trade-off more favorable and hence presumably make it easier for any central bank to preserve price stability.

I have argued, in a number of places, that the movement to take account of forward-looking behavior in the economics of monetary policymaking, while initially constructive, eventually overextended itself in at least two respects. First, what began as an appropriate emphasis on the previously neglected role of expectations, especially in the price-setting process, in time evolved into an increasingly exclusive focus on what the literature has come to call the "management of expectations" – as if influencing the public's expectations were somehow not a supplement to, but a replacement for, the concrete actions that the central bank would ordinarily take. In this line of thinking, especially in its more extreme but today all too familiar forms, it is as if the only effective operating arm of the central bank becomes the press office, while the bank's other operations, including its open market operations and borrowing and lending activities, become irrelevant.

Especially now that we have entered a protracted period of zero or near-zero nominal interest rates in many economies (a subject to which I will return in a few moments), this focus on the management of expectations has become, if anything, even greater. The most recent illustration is in the United States, where the Federal Reserve System has now pledged to leave short-term interest rates at zero for the next three years. Why might a central bank say such a thing? Presumably because in the absence of the ability to *do* something, the current thinking about monetary policymaking is that one must therefore at least *say* something. But the important point to bear in mind is that there is no evidence that in this arena of economic policymaking saying something is an adequate substitute for doing something.

"Rational" expectatations. The second way in which the movement to take account of forward-looking behavior overextended itself, in my judgment – and this is the second major theme I would like to address – is closely related. It is the idea not only that expectations matter (a proposition with which is hard to imagine disagreeing) but that the expectations that matter for purposes of monetary policymaking are "rational" in the quite specific sense of model-consistency, as assumed in the academic literature starting in the 1970s and ever since.

At one level, what is remarkable in retrospect is the absence today of practical import of the assumption that expectations are "rational" in this sense. The research departments of many central banks around the world do use "dynamic stochastic general equilibrium" models, which centrally incorporate model-consistent expectations. Apart from this predilection of the research departments, however, it is not obvious what implication has followed, for practical monetary policymaking, from the assumption that the households and firms and financial institutions within a model form their expectations of the future economic outcomes that matter to them as if they know and apply the model itself. Indeed, it is startling today to recall that, not so long ago, the professional monetary policy literature embraced ideas like the claim that monetary policy actions taken by the central bank, if anticipated by the public in advance, would have no consequences for output or employment or other real outcomes. I know of no central bank today that makes monetary policy as if that proposition were true. One is entitled to wonder, therefore, just what import is left – at the practical, policymaking level – of the idea of "rational" expectations.

At the same time, in the wake of the recent financial crisis I think we are now sensitive, in ways that we were not before, to the relationship between the *macro*economics of what central banks do and the *micro*economics of what happens in securities markets. From the crisis, we now have a large amount of evidence indicating what seems almost surely to have been a systematic failure of rationality among key participants in the process that was setting the relevant securities prices. In the United States, for example, there is forensic evidence on the internal decision-making of those institutions that either failed outright or had to be taken over with the assistance and urging of the government. What is remarkable in these records is the discrepancy between the portfolio losses these institutions incurred and their internal estimates of their value at risk. Their estimates were sometimes off by two orders of magnitude. To cite just one example, Merrill Lynch had to be taken over by Bank of America, mostly on account of losing \$18 *billion* on its mortgage-backed securities portfolio. According to subsequently released information, the firm's internal estimate of the value at risk on this portfolio was $92 *million* – too small by a factor of 200. Nor was the experience at Merrill Lynch exceptional in this regard.

To make matters worse, the systematic mispricing of securities that gave rise to the crisis also corresponded – as it must, if the prices matter and the mispricing persists for a significant span of time – to significant misallocations of resources. In the United States, in the most recent episode, this misallocation primarily involved directing too many resources to the building of houses. In the aftermath of the crisis what we mostly talk about, especially in central banking circles, is the losses that banks and other investing institutions took on their securities portfolios. What we fail to emphasize is that the losses on the securities means that their prices were too high to begin with, and the fact that the prices were too high means that the corresponding mortgage interest rates were too low, and as a result Americans built and bought millions of houses that today stand empty, together with millions more that remain occupied but are subject to foreclosure. Constructing these houses required both labor and capital. What happened, therefore, at the most fundamental level, was a misallocation of the economy's resources as a result of mistakes made by the securities market: the prices set by the securities market were wrong, and as a result the allocation of scarce real resources was wrong too.

The point is a fundamental one, because the essential role of the private financial sector in a free-enterprise, capitalist economy is the allocation of scarce capital investment. We have well developed public utility models for just about everything else that the financial sector does: providing deposits and liquidity, operating the payments mechanism, providing life and casualty insurance, creating vehicles for retirement saving, and other functions as well. By contrast, we have no idea how to allocate an economy's capital stock effectively under a public utility model, and so this is the essential function that a private financial sector is supposed to perform. If the pricing mechanism grounded on market expectations is systematically inefficient, because the relevant market participants' expectations are non-rational, the implications threaten the very essence of the free-enterprise economy. But the widespread evidence of systematically non-rational expectations certainly bears on monetary policymaking as well.

Monetary policy objectives. The third theme I would like to consider is the role of price stability as either one objective or perhaps even *the* objective of monetary policy.

The great accomplishment of central banks throughout the world during the period of Governor Rojo's career was overcoming the "great inflation" of the 1970s and early 1980s. This was, to be sure, a victory from which central bankers could take a serious measure of satisfaction. The outgrowth of that victory, however, presents potentially troubling consequences today.

One such consequence is the emergence, in many economies, of inflation targeting as a framework for monetary policymaking. As the work of many economists has made clear, inflation targeting need not mean that price stability is the sole objective of monetary policymaking. In principle, it need not even mean that price stability is the primary objective. Nonetheless, in most countries that have adopted an inflation targeting framework, the rhetorical stance with which the central bank has implemented this framework has certainly lent itself to the interpretation that this is in fact the case. The appeal to monetary policymakers of a price-stability-centric rhetorical stance is understandable in light of the time inconsistency issue that I mentioned a moment ago. In light of the hypothesized benefit of a perceived commitment to price stability, it is in the interest of the central bank to induce the public to think that its sole objective is price stability, even if this is not actually so. But the question then becomes whether, in portraying its objectives in this way as opposed to revealing its true objectives, the central bank thereby undermines the transparency and therefore ultimately the accountability of monetary policy.

In many countries today, there is an ongoing debate over the mandate of the central bank. I believe this debate will take on renewed energy once the recent crisis is solidly behind us. It is difficult to describe the behavior of any of the world's major central banks during the crisis period in a way that is consistent with inflation targeting. As a result, there is ground to question what the central bank's mandate actually means in practice. For example, a useful empirical exercise for some researcher to carry out would be to see whether there are systematic observable differences, which correspond to aspects of inflation targeting, distinguishing the actions taken by the Bank of England, which is a formal inflation targeter; by the European Central Bank, which is not a formal inflation targeter but, by the establishing treaty, has price stability as its primary objective; and the Federal Reserve System, which has an explicit dual mandate that places maximum sustainable employment in parallel with price stability. Did these central banks' different mandates lead to systematic observable differences in the policies that they implemented? I am sceptical.

Several years ago, in jest, I began a paper on this subject with a fictional account of the semi-annual hearing of the U.S. Senate Banking Committee at which the chairman of the Federal Reserve System is called upon to report on recent economic developments and discuss current prospects for U.S. monetary policy. I imagined this fictional hearing taking place at a time when the unemployment rate was 17 percent (it had not occurred to me to anticipate today's Spanish situation and suggest unemployment above 20 percent), industrial production was down by 23 percent, one-fifth of the country's banks had failed, and both corporate bankruptcies and home mortgage defaults were at post-war record levels. In this dire setting, I pictured the Federal Reserve chairman stepping to the microphone and announcing that he had come to the hearing to accept the thanks of the committee, and of the American people, for the excellence of the Federal Reserve's monetary policy, which over the preceding twelve months had delivered inflation of precisely 1.50 percent for the second year in a row. As we look around the world today, one wonders whether in some central banks reality has become no less strange than fiction.

Rules versus Discretion. The fourth issue I would like to address is one that was central to discussions of monetary policy before the career of Governor Rojo began, that continued to be a dominant theme throughout his time at the Banco de España, and that remains a major issue of dispute today: the tension between rules and discretion in policymaking. In the early decades following World War II, it was often difficult to distinguish the rules versus discretion debate from an implicit debate over the objectives of monetary policy. To my knowledge, no one at that time used the pejorative phrase "fine tuning" to refer to an excessive focus on keeping inflation on track. Instead, "fine tuning" always meant an excessive focus on real economic activity. As a result, in looking back at the early years of this debate it is sometimes difficult to tell when people were actually talking about rules versus discretion and when they were talking about what the objectives of policy should be. For purposes of today's discussion, however, I will take seriously that participants in this debate were, and today are, interested in rules of behavior that would constrain the central bank, rather than indirectly making a point about monetary policy objectives.

The key conceptual difficulty was then, and continues to be now, how to define a policy stance that could be construed as the "take no action" policy in the sense of, for example, Milton Friedman's classic paper from the 1950s. What would it mean, in a monetary policy context, to take no action? In principle it might mean leaving the short-term interest rate unchanged, but that was certainly never what the proponents of monetary policy rules had in mind. There was a period when people interpreted the "take no action" policy as "take whatever action is necessary to keep money growth, however defined, from departing from target." But, as I will emphasize in a moment, the era of monetary targets came and then went.

Where are we today, then, in the rules versus discretion debate? It is useful to distinguish the state of this debate in Europe and in the United States. Europe, because of monetary union, has come through a period in which the proponents of rule-based monetary policymaking in effect had the sense of achieving that objective without actually doing so. This perception was false, however – a form of what Paul Samuelson famously called the fallacy of composition. From the perspective of the central bank of an individual member state within the monetary union, it was clearly true that joining the monetary union meant surrendering discretion over monetary policy. But from the perspective of the union as a whole, the fact that there was now a broader currency area did nothing to resolve the rules versus discretion debate. My sense, therefore, is that in Europe the state of this debate is, for all practical purposes, about where it was forty years ago. As we emerge from the lingering effects of the recent financial crisis, including especially those aspects that are particular to Europe and that currently remain very much unresolved, I expect that rule-based monetary policymaking will once again be a matter for active debate.

The situation is different in the United States. The conduct of policy by the Federal Reserve System during and in the wake of the crisis has led, at the political level, to an extraordinary amount of recrimination in some parochial quarters. In some quarters there is even a longing to return to the gold standard – a development that would be astonishing were it not for the fact that in American experience this kind of nostalgia surfaces whenever economic performance is disappointing and the population's living standards stagnate for an extended period. More broadly, however, there is not just acceptance but admiration for the role that the Federal Reserve played in arresting the financial crisis. As a result, unlike in Europe, I do not expect a significant re-emergence of the rules versus discretion debate in the United States.

Monetary Targeting. The fifth theme I would like to address is the rise and subsequent demise of monetary aggregates as the focus of monetary policymaking – a coming and going that took place almost entirely within the span of Governor Rojo's career. In retrospect, one is entitled to question, both for the United States and also for Europe, how serious central banks' commitment to monetary targeting ever was. I have long been a sceptic of how seriously the Bundesbank, for example, was committed to its monetary aggregate targets, at anything more than a rhetorical level. I have likewise been a sceptic of the European Central Bank's commitment to its so-called monetary pillar. In the United States, the great surprise to the proponents of monetary targeting was the discovery that different monetary aggregates sometimes grew at sharply different rates once the central bank had moved to setting monetary targets. Indeed, I suspect that one of the more significant factors undermining the Federal Reserve's use of monetary targets, in the early 1980s, was the spectacle of some advocates of monetary targeting publicly arguing that policy was too tight, because their preferred monetary aggregate was growing too slowly, at the same time that other advocates of monetary targeting were publicly arguing that policy was too easy because their preferred aggregate was growing too rapidly. The advocates of this approach had simply never contemplated the prospect that, in real time, different measures of money might diverge to an extent that would be practically relevant for monetary policymaking. (It is perhaps worth pointing out a parallel to the problems now threatening monetary union in Europe: I suspect that the creators of the Euro likewise never contemplated the possibility that, once a unified monetary policy focused on price stability was in place, there might be sustained divergence of individual member countries' price levels.)

What is the practical consequence of the collapse of the role of monetary aggregates in monetary policymaking? Perhaps most importantly, it is again impossible to define what one would mean by a "do nothing" policy in the sense of the rules versus discretion debate. Like it or not, therefore, central banks today have little choice but to use discretion in setting monetary policy. As the example of the Bank of England demonstrates, even a supposedly strict inflation targeting regime does not obviate the need for continual discretionary policymaking.

The recent crisis has also been important in this regard. One of the main lessons of the crisis has been to highlight the importance of credit, as opposed to money. The causes of the crisis clearly lay in the credit markets, not on the money side of the ledger. Moreover, with the astonishing expansion of central bank balance sheets in virtually all of the industrialized economies – and especially in light of how least-squares estimation technologies overweight outlier observations – for the remainder of our lifetimes (and probably our students' lifetimes as well) it will be impossible for anyone to run a regression with prices or inflation on the left, and the level or growth of central bank liabilities on the right, and find any kind of meaningful relationship.

"Unconventional" Monetary Policy. The final issue I would like to address, which I think no one during Governor Rojo's tenure could have anticipated, is the search by central banks for new policy measures during the recent crisis, especially once short-term interest rates reached or approached the practical lower bound of zero. Here I would like to pay tribute to our central bank colleagues around the world, including those at the Federal Reserve System, the European Central Bank, the Bank of Japan, the Bank of England, and others as well. The asset purchases, special lending facilities, and other new strategies that these central banks have pursued have not been uniformly effective, but I nonetheless salute the creativity and aggressiveness with which monetary policymakers have stepped up to what was, and in some economies remains, the challenge of a generation and even more.

Further, in important respects central banks are usefully learning from one another. One of the important steps that the Federal Reserve System has taken, just since the beginning of the financial crisis, is to copy the European Central Bank in paying interest on banks' excess reserve balances. Until 2008, the Federal Reserve never had legal authority to pay interest on reserves, but in November of that year the U.S. Congress, acting at the Federal Reserve's request, granted it. This step is of particular importance because of the enormous increase in the size of the Federal Reserve's balance sheet, most of which has taken the form of excess reserves. Before the crisis, Federal Reserve liabilities totalled little more than $800 billion, and excess reserves were negligible. Today Federal Reserve liabilities total more than $2.6 trillion, of which more than $1.5 trillion is excess reserves. If it were not for the ability to pay interest on these balances, there would be ample ground for concern about the "exit strategy" from this extraordinary situation: would the central bank be able to sell off sufficient assets, sufficiently rapidly, to prevent excessive creation of money and credit once the recovery from the 2008-9 recession finally gains strength? But with interest now paid on excess reserves, there is no need to shrink the balance sheet at all, at least not on these grounds. The Federal Reserve can simply pay a high enough interest rate on excess reserve balances to render the reserves inactive. (To put the point in a different way, the Federal Reserve can use the interest rate it pays on excess reserves to set a floor under the short-term market interest rate – in the United States, the federal funds rate – rather than doing so via open market operations.)

Here in Europe, today, the main focus of central bank innovation in response to the crisis reflects the particular feature of the financial crisis as also a sovereign debt crisis. I regard the European Monetary Union as a unique experiment. I know of no previous historical example of a major modern economy that has tried to operate with no government debt. To be clear, by government debt I mean debt that is non-defaultable because the government issuing the debt has the authority to print the pieces of paper in which the debt is denominated; this feature is what makes U.S. Treasury debt, or U.K. gilts, or JGBs in Japan, or the obligations of most other countries that borrow in their own currencies, non-defaultable. Europe, under the current structure, does not have government debt in this sense.

What we are learning in Europe's current crisis may be that a major economy in the modern era simply cannot function with no government debt. If so then, like every other economy in modern history, Europe will have to innovate yet further, to create a structure capable of providing genuine, non-defaultable government debt. The path to that outcome is not straightforward. But I think we should see it as a continuation of the process of innovation that so many of our countries' central banks, together with our other economic policy institutions, have so usefully undertaken during this troubled period.

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