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Rethinking Macroeconomic Policy

The great moderation lulled macroeconomists and policymakers alike in the belief that we knew how to conduct macroeconomic policy. The crisis clearly forces us to question that assessment. In this paper, we review the main elements of the precrisis consensus, identify where we were wrong and what tenets of the precrisis framework still hold, and take a tentative first pass at the contours of a new macroeconomic policy framework.

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IT WAS TEMPTING FOR macroeconomists and policymakers alike to take much of the credit for the steady decrease in cyclical fluctuations from the early 1980s on and to conclude that we knew how to conduct macroeconomic policy. We did not resist temptation. The crisis clearly forces us to question our earlier assessment.

This is what this paper tries to do. It proceeds in three steps. The first reviews what we thought we knew. The second identifies where we were wrong. The third, and the most tentative of the three, makes a first pass at the contours of a new macroeconomic policy framework.

A caveat before we start: the paper focuses on general principles. How to translate these principles into specific policy advice tailored to advanced economies, emerging market countries, and developing countries is left for later. The paper also mostly

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stays away from some of the larger issues raised by the crisis, from the organization of the international monetary system to the general structure of financial regulation and supervision, touching on those topics only to the extent that they relate directly to the issue at hand.

1. WHAT WE THOUGHT WE KNEW

To caricature (we shall give a more nuanced picture below): we thought of monetary policy as having one target, inflation, and one instrument, the policy rate. So long as inflation was stable, the output gap was likely to be small and stable and monetary policy did its job. We thought of fiscal policy as playing a secondary cyclical role, with political constraints sharply limiting its *de facto* usefulness. And we thought of financial regulation as mostly outside the macroeconomic policy framework.

Admittedly, these views were more closely held in academia: policymakers were often more pragmatic. Nevertheless, the prevailing consensus played an important role in shaping policies and the design of institutions. We amplify and modulate these points in turn.

1.1 One Target: Stable Inflation

Stable and low inflation was presented as the primary, if not exclusive, mandate of central banks. This was the result of a coincidence between the reputational need of central bankers to focus on inflation rather than activity (and their desire, at the start of the period, to decrease inflation from the high levels of the 1970s) and the intellectual support for inflation targeting provided by the New Keynesian model. In the benchmark version of that model, constant inflation is indeed the optimal policy, delivering a zero output gap (defined as the distance from the level of output that would prevail in the absence of nominal rigidities), which turns out to be the best possible outcome for activity given the imperfections present in the economy (Blanchard and Galí 2007).

This divine coincidence (as it has been called) implied that even if policymakers cared very much about activity, the best they could do was to maintain stable inflation. This applied whether the economy was affected by "animal spirits" or other shocks to consumer preferences, technology shocks, or even changes in the price of oil. The coincidence failed in the presence of further imperfections, further deviations from the benchmark, but the message remained: stable inflation is good in itself and good for economic activity.

In practice, the rhetoric exceeded the reality. Few central banks, if any, cared only about inflation. All of them practiced "flexible inflation targeting," the return of inflation to a stable target, not right away, but over some horizon. Most of them allowed for shifts in headline inflation, such as those caused by rising oil prices, provided inflation expectations remained well anchored. And many of them paid attention to asset prices (house prices, stock prices, exchange rates) beyond their

effects on inflation and showed concern about external sustainability and the risks associated with balance sheet effects. But they did this with some unease, and often with strong public denial.

1.2 Low Inflation

There was an increasing consensus that inflation should not only be stable but very low: most advanced country central banks chose a target around 2% (Romer and Romer 2002). This led to a discussion of the implications of low inflation for the probability of falling into a liquidity trap: corresponding to lower average inflation is a lower average nominal rate, and given the zero bound on the nominal rate, a smaller feasible decrease in the interest rate—thus less room for expansionary monetary policy in case of an adverse shock. The danger of a low inflation rate was thought, however, to be small. The formal argument was that, to the extent that central banks could commit to higher nominal money growth and thus higher inflation in the future, they could increase future inflation expectations and thus decrease future anticipated real rates and stimulate activity today (Eggertsson and Woodford 2003). And, in a world of small shocks, 2% inflation seemed to provide a sufficient cushion to make the zero lower bound unimportant. Thus, the focus was on the importance of commitment and the ability of central banks to affect inflation expectations.

The liquidity traps of the Great Depression, combining significant deflation and low nominal rates, were seen as belonging to history, a reflection of policy errors that could now be avoided. The Japanese experience of the 1990s, with deflation, zero interest rates, and a continuing slump, stood more uneasily in the way. But it was largely dismissed as reflecting the inability or unwillingness of the Japanese central bank to commit to future money growth and to future inflation, coupled with slow progress on other fronts. To be fair, the Japanese experience was not ignored by the Fed, which worried about deflation risks in the early 2000s (Bernanke, Reinhart, and Sack 2004).

1.3 One Instrument: The Policy Rate

Monetary policy increasingly focused on the use of one instrument, the policy interest rate, that is, the short-term interest rate that the central bank can directly control through appropriate open-market operations. Behind this choice were two assumptions. The first was that the real effects of monetary policy took place through interest rates and asset prices, not through any direct effect of monetary aggregates. An exception to this rule was the stated "two-pillar" policy of the European Central Bank (ECB), which paid direct attention to the quantity of credit in the economy but was often derided by observers as lacking a good theoretical foundation. The second assumption was that all interest rates and asset prices were linked through arbitrage, so that long rates were given by proper weighted averages of risk-adjusted future short rates, and asset prices by fundamentals, the risk-adjusted present discounted value of payments on the asset. Under these two assumptions, one needs only to

affect current and future expected short rates: all other rates and prices follow. And one can do this by using, implicitly or explicitly, a transparent, predictable rule (thus the focus on transparency and predictability, a main theme of monetary policy in the past two decades), such as the Taylor rule, giving the policy rate as a function of the current economic environment. Intervening in more than one market, say in both the short-term and the long-term bond markets, is either redundant or inconsistent.

Under these two assumptions also, the details of financial intermediation are largely irrelevant. An exception was made, however, for banks (more specifically, commercial banks), which were seen as special in two respects. First—and in the theoretical literature more than in the actual conduct of monetary policy—bank credit was seen as special, not easily substituted by other types of credit. This led to an emphasis on the "credit channel," where monetary policy also affects the economy through the quantity of reserves and, in turn, bank credit (Kashyap and Stein 2000). Second, the liquidity transformation involved in having demand deposits as liabilities and loans as assets, and the resulting possibility of runs, justified deposit insurance, and the traditional role of central banks as lenders of last resort. The resulting distortions were the main justification for bank regulation and supervision. Little attention was paid, however, to the rest of the financial system from a macro standpoint.

1.4 A Limited Role for Fiscal Policy

In the aftermath of the Great Depression and following Keynes, fiscal policy had been seen as a—perhaps the—central macroeconomic policy tool. In the 1960s and 1970s, fiscal and monetary policy had roughly equal billing, often seen as two instruments to achieve two targets—internal and external balance, for example. In the past two decades, however, fiscal policy took a backseat to monetary policy. The reasons were many: the first was wide skepticism about the effects of fiscal policy, itself largely based on Ricardian equivalence arguments. Second, if monetary policy could maintain a stable output gap, there was little reason to use another instrument. Third, in advanced economies, the priority was to stabilize and possibly decrease typically high debt levels; in emerging market countries, the lack of depth of the domestic bond market limited the scope for countercyclical policy anyway. Fourth, lags in the design and the implementation of fiscal policy, together with the short length of recessions, implied that fiscal measures were likely to come too late. Fifth, fiscal policy, much more than monetary policy, was likely to be distorted by political constraints.

The rejection of discretionary fiscal policy as a countercyclical tool was particularly strong in academia. In practice, as for monetary policy, the rhetoric was stronger than the reality. Discretionary fiscal stimulus measures were generally accepted in the face of severe shocks (such as, e.g., during the Japanese crisis of the early 1990s). And policymakers would sometimes turn to discretionary fiscal stimulus even during "normal recessions." A countercyclical fiscal stance was also seen as desirable in principle (though elusive in practice) for emerging markets with limited automatic stabilizers. This often took the form of louder calls for fiscal prudence during periods

of rapid economic growth. And even for emerging markets, the consensus recipe for the medium term was to strengthen the stabilizers and move away from discretionary measures.

As a result, the focus was primarily on debt sustainability and on fiscal rules designed to achieve such sustainability. To the extent that policymakers took a long-term view, the focus in advanced economies was on prepositioning the fiscal accounts for the looming consequences of aging. In emerging market economies, the focus was on reducing the likelihood of default crises, but also on establishing institutional setups to constrain procyclical fiscal policies, so as to avoid boom–bust cycles. Automatic stabilizers could be left to play (at least in economies that did not face financing constraints), as they did not conflict with sustainability. Indeed, with the increase in the share of government in output as economies developed (Wagner's law), automatic stabilizers played a greater role. Somewhat schizophrenically, however, while existing stabilizers were seen as acceptable, little thought was given to the design of potentially better ones.

1.5 Financial Regulation: Not a Macroeconomic Policy Tool

With the neglect of financial intermediation as a central macroeconomic feature, financial regulation and supervision focused on individual institutions and markets and largely ignored their macroeconomic implications. Financial regulation targeted the soundness of individual institutions and aimed at correcting market failures stemming from asymmetric information, limited liability, and other imperfections such as implicit or explicit government guarantees. In advanced economies, its systemic and macroeconomic implications were largely ignored. This was less true in some emerging markets, where prudential rules such as limits on currency exposures (and sometimes an outright prohibition against lending to residents in foreign currency) were designed with macro stability in mind.

Little thought was given to using regulatory ratios, such as capital ratios, or loan-to-value ratios, as cyclical policy tools. Spain and Colombia, which introduced rules that *de facto* link provisioning to credit growth, were notable exceptions (Caruana 2005). On the contrary, given the enthusiasm for financial deregulation, the use of prudential regulation for cyclical purposes was considered improper mingling with the functioning of credit markets (and often seen as politically motivated).

1.6 The Great Moderation

Increased confidence that a coherent macro framework had been achieved was surely reinforced by the "Great Moderation," the steady decline in the variability of output and of inflation over the period in most advanced economies. There is still some ambiguity as to whether this decline should be seen as having started much earlier, only to be interrupted for a decade or so in the 1970s, or as having started in earnest in the early 1980s, when monetary policy was changed (Blanchard and Simon 2001, Stock and Watson 2002). There is also some ambiguity as to how much

of the decline should be seen as the result of luck, that is, smaller shocks, structural changes, or improved policy. Improvements in inventory management and good luck in the form of rapid productivity growth and the trade integration of China and India likely played some role. But the reaction of advanced economies to largely similar oil price increases in the 1970s and the 2000s supports the improved policy view. Evidence suggests that more solid anchoring of inflation expectations, plausibly due to clearer signals and behavior by central banks, played an important role in reducing the effects of these shocks on the economy. In addition, the successful responses to the 1987 stock market crash, the Long-Term Capital Management (LTCM) collapse, and the bursting of the tech bubble reinforced the view that monetary policy was also well equipped to deal with the financial consequences of asset price busts.

Thus, by the mid-2000s, it was indeed not unreasonable to think that better macroeconomic policy could deliver, and had indeed delivered, higher economic stability. Then the crisis came.

2. WHAT WE HAVE LEARNED FROM THE CRISIS

2.1 Stable Inflation May Be Necessary, but Is Not Sufficient

Core inflation was stable in most advanced economies until the crisis started. Some have argued in retrospect that core inflation was not the right measure of inflation, and that the increase in oil or housing prices should have been taken into account. This, however, goes against the conclusions from theoretical research (which suggests stabilization of an index corresponding to "sticky prices," an index quite close to that used to measure core inflation) and is more a reflection of the hope that it may be sufficient to focus on and stabilize a single index, so long as it is the "right" one. This is unlikely to be true: no single index will do the trick.

Inflation, even core inflation, may be stable, and the output gap may nevertheless vary, leading to an obvious trade-off between the two. (This is hard to prove empirically, as the output gap is not directly observable. What is clear, however, is that the behavior of inflation is much more complex than is assumed in our simple models and that we understand the relationship between activity and inflation quite poorly, especially at low rates of inflation.) Or, as in the case of the precrisis 2000s, both inflation and the output gap may be stable, but the behavior of some asset prices and credit aggregates, or the composition of output, may be undesirable (e.g., too high a level of housing investment, too high a level of consumption, or too large a current account deficit) and potentially trigger major macroeconomic adjustments later on.

2.2 Low Inflation Limits the Scope of Monetary Policy in Recessions

When the crisis started in earnest in 2008, and aggregate demand collapsed, most central banks quickly decreased their policy rate to close to zero. Had they been able to, they would have lowered the rate further: estimates, based on a simple Taylor rule, suggest another 3%–5% for the United States (Rudebusch 2009). But the zero

nominal interest rate bound prevented them from doing so. One main implication was the need for more reliance on fiscal policy and for larger deficits than would have been the case absent the binding zero interest rate constraint.

It appears today that the world will likely avoid major deflation and thus avoid the deadly interaction of larger and larger deflation, higher and higher real interest rates, and a larger and larger output gap. But it is clear that the zero nominal interest rate bound has proven costly. Higher average inflation—and thus higher nominal interest rates to start with—would have made it possible to cut interest rates more, thereby reducing the drop in output and the deterioration of fiscal positions (Williams 2009).

2.3 Financial Intermediation Matters

Markets are segmented, with specialized investors operating in specific markets. Most of the time, they are well linked through arbitrage. However, when some of the investors withdraw from that market (be it because of losses in some of their other activities, loss of access to credit or to some of their funds, or internal agency issues), the effect on prices can be very large (Allen and Gale 2005). In this sense, wholesale funding is not fundamentally different from demand deposits, and the demand for liquidity extends far beyond banks. When this happens, rates are no longer linked through arbitrage, and the policy rate is no longer a sufficient instrument for policy. Interventions, either through the acceptance of assets as collateral or through their straight purchase by the central bank, can affect the rates on different classes of assets, for a given policy rate. This is indeed what, under the heading of credit easing, the central banks have done in this crisis.

Another old issue the crisis has brought back to the fore is that of bubbles and fads, leading assets to deviate from fundamentals, not for liquidity but for speculative reasons. At the least, the evidence from the crisis strengthens the case for the existence of and the dangers associated with such bubbles, in this case in the housing market. And it surely puts into question the "benign neglect" view that it is better to pick up the pieces after a bust than to try to prevent the buildup of sometimes difficult-to-detect bubbles.

2.4 Countercyclical Fiscal Policy Is an Important Tool

The crisis has returned fiscal policy to center stage as a macroeconomic tool for two main reasons: first, to the extent that monetary policy, including credit and quantitative easing, had largely reached its limits, policymakers had little choice but to rely on fiscal policy. Second, from its early stages, the recession was expected to be long lasting, so that it was clear that fiscal stimulus would have ample time to yield a beneficial impact despite implementation lags.

It has also shown the importance of having "fiscal space" (and here there is a parallel with the earlier discussion about inflation and room to decrease nominal interest rates). Some advanced economies that entered the crisis with high levels of debt and large unfunded liabilities have had limited ability to use fiscal policy.

Similarly, those emerging market economies (e.g., some in Eastern Europe) that ran highly procyclical fiscal policies driven by consumption booms are now forced to cut spending and increase taxes despite unprecedented recessions. By contrast, many other emerging markets entered the crisis with lower levels of debt. This allowed them to use fiscal policy more aggressively without fiscal sustainability being called into question or ensuing sudden stops.

The aggressive fiscal response has been warranted given the exceptional circumstances, but it has further exposed some drawbacks of discretionary fiscal policy for more "normal" fluctuations—in particular lags in formulating, enacting, and implementing appropriate fiscal measures (often due to an awkward political process). The U.S. fiscal stimulus bill was enacted in February 2009, more than a year after the start of the recession, and less than half of the authorized spending had been spent by the end of 2009.

Furthermore, the wide variety of approaches in terms of the measures undertaken has made it clear that there is a lot we do not know about the effects of fiscal policy, about the optimal composition of fiscal packages, about the use of spending increases versus tax decreases, and about the factors that underlie the sustainability of public debts, topics that had been less active areas of research before the crisis.

2.5 Regulation Is Not Macroeconomically Neutral

Just like financial intermediation itself, financial regulation has played a central role in the crisis. It contributed to the amplification effects that transformed the decrease in U.S. housing prices into a major world economic crisis. The limited perimeter of regulation gave incentives for banks to create off-balance-sheet entities to avoid some prudential rules and increase leverage. Regulatory arbitrage allowed financial institutions such as AIG to play by different rules from other financial intermediaries. Once the crisis started, rules aimed at guaranteeing the soundness of individual institutions worked against the stability of the system. Mark-to-market rules, when coupled with constant regulatory capital ratios, forced financial institutions to take dramatic measures to reduce their balance sheets, exacerbating fire sales, and deleveraging (Adrian and Shin 2008).

2.6 Reinterpreting the Great Moderation

If the conceptual framework behind macroeconomic policy was so flawed, why did things look so good for so long? One reason is that during the past two decades, policymakers had to deal with shocks they understood rather well and for which policy was indeed well adapted. For example, the lesson that, with respect to supply shocks, anchoring of expectations was of the essence, was well understood when the price of oil increased again in the 2000s. But, even though policymakers were better prepared to deal with some shocks, they were just not prepared for others. (This is despite the fact that they had, in effect, a number of warnings, from the LTCM crisis to the sudden stops of capital in the Asian crisis. But LTCM was dealt

with successfully and was seen as a one-off event, not a potential rehearsal of the same problem on a larger, macro, scale. And the difficulties faced by the financial systems of Asian countries were not thought to be relevant to advanced economies.) The poor performance of Japan in dealing with the bursting of the 1980s real estate bubble can be read in this light: the Japanese economy was exposed to a shock whose implications were not understood at the time.

It may even be that success in responding to standard demand and supply shocks, and in moderating fluctuations, was in part responsible for the larger effects of the financial shocks in this crisis. The Great Moderation led too many to understate macroeconomic risk, ignore tail risks, and take positions (and, in the case of regulators, relax rules), from leverage to foreign currency exposure, which turned out to be much riskier after the fact.

3. IMPLICATIONS FOR THE DESIGN OF POLICY

Identifying the flaws of existing policy is (relatively) easy. Defining a new macroeconomic policy framework is much harder. The bad news is that the crisis has made clear that macroeconomic policy must have many targets; the good news is that it has also reminded us that we have in fact many instruments, from "exotic" monetary policy to fiscal instruments, to regulatory instruments. It will take some time, and substantial research, to decide which instruments to allocate to which targets, between monetary, fiscal, and financial policies. What follows are explorations.

It is important to start by stating the obvious, namely, that the baby should not be thrown out with the bathwater. Most of the elements of the precrisis consensus, including the major conclusions from macroeconomic theory, still hold. Among them, the ultimate targets remain output and inflation stability. The natural rate hypothesis holds, at least to a good enough approximation, and policymakers should not design policy on the assumption that there is a long-term trade-off between inflation and unemployment. Stable inflation must remain one of the major goals of monetary policy. Fiscal sustainability is of the essence, not only for the long term but also in affecting expectations in the short term.

3.1 How Low Should the Inflation Target Be?

The crisis has shown that large adverse shocks can and do happen. In this crisis, they came from the financial sector, but they could come from elsewhere in the future—the effects of a pandemic on tourism and trade or the effects of a major terrorist attack on a large economic center. Should policymakers therefore aim for a higher target inflation rate in normal times, in order to increase the room for monetary policy to react to such shocks?[1] To be concrete, are the net costs of inflation much higher at, say, 4%

1. Another benefit of slightly higher inflation rates would be greater ease in absorbing relative wage and price misalignments in the presence of nominal rigidities (Krugman 1998, Benigno and Ricci 2010).

than at 2%, the current target range? Is it more difficult to anchor expectations at 4% than at 2%? Achieving low inflation through central bank independence has been a historical accomplishment, especially in several emerging markets. Thus, answering these questions requires that we carefully revisit and reevaluate the benefits and costs of inflation.[2]

Were central banks to decide to increase the target, they would face two important transition issues. The first issue relates to anticipated versus unanticipated inflation. The argument above is about choosing an inflation target for normal times. It is not about increasing inflation today to reduce the debt burden accumulated during the crisis. In steady state, a higher target would imply a *perfectly anticipated* higher average inflation that would be reflected into debt contracts. In contrast, an *unanticipated* increase in inflation would inflate away the debt, and expropriate debt holders. This is why any change in the inflation target, if it were to be adopted, should be put in place gradually, so as to let markets adjust nominal rates in anticipation of higher inflation in the future.

The second issue relates to central bank credibility. If the target were increased by, say, 2%, how could the public be reassured that further changes would not be made? This is an important concern, present in all instances in which a central bank changes its operating rules. The answer, as for other changes undertaken by central banks, is transparency and pedagogy, a careful explanation of why changes have been made. This has been done successfully in the past—for example, when central banks stopped announcing targets for monetary aggregates. And, indeed, (admittedly small) modifications in the target, both by the ECB and by the Bank of New Zealand, have not affected their credibility.

A final related question is whether, when the inflation rate becomes very low, policymakers should err on the side of a more lax monetary policy, so as to minimize the likelihood of deflation, even if this means incurring the risk of higher inflation in the event of an unexpectedly strong pickup in demand. This issue, which was on the mind of the Fed in the early 2000s, is one we must also return to.

3.2 Combining Monetary and Regulatory Policy

Part of the debate about monetary policy, even before the crisis, was whether the interest rate rule, implicit or explicit, should be extended to deal with asset prices. The crisis has added a number of candidates to the list, from leverage to current account positions to measures of systemic risk.

This seems like the wrong way of approaching the problem. The policy rate is a poor tool to deal with excess leverage, excessive risk taking, or apparent deviations of asset prices from fundamentals. Even if a higher policy rate reduces some excessively high asset price, it is likely to do so at the cost of a larger output gap. Were there no other instrument, the central bank would indeed face a

2. Classic references include Fischer and Modigliani (1978), Summers (1991), and Akerlof, Dickens, and Perry (1996). More recent attempts include, for example, Fagan and Messina (2009) and Williams (2009).

difficult task, and this has led a number of researchers to argue against reacting to perceived asset bubbles and other variables (Mishkin 2008b). But there are other instruments at the policymaker's disposal—call them cyclical regulatory tools. If leverage appears excessive, regulatory capital ratios can be increased; if liquidity appears too low, regulatory liquidity ratios can be increased; to dampen housing prices, loan-to-value ratios can be decreased; to limit stock price increases, margin requirements can be increased.[3] True, none of these is a magic bullet and all can be, to some extent, circumvented. Nevertheless, they are likely to have a more targeted impact than the policy rate on the variables they are trying to affect. In this light, it seems better to use the policy rate primarily in response to aggregate activity and inflation and to use these specific instruments to deal with specific output composition, financing, or asset price issues.

A related question is the potential conundrum created by the effect of low interest rates on risk taking (Borio and Zhu 2008). If it is indeed the case that low interest rates lead to excessive leverage or to excessive risk taking (a case that remains to be proven), should the central bank, as some have suggested, keep the policy rate higher than is implied by a standard interest rule? Again, absent other instruments, the central bank would face a difficult choice, having to accept a positive output gap in exchange for lower risk taking. If, however, we take into account the presence of the other instruments, which can directly affect leverage or risk taking, then the problem can be better handled through the use of those instruments rather than through modification of the policy rule.

If monetary and regulatory tools are to be combined in this way, it follows that the traditional regulatory and prudential frameworks need to acquire a macroeconomic dimension. Measures reflecting system-wide cyclical conditions will have to complement the traditional institution-level rules and supervision. As for monetary policy decisions, these macroprudential measures should be updated on a regular and predictable (or even semiautomatic) basis to maximize their effectiveness through a credible and well-understood policy stance. The main challenge, here, is to find the right trade-off between a sophisticated system, fine-tuned to each marginal change in systemic risk, and an approach based on simple-to-communicate triggers and easy-to-implement rules.

If one accepts the notion that, together, monetary policy and regulation provide a large set of cyclical tools, the issue arises of how coordination is achieved between the monetary and the regulatory authorities (should the central bank should be in charge of both policies?).

The increasing trend toward separation of the two authorities may well have to be reversed. Central banks are obvious candidates as macroprudential regulators. They are ideally positioned to monitor macroeconomic developments, and in several countries they already regulate the banks. "Communication" debacles during the crisis (e.g., on the occasion of the bailout of Northern Rock) point to the problems

3. Bank of England (2009) provides a detailed discussion of the tools that could be used to complement the current regulatory ratios to manage aggregate risk over the cycle.

involved in coordinating the actions of two separate agencies. And the potential implications of monetary policy decisions for leverage and risk taking also favor the centralization of macroprudential responsibilities within the central bank. Two arguments were given in the past against giving such power to the central bank. The first was that the central bank would take a "softer" stance against inflation, since interest rate hikes may have a detrimental effect on bank balance sheets. The second was that the central bank would have a more complex mandate and thus be less easily accountable. Both arguments have merit and, at a minimum, imply a need for further transparency if the central bank is given responsibility for regulation. The alternative, that is, separate monetary and regulatory authorities, seems worse.

3.3 Inflation Targeting and Foreign Exchange Intervention

The central banks that adopted inflation targeting typically argued that they cared about the exchange rate only to the extent that it had an impact on their primary objective, inflation. This was largely the case in the major advanced economies. For smaller countries, however, the evidence suggests that many of them paid close attention to the exchange rate and intervened on foreign exchange markets to smooth volatility and, often, even to influence the level of the exchange rate (Mishkin 2008a).

Their actions were more sensible than their rhetoric. Large fluctuations in exchange rates, due to sharp shifts in capital flows (as we saw during this crisis) or other factors, can create large disruptions in activity. A large appreciation may squeeze the tradable sector and make it difficult for it to grow back if and when the exchange rate decreases. Also, when a significant portion of domestic contracts is denominated in foreign currency (or is somehow linked to its movements), sharp depreciations can cause severe balance sheet effects with negative consequences for financial stability, and thus, output.

In this context, the discrepancy between rhetoric and practice is confusing and undermines the transparency and credibility of the monetary policy action. Central banks in small open economies should explicitly recognize that exchange rate stability is part of their objective function. This does not imply that inflation targeting should be abandoned. Indeed, at least in the short term, imperfect capital mobility endows central banks with a second instrument in the form of reserve accumulation and sterilized intervention. This tool can help control the external target while domestic objectives are left to the policy rate.

Of course, there are limits to sterilized intervention, and these can be easily reached if capital account pressures are large and prolonged. These limits will be specific to each country and will depend on countries' openness and financial integration. When these limits are reached and the burden falls solely on the policy rate, strict inflation targeting is not optimal, and the consequences of adverse exchange rate movements have to be taken into account.

This discussion provides yet another example of the important relation between policies and regulation discussed in the previous subsection. For instance, to the extent that prudential rules can prevent or contain the degree of contract dollarization

in the economy, they will allow for greater policy freedom with respect to exchange rate movements. In turn, the perception of an "excessively stable" exchange rate can lead to greater incentives for contract dollarization.

3.4 Providing Liquidity More Broadly

The crisis has forced central banks to extend the scope and scale of their traditional role as lenders of last resort. They extended their liquidity support to nondeposit-taking institutions and intervened directly (with purchases) or indirectly (through acceptance of the assets as collateral) in a broad range of asset markets. The question is whether these policies should be kept in tranquil times.

The argument for extending liquidity provision, even in normal times, seems compelling. If liquidity problems come from the disappearance of deep-pocket private investors from specific markets, or from the coordination problems of small investors as in the traditional case of bank runs, the government is in a unique position to intervene. Given its nature and its ability to use taxation, it has both a long horizon and very deep pockets. Thus, it can, and indeed probably should, step in and be ready to replace private investors, if need be (Holmstrom and Tirole 2008).

Two arguments have traditionally been made against such public liquidity provision. The first is that the departure of private investors may reflect, at least in part, solvency concerns. Thus, the provision of liquidity carries risk for the government balance sheet and creates the probability of bailout with obvious consequences for risk taking. The second is that such liquidity provision will induce more maturity transformation and less liquid portfolios. While this outcome is sometimes referred to as moral hazard, it is not by itself a bad one: to the extent that public liquidity provision can be provided at no cost, it is indeed optimal to have the private sector do this maturity transformation. The cost may, however, be positive, reflecting the inability of the government to fully avoid solvency risk, and thus the potential need for higher taxation or foreign borrowing.

Both problems can be partly addressed through the use of insurance fees and haircuts (the first argument suggests, however, relying, in normal times, on indirect support and appropriate haircuts to reduce credit risk, rather than on direct purchases). The problems can also be addressed through regulation, by both drawing up a list of assets eligible as collateral (in this respect, the ECB was ahead of the Fed in having a longer list of eligible collateral) and, for financial institutions, by linking access to liquidity to coming under the regulatory and supervision umbrella.

3.5 Creating More Fiscal Space in Good Times

A key lesson from the crisis is the desirability of fiscal space to run larger fiscal deficits when needed. There is an analogy here between the need for more fiscal space and the need for more nominal interest rate room, argued earlier. Had governments had more room to cut interest rates and to adopt a more expansionary fiscal stance, they would have been better able to fight the crisis. Going forward, the required degree of fiscal adjustment (after the recovery is securely under way) will be formidable, in

light of the need to reduce debt against the background of aging-related challenges in pensions and health care. Still, the lesson from the crisis is clearly that target debt levels should be lower than those observed before the crisis. The policy implications for the next decade or two are that, when cyclical conditions permit, major fiscal adjustment is necessary and, should economic growth recover rapidly, it should be used to reduce debt-to-GDP ratios substantially rather than to finance expenditure increases or tax cuts.

The recipe to create additional fiscal space in the years ahead and to ensure that economic booms translate into improved fiscal positions rather than procyclical fiscal stimulus is not new, but it acquires greater relevance as a result of the crisis. Medium-term fiscal frameworks, credible commitments to reducing debt-to-GDP ratios, and fiscal rules (with escape clauses for recessions) can all help in this regard. Similarly, expenditure frameworks based on long-term revenue assessments help limit spending increases during booms. And eliminating explicit revenue earmarking for prespecified budget purposes would avoid automatic expenditure cuts when revenues fall. A further challenge, as governments come under greater pressure to display improved deficit and debt data and are tempted to provide support to ailing sectors through guarantees or off-budget operations, is to ensure that all public sector operations are transparently reflected in fiscal data and that well-designed budget processes reduce policymakers' incentives to postpone needed adjustment.

3.6 Designing Better Automatic Fiscal Stabilizers

As discussed above, the exception of this crisis confirms the problems with discretionary fiscal measures: they come too late to fight a standard recession. There is, thus, a strong case for improving automatic stabilizers. One must distinguish here between truly automatic stabilizers—that is, those that by their very nature imply a procyclical decrease in transfers or increase in tax revenues—and rules that allow some transfers or taxes to vary based on prespecified triggers tied to the state of the economic cycle (see Baunsgaard and Symansky 2009).

The first type of automatic stabilizer comes from the combination of rigid government expenditures with an elasticity of revenues with respect to output of approximately one, from the existence of social insurance programs (defined-benefit pension and unemployment benefit systems fall into this category), and from the nature of income taxes. The main ways to increase their macroeconomic effect would be to increase the size of government or (to a lesser extent) to make taxes more progressive or to make social insurance programs more generous. However, reforms along these lines would be warranted only if they were based on a broader set of equity and efficiency objectives, rather than motivated simply by the desire to stabilize the economy.

The second type of automatic stabilizer appears more promising.[4] This type does not carry the costs mentioned above and can be applied to tax or expenditure items

4. See Seidman (2003), Feldstein (2007), Elmendorf and Furman (2008), and Elmendorf (2009). The idea of an automatic fiscal stimulus goes back to the 1950s (Phillips 1954, Musgrave 1959).

with large multipliers. On the tax side, one can think of temporary tax policies targeted at low-income households, such as a flat, refundable tax rebate, a percentage reduction in a taxpayer's liability, or tax policies affecting firms, such as cyclical investment tax credits. On the expenditure side, one can think of temporary transfers targeted at low-income or liquidity-constrained households. These taxes or transfers would be triggered by the crossing of a threshold by a macro variable. The most natural variable, GDP, is available only with a delay. This points to labor market variables, such as employment or unemployment. How to define the relevant threshold, and which taxes or transfers to make contingent, are issues we must work on.

4. CONCLUSIONS

The crisis was not triggered primarily by macroeconomic policy. But it has exposed flaws in the precrisis policy framework, forced policymakers to explore new policies during the crisis, and forces us to think about the architecture of postcrisis macroeconomic policy.

In many ways, the general policy framework should remain the same. The ultimate goals should be to achieve a stable output gap and stable inflation. But the crisis has made clear that policymakers have to watch many targets, including the composition of output, the behavior of asset prices, and the leverage of different agents. It has also made clear that they have potentially many more instruments at their disposal than they used before the crisis. The challenge is to learn how to use these instruments in the best way. The combination of traditional monetary policy and regulation tools, and the design of better automatic stabilizers for fiscal policy, are two promising routes. These need to be explored further.

Finally, the crisis has also reinforced lessons that we were always aware of, but with greater experience now internalize more strongly. Low public debt in good times creates room to act forcefully when needed. Good plumbing, in terms of prudential regulation, and transparent data in the monetary, financial, and fiscal areas are critical to our economic system functioning well. Capitalizing on the experience of the crisis, our job will be not only to come up with creative policy innovations but also to help make the case with the public at large for the difficult but necessary adjustment and reforms that stem from those lessons.

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