

Exit Strategy

Alan Blinder, Thomas J. Jordan,
Donald Kohn and Frederic S. Mishkin

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Geneva Reports on the World Economy 15

International Center for Monetary and Banking Studies (ICMB)

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With contributions from conference participants

**ICMB INTERNATIONAL CENTER
FOR MONETARY
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Foreword

For the last fifteen years, the *Geneva Reports on the World Economy*, published jointly by CEPR and ICMB, have stimulated informed discussion and debate on issues that matter. This, the 15th *Geneva Report*, will be no exception, as it explores in detail the very complex issues and considerations that will be faced by central banks when they begin to undo and ‘exit’ from the extraordinary monetary policy interventions and actions that they were compelled to take in the wake of the financial crisis.

The report brings together contributions by present and past central bankers, financial market participants and academics, and offers a fascinating wealth of clues about issues that will eventually emerge. In particular:

- **Will the next ‘normal’ look like the pre-crisis one?** The general view is that we are not returning to the old status quo. New instruments have been tested and will not be thrown away. The financial markets have changed and central banks have now accepted responsibility for financial stability.
- **How will central banks go from here to there?** They will have to raise interest rates and shrink, partly at least, their balance sheets. These are two different actions, which must be driven by different objectives. The interest rate is likely to be used for classic monetary policy action, with a widespread, but far from unanimous, view that flexible inflation targeting will remain the strategy of choice. Balance sheet reduction will be driven by financial stability considerations.
- **What will central banks look like in the ‘new normal’?** Their mandates have changed; they now include new responsibilities for financial stability (macro prudential policies). This new situation is far from innocuous. Central banks will have to wade into troubled waters, including redistributive policies and quasi-fiscal operations. This may well test their independence, which is so crucial for the conduct of classic monetary policy.

This year's *Geneva Report* consists of four notes prepared by Alan Blinder, Frederic Mishkin, Donald Kohn and Thomas Jordan plus an integrated overview of the rich discussions that took place at the conference convened by ICMB in Geneva on 3 May 2013.

We are very grateful to the authors for their insights and diligence in preparing the material basis for this report and to the participants at the conference

for their valuable contributions to the discussion. We are also grateful to the CEPR Publications team – and to Anil Shamdasani in particular – for the characteristically smooth and professional way in which the report has been prepared for publication.

It may not be yet time to act, not everywhere at least, but that it is not too early to think carefully about what is a highly complex and untested process. It is very much our hope that this Geneva Report will contribute to the ongoing discussion and help to clarify the way forward.

Charles Wyplosz, Director, ICMB
Viv Davies, Chief Operating Officer, CEPR
September 2013

Introduction and Acknowledgements

Charles Wyplosz

**The Graduate Institute of International and Development Studies,
ICMB, Geneva and CEPR**

The 15th *Geneva Report on the World Economy* offers a comprehensive exploration of the issues that central banks will face when they will finally bring their extraordinary crisis policies to an end. It is no exaggeration to assert that many central banks have prevented a new Great Depression in the aftermath of the mortgage crisis that erupted in the US and promptly spread to the rest of the world, with a particularly devastating effect in Europe. Central banks promptly brought their interest rates to the zero lower bound and then started to boldly experiment with massive injections of liquidity on a scale never seen before. A verdict on what they have achieved, and how, remains to be fully worked out, but at least they tried. When the economic and financial situation is deemed to have stabilised, they will have to reverse gears. The forthcoming exit strategy will be another historical first and as such, it requires a careful analysis of the daunting challenges that lie ahead. This is the object of this report.

The *Geneva Reports* usually consist of a report specially prepared by a team for presentation at the conference, along with a summary of the discussions that followed the presentations. This year is different. Instead of a collective report, the 15th *Geneva Report on the World Economy* includes four notes prepared by Alan Blinder (Chapter 1), Frederic Mishkin (Chapter 2), Donald Kohn (Chapter 4) and Thomas Jordan (Chapter 6). Chapters 3 and 5 present an integrated overview of the rich discussions that took place on 3 May 2013. Rather than faithfully summarising the stream of individual interventions, these two chapters are organised by topic, sparingly attributing statements to the participants who spoke on these topics. The intention is to provide a synthesis of the debate that reads as a unified text. I take responsibility for this presentation of the discussions and hope that the conference participants will not feel that the outcome misrepresents their personal views. If they do, I apologise.

The report is organised in three parts. Part I, which includes Chapters 1 to 3, asks what the ‘new normal’ could be once the exit has been completed. Part II, comprised of Chapters 4 and 5, deals with the exit policy options. Each of these parts starts with statements prepared by the contributors and then includes a number of sections that summarise the discussions on the main topics. Finally, Part III, which consists of Chapter 6, offers a detailed description of the theory and practice of macroprudential regulation in Switzerland, arguably the country that has moved farthest to adopt this critical post-crisis new instrument.

The summaries of discussions are based on a draft carefully prepared by Apostolos Apostolou and Francesca Caselli.

PART I

Exit to What?

1 Exit to What? The Status Quo Ante or Some New Normal?

Alan S. Blinder¹
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The very notion of central bank ‘exit’ connotes movement *away from* some types of monetary policies (e.g. quantitative easing) or settings of instruments (e.g. zero overnight interest rate), presumably *toward* something else. Thus, its essence is one of *transition*. The question is: How can/should central banks move from here to there?

There is a logically prior question, however: Where is ‘there’? Where should the central bank want to go? In particular, is it obvious that today’s central banks should seek to return (eventually) to the status quo ante? I would answer ‘no,’ or at least ‘not without thinking through the alternatives.’ This chapter is about some of the more important options.

Prior to the financial crisis, a kind of rough consensus about monetary policy had developed in central banking circles. It included these elements:

- Central banks should be independent of the political arms of government, e.g. Congress/parliament, the treasury/finance ministry, and the president/prime minister.
- Central banks should be transparent and far more communicative than their ancestors.
- Decisions should be made by monetary policy committees (though the degree of ‘committee-ness’ varied greatly across countries).
- Monetary policy should be based on some variant of flexible inflation targeting, with a target inflation rate of around 2%.
- The main, and probably the only, instrument of monetary policy should be an overnight interest rate through which central banks can influence – though not control – all other interest rates.
- Central bank balance sheets should be of modest size (an admittedly ill-defined term) and the assets on them should be super-safe, e.g. Treasuries.
- Central banks should not engage in credit allocation; they should leave that to markets.
- But in emergencies, which are presumably rare, the central bank had to be prepared to play its classic lender-of-last-resort (LOLR) role.

Importantly, given what followed, there was no pre-crisis consensus whatsoever over how deeply, if at all, central banks should be involved in bank supervision

¹ The author is grateful to the panelists and participants at the conference for many useful suggestions.

and regulation with, for example, the Federal Reserve in the thick of it and the Bank of England and the ECB basically out.

Most of these aspects of modern central banking changed during and after the crisis. Specifically:

- In the rush to contain the crisis, central bank independence was sometimes honoured in the breach.
- The nature of central bank communications changed almost everywhere, and in some places drastically. Central banks did not just communicate more, they did so in different ways, partly because the unusual, and sometimes unprecedented, policies they were pursuing demanded explanations.
- Inflation targeting was pushed into the background; I would argue far into the background.²
- In many cases, overnight interest rates encountered the zero lower bound (ZLB), or threatened to, thereby rendering them useless as instruments for further monetary easing. Old policy instruments (e.g. lending to banks) were utilised on a grand scale, and new ones (e.g. quantitative easing) were invented.
- Balance sheets blew up in size, and central banks took on riskier assets.
- These unusual (for a central bank) assets sometimes had dramatic effects on credit allocation, which were largely intended. For example, the Federal Reserve purchased many mortgage-backed securities (MBS) to salvage what was left of the MBS market.
- Central banks were drawn ever more deeply into bank, and even non-bank, supervision and regulation.
- The lender-of-last-resort function was pursued on a scale, and in a variety of ways (e.g. by lending to non-bank financial institutions), not contemplated before the crisis.

All of this was starkly different from pre-crisis norms.

So what should central banking look like once the exit is complete? As far as I know, there is no desire to relinquish central bank independence, eliminate monetary policy committees, or change the LOLR function.³ But everything else on the list is at least somewhat up for grabs. In what follows, I will offer my own (sometimes tentative) opinions on these matters. But my main purpose is to provoke thought and discussion. The issues explored here will be, and should be, debated by central bankers and others for years.

1.1 Inflation targeting

Signs of inflation targeting have been somewhere between invisible and absent ever since the crisis erupted. Other concerns, such as financial and macroeconomic stability, and especially boosting economic growth, appear to have trumped inflation. And that seemed sensible under the circumstances. In many countries,

² There was a spirited discussion of this point at the conference. Not everyone agreed with me.

³ The US Congress did, however, clip the Fed's LOLR wings a bit in the Dodd Frank Act of 2010.

inflation ran below target, in some others, above. No one seemed to care much, though the long-run inflation targets remained intact as nominal anchors.

Will/should central banks now return to inflation targeting as practised before the crisis, which often included pledging fealty to a specific, numerical inflation target to the exclusion of all other goals (e.g. employment or output gaps, even financial stability), at least at the level of lip service? Maybe not. Maybe the façade has been taken down. Maybe central banks have now revealed themselves to care deeply about economic activity and employment, not to mention financial stability. (The Fed could hardly be more explicit about this; it is now explicitly gearing its monetary policy toward an interim unemployment target.⁴) Maybe central banks will now worry about asset-market bubbles enough to lean against them, even when inflation is nowhere to be found, though this is a harder call.

Given what has happened since 2007, my personal view is that there is a strong argument for re-conceptualising the central bank's goal as a triad: low inflation, low unemployment *and* financial stability – the last being hard (likely impossible) to capture in a number.⁵ Perhaps the goals should be viewed as lexicographic, with financial stability ordered before the other two on the grounds that monetary policy cannot pursue its macroeconomic goals effectively in an unstable financial environment.

Let's remember, however, that one of the original arguments for inflation targeting (and one that I never accepted) was that the pursuit of two goals (low inflation and low unemployment) was one too many for a central bank with only one instrument. Should we now complicate the job further by giving it *three* goals? My answer – to which I will return shortly – is 'yes', but the central bank may also need some new (macroprudential) instruments.

1.2 Balance sheets and novel instruments

Should central bank balance sheets shrink back to their pre-crisis norms, which, for the Fed, would probably imply a 75% reduction in end-of-2014 assets, including getting rid of most long-term Treasuries and all MBS? It is tempting to answer 'yes', and any number of central bank officials have come close to embracing that view.

But the Federal Reserve, the Bank of England, and others (including academics) have offered empirical evidence that their purchases of long-term bonds have succeeded in absorbing duration risk and flattening the yield curve. We have long understood that the overnight interest rate *per se* probably has negligible effects on aggregate demand; monetary policy has its main effects on the economy via intermediate- and long-term rates (and exchange rates, stock prices, etc.). While it is true that monetary policy impulses are transmitted across the entire yield curve, presumably via expectations about future short rates, there is a great deal

⁴ The Fed has stated that, unless inflation rises above 2.5%, it will not raise the federal funds rate until the unemployment rate falls to 6.5%. I use the word 'interim' because the 6.5% unemployment rate is well above the Fed's estimate of the natural rate.

⁵ For believers in accountability, the inability to measure financial stability is a drawback.

of slippage in this mechanism. The empirical failure of the expectations theory of the yield curve, which supposedly explains how central banks exercise influence over long rates, is a major practical headache for central bankers.

The slippage raises a natural question: Might monetary policy be more effective if central banks routinely bought and sold intermediate- and/or long-term bonds? Might policies like QE or 'Operation Twist' therefore be added to central banks' repertoires *permanently*, maybe even as part of the new normal?⁶ One objection is that controlling the entire yield curve (as opposed to just its left-hand extremity) is asking too much of the central bank. But I suspect that controlling, say, just the overnight rate and the five- or ten-year rate would suffice. Quasi-arbitrage along the yield curve should do the rest.

The case for operating across the yield curve is strengthened if you believe, as I do, that average inflation rates over the next, say, 50 years will be lower than they were over the previous 50. With average inflation lower, the incidence of hitting the ZLB on *nominal* short-term interest rates will be higher. We have just experienced first-hand how difficult the ZLB can make it for a central bank to stimulate its economy out of a recession and, therefore, how large the potential social costs are. (Actually, Japan taught us that years ago.) One way to ameliorate this problem would be for central banks to raise their inflation targets, thereby making it possible to push real interest rates deeper into negative territory. But that is plainly not going to happen, and maybe should not.⁷ Another way is to broaden the central bank's instrument list to include balance sheet policies such as quantitative easing and Operation Twist.

The MBS that are now on the Fed's balance sheet and some of the sovereign debt that is now on the ECB's balance sheet illustrate a different issue: influencing the allocation of credit. The Fed *deliberately* tilted the US domestic credit playing field in favour of mortgage finance after the crisis hit.⁸ The ECB *deliberately* tilted the sovereign debt playing field in favour of countries such as Greece, Portugal, Spain, and Italy. Are we so sure that these actions were *sui generis*, never to occur again? I am not.

In the US, and I suspect elsewhere, the central bank has long been involved in credit allocation *tacitly*, for the idea that conventional monetary policy is neutral across sectors is an illusion. Throughout the postwar era, and perhaps before, monetary contractions and expansions have always had their strongest and fastest effects on the housing and automobile sectors. Easy money allocated more credit to housing and autos, and tight money took it away – even when the Fed was using the short-term interest rate as its sole instrument. Seen in this light, helping the housing sector by purchasing MBS (once the ZLB is encountered) does not seem like such a radical break from history.

If central banks decide to use their balance sheets routinely to, for example, alter the slope of the yield curve or move the risk premium on selected debt

6 Regarding 'Twist', the Treasury or Finance Ministry is perfectly capable of managing the maturity structure of the publicly held national debt by itself. This leads some people to opine that central banks should not try to 'twist' the yield curve.

7 To cite just one reason, central banks are justifiably loath to give back the anti-inflation credibility they have earned.

8 Indeed, it tilted it toward commercial paper even earlier.

instruments such as MBS (just two examples), then it would probably be helpful to hold non-trivial working balances of the relevant securities in its portfolio.⁹ In that case, typical central bank balance sheet sizes (and compositions) would differ from what they were before the crisis. In particular, balance sheets would be bigger and more diverse – though likely far smaller than at present.

Another reason to expect that central bank balance sheets might be larger post-crisis than pre-crisis is that some central banks – prominently the Fed – which were not paying interest on reserves before the crisis are now doing so. In the Fed's case, the professed aim, once markets have normalised, is to pay something akin to a market rate on reserves. That change would make federal funds a very close substitute for T-bills and therefore induce banks to hold more excess reserves than they did prior to the crisis (which was roughly zero).¹⁰ The interest rate paid on reserves, which ought to serve as a floor on overnight interest rates, might also become a major instrument of monetary policy.

1.3 Central bank communication

One particular type of communication – an 'inflation report', or something like it – went hand-in-glove with inflation targeting, one advertised virtue of which was greater transparency. 'How are we doing on our inflation target?' was supposed to be *the* accountability question for central banks. That tradition lingers on, although in the UK, for example, the main result seems to have been a string of apologetic letters from the governor of the Bank of England to the Chancellor of the Exchequer rather than any effort to bring the inflation rate down to target. In fact, and appropriately in my view, the Bank of England, like the Fed, has been single-mindedly devoted to spurring economic growth.

But the crisis and its aftermath induced central banks to communicate in different ways. After all, they were taking many novel actions and had a lot of explaining to do. Fed Chairman Ben Bernanke even went on the national television news show, *60 Minutes*! Perhaps most importantly and dramatically, forward guidance about future interest rates went from being taboo to being the new normal. And that process has gone pretty far. The Fed, for example, is now both publishing the views of all 19 Federal Open Market Committee (FOMC) members on future monetary policy and telling everyone not to expect any tightening 'as long as the unemployment rate remains above 6.5%.¹¹ Certainly at the Fed, and also at some other central banks, forward guidance has become one of the principal tools of monetary policy.

Will this practice continue after interest rates normalise? Should it? No one knows, but my answers to both questions are 'probably yes'. On the normative side, central bankers are learning that explicitly conditioning expectations of

9 Technically, it is only necessary to hold items on the balance sheet so as to be ready to *sell*, not to be ready to buy, as purchases can begin from a zero initial balance. That said, private market-makers find it useful (imperative?) to hold inventories of the securities in which they deal.

10 Right now, the Fed is paying 25 basis points, which is well above market rates on T-bills.

11 Unless inflation breaches 2.5%.

future monetary policy can be a pretty effective tool of *current* monetary policy. Why give it up? On the positive side, history tells us that once a central bank takes a step toward greater openness, it is hard to go back. Furthermore, central banks almost never want to backtrack.

1.4 Macprudential concerns

‘Macroprudential’ is one of those awful words that probably never should have been coined. But it has been, and we must live with it. Macroprudential policy refers to things that, in some sense, fall at the intersection of monetary policy and conventional supervisory (‘microprudential’) policy. Measures designed to limit asset bubbles (even raising interest rates?) are one prime example. So, potentially, is regulatory forbearance in times of slump (and tighter regulation in times of boom). And certainly most too-big-to-fail (TBTF) policies are macroprudential in nature. Macroprudential policies might involve old instruments (e.g. interest rates), new ones (e.g. loan-to-value ratios), or things we never before associated with monetary policy (e.g. TBTF policy).

Many unusual macroprudential policies have been utilised and/or discussed during and since the financial crisis. The key question for central banks contemplating exit is which of these policies will or should become part of their standard repertoires. This issue is under active discussion today, with no consensus as yet. It is tightly bound to the related issue of the role of central banks in supervision and regulation more generally. At the Bank of England, which was forced out of the supervision and regulation business in the 1990s, a new committee has been established to make macroprudential decisions. At the Fed, an entirely new division has been set up to assist the central bank in its macroprudential work, which is now explicitly required by law.

1.5 International cooperation

I come finally to the Holy Grail: more international coordination of monetary policy, macroprudential policy, and/or microprudential policy. This is indeed a holy grail, marvelous to contemplate but elusive, perhaps unattainable.

Let me be clear. I recognise the virtues of international cooperation in many spheres. I even recognise the near-necessity of such cooperation in some areas (e.g. bankruptcy procedures, regulation of derivatives), and the fact that international coordination has worked in some domains (e.g. the Basel accords). I also realise that central banks seemed to display an unusually high degree of coordination during the worst months of the crisis; there was even one concerted interest rate cut. But I am not optimistic that, as conditions return to normal, there will be more international cooperation post-crisis than there was pre-crisis.

Why? The answer is straightforward. Nation states will deviate from what is in their own best interests only occasionally and under extraordinary circumstances. Rather, for the most part, every central bank will do what it perceives to be best

for its own country (or, for the ECB, its *countries*) rather than what is best for the world. Thus, while macro ‘coordination’ sounds wonderful, it usually reflects common needs that lead independent nations – each acting in its own self-interest – to adopt similar policies. An example was the fiscal stimulus around the world in early 2009. In many, probably most, cases, that is what the law requires the central bank to do. Who will persuade parliaments or congresses to change their laws to be more cosmopolitan about it?

1.6 Questions for discussion

- Is flexible inflation targeting still the best conceptual framework for monetary policy?
- Should an explicit financial stability goal be added to central banks’ mandates, where they do not already have one? If so, how should that mandate be phrased? How should it be related to the more conventional macroeconomic goals?
- Should central banks strive to return their balance sheets to (roughly) their pre-crisis size and composition, or are more-or-less permanent changes in order?
- Should central banks strive to stay neutral in matters of credit allocation
- How, if at all, should central bank communication change?
- What macroprudential tools, if any, should be added to central banks’ toolkits?
- How deeply should central banks be involved in bank supervision and regulation?
- Should that job be related to, or separated from, monetary policy?
- Should international cooperation/coordination on monetary policy, macroprudential policy, and even microprudential policy be increased? Can it be?

2 Exit to What?

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2.1 Introduction

It has been over five years since central banks were forced to confront a worldwide financial crisis that led them into a brave new world of central banking. This included unprecedented interventions in credit markets, which have resulted in a huge expansion of central bank balance sheets and a sea change in central bank communication. Unfortunately, the economies of advanced countries have not returned to normal, with financial markets still impaired, unemployment high and policy rates near the floor of zero. Sometime, hopefully soon, economies in the advanced countries will come out of the current environment and return to a healthier state. Should central banking return to its previous procedures and strategies for managing the economy, or have the events during the recent financial crisis led to a 'new normal' for central banks? In other words, central banks should exit to what? I will look at three questions which require central banks to engage in new thinking about what their role should be in the future: 1) Should inflation targeting be abandoned? 2) Should central banks engage in policies that are directed at financial stability? 3) Should non-conventional monetary policy be kept in central bank toolkits and how does this affect central bank communication?

2.2 Should inflation targeting be abandoned?

By the early 2000s, academic research and the experience at central banks led to almost universal support for a monetary policy strategy which has become known as 'flexible inflation targeting'.¹³ This strategy involves a strong, credible commitment by the central bank to stabilising inflation in the long run, often

12 The views expressed here are my own and are not necessarily those of Columbia University or the National Bureau of Economic Research. Disclosure of my outside compensated activities can be found on my website at <http://www0.gsb.columbia.edu/faculty/fmishkin/>

13 The phrase 'inflation targeting' to describe this monetary policy strategy creates some confusion because central banks have had very different approaches to the communication strategy surrounding it. Some central banks have announced an explicit numerical inflation objective and treat it as a target – these are classified as fully-fledged inflation-targeters – while others are reluctant to be so explicit. For example, the Fed only adopted an explicit numerical inflation objective in January of 2012 even though before this it was in essence following a flexible inflation-targeting strategy. The academic and central bank research supporting the flexible inflation-targeting framework is discussed in Mishkin (2009a).

with an announcement of an explicit numerical objective, but which also allows for the central bank to pursue policies to stabilise output around its natural level in the short run. The flexible inflation-targeting strategy was deemed to be very successful, with central banks in both advanced and emerging market countries that had adopted it experiencing both low and stable inflation, as well as very moderate output fluctuations. Indeed, from the early 1980s until 2007, the period was dubbed the 'Great Moderation'.

In Chapter 1, Alan Blinder makes a statement about inflation targeting that I couldn't disagree with more. He claims that 'inflation targeting became largely irrelevant' during and after the crisis. I would argue that the opposite is true. A close inspection of what we have learned from the financial crisis that I conducted in Mishkin (2011) in no way weakens the case for inflation targeting. None of the lessons from the crisis in any way undermine support for central banks adopting a strong, credible commitment to stabilising inflation in the long run by announcing an explicit, numerical inflation objective, but also having the flexibility to pursue policies aimed at stabilising output around its natural rate level in the short run. In other words, the rationale for flexible inflation targeting is every bit as strong as it was before the crisis. The key benefit and objective of inflation targeting is to anchor inflation expectations. Indeed, I would argue that this was even more important during the financial crisis for three reasons.

First, the massive negative shock to aggregate demand from the financial crisis had the potential to unhinge inflation expectations in the downward direction, which could have led to a long period of deflation, exactly what transpired in Japan in the aftermath of collapse of the 'bubble economy' in the 1990s. The Federal Reserve's commitment to 'do whatever it takes' to prevent this from happening is totally in line with what a flexible inflation-targeting regime is trying to achieve. Chairman Bernanke and the FOMC have been very clear in stating that a key objective for monetary policy was to prevent a fall in inflation expectations. The extraordinary actions they took during this period backed up this rhetoric because they were clearly intended to stabilise financial markets and boost aggregate demand so deflation would not occur. From this perspective, the Federal Reserve's actions have been extremely successful (although it has not been given sufficient credit for this success.) Core inflation has remained remarkably stable over the last five years and long-run inflation expectations have been as steady as a rock (except for the possible short period during the height of the crisis when spreads between Treasury bonds and Treasury Inflation Protected Securities (TIPS) suggested that there was a significant tail risk of deflation).

Second, having a credible nominal anchor which an inflation target provides is extremely helpful during a financial crisis when monetary policy needs to be extraordinarily accommodating. One critical precondition for effective central bank easing in response to adverse demand shocks is anchored long-run inflation expectations. Otherwise, lowering short-term interest rates or non-conventional expansionary monetary policy could raise inflation expectations, which might lead to higher, rather than lower, long-term interest rates, thereby depriving monetary policy of one of its key transmission channels for stimulating the economy.

Third, a commitment to an inflation target helps anchor inflation expectations so that a central bank will not have to worry that expansionary policy to counter a negative demand shock will lead to a sharp rise in expected inflation – a so-called inflation scare (Goodfriend, 1993). Such a scare would not only blunt the effects of expansionary monetary policy on real activity, but could also cause excessive inflation in the future.

My answer to the question of whether inflation targeting should be abandoned therefore is an emphatic ‘no’. Inflation targeting is even more relevant in the aftermath of the financial crisis. I do, however, agree with Alan Blinder that, as he puts it, an inflation-targeting regime which involves ‘pledging fealty to a specific numerical inflation target to the exclusion of all other goals (e.g. employment or output gaps, even financial stability)’ makes little sense. Mervyn King referred to this kind of approach as being an ‘inflation nutter’, and in my work on inflation targeting, including that with Ben Bernanke (Bernanke and Mishkin, 1997; Bernanke et al., 1999), I have always argued that this is not the way inflation targeting should be practised or has been practised for the most part. Inflation targeting only makes sense if it has flexibility, but the deeper question is what do we mean by flexibility. Before the crisis, inflation targeting by most practitioners allowed for flexibility to cope with bouts of low employment, but it paid little attention to financial stability issues. The aftermath of the crisis indicates that what flexibility is in an inflation targeting regime needs to be rethought.

2.3 Should central banks engage in policies that are directed at financial stability?

Before the crisis, almost all central banks operated under a view that there was a dichotomy between monetary and financial stability policies, with monetary policy focused solely on stabilising inflation and output, not on promoting financial stability. The crisis demonstrated that this view based on the dichotomy of monetary and financial stability policies is no longer tenable. The fact that price and output stability do not ensure financial stability, that low interest rates can encourage excessive risk-taking and that disruptions to financial markets have a very negative impact on economic activity for a long period of time, all suggest that central banks will need to pursue policies to promote financial stability.

To see why, we need to examine the origins of financial instability. Although there has been much attention in the literature focused on the role of asset bubbles in promoting financial instability, I have argued elsewhere (Mishkin, 2011) that asset bubbles by themselves do not lead to financial disruptions. It is only when asset price bubbles interact with the financial sector to produce what I will refer to as a *credit-driven bubble* – that is, a credit boom that is divorced from fundamentals – that financial disruptions arise.

With this type of bubble, there is the following typical chain of events: as a result of either exuberant expectations about economic prospects or structural changes in financial markets, a credit boom begins, increasing the demand for

some assets and thereby raising their prices. The rise in asset values, in turn, encourages further lending against these assets, increasing demand, and hence their prices, even more. This feedback loop can generate a bubble, and the bubble can cause credit standards to ease as lenders become less concerned about the ability of the borrowers to repay loans and instead rely on further appreciation of the asset to shield themselves from losses.

At some point, however, the credit-driven bubble bursts. The collapse in asset prices then leads to a reversal of the feedback loop in which loans go sour, lenders cut back on credit supply, the demand for the assets declines further, and prices drop even more. The resulting loan losses and declines in asset prices erode the balance sheets at financial institutions, further diminishing credit and investment across a broad range of assets. The decline in lending depresses business and household spending, which weakens economic activity and increases macroeconomic risk in credit markets. In extreme cases, the interaction between asset prices and the health of financial institutions following the collapse of an asset price bubble results in a full-fledged financial crisis which endangers the operation of the financial system as a whole.

However, it is important to note that there is a second type of bubble that is far less dangerous, which can be referred to as an *irrational exuberance bubble*. This type of bubble is driven solely by overly optimistic expectations and poses much less risk to the financial system than credit-driven bubbles. For example, the bubble in technology stocks in the late 1990s was not fuelled by a feedback loop between bank lending and rising equity values, so the bursting of the bubble was not accompanied by a marked deterioration in bank balance sheets. The bursting of the tech-stock bubble thus did not have a very severe impact on the economy, and the recession that followed was quite mild.

The distinction between the two types of bubble indicates that there is a strong case for central banks to pursue policies to restrain credit-driven bubbles, but much less support for central banks to attempt to restrain asset price bubbles if they are not associated with a credit boom. As Mishkin (2011) pointed out, it is much easier to identify credit-driven bubbles than it is to identify whether asset prices are deviating from fundamental values. Financial regulators and central banks often have information indicating that lenders have weakened their underwriting standards, that risk premia appear to be inordinately low or that credit extension is rising at abnormally high rates. The argument that it is hard to identify asset price bubbles is therefore not a valid argument against leaning against credit-driven bubbles.

Second, as pointed out in Mishkin and White (2003), when irrational asset bubbles burst, they often do not do severe damage to the economy, whereas credit-driven bubbles do. Indeed, they lead to a highly non-linear, over-the-cliff phenomenon in which policies to stimulate economic activity are unable to counter the headwinds in the economy, resulting in a prolonged period of sub-par economic growth. Hence, cleaning up after a credit-driven bubble is very costly, providing a strong rationale for central banks to pursue policies to lean against this type of bubble to restrain excessive risk-taking.

Although there is a strong case to lean against credit bubbles, what policies will be most effective? First it is important to recognise that the key principle for designing effective policies to lean against credit bubbles is whether they fix market failures. Credit extension necessarily involves risk-taking. It is only when this risk-taking is excessive because of market failures that credit bubbles are likely to develop. Recognising that market failures are the problem, it is natural to look to prudential regulatory measures to constrain credit bubbles.

Some of these regulatory measures are simply the usual elements of a well-functioning prudential regulatory and supervisory system. These elements include adequate disclosure and capital requirements, liquidity requirements, prompt corrective action, careful monitoring of an institution's risk-management procedures, close supervision of financial institutions to enforce compliance with regulations, and sufficient resources and accountability for supervisors.

The standard measures mentioned above focus on promoting the safety and soundness of *individual* firms and fall into the category of what is referred to as *microprudential supervision*. However, even if individual firms are operating prudently, there still is a danger of excessive risk-taking because of the interactions between financial firms that promote externalities. An alternative regulatory approach, which deals with these interactions, focuses on what is happening in credit markets in the aggregate, referred to as *macroprudential supervision*.

Macroprudential regulations can be used to dampen the interaction between asset price bubbles and credit provision. For example, research has shown that the rise in asset values that accompanies a boom results in higher capital buffers at financial institutions, supporting further lending in the context of an unchanging benchmark for capital adequacy; in the bust, the value of this capital can drop precipitously, possibly even necessitating a cut in lending.¹⁴ One macroprudential policy that is now being widely discussed as part of the Basel III process is to adjust capital requirements to dampen the credit cycle, that is, by raising capital requirements during credit booms and lowering them during busts. Other macroprudential policies to constrain credit bubbles include dynamic provisioning by banks, lower ceilings on loan-to-value ratios or higher haircut requirements for repo lending during credit expansions, and Pigouvian-type taxes on certain liabilities of financial institutions.¹⁵

Although macroprudential supervision should be the first line of defence against credit-driven bubbles, there is still the question whether monetary policy should be used to constrain credit-driven bubbles. There are several objections to doing so. First, if monetary policy is used to lean against credit bubbles, it is a violation of the Tinbergen (1939) principle, because one instrument is being asked to do two jobs: 1) stabilise the financial sector; and 2) stabilise the economy.¹⁶ Given that there is another instrument with which to stabilise the

14 For example, see Kashyap and Stein (2004) and Adrian and Shin (2009).

15 For example, see Bank of England (2009) and French et al. (2010).

16 Stabilising the financial sector is not a completely separate objective from stabilising the economy because financial instability leads to instability in economic activity and inflation. However, because the dynamics of financial instability are so different than the dynamics of inflation and economic activity, for the purposes of the Tinbergen principle, promoting financial instability can be viewed as a separate policy objective from stabilising the economy.

financial sector – macroprudential supervision – wouldn't it be better to use macroprudential supervision to deal with financial stability, leaving monetary policy to focus on price and output stability?

This argument would be quite strong if macroprudential policies were able to do the job. However, there are doubts on this score. Prudential supervision is subject to more political pressure than monetary policy because it affects the bottom line of financial institutions more directly. Thus, they have greater incentives to lobby politicians to discourage macroprudential policies that would rein in credit bubbles. After all, during a credit bubble, financial institutions make the most money, and they therefore have greater incentives and more resources to lobby politicians to prevent restrictive macroprudential policies. A case in point is the recent Basel III accord. Implementation of the accord was put off for ten years, and it did not contain measures to deal with systemic risk considerations, such as having higher capital requirements on systemically more important financial institutions. This episode suggests that political considerations may make it extremely difficult to have effective macroprudential supervision.

The possibility that macroprudential policies may not be implemented sufficiently well to constrain credit bubbles suggests that monetary policy may have to be used instead. But this raises another objection to using monetary policy to lean against credit bubbles: tightening monetary policy may be ineffective in restraining a particular asset bubble because market participants expect such high rates of return from purchasing bubble-driven assets. On the other hand, the evidence relating to the risk-taking channel of monetary policy (Jimenez et al., 2009; Ioannidou et al., 2009; Delis and Kouretas, 2010; Adrian and Shin, 2010) suggests more strongly that raising interest rates would help restrain lending growth and excessive risk-taking. Furthermore, if a central bank credibly commits to raising interest rates when a credit bubble seems to be forming, then expectations in credit markets will work to make this policy more effective. The expectation that rates will go up with increased risk-taking will make this kind of activity less profitable and thus make it less likely to occur. Furthermore, expectations that rates will rise with increased risk-taking means that interest rates will *not* have to be raised as much to have their intended effect.

Nonetheless, using monetary policy to lean against credit bubbles is not without problems. Doing so could, at times, result in a weaker economy than the monetary authorities would desire, or in inflation that falls below its target. This suggests that there is a monetary policy tradeoff between having the inflation forecast as the target and the pursuit of financial stability. Also, having monetary policy focus on financial stability might lead to confusion about the central bank's commitment to the inflation target, with potentially adverse effects on economic outcomes.

Another danger from having monetary policy as a tool to promote financial stability is that it might lead to decisions to tighten monetary policy when it is not needed to constrain credit bubbles. A situation of low interest rates does not necessarily indicate that monetary policy is promoting excessive risk-taking. One lesson from the analysis here is that policymakers, and especially monetary policymakers, will want tools to assess whether credit bubbles are developing.

Research is underway (e.g. Borio and Lowe, 2002; Adrian and Shin, 2010) to find measures that will signal if credit bubbles are likely to be forming. High credit growth, increasing leverage, low risk spreads, surging asset prices and surveys to assess if credit underwriting standards are being eased are pieces of data that can help central banks decide if there is imminent danger of credit bubbles. Monitoring of credit market conditions will become an essential activity of central banks in the future and research on the best ways of doing this will have a high priority.

The discussion above indicates that central banks can no longer take the view that there is a separation between monetary and financial stability policies. If macroprudential policies are implemented to restrain a credit bubble, they will slow credit growth and will slow the growth of aggregate demand. In this case, monetary policy may need to be easier in order to offset weaker aggregate demand. Alternatively, if policy rates are kept low to stimulate the economy, as is true currently, there is a greater risk that a credit bubble might occur. This may require tighter macroprudential policies to ensure that a credit bubble does not develop. Coordination of monetary and macroprudential policies becomes of greater value when all three objectives of price stability, output stability and financial stability are to be pursued.

The benefits of coordination between monetary policy and macroprudential policy provide another reason for having central banks take on the systemic regulator role besides the ones I discussed in Mishkin (2009b) and in French et al. (2010). Coordination of monetary policy and macroprudential policy is more likely to be effective if one government agency is in charge of both. Coordination of policies is extremely difficult when different entities control these policies. Indeed, in the aftermath of the financial crisis, we have seen a movement to put macroprudential policies under the control of central banks. Dodd-Frank now specifies that the Federal Reserve will become a systemic regulator, while proposals for a banking union in Europe have the ECB taking on the bank supervision role from national regulators.

2.4 Should non-conventional monetary policy be kept in central bank toolkits and how does this affect central bank communication?

During normal times, the monetary authorities conduct monetary policy using conventional tools, principally by conducting open market operations in short-term government debt in order to set a short-term policy rate, for example, the federal funds rate in the US. However, when a sufficiently negative shock hits the economy, requiring a negative nominal interest rate to stimulate the economy, conventional expansionary monetary policy will become ineffective because the policy interest rate cannot be driven below zero. This has become known as the *zero lower bound (ZLB) problem*. In this situation, central banks need to resort to other policy measures, which have become known as non-conventional policy,

involving either 1) lowering risk and term premiums by purchasing securities, and thereby changing their relative supply, or 2) managing expectations in order that the policy rate be viewed as staying low for an extended period, thereby lowering long-term interest rates.

Research before the crisis took the view that, as long as the inflation objective was around 2%, the ZLB constraint on policy interest rates should bind infrequently and be short-lived (Reifschneider et al., 1999; Coenen et al., 2004). The fact that the Federal Reserve has had to resort to a non-conventional monetary policy rate twice in the last ten years (2003-2004 and again starting in 2008) and the fact that the federal funds rate has been at its zero floor for over four years now (since December 2008) with no end in sight, suggests that the ZLB constraint binds far more frequently than earlier research suggested, and is not short-lived at all. That the ZLB problem is likely to be one that central banks will need to confront periodically suggests that non-conventional monetary policy tools need to be kept in the central bank toolkit.

Now let's look at the two types of non-conventional monetary policy: large-scale asset purchases and management of expectations.

Large-scale asset purchases

Research on the impact of the Federal Reserve's large-scale asset purchases during the global financial crisis by Gagnon et al. (2011) finds that these programmes lowered 10-year US Treasury bond rates by a cumulative 91 basis points and lowered long-term mortgage-backed (MBS) and agency securities by even further (113 and 156 basis points, respectively) by improving liquidity in these markets.

Although large-scale asset purchases can stimulate the economy by lowering interest rates on these assets, they are not without costs. First, because these asset market purchases were for long-term securities, this exposes the central bank to interest risk (and credit risk if it buys private securities such as MBS) because these securities can have substantial price fluctuations. Possible losses on these securities mean that there could be an erosion of capital in the central bank's balance sheet and an inability to provide the usual seigniorage income to the government, and this could subject it to Congressional or parliamentary criticism and actions that could weaken its ability to conduct independent monetary policy (Greenlaw et al., forthcoming). In addition, if a central bank has bought private securities, their presence on the balance sheet means that the central bank has encroached on the politicians' turf because it has engaged in a form of fiscal policy, which makes its political position more precarious, again possibly leading to a loss of independence.¹⁷

Purchase of long-term government securities can pose a danger for central banks because it may create the perception that the central bank is willing to accommodate irresponsible fiscal policy by monetising the debt. This is a particular

¹⁷ A particular problem for the Federal Reserve is that its holdings of MBS on its balance sheet directly involve it in the most politicised financial market in the US. As discussed in Mishkin (2011), this could lead to politicians viewing the Federal Reserve as personally responsible for developments in the housing markets, which could expose it to increased political criticism and pressure on its policy decisions, thereby further weakening its independence.

concern right now in the Eurozone, where the ECB has purchased securities issued by governments that have large fiscal imbalances. This problem is also a serious concern in the US, where both political parties have been unwilling so far to address long-run trends in entitlements that could cause US government debt to explode. Not only can the purchase of long-term government assets encourage fiscal profligacy, but it can also lead to an unhinging of inflation expectations, which could make it difficult for the central bank to control inflation in the future.¹⁸

The costs of large-scale asset purchases as a monetary policy tool suggests that although they should be part of a central bank's toolkit, they should be used sparingly. Indeed, I would argue that the dangers they pose for central bank independence are sufficiently high that they should be used only when the ZLB requires the use of non-conventional monetary policy, and not otherwise. Furthermore, as discussed in Woodford (2012), there are reasons to be skeptical that asset purchases can affect interest rate spreads when markets are functioning normally. Indeed, papers such as Bauer and Rudebusch (2011) and Krishnamurthy and Vissing-Jorgensen (2011) suggest that most of the effects of asset purchase on interest rates operate by affecting expectations of future policy, which is the non-conventional monetary policy that I address next.

Management of expectations

Another way for a central bank to lower long-term interest rates to stimulate the economy is through communication of future policy. Specifically, it can communicate its commitment to a future path of the policy interest rate, a non-conventional monetary policy tool that Michael Woodford (2003) has characterised as '*management of expectations*', but is also referred to as *forward guidance*. One such example is the Federal Reserve's announcement in December of 2008 that it expected to keep the federal funds rate near zero for an extended period of time, later extended to mid-2015. This announcement would lower long-term interest rates through the mechanism provided by the expectations hypothesis of the term structure in which long-term interest rates will equal an average of the short-term interest rates that markets expect to occur over the life of the long-term bond. By committing to the future policy action of keeping the federal funds rate at zero for an extended period, the Fed could lower the market's expectations of future short-term interest rates, thereby causing the long-term interest rate to fall.

There are two types of commitments to future policy actions: conditional and unconditional. The commitment to keep the federal funds rate at zero for an extended period starting in 2008 was *conditional* because it mentioned that the decision was predicated on a weak economy going forward. If economic circumstances changed, the FOMC was indicating that it might abandon the commitment. Alternatively, the Fed could have made an *unconditional* commitment by just stating that it would keep the federal funds rate at zero for an extended period without indicating that this decision was based on the

¹⁸ See Cochrane (2010) for a discussion of how recent fiscal events could lead to a rise in inflation expectations.

state of the economy. An unconditional commitment has the advantage that it is stronger than a conditional commitment because it does not suggest that the commitment will be abandoned and so is likely to have a larger effect on long-term interest rates. Unfortunately, it has the disadvantage that even if circumstances change such that it would be better to abandon the commitment, the central bank may feel it cannot go back on its word and do so.

The problem of a commitment being seen as unconditional is illustrated by the Fed's experience in period 2003-06. In 2003, the Fed became worried that inflation was too low and that there was a significant probability of deflation occurring. At the 12 August 2003 FOMC meeting, the FOMC statement said, 'In these circumstances, the Committee believes that policy accommodation can be maintained for a considerable period.' Then, when the Fed started to tighten policy at its 30 June 2004 FOMC meeting, it changed its statement to say that 'policy accommodation can be removed at a pace that is likely to be measured.' Then, for the next ten FOMC meetings to June 2006, the Fed raised the federal funds rate target by exactly 0.25 percentage points at every single meeting. Many market participants interpreted the FOMC's statements as indicating an unconditional commitment, and this is why the Fed may have been constrained to not deviating from 0.25 percentage point moves at every FOMC meeting. In retrospect, this constraint may have led to monetary policy that was too easy for too long, with inflation subsequently rising to well above desirable levels. As discussed earlier, it may also have lead to excessive risk-taking through the risk-taking channel of monetary policy.

This problem with unconditional policy commitments suggests that commitments should be conditional, but this raises the crucial question: *conditional on what?* Eggertson and Woodford (2003, 2004) and Woodford (2012) argue convincingly that, when there is a ZLB problem, the policy commitment should be conditional on a target criterion that makes monetary policy history dependent in a particular way. The policy path will have to be more accommodative than would otherwise be the case if a ZLB had not occurred, so that the expectation of the easier policy will mitigate the effect of the zero interest rate being too high when the ZLB constraint binds. Specifically, Eggertsson and Woodford (2003, 2004) suggests that the policy rate should be kept at its floor of zero until the price level reaches a path of an output-adjusted price level which is the log of a price index plus the output gap multiplied by a coefficient (which reflects the relative weight on output-gap versus inflation stabilisation). Because this concept of an 'output-gap-adjusted price level' might be somewhat hard for the public to understand, Woodford (2012) suggests that a simpler target criterion that would work nearly as well would be a nominal GDP path which grows at the inflation target rate (e.g. 2% for the Fed) multiplied by the growth rate of potential GDP and starting at the level that was reached when the ZLB constraint first appeared (around the end of 2008 in the US). If potential GDP growth were estimated to be a 2% annual rate, this would imply a growth rate of the nominal GDP path at a 4% annual rate.

An alternative policy approach was adopted by the Federal Reserve at its December 2012 FOMC meeting in which the Fed adopted thresholds of 6.5% for the unemployment rate and 2.5% for inflation, at which the policy rate would be raised from its near-zero level. There are three disadvantages of this approach relative to one that proposes a rise in the policy rate when the nominal GDP target level is reached. First, the Fed's threshold approach is not history-dependent because it is completely forward-looking. Hence, if negative shocks to the economy sent output and inflation further below the target path, this policy approach would not lead to an optimal lengthening of the time period where the policy rate would remain at zero.

The second problem with this policy approach is that it could unhinge long-run inflation expectations. If a central bank suggests that it is acceptable for inflation to rise above its initial target level, the public may come to believe that the central bank's commitment to controlling inflation has weakened price stability with the question arising: 'If inflation above the 2% target level of inflation is acceptable, then why not an even higher level, say 4%, then 6%, and so on?'

The third problem is that the threshold on unemployment might be interpreted by the public as a numerical objective for the unemployment rate, a view that is supported by Alan Blinder's statement that the Federal Reserve 'now appears to be practicing "unemployment targeting"'. Having a target for the unemployment rate is a particularly bad policy for central banks because they cannot control the long-run level of unemployment as they can long-run inflation. The natural rate of unemployment fluctuates over time with structural changes in the economy and indeed can be quite difficult to estimate. Previous attempts to achieve too low a target level for the unemployment rate, regardless of the amount of monetary stimulus required to reach it, ended badly in the 1970s, with rising inflation and unemployment. Alternatively, if an estimate of the natural rate of unemployment is too high, attempts to target this level of unemployment could lead to unnecessary slack in the economy and inflation that is too low.

The Federal Reserve is well aware of the danger of stipulating an explicit numerical objective for unemployment and made this clear in the FOMC's January 2012 statement about long-run goals and policy strategy: 'The maximum level of employment is largely determined by non-monetary factors that affect the structure and dynamics of the labour market. These factors may change over time and may not be directly measurable. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the maximum level of employment, recognising that such assessments are necessarily uncertain and subject to revision'.

Furthermore, when the FOMC announced the new thresholds in its December 2012 statement, it immediately added: 'In determining how long to maintain a highly accommodative stance of monetary policy, the Committee will also consider other information, including additional measures of labour market conditions, indicators of inflation pressures and inflation expectations, and

readings on financial developments. When the Committee decides to begin to remove policy accommodation, it will take a balanced approach consistent with its longer-run goals of maximum employment and inflation of 2%.

Although careful reading of these statements suggest that the Fed is not pursuing ‘unemployment targeting’, there is a lot of confusion on this issue. Instead, the Fed’s new approach should be seen as a temporary policy to keep interest rates low for longer, to make up for the inadequate nominal GDP growth that has occurred since 2008. Once the nominal GDP growth shortfall has been eliminated, it will be appropriate to again conduct policy much as was done before the crisis. That means ensuring a long-run inflation rate of 2% in terms of the PCE (personal consumption expenditure) deflator, and an average unemployment rate that is consistent with price stability. The Fed needs to communicate more clearly that it does not have a ‘target’ unemployment rate and that the threshold of 2.5% for the inflation rate in no way suggests that it is weakening its commitment to its long-run inflation target of 2%. It would be dangerous to weaken this commitment, as it would lead to a permanent ratcheting up of inflationary expectations and inflation.

The target criterion using the path of nominal GDP to determine the exit from the zero interest rate policy has advantages over unemployment and inflation thresholds because it embodies the central bank’s commitment to a long-run inflation target, say of 2%. It does allow inflation to *temporarily* rise above the 2% target level, but makes clear that the long-run inflation objective is unchanged and that once the ZLB constraint is no longer binding, the central bank will return to a conventional, forward-looking, flexible inflation-targeting regime in which the central bank seeks to achieve the inflation target of 2% over the medium term.

There still are formidable challenges for a central bank to adopt a conditional commitment based on a nominal GDP path. First, it may be more difficult to explain to the public and financial market participants. An inflation target is much simpler to explain than a target path, particularly one that involves nominal GDP, a concept with which the public is much less familiar. Second, when inflation temporarily rises above 2%, as the central bank intends, it will have to carefully explain that it is not weakening its commitment to the long-run 2% inflation target. Third, a nominal GDP path requires that the central bank take a stance on the number for the growth rate of potential GDP, a number on which there is a great deal of uncertainty. This last problem would be particularly severe if the central bank ignored what was actually happening to inflation in estimating the output gap, a mistake that the Federal Reserve made in the 1970s.

Although these challenges are serious ones, if negative demand shocks to the economy result in high unemployment and the ZLB on policy rates becoming binding, central banks may have little choice but to adopt this form of communicating their policy strategy. Large-scale asset purchases may have an important role in managing expectations along these lines. An announcement of a policy commitment to manage expectations may not be sufficiently credible because talk is cheap. As we have seen, large-scale asset purchases impose costs on a central bank and so combining the announcement of the policy commitment

with large-scale asset purchases may make the policy commitment more credible, because the central bank has in effect put its money where its mouth is.

Because of the difficulty of communicating forward guidance based on a nominal GDP path, this communication strategy should be used only when absolutely necessary, that is, when the ZLB on interest rates is a serious constraint. Once the economy returns to a more normal situation in which the appropriate setting of the central bank's policy rate is above zero, so that conventional policy now becomes operational, this monetary approach should be put back into the central bank's toolkit, only to be pulled out again if the ZLR problem re-emerges.

2.5 Concluding remarks

For those of us in the US, Europe and Japan, it is pleasant to contemplate the exit of central banks from the current environment of an unhealthy economy with high unemployment and policy rates hitting the floor of the ZLB. I hope this time comes soon. In looking at what central banks should exit to, I have posed three questions and will here summarise the answers. First, should inflation targeting be abandoned? Absolutely not. A flexible form of inflation targeting has even more relevance today than before the crisis. Second, in this vein, should central banks engage in policies that are directed at financial stability? Absolutely yes. Flexible inflation targeting needs to address financial stability concerns both by taking account of developments in the financial sector in setting monetary policy instruments, and also by developing macroprudential tools to reign in credit booms if they are getting out of hand. Third, should nonconventional monetary policy be kept in central bank toolkits? Again the answer is yes, because we now recognise that the ZLB problem may occur more frequently than we would like so that we need to have these non-conventional monetary policy tools at the ready. However, because these non-conventional monetary policy tools entail costs that conventional tools do not, they probably should be brought out of the toolkit only when they are needed, that is, when negative shocks to the economy make the ZLB on interest rates a serious problem.

3 Discussion: The New Normal

This chapter presents formal comments on Chapter 1 as well as a summary of the debate on the future of central banking. It does not aim at reproducing each and every of the many interesting statements made by conference participants. Rather, it brings together the various issues into a coherent analysis that synthesises the rich exchange of views.

3.1 Comments by Julian Callow, Barclays

The response of central banks to the crisis has demonstrated that there is a rich *smorgasbord* of instruments potentially available to central banks. In addition to those already mentioned by Alan Blinder, we can also consider some new options, such as setting a negative interest rate, long-term liquidity provision, funding for lending schemes, countercyclical capital buffers (as Thomas Jordan eloquently described last night), buying exchange-traded funds (ETFs), the ECB's outright monetary transactions (OMT) programme, and others that have a much longer history, including varying reserve requirements and setting a ceiling or target for bond yields.

However, just as one can over-indulge on a smorgasbord, so it is important for central banks to be careful not to over-reach. In particular, they should be particularly cautious if conditions are in a 'new normal' (i.e. what appears to be a more regular situation) that they look for opportunities for financial markets to re-establish pricing and so do not distort markets.

3.1.1 Financial stability

Above all, central banks should not lose sight of the fact that we have only fiat money, and therefore credibility is all. Central banks will therefore be judged solely on how they perform with respect to the perceived stability of the currency that they issue. This, of course, involves avoiding deflation as well as inflation, and of course ensuring that the financial system is healthy.

On this latter point, should we not be able to take the stability of the financial system for granted? Nowadays, when you start a modern car, you expect it to work. It is not as if we are in a primitive, elementary state of evolution with

respect to either cars or the financial system. Concerning financial stability and the recent crisis, it is, I believe, hard to refute the observation that most of the problems encountered in the financial crisis were ones which bank supervisors and regulators have experienced countless times over (I am reminded of Mark Twain's comment, 'History does not repeat itself, but it rhymes').

My view would be that the financial crisis was about misjudged appraisal of risk, in part because of asymmetry of information. These issues have been around as long as we have had currency. Central banks must be able to rely on financial stability as a permanent platform on which to operate monetary policy, otherwise there cannot be full confidence in their ability to pursue price stability.

3.1.2 Inflation targeting

While a focus on price stability for central banks must be absolute, there is still a question about the appropriate time horizon and range of permissible outturns for inflation in relation to a target. In my view, an important lesson from the crisis is that central banks do need to be given a long period within which to meet their inflation target, perhaps even as long as ten years. That said, we might also be surprised to discover the apparent success that central banks have had in terms of meeting their (sometimes self-defined) targets, despite so many shocks. For example, the ECB recorded an annual average inflation rate of 2.06% during 1998-2012, while the preferred inflation measure of the Federal Reserve Board, the core PCE price index, grew by 1.9% annualised in the ten years to 2012. The Bank of England did well during the first six years of inflation targeting, with the RPI excluding mortgage payments averaging 2.4% annual growth (just below the 2.5% target), but then it has fared much less well since the 2% target for the CPI was introduced in December 2003 (the CPI averaged 2.7% during 2003-12).

The experience of the Bank of England since 2003 with inflation overshoot demonstrates that the success of inflation targeting cannot be taken for granted. This is especially true at a time when central banks are undertaking highly unorthodox policies. In this current environment, it is particularly important that central banks focus on communication, which should extend to setting out how the monetary transmission process works under such policies. We have policies that were developed in direct response to the crisis, but we are no longer in a crisis situation. We therefore have the need for careful, considered analysis to be published by central banks concerning (a) how they evaluate the impact of their non-conventional policies, and (b) how they intend to exit from such policies.

3.1.3 Transparency

Central banks have the depth and strength of research resources to do this, and it is their responsibility to conduct and then publish detailed analysis on these themes. It is welcome that they are increasingly undertaking this,¹⁹ but I

¹⁹ For example, see Bernanke (2013), Joyce et al (2011), Giannone et al. (2011) and Kuroda (2013)..

urge them to continue to extend this research in order that the consequences of non-standard operations are better understood. In turn, the provision and communication of such analysis, even if it does lead to different conclusions, should nonetheless still offer a means for a smoother and better understood winding down of, and exit from, such measures. The role of clear and effective communication to explain both the justification behind non-standard measures, and then the conditions for their phasing out, is also of great significance at a time when expectations are so important for the effective implementation of monetary policy.

It is especially important that central banks continue to further our understanding of how non-standard monetary policy works, since it has become more apparent that financial markets are so dominated nowadays by such policies that, in my opinion, they have become incapable of formulating an independent perspective. We see this in exceptionally low term premia in US and Japanese government bond markets.

Consider the following: this year the net issuance globally of 'safe' assets (i.e. those rated AAA/AA) is likely to be around \$2.0 trillion. At the same time, the Federal Reserve System is on track to purchase, in net terms via its Large-Scale Asset Purchase (LSAP) programme, around \$1 trillion. The Bank of Japan is on course to purchase the equivalent in dollar terms of \$0.4 trillion of safe assets. The ongoing accumulation of foreign exchange reserves by the world's central banks is likely this year to amount to a further \$0.5 trillion.²⁰ The world's central banks are essentially taking out nearly all of the expected net issuance of safe assets this year, before any private sector entities can even get a look in. Seen in 'flow' terms, therefore, central bank asset purchases are not something marginal, in the same way as we might view foreign exchange intervention; rather, they completely dominate the market. As a consequence, financial markets are unable to price risk appropriately in this environment – they are overwhelmed by the flood of central bank purchases. The longer that LSAP operations persist, the more difficulty financial markets are likely to have in establishing a new equilibrium at the point when the operations cease.

Let me also comment on whether it is the 'stock' of 'flow' of central bank asset holdings that matters for financial markets. I realise here that the dominant focus by central banks has been to emphasise (as basic theory would suggest) the importance of the stock of bonds held by central banks, rather than the flow. However, on this point I would argue that the financial markets are dealing with an uncertain ultimate level of the stock, given uncertainty about the future pace and duration of LSAP. This is an important reason for the focus on the flow (given that the stock will be derived from the flow), but as well I would still argue that the flow is so large (c.100% of net issuance of safe assets) that the flow dynamics are very important for financial market pricing, not just of bonds but, via portfolio reallocation, of all financial assets.

20 Estimates first published in Barclays Research *Global Economics Weekly* (26 April 2013).

3.1.4 Conclusions

It is vital that central banks retain credibility concerning their key mandate – price stability. We should be able to take systemic financial stability for granted and it is the responsibility of central banks, governments and the financial sector to make this a reality.

Since the financial crisis, central banks have developed a rich menu of new operating procedures and instruments. It is vital that they continue to research and publish on how these work and to explain their functions and conditions of use. Purchases by central banks are on track to completely dominate net issuance of ‘safe’ assets this year, and as a consequence I fear that financial markets are becoming no longer able to price risk effectively. Therefore, it becomes vital that central banks should communicate effectively their strategies to phase out and then cease non-standard measures, to avoid these resulting in significant volatility in financial markets, which could in turn prove damaging to economic confidence and therefore potentially result in setbacks that could be damaging for their credibility.

3.2 Comments by Benoît Coeuré, Member of the Executive Board of the ECB²¹

Let me start with an important word of caution. We are still struggling with the Eurozone crisis and current underlying economic conditions still imply that the monetary policy stance will remain accommodative for as long as needed. That said, exit from non-conventional policies will come one day, and lessons drawn from the crisis times will help us chart out our path.

The debate on exit has chiefly concentrated on strategies – monetary policy reaction functions on the way out of these policies and over the new steady state – but the operating framework of monetary policy remains understudied. Here, a few interesting questions remain unanswered. Will central banks go back to their pre-crisis operating framework once conditions return to normal? Or should some of the novel instruments remain in their toolbox ready for use, or even as standing instruments replacing old practices?

3.2.1 Crisis innovations

Three main developments have taken place during the crisis. First, central banks collectively moved towards instruments that can effectively disentangle interest rate decisions from decisions concerning the size of their balance sheets. One can debate whether this constitutes genuine bifurcation of instruments. With Tinbergen in mind, one could also conjecture that, in this way, the traditional assignment of the interest rate instrument to the price stability objective could

²¹ I wish to thank Massimo Rostagno, Tobias Linzert and Arthur Saint-Guilhem for their contributions to these remarks. I remain solely responsible for the opinions contained herein.

be reinforced by an independent lever which, through its control over the volumes of central bank credit, would independently promote stable financial conditions. Here, other central banks had to innovate more than the ECB. The Fed, for example, acquired the authority to pay interest on reserves and this placed a floor – or, more precisely, a lower grey zone of values – on the federal funds rate. The ECB, by contrast, entered the crisis with a corridor system and an elastic operating framework, which did not need much tweaking to offset shocks. But we did shift from a competitive auction system, in which quantities are controlled by the central bank, to one in which we fix the price and take the quantities as endogenous in liquidity-providing operations. As a result, at some point the overnight rate was left to drift down to the floor of the corridor, where it still stands. This, in turn, implies that the overnight rate has become more independent of the volume of excess liquidity.

Second, in a large part of the world, central banks engaged in non-conventional measures aimed at absorbing liquidity risk and duration risk from the market. Those central banks engaged in quantitative easing have focused on duration risk and have targeted term premia. The ECB has primarily concentrated on liquidity risk by fully accommodating banks' demand for liquidity in an elastic manner. We also expanded the list of eligible collateral, so that banks could more easily liquefy their balance sheets and mobilise assets that had become scarcely tradable for liquidity purposes. The ECB took care of duration risk (or in our case, funding risk) indirectly, to the extent that we replaced banks' intermediate-maturity wholesale market borrowing with our longer-term refinancing operations. As a result, the duration risk vis-à-vis banks, which markets did not want to bear, migrated to a certain extent and temporarily to our balance sheet.

Finally, central banks had to substitute for the sudden disruption of interbank market activity and became de facto the 'money market intermediary' of last – and sometimes first – resort. For the ECB, this was facilitated by the broad range of counterparties accepted in monetary policy operations and its broad collateral framework. Other central banks had to innovate in order to step up their intermediation role by resorting to specific targeted facilities outside their standard operating environment. Modalities and parameters of intervention were adapted to local circumstances, such as the depth and liquidity of financial markets and the degree of intermediation in the financing of the economy, which differ considerably across major economies.

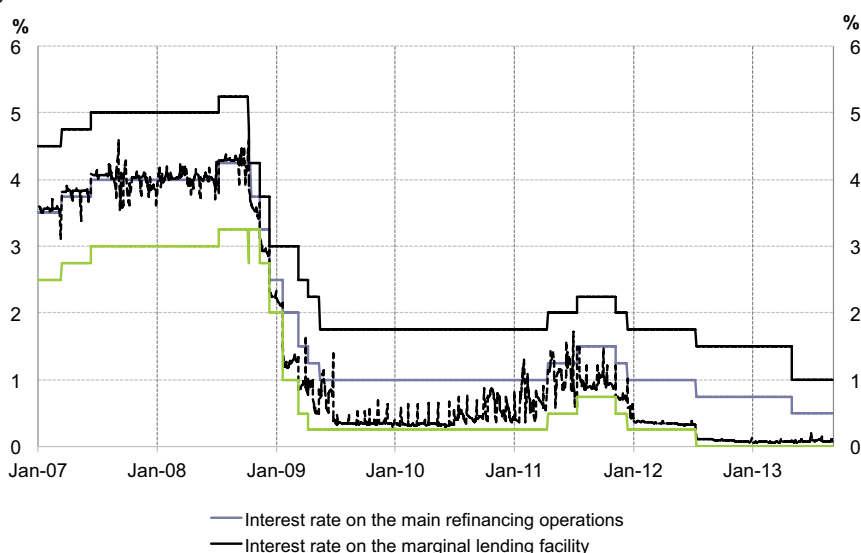
Some would argue that most of the new instruments may not be needed to the same extent once money market conditions – and, more generally, the transmission channels of monetary policy – return to normal. But is this so? Some elements of our current mode of operation have served us well, and not only as crisis management tools.

3.2.2 The interest rate corridor

The ECB entered the crisis conducting policy through a corridor determined by the two overnight standing facilities: the marginal lending facility and the deposit facility. These standing facilities were set symmetrically around the main

policy rate charged on central bank credit at the weekly refinancing operations. The quantity of money provided through the weekly operations was calibrated in such a way that, given banks' liquidity needs, the overnight money market rate would settle close to the policy rate. The corridor was symmetric (see Figure 1). At the onset of the crisis, the ECB moved quickly from a system of liquidity provision geared towards filling the system's liquidity deficit towards a set-up in which banks operate under aggregate excess liquidity. Following the shift to a fixed-rate full allotment mode of liquidity provision in October 2008, overnight rates rapidly occupied the lower half of the corridor, and ever since the overnight rate has been close to the floor. For all practical purposes, the relevant portion of the corridor for daily market activity has shrunk to the space existing between the rate on the main refinancing operations – on the upside – and the rate on the deposit facility – on the downside.

Figure 1. The ECB's corridor



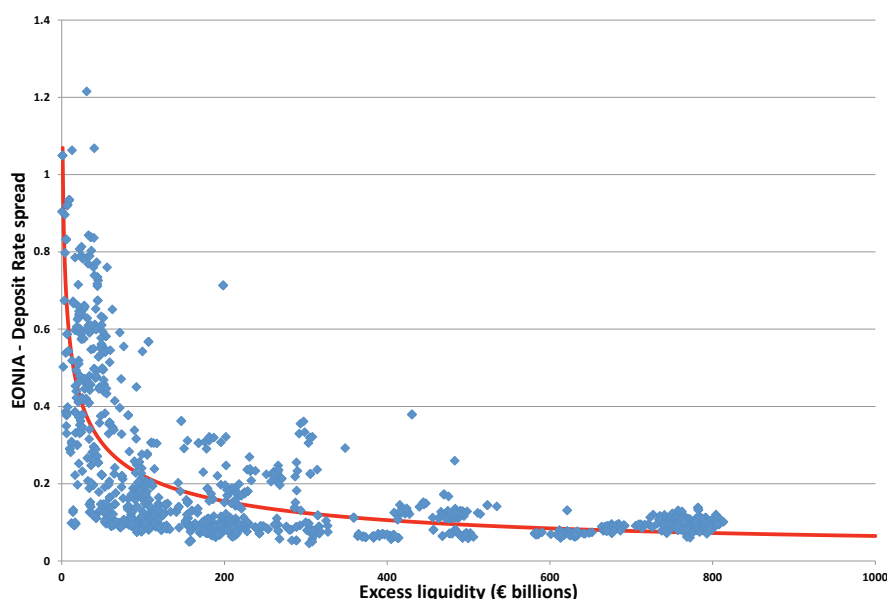
Source: ECB

Should the corridor be brought back to its standard width, spanning the entire distance between the marginal lending rate and the deposit facility rate? In other words, should liquidity provision be driven by the principle of balanced liquidity conditions or should excess liquidity become a permanent feature as the deposit facility and the main refinancing rates are adjusted in parallel? Among others, Goodfriend (2002) has described a system where the monetary authorities set a policy floor – the rate paid on reserves or the deposit facility rate – and the system is saturated with excess liquidity, so that overnight market rates are kept close to the floor.

In such a system, the volatility of the overnight rate would likely be squeezed to minuscule numbers. True, our overnight rate has been more – rather than less – volatile since it moved to the floor of the corridor, but excess liquidity conditions

have been unsteady and uncertain during this period. Under normal conditions, the liquidity supply should be steady and reasonably predictable. A more stable overnight rate could enhance the transmission of deposit facility rate changes throughout the term structure of money market rates. A second advantage is that the central bank would retain its capacity to disentangle interest rate decisions from decisions concerning the scale of its own liquidity operations in order to remain resilient to large-scale liquidity shocks. This possibility, which has been used during the crisis (as Figure 2 shows), may come in handy at the time of exit, in situations when inflation risks would call for a tightening of policy, while concerns about the fragility of the banking system would suggest prolonging the horizon for easy access to central bank credit. But even in the steady state – after the exit – the new system would be marginally more resilient to large liquidity shocks and acute liquidity stress in the money market. Banks would receive funding certainty, as their liquidity needs would be met.

Figure 2. The relationship between the overnight money market rate and excess liquidity



Note: Excess liquidity is defined as a bank's excess reserves (current accounts minus the required reserves) augmented by the recourse to the deposit facility, net of the marginal lending facility.

Source: ECB.

But there are drawbacks as well. First, for the ECB at least, this would require banks to be willing to hold reserves in excess of their needs. In a normal situation, absent any financial stress, this is difficult to ensure in a system (like ours) in which liquidity injections are the consequence of counterparties' – not

the central bank's – decisions. Second, a system of permanent excess liquidity could potentially distort signals of liquidity and credit risk in the money market, as money market activity could be compressed, or suppressed altogether. I will come back to this point shortly.

3.2.3 The duration and maturity of central bank operations

Before the crisis, the bulk of liquidity was provided through operations with a maturity of one week. The ECB also provided (pre-set) amounts through longer-term operations, but to a lesser extent and with a maximum maturity of three months. As an alternative, the menu of maturities open for bank borrowing could be much richer. For example, there could be merit in matching the more structural long-term trends in the autonomous liquidity factors, most notably the growth in currency in circulation, with corresponding instruments of structural liquidity supply at longer maturities.

Expanding the range of maturities following the exit would probably go hand-in-hand with the decision to return to competitive auctions. Moreover, such a framework would be more robust to renewed bouts of perceived funding risk in the market.

3.2.4 Intermediation by central banks

Before the crisis, the intermediation role of the ECB was limited to filling the structural 'liquidity deficit' of all the banks vis-à-vis the monetary authority. The pre-crisis weekly liquidity provision through variable rate competitive auctions was thought to be best suited to reveal banks' 'true' liquidity demand, to incentivise interbank transactions, and to enhance market scrutiny of banks' credit standing beyond the quality of the collateral that they could pledge in our lending operations. During the crisis, we have moved to a system in which the central bank is *de facto* the 'market intermediary' of last – and sometimes – first resort. This has weakened banks' incentives to trade liquidity in the market, but do we need them to trade in the very short-term market in the first place?

It is not entirely clear whether an interbank market is strictly needed from a welfare perspective. The key function of markets is price discovery, but here the price to be discovered is pre-set by the central bank! Why then do we need a market if the price is pre-determined? Of course, I am over-simplifying. The welfare function of the secured money market probably differs and is less important than that of the unsecured money market, where the market exercises a type of discipline that a central bank backstop would not be able to provide.

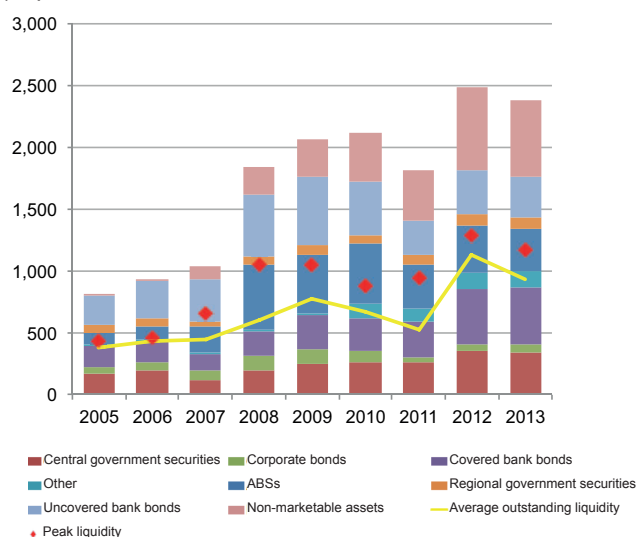
Let's not forget moral hazard considerations. In stressed systemic conditions, banks may well be deprived of access to interbank credit for reasons that have little to do with their own credit quality, and central banks must intervene when the market fails. But in normal times, those banks that are kept out of the market may well deserve credit restrictions. In this case, a central bank that takes away market pressure distorts the market rather than repairing a market imperfection. Also, allowing the price to be determined by competitive forces may have the

collateral merit of revealing market information, which is certainly of great value to the central bank. Maintaining an active market for liquidity may be an important pre-condition for the central bank to monitor important variables, such as the evolving market standing of single institutions and the dynamic process by which banks evaluate and price liquidity risk.

3.2.5 The collateral framework

The crisis has underscored the importance of the collateral framework for monetary policy implementation. As shown by Figure 3, the ECB's collateral framework has been flexible enough to adapt to a changing market environment and to support monetary policy transmission, under strict risk control. There is still much to be learned in this area. Ideally, any decision on this framework under a new steady state should be based on a thorough examination of the impact of collateral valuation and haircuts on the size and composition of banks' balance sheets, and the ramifications for the stability of the financial sector as a whole. Such an examination cannot be conducted in isolation from a review of collateral rules followed in private transactions, which could be affected by the ongoing regulatory overhaul, in particular the migration of over-the-counter derivatives to clearing houses.

Figure 3. Breakdown by type of assets of the collateral used in the ECB's monetary policy operations, € bn



Notes: Collateral value after valuation and haircuts, averages of weekly data

Source: ECB.

3.2.6 Concluding remarks

The ECB's operational framework has provided us with enormous flexibility during the crisis. By adjusting the price, amount, maturity, allotment procedures and eligible collateral for our operations, we have been effective in containing funding risks of banks and in addressing distress in the money market. In a sense, the system could well be rolled back to the previous steady state, with the comforting expectation that this flexibility is a built-in permanent mechanism that restores itself again, elastically, in case of need. Yet, some of the questions raised here are worth reflecting upon.

Exiting the crisis mode could pose risks to financial stability in the current environment, which is marked by a prolonged period of low yields and reduced volatility, making it challenging for the financial sector to properly accommodate interest rate risk. The exit could be associated with a steepening of the yield curve as expectations of low short-term rates are reversed and central banks reduce their holdings of long-term securities. Uncertainty on the path of exit from unconventional policies may trigger a rise in volatility at the long end of the yield curve, exposing banks and investors to substantial losses. These effects would be more pronounced if the speed of interest rate adjustment were to exceed market expectations.

At the same time, delaying the exit from 'crisis' monetary policies beyond that which central banks' reaction function would warrant could also entail risks to financial stability, by inducing a further build-up of the very same exposures that render exit more challenging in the current environment. In particular, a protracted period of low interest rates and ample liquidity could compromise the market mechanisms in efficiently allocating resources, hence encouraging the roll-over of loans to non-profitable businesses and weakening incentives for balance sheet repair.

Prolonging low interest rates for a long time might raise the possibility of sudden shifts in market expectations and significant re-pricing of risks once indications of monetary policy tightening materialise. Of course, these risks should also not be overrated at a time when financial risks are currently highly correlated with overall macroeconomic risks. Exit is very likely to take place in an environment where credit has recovered and risks have receded in the economy, making the financial sector more robust to interest rate shocks. The current situation of subdued bank lending and outlook for growth in the Eurozone is a case in point. Yet, monetary policymakers have to be aware of these challenges and need to guard against the risk of financial dominance by keeping a clear focus on their respective mandate.

The ECB's 'hardwired' focus on price stability provides a clear guidepost that has proved effective in anchoring inflation expectations over time. The prominent role given to money and credit developments in our strategy ensures a more symmetric reaction to financial forces over the cycle. At the same time, it is important that central banks continue to place particular emphasis on managing expectations.

The ECB has all the instruments at hand to ensure a smooth exit if risks to medium-term price stability should materialise. Our credit operations are temporary and the market has all the information to anticipate their unwinding and to make adequate adjustments to prepare. Should liquidity conditions prove too lax while central bank credit is still abundant, we have available instruments of liquidity reabsorption to tighten money market. Some of these instruments have been tested successfully in the course of the crisis.

Finally, a sound financial system is a necessary condition for an orderly exit, hence the importance of a swift implementation of the banking union in the Eurozone. This should include not only the Single Supervisory Mechanism, but also a Single Resolution Mechanism, with a single resolution fund based on contributions by the industry and a common, last-resort fiscal backstop. This also includes the assessment of banks' balance sheets that will be undertaken in the transition to the Single Supervisory Mechanism.

3.3 Comments by Lucrezia Reichlin, London Business School and CEPR

Has the crisis called into question the consensual view on monetary policy which had guided central bank action for the preceding 20 years? Alan Blinder lists a number of elements of that consensus. Some are fundamental concepts such as independence, transparent communications and the flexible version of inflation targeting. Some are narrower views about operational procedures and instruments for policy action. He remarks that all these aspects of the consensus changed during the crisis. In particular, independence was challenged and 'inflation targeting became largely irrelevant'. I will discuss the problem of central bank independence after the crisis and will challenge the claim that inflation targeting has become irrelevant.

3.3.1 Inflation targeting

Let me start with a definition of inflation targeting which, I think, is uncontroversial: a public commitment to a fixed numerical target for inflation in the medium term. As many people have observed, this definition leaves room for a lot of flexibility. In particular, flexible inflation targeting does not require a central bank to disregard fluctuations in the real economy; it is not even in contradiction with the dual mandate of the Federal Reserve. Indeed, the Federal Reserve can be characterised as a flexible inflation-targeter, as can both the European Central Bank (ECB) and the Bank of England.

Except under unrealistic assumptions, in the short run, inflation stabilisation is neither necessary nor sufficient to achieve output stabilisation. Indeed, a commitment to inflation targeting in the medium run is consistent with many different paths for inflation and output in the short run. Therefore, flexible inflation targeting allows for short-term stabilisation policies aimed at controlling

output volatility provided that the commitment to the medium term target is maintained (for a summary of this view, see Woodford, 2013).

Although inflation targeting leaves room for much flexibility, one thing is clear: the framework is intimately linked with the principle of central bank independence which, in turn, is linked to the idea of commitment to a target. Unelected central bankers, in order to protect their independence, need to act according to a clear mandate and to pursue a quantifiable and publicly announced target.

Another characteristic of inflation targeting is the principle of separation between the objectives of monetary policy, fiscal policy and financial stability policy. However the separation between monetary and fiscal policy is an essential ingredient of independence, while the separation between monetary and financial stability policy is not necessarily so. As long as the financial stability mandate can be pursued without involving the central bank in solvency issues that would require it to cross the line between the monetary and the fiscal, an independent central bank can pursue a financial stability mandate as well as a monetary policy mandate. Admittedly, this is likely to be easier *ex ante* than *ex post*. *Ex ante*, the financial stability objective can be addressed by using instruments other than the short-term interest rate, i.e. by adding tools. *Ex post*, the division of responsibility between different authorities is key. I will elaborate on this issue below.

3.3.2 Inflation targeting during the crisis and after

It is said that during the crisis, inflation targeting was invisible, irrelevant or absent. Perhaps it has been invisible, but to determine whether it has been absent or irrelevant we would need to run a counter-factual experiment. What would have happened during the crisis if central banks had lost credibility in targeting inflation? Such an exercise is unfeasible. Let me instead address two problems related to inflation targeting during the crisis.

The first is that, paradoxically, the problem with inflation targeting as a useful framework during the crisis has not been its excessive discipline, but the opposite. The fact that inflation targeting does not imply an appropriate near-term policy consistent with the medium-term target has left central banks in an intellectual vacuum. Because of the lower bound, but more generally because interest rate policy does not work in an economy that is deleveraging, inflation targeting is silent on the appropriate policies to stabilise output in the short term. Proposals such as state contingent rules, for example, commitment to a nominal GDP target path, or an unemployment threshold, can be viewed as intermediate targets to achieve the medium-term inflation target. These solutions have problems, but they constitute an attempt to put more content in a framework that is silent on what has to be done to reach the objective while maintaining credibility and commitment. I am of the view that the solution to this first problem, that inflation targeting is insufficiently prescriptive in these new circumstances, is not to scrap inflation targeting but rather to put more content in it.

3.3.3 New tools and central bank independence

And this leads us to the second problem: what tools can we use to reach the target when financial markets are dysfunctional and the transmission process is broken? Most central banks around the world during the crisis increased the size and changed the asset composition of their balance sheets. Such policies should be understood as tools to be used when the zero bound for interest rates has been reached or when there are frictions that impair the traditional transmission mechanism of monetary policy. Balance sheet expansion is an endogenous consequence of specific policies aimed at improving liquidity in specific markets or affecting the term structure, not a target. Here, I agree that these are good tools to have in exceptional times. Credit easing, quantitative easing, long-term refinancing operations and funds for funding are all attempts to act on risk premia or term premia, or to replace markets when the financial system is dysfunctional. There are other tools: requirements on collateral, the width of the corridor, the deposit rate but also, as has recently been discussed, a permanent increase in the monetary base, so-called 'helicopter money' (Reichlin et al. 2013).

These policies have uncertain effects on the economy and uncertain transmission mechanisms; research is far from conclusive on this. However, there is no doubt that they cross the boundary between fiscal and monetary policy as they carry credit risk and have distributional consequences. This is particularly controversial in the Eurozone, where the ECB operates across multiple fiscal jurisdictions. But if we agree that these tools should be used in periods of crisis for both monetary policy and financial stability reasons, then we should also be very careful in redesigning the rules that govern the relation between the central bank and the fiscal authority. Without these rules, independence – the central pillar of inflation targeting – would be challenged. This is not a problem that should be swept under the carpet. With clear rules, we could also explore forms of coordination between monetary and fiscal policies that may have advantages over quantitative easing in certain circumstances.

Again, the experience of the Eurozone teaches us a lesson that might be more generally applicable. Without clear rules governing the relation between the fiscal and the monetary authorities, the central bank may be pushed to do too little because of fears of moral hazard or too much because of lack of action by other authorities. In the first case, we fall into the danger of self-fulfilling liquidity crises. In the second, the central bank becomes a sort of 'institution of last resort' which, rather than being independent, becomes sovereign. This type of sovereignty exercised by unelected officials will eventually be challenged and 30 years of good central banking practice, to which most attribute the conquest of inflation, will be undone.

3.4 General discussion

3.4.1 Introduction

During the crisis, as they hit the ZLB, central banks introduced new instruments and pursued unconventional monetary policies. They directly provided banks with liquidity, sometimes through outright purchases of assets issued by both the public and the private sector, and even toxic assets. Some central banks allocated credit directly to certain sectors of the economy, for example to the housing market in the US. Central bank balance sheets have become yet another policy tool. In Chapter 1, Alan Blinder argues that some of the new tools should and will be kept in the post crisis world.

New tools may make it possible to achieve more objectives. The pre-crisis consensus was on flexible inflation targeting, aiming at stable prices and smoothing employment swings. Even so, central banks faced occasional conflicts in their objectives, the classic example being between inflation and employment. They managed these conflicts by balancing one responsibility against another. Central banks did not spend all their efforts fighting only inflation or only unemployment, but instead they balanced the two. During times of crisis, central banks worry about financial stability, not about inflation. If this preoccupation with financial stability is to remain a permanent fixture, we find ourselves in a more complicated brave new world.

This section first reports of the broad consensus that emerged at the conference: the new instruments will not be discarded and central banks are in charge of financial stability. It then describes the many difficulties that this will entail. The following section is devoted to what the new mandate of central banks will be, raising many questions and providing a few answers. The last section describes how different things currently look in the US and in the Eurozone, one of the surprises of the ‘Geneva Conference’ discussions.

3.4.2 No return to the past

The previous chapters strongly suggest that the new instruments that have been used during the crisis (quantitative easing, long-term bond purchases, forward guidance) should be kept in the post-crisis toolbox, which also raises the question of whether the mandate and legal environment must be changed. Section 4 deals with the mandate.

There was surprising little disagreement with the view that the toolbox has been expanded permanently. Edwin Truman simply observed that ‘we are sort of stuck with these instruments’. This does not imply they will be used, much as has been the case with reserves requirements, which the Federal Reserve has not changed since the early 1990s. To Carlo Monticelli, who observed that quantities had been forgotten for a long time and that it is indeed time to look again at the role that they can play in running monetary policy, Alan Blinder responded that the focus of the first QE was on quantities, but that it is no longer the case with QE3. In Operation Twist, the central bank changes the maturity

structure of assets it holds, not necessarily the quantity; with Q3 the Fed is in fact performing debt management. Christian Kastrop stated that the whole approach to unconventional monetary policies will be judged by history, but perhaps authorities have been too prolific with their unconventional measures. The monetary authorities will have to be cautious with their exit policies, but they should keep some of the measures deployed during the crisis. The point was taken further by Angel Ubide who observed that, in the future, central banks are likely to operate in what now looks like an unconventional environment.

Will central bank balance sheets shrink back to pre-crisis levels? In a way, the question is moot, as noted by Charles Goodhart. In normal conditions the central banks must create sufficient reserves for commercial banks to be satisfied with what they hold given the chosen interest rate. Under these conditions, a central bank does not choose the size of its balance sheet, commercial banks do. But then why did Benoît Cœuré opine that central banks will have to shrink their balance sheets in order to be ready for the next crisis? His point is that, during the crisis, central bank balance sheets have acted as substitutes to markets that had vanished. Once markets function properly, this role will come to an end. As Coeuré put it, there is a big difference between addressing market failures and killing markets. In general, credit allocation is not a good business for a central bank.

Alan Blinder agreed to both points. Obviously, supply and demand of reserves must balance. However, now that it offers interest on reserves, the Federal Reserve has the ability to affect the size of its balance sheet. There is no commitment to keeping a permanently higher balance sheet, which will indeed shrink. However, central banks now hold a widely different portfolio of assets, which they have been using to good effect. Why not keep that powder dry for other contingencies?

One reason for central banks not to hold large amounts of long-dated assets is that they can suffer losses. The question then is whether it is worth stocking up assets and risk a depletion of central bank capital. Alan Blinder argued that a central bank does not need capital because it can always print money. A striking example is the Bank of Chile, which has had negative equity since 1997. The danger of capital losses arises only when a central bank faces a hostile treasury. Richard Portes, who questioned the need for a debate about exit that affects expectations in the wrong direction since it makes people unsure about the commitment to maintain a permanently higher path of the monetary base, stressed that the size of a central bank's balance sheet is not very important. Benoît Coeuré disagreed, voicing concern that a negative equity position would put central bank independence at risk.

The other natural issue is whether the crisis has made inflation targeting obsolete. The dominating view was that this is not the case. Even though inflation targeting seemed to be disregarded during the crisis, it played a key role in anchoring inflation expectations. This helped central banks to fight the crisis with extraordinary measures. Andrew Levin stated that if the authorities now wish to change the inflation target to above 2%, they should invite academic research to investigate the potential impact of this new policy. When and if this policy is adopted, central banks should communicate very clearly the new target

to the public in order to anchor inflation expectations. Vit Barta reminded the audience that the Czech National Bank practices inflation targeting in a strict sense and uses the interest rate as an instrument to achieve this. In fact, the Czech National Bank kept its interest rate constant throughout the crisis.

Finally, the discussion touched upon Goodhart's Law, which says that once a variable becomes a policy instrument, its impact on the economy changes, possibly in unpredictable ways. This could apply to balance sheets if they were to permanently remain a policy instrument, even one that is used sporadically. We just know nothing about that issue.

3.4.3 Financial stability

During the crisis, central banks have taken an active role in the financial markets, lending to banks directly, conducting stress tests and getting involved in financial markets regulation and supervision, among other things. Many central banks have now been given a supervisory role over banks and/or financial markets. This requires a new mandate for central banks, an issue examined below. If central banks assume responsibility for financial stability, how can their performance be evaluated? Charles Goodhart made the point that there is no precise way of measuring financial stability. And yet, success or failure in ensuring financial stability will directly affect central bank credibility. The quasi-existential credibility of central banks as inflation fighters is at stake.

This would seem to argue in favour of delegating financial stability to an institution outside the central bank. But then what would a central bank do if this institution does not live up to its task? Indeed, the effective transmission of monetary policy is intimately dependent on the proper functioning of financial markets. In addition, since a central bank is the only lender of last resort to the financial system, it cannot remain above the fray when financial markets tank.

The chosen solution in many countries is to enhance the role of central banks as supervisors and to delegate resolution to other institutions. Even so, many thorny issues remain. For instance, Alexander Swoboda asked about the extent of the supervisory authority of central banks. Should they supervise banks only, or the whole financial system, including all financial markets, derivatives and other sectors such as insurance markets etc.? The same question applies to regulation. Because we can ill afford to leave parts of the financial system under no supervision, central banks may have to become supervisors of the whole financial system.

This could create a conflict within central banks. Stefan Gerlach observed that financial crises are usually deflationary, which may clash with flexible inflation targeting. Alan Blinder restated his view that central banks responded to the financial crisis by giving very little emphasis to the inflation target. The Federal Reserve, for example, was not acting very differently when inflation was 2.5% from when it was 1%.

Thomas Jordan feared that the democratic deficit has grown during the Eurozone crisis as a result of measures taken by governments and the promise of a Eurozone banking union to deal with the crisis in the banking sector. This

could hamper the efforts of the ECB to become an efficient banking regulator. It could also affect its credibility because of a lack of an appropriate democratic mandate. Many participants noted that a banking union is very difficult given the regional and philosophical differences. Lucrezia Reichlin warned that the monetary union could not survive without a banking union. She reminded the audience that, writing ten years ago, the late Tommaso Padoa Schioppa correctly predicted that the interbank market would be problem during a future crisis (but he argued that the Eurozone could handle this problem).

For this reason, central banks are now adopting the macroprudential policy apparatus. As they become involved in systemic financial stability, central banks are drawn into quasi-fiscal policies that include the imposition of quasi-taxes in the form of precautionary measures on large financial institutions and potentially large cash injections in case of turmoil. This stands to create a continuum between fiscal and monetary policy. This evolution could threaten the independence of the central banks. Many agreed that this issue should not be swept under the carpet, as seems to be the case currently. The interaction between the treasury and the central bank needs to be revisited. If new rules are not put in place, a moral hazard problem will arise and central banks will be stuck in a situation where they are doing too little or too much.

3.4.4 A new mandate?

Financial stability has been added to the goals of central banks, in addition to inflation and employment or growth. Several central banks have also taken on supervisory responsibilities, which they did not exercise before the crisis. This immediately raises three substantial questions: 1) Should these objectives be ranked? 2) With more responsibilities, how could central banks be judged? 3) Is there a conflict between the different objectives, and which one should they favour most?

Andrew Levin reminds us that central banks should be looked at through the prism of the principal agent model, where the principal is the government and the agent is the central bank. In this view, independence is needed. As large and complex institutions, central banks must be given a clear and narrow mandate to carry out their duties. In addition, transparency is fundamental; otherwise the public will lose faith in them. Furthermore, diversity of views, background and gender should be encouraged. However, a broader mandate should give broader leeway for central banks to act. The new mandate should emphasise medium-term inflation targeting and leave the medium term slightly vague to enable central banks to target inflation in a reasonable amount of time without resorting to excessive interest rate movements and, as a result, to maintain their credibility.

Cedric Tille brought up the issue of the relationship between the central bank and the government. Noting that one of the advantages of monetary policy is that it can move fast, he argued that this could also be a curse. If monetary policy moves first and fiscal policy is supposed to move second but then does not move, what can the central bank do? This first mover argument also concerns the new mandate that gives the responsibility for financial regulation to the central

bank. Imagine that a central bank performs its job well by adequately supervising the financial system and determines that a bank is insolvent and needs to be resolved. What can the central bank do if the fiscal authorities do not act?

Edwin Truman pursued this idea of central banks being first mover. What does a central bank do if there is a conflict between monetary policy and bank supervision? Should the mandate clearly specify what to do, or should it be left to the central bank to decide? He observed that this can be an issue during the exit from unconventional monetary policy if inflation starts to move away from the target; in that case, monetary policy dictates a tightening of policy but keeping policy loose may be required if the financial system is fragile.

In order to avoid the first mover problem identified by Cedric Tille, Alan Blinder argued that short-term stabilisation should be done by the central bank and long-term stabilisation should be done by the government. When the crisis is over, we should go back to the old *status quo* where the government is responsible for fiscal policy and monetary policy is left to the central bank. However, in her argument Lucrezia Reichlin points out that the interest rate as a tool does not work when there is a lot of debt. In the presence of a large debt and when the ZLB is hit, monetary policy has to do something else, with implications for fiscal policy. The new mandate should be about the redesigning of the fiscal, monetary and supervisory framework and ensuring that all participants have a piece of the work and the associated responsibilities. The interconnectedness of the actions of fiscal, monetary and supervisory parties should be explicitly recognised and each participant must be given a clear mandate.

Claudio Borio looked beyond interest rate policy, focusing on balance sheet policy. If this new instrument were to be retained, a new mandate would have to settle a number of questions. Should it include other goals? Should central banks have instrument independence and how precisely would it be defined?

Jacques Delpla raised another issue. It is one thing to exit from unconventional monetary policy when the crisis is over; it is another to decide that the crisis is over. How do we define the 'no crisis' state? If there is no such definition, how can a central bank pay attention to its other responsibilities proposed for the new mandate? It is quite complicated to provide the definition of 'no crisis'. He argued that the central bank alone could not make that decision because it may not be able to implement the exit by itself, alone. Indeed, the exit could lead to large losses on its huge balance sheet, which could require going back to the treasury for recapitalisation at some point. This will complicate the relationship between fiscal and monetary authorities and put in danger the independence of the central bank.

Lorenzo Bini-Smaghi argued that the assignment of more responsibility to central banks could well lead to loss of independence. At the very least, we should recognise that it is easier for central banks to lose independence when they have more than one objective and when the mandate is inevitably complex, as the discussion has shown. He thought that the discussion about more targets and an expansion of the mandate should be extended to include a discussion about the mandates of the other players, especially the fiscal authorities. In particular, one important unintended consequence of unconventional policies has been to

shift income towards borrowers, like governments. Taking this back in the new normal will raise tensions between central banks and their governments.

3.4.5 Europe and the US

Another important topic of discussion that emerged during the conference is the difference between the Eurozone and the US in terms of monetary policy. When comparing the Federal Reserve and ECB, it is important to underline that the ECB, as mentioned by Benoît Cœuré, has fewer instruments. According to Luigi Buttiglione, the reason is that operations that are considered monetary policy in Japan or in the US are regarded as geographical transfers in the Eurozone. The OMT, for instance, is an attempt to overcome this problem, but has not been tested yet. Also, concerning the ECB's interest rate corridor, it is interesting to ask whether the Euribor might play a more pivotal role considering the new characterisation of risk in the future.

Another element that makes clear the difference between the Eurozone and the US is the credit allocation structure. According to Alan Blinder, in the US market there is a competition between the mortgage sector and everybody else, whereas in the Eurozone there is now a deep divide between the periphery and the core economies. In the US, we observe a sectoral competition for credit, while in the Eurozone we have regional competition for credit. It is true that credit allocation between the mortgage sector and all the other sectors of the economy has its own political problems, but those in the Eurozone are much larger.

Benoît Cœuré concurred. He recalled that monetary policy has distributive consequences by definition and particularly in the Eurozone, where it involves inter-country redistribution. This concerns both intended and unintended consequences of central bank actions. There is a similarity with the exchange rate, whose fluctuations also redistribute income, both within and among Eurozone member countries. The central bank should not target redistribution effects, which is why it does not target any exchange rate level.

PART II

How to Exit?

4 When and How to Exit: Issues Related to the Transition

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4.1 Introduction

Whatever central banks decide should be their policy tools and strategies once the crisis and slump are over, more normal functioning of financial markets and economies is restored, and unconventional policies are no longer needed, the transition from where policies are now will present multiple challenges. And these challenges will have both economic and political dimensions.

Interest rates will need to rise, and the size and composition of balance sheets will need to be adjusted to the new steady state of policymaking. In general, balance sheets will need to shrink, and many special policies aimed at influencing the transmission of policy unwound. These should be welcome problems to confront because they should be occurring when the economy is on its way to much higher levels of production and employment, and inflation is on its way to its target.²²

Nonetheless, exit will have many risks and dangers which, if not navigated well, could have adverse effects on the economy and lasting consequences for the political independence of the central bank. Changes in the direction of policy are always difficult and subject to second-guessing, especially when they are shifts from easing or stable accommodative policy stances toward tightening. Because the exit will follow such unusual policies undertaken in such fraught circumstances and will be initiated after such a long period of unprecedentedly easy policy, decisions on the timing and pace of tightening could have unusually large implications for financial stability, the fiscal stance of the government, and the allocation of capital, in addition to the usual considerations of macroeconomic stability. So the effects will be larger and the second-guessing more intense than normal, with potential effects on the perceived political legitimacy of the central bank and support for its independence in the conduct of policy.

And the risks and effects will be global in character. Different central banks will be exiting at different times, keyed to the needs of their individual economies. But, just as entry into various phases of unconventional policies spilled over onto exchange rates and onto domestic markets in countries whose central banks were not undertaking extraordinary policies, so exit will also have spillover effects, strengthening the exchange rate of the currency of the exiting central bank and raising interest rates more generally. Central banks and supervisory authorities

²² Of course, less favorable circumstances for exit are not out of the question if, for example, inflation expectations were to rise unacceptably before the economy is returning to high levels of employment.

in other countries will have to be alert to the possible need for adjustments in their own monetary policies and for taking steps to bolster the resilience of their financial systems to possibly volatile and unexpected moves in interest rates, exchange rates, and asset prices more generally.

The rest of this chapter will outline the range of issues involved with exit.

4.2 When to exit: Under what circumstances should policy change?

Importantly, for many central banks at this time, two separate but related decisions are required: when to stop easing, then after that when to start tightening. In the US, Japan and possibly elsewhere, the first would be represented by a decision to stop expanding the portfolio ('tapering' purchases in the current nomenclature of the Fed); the second usually by a decision to raise the short-term policy interest rate and begin the portfolio adjustments back toward the new steady state.

They are separate decisions. Portfolio expansion tends to put continuing downward pressure on interest rates, a form of easing; raising the short-term interest rate is obviously a form of tightening. It is not unusual for central banks to hold interest rates at a very low level for a while after they stop easing and before they start to tighten. The analogy here would be that the first decision to stop portfolio expansion could well lead the second to raise interest rates by a considerable period.

Both decisions should be primarily dependent on economic and financial conditions rather than calendar time. Easing and portfolio expansion might be tapered off and stopped when the central bank can see reasonable prospects that the economy is on a path toward higher levels of resource utilisation with inflation moving back toward its target (often, from below), and that this trajectory will be maintained even after the extra policy push is withdrawn.

The difficult issue is how much assurance to have about the trajectory before stopping the purchases or expansion. A number of central bank observers have argued that portfolio expansion has special costs that argue for ending such policies relatively quickly. For example, the growing size and complexity of the central bank's balance sheet could be seen as affecting the ability to exit when appropriate, or the public's confidence that exit can be executed in a timely way to head off inflation pressures. The tendency of purchases to drive down term premia in markets could exacerbate the potential adverse effect of extraordinary policies on financial stability by exaggerating the search for yield and the adverse consequences of tightening. And some central banks have worried that the larger their balance sheets and the longer the duration of their assets, the greater the adverse effects of exit on their own implied net worth and their remittances to the treasury. Finally, the benefits from purchases may be diminishing over time, especially when the central banks are also engaged in guidance about policy rates. In that case, purchases drive down term premia rather than expected interest rates, and the lower term premia may not be as powerful an incentive to spend as changes to the path of expected rates.

If, as a consequence of these drawbacks related to the size of the central bank portfolio, purchases or other forms of portfolio expansion are stopped on the early side – with only modest assurance that the economy and inflation are on the desired trajectory – the effectiveness of monetary policy at the ZLB would become even more dependent on shaping public expectations about the future path of interest rates. In those circumstances, it would be even more important to spell out the conditions for actual tightening – i.e. for raising short-term interest rates – and for clarifying that stopping expansion and raising interest rates are separate decisions with somewhat different criteria. Policy will need to be tightened when it appears that without such an action, the economy will overshoot potential and inflation will rise above its target on a sustained basis.

Within this broad criterion, four issues must be addressed. One is where to take the risks in an inherently uncertain world. Is it better to lean on the side of possibly exiting too early so that the central bank has greater assurance that inflation will remain dampened, but at the risk that expansion may be restrained? Or is it better to risk being too late so that economic expansion is protected, even at the cost of a temporary overshoot in inflation? Based on history, central banks should be confident that they can reduce inflation by raising interest rates. They might be less confident, especially given the experience of recent years, that, if they exit too soon, an easing of policy through conventional or unconventional measures will be able to rekindle vigorous expansion and avoid too-low inflation or even deflation. Hence, it would seem to make sense to take the risks of being a little late over those of being too early and undermining expansion.

The second, related issue is how to define more precisely the macroeconomic objectives that the central bank is looking at when deciding to exit. One possibility is to look solely at inflation and always gear policy toward the inflation target. In this formulation, the level and rate of growth of output are only important for their effects on inflation, and exit would be timed solely to keep inflation from overshooting its numerical objective. A second possibility is to put some independent weight on output, in the context of achieving a long-run inflation target. This approach is consistent with many definitions of flexible inflation targeting, with the dual mandate of the Federal Reserve and its ‘balanced approach’ to that mandate, and with nominal income targeting. Strategies for this approach would delay exit past the time chosen if inflation were solely the target in circumstances in which output was expected to remain significantly below its sustainable potential. As a consequence, these strategies would tend to involve a temporary overshooting of inflation if unemployment is unusually high. It is critical that temporarily high inflation rates not become embedded in long-term inflation expectations; correcting such a misperception would be very costly. So central banks contemplating policy exits that would deliberately entail temporarily higher rates of inflation must keep very careful watch on measures of long-term inflation expectations and adjust policies and rhetoric as needed to keep longer-term expectations anchored close to the price stability objective.

The third issue is how much weight to place on risks to financial stability when deciding when to exit from zero rates. Prolonged periods of low short-term rates, especially when such periods are expected to persist, may induce intermediaries

and other investors to take risks – both credit and duration risks – they don't understand or would ordinarily shun in order to boost nominal returns. Early exit would limit the extent of such risk-taking and the associated threats to stability when more normal rate relationships begin to be restored. But it would also imply a longer period of output running below potential and inflation below its target, with associated costs of under-utilised resources and risks of deflation developing if the economy were to be hit with a negative shock. The role of financial stability in monetary policy formulation is unsettled, but under current conditions of prolonged unemployment and undershooting of inflation targets, it would seem preferable to address such issues first by regulation and supervision of the financial sector, rather than by early policy tightening, unless it became clear that non-monetary-policy tools were not effective at holding down the buildup of risks that were severe enough to threaten financial stability.

The fourth issue is the implication for global financial markets of the exit, or anticipated exit, from zero rates of major central banks. Various economies are facing different challenges and responding to different shocks. So, naturally, they find themselves in diverse cyclical positions with respect to the outlook for inflation and for economic activity, requiring monetary policy paths keyed to their individual circumstances and objectives. Exit from unconventional policies will occur at different times and at different rates, and this unavoidable lack of consistency across jurisdictions will result in volatility in interest and exchange rates and spillovers from one jurisdiction to another – just as the entry into unconventional policies had effects on other financial systems and economies. Central banks cannot be expected to steer away from the domestic objectives embodied in treaty, law, or remit – by deliberately running inflation above or below the price stability objective, for example – in order to help other jurisdictions reach their domestic objectives. And it is not in the interest of the global economy for major countries or currency areas to risk instability of prices or output that would come from a failure to optimise policy to domestic objectives, taking account, to be sure, of the feedback from the global situation onto the domestic economy. So, except for this feedback mechanism, decisions to exit should not be keyed to the consequences for foreign markets and economies. It is up to the foreign authorities to adapt the regulation of their financial sectors and their monetary policy to protect themselves from any adverse consequences of the monetary policy actions of major participants in the global markets for goods and services and capital. That is not to argue that there might not be alternative policy mixes involving broad policy adjustments across many jurisdictions that would help everyone to achieve their own domestic objectives in the context of greater global stability; the objective of IMF spillover exercises is to highlight interdependencies and the potential for different policy mixes across economies to be helpful to global economic stability.

Public communication about the central bank's thinking and planning on when to exit is essential well in advance of any exit. First, it will affect the expectations of the public about policy, and these expectations are a key element in determining the effectiveness of monetary policy at the ZLB in the intermediate term and for controlling inflation expectations in the long run. Second, the more

that can be said about the economic conditions for changing policy, the better the odds that the actions of financial market participants and other economic agents will be stabilising – i.e. that they will move markets in ways that reinforce the ability of policymakers to achieve their objectives. Third, because no one has any experience with the current situation and its unwinding, the public has no way of anticipating actions based on past monetary policy patterns, as it would have if a Taylor-type rule could be applied to short-term interest rates. Hence, the only way reasonable expectations about policy can be formed is through the guidance – direct or indirect – of the central bank’s announcements, speeches, etc. Communication and public understanding of the likely strategy of exit will help foreign authorities to adapt their own policies to protect their own financial systems and their ability to achieve their domestic objectives as exit unfolds.

Any explanation should cover a number of issues. One is the role of forecasts relative to outcomes. Because of the well-known lags, good policy must be primarily forecast-based, but focus in the public and occasionally by some central bankers has often been on outcomes. To the extent outcomes are part of the plan, they are presumably there because of their potential implications about the state of the economy in the future. People need to understand this, and they need to understand the weight that forecasts play in the policy process and the horizon of the forecasts. That weight might be greater than usual because shaping expectations about future policy is so critical to the effectiveness of monetary policy at the ZLB and central banks have limited scope for offsetting mistaken expectations by changing policy. A second issue is the role of guidance already issued by the central bank about future policy actions. This guidance has been a mixture of forecast and commitment – commitments contingent on economic activity and inflation evolving as expected. The commitment aspect is what gives the guidance power in shaping expectations. And the credibility of the central bank and the effectiveness of future commitments will depend on following through, provided there are no surprising changes in the forecast. But that proviso is very important and agents should understand what sorts of outcomes would cause the central bank to deviate from the guidance it has given, whether that guidance is calendar-based or outcome-based. And third, to help the public judge how exit might be affected by changing conditions, it is important to spell out as well as possible the over-arching strategy of the decision to exit – for example, the weight, if any, that output and employment, risk management or financial stability considerations play in the central bank’s thinking and reactions. Does the central bank intend to let inflation run above target for a time if unemployment is high relative to its judgement of the sustainable rate? Does it intend to take risks on the side of inflation in order to get output up and unemployment down, i.e. be more willing to risk late exit than premature tightening? Is it willing to run short of its inflation or output targets for longer if it sees bubbles in financial markets?

4.3 How to exit: How should tools be deployed to exit unconventional policies and will they be effective?

With balance sheets at many central banks swollen with unusual types and maturities of assets, the technology of exit will be quite different than the past practice of simply announcing a new higher level for the target interest rate and validating that with relatively small market operations. Exit will be complex and involve many steps. It is critical that central banks have the means to exit – to raise rates and shrink balance sheets when appropriate, that they have worked out how the tightening technology will be deployed, and that they can explain why this plan will work – how it will be successful at tightening credit conditions and shrinking balance sheets. A well thought out exit strategy is important to making both the central bankers and the public more comfortable with entering into unconventional policies, and as a result it is never too early to start on the process of spelling out the exit, even while still in the ‘entry’ phase of policy.

Most central banks pay interest on the deposits they hold, and raising this rate will be the major method for initiating a tightening of policy. In the US, this is a new tool, never before deployed in tightening. In theory, this rate should form a floor for the overnight interbank rate, and undoubtedly raising this rate will be the primary tightening technique, at least initially, and it should be effective. But in practice in the US, the federal funds rate has traded below the rate on deposits at the Federal Reserve, which raises questions over how precise the control over the policy rate will be unless massive amounts of reserves are drained at the same time. The Fed has invented new techniques to do that draining – to convert overnight central bank deposits into longer-term obligations that cannot be supplied to the federal funds market – but the effect of these new techniques on money markets is necessarily unknown. Some other central banks have limited the duration of the new additions to the balance sheet so the assets can be run off relatively quickly when policy turns around, reinforcing the message from higher interest rates with smaller balance sheets.

Central banks might look for other means of adjusting the balance of supply and demand for reserves once tightening begins. For example, one suggestion has been to increase demand by raising reserve requirements in the US. The reserve requirement ‘tax’ has been substantially reduced by the payment of interest on reserve deposits, making this option more attractive. Legal and practical considerations, however, limit how much reserve demand might be increased by higher requirements in the US. Still, central banks should be open to suggestions that would help with exit and incorporate the useful ones into their plans.

Those central banks that have greatly increased the duration of the assets on their balance sheet will need to decide to what extent they want to sell excess securities as they exit from zero interest rates, or instead live with the swollen portfolios for longer, letting the securities mature. Selling securities and shrinking the balance sheet is not necessary for tightening policy – raising short-term rates by increasing the rate paid on reserves will be both necessary and sufficient to tighten financial conditions and slow the growth of demand. If securities are not sold, central banks with longer-duration assets may need to rely more on shorter-

term reserve draining techniques to tighten control over the policy rate. Those techniques do not reduce the size of the balance sheet, but they do change the composition of liabilities from bank reserves to other types of liabilities, allowing more precision in setting the short-term interest rate. The choice of whether to sell longer-term securities will affect the term structure of rates and the reaction of longer-term interest rates to oncoming exit. Selling securities will tend to reverse the decrease in term premia, raising long-term interest rates faster than merely letting the securities run off over time. Expectations that the securities would be sold will tend to drive up those rates by more as exit draws near, tightening financial conditions. There is a bit of a tradeoff between selling securities and raising short-term rates; holding on to the portfolio and keeping long-term rates from rising so much implies a need to raise short-term rates sooner and faster to achieve the same macroeconomic results.

The effect and effectiveness of exit will depend to some extent on the sequence in which the steps are taken. That sequencing should also take account of the need for flexibility if conditions don't develop in the expected way. In that regard, it may be easier to reverse an increase in the deposit rate than to turn off or reverse a programme of asset sales once begun. Sequencing is also important to focus the public's attention on the key variables, given the multiplicity of steps required. If the central bank is planning on returning the focus of policymaking to a short-term policy interest rate, letting the public know this will help with communication and reduce confusion and uncertainty in the unprecedented policy circumstances of unwinding unconventional policy actions. In these circumstances – a return to short-rate targeting – it may be best to begin tightening with an increase in that rate and to follow with actions to reconfigure and shrink the portfolio.

Exit plans will need to deal with all these issues and to be revised as circumstances warrant.

4.4 What are the potential implications of exit for financial stability and what should be done to mitigate any risks?

Unconventional policies have been cited for causing a number of distortions in financial markets that could potentially unwind in disorderly ways once interest rates begin to rise:

- Long-term interest rates are at extraordinarily low levels as a consequence of expectations that short-term rates will remain near zero for quite a while – sometimes with the encouragement of central bank guidance – and of negative term premia where central banks have been buying long-term securities. Thus, long-term rates will rise very substantially as market participants anticipate a rise in interest rates and the unwinding of portfolios. The back up in rates will impose considerable capital losses on the holders of these bonds. The distribution of these losses around the financial system will be difficult to determine in advance, since it will depend not only on who is holding the securities but how

they may have been hedged in derivative markets or through other techniques, and how they have been financed. Losses, on net, will be large for financial institutions or other leveraged investors that have financed the purchase and carrying of the securities with very short-term borrowing. Not only the level, but also the structure of interest rates is likely to shift, with the rise in long-term rates probably less over time than the rise in short-term rates as policy tightens, exposing those engaged in carry trades and other forms of maturity transformation.

- Some investors may be ‘reaching for yield’ and not receiving adequate compensation for the risks they are taking – credit risk as well as maturity risk. If so, as interest rates rise, investors will tend to find that their losses turn out to be larger than anticipated and hence larger than they have reserved or accumulated capital against, even in an improving economy. In addition, in the zero rate environment, some borrowers may have been kept alive by extending existing loans and not demanding either sufficient interest rate compensation or principle repayment. As rates rise, rising income and sales may not be enough to compensate for the underlying cash flow weaknesses of some of these households and companies, resulting in losses greater than the reserves or capital allocated to them.

There are, however, a number of mitigants or offsets for these risks in exit. First, the rise in rates should occur in a strengthening economy. Business and household cash flows will be stronger, bringing some zombies back to life and reducing new problem loans and bond defaults. Second, supervisors have increased their scrutiny of maturity transformation at regulated institutions, trying to make sure that institutions taking interest rate risk understand their positions, and have systems in place to identify and manage the risk. Third, bank capital requirements are in the process of being strengthened so banks are better able to bear unexpected losses – including those from yield curve movements – and bank capital in some places is being subjected to interest rate stress testing. Fourth, authorities in the US and elsewhere are paying increased attention to the regulation of money market funds and tri-party repo, which are sources of short-term wholesale funding for banks and non-banks and where maturity transformation sparked runs in the crisis.

Finally, the Federal Reserve and perhaps other central banks are giving some weight to financial stability issues in thinking about exit strategies. Federal Reserve policymakers have discussed the idea of not selling long-term securities in their portfolio, but instead allowing them to mature gradually in order to reduce the reaction of long-term rates to impending or actual exit. And it would not be surprising to see central banks employ guidance-type language emphasising that short-term rates are likely to be adjusted very gradually under projected economic conditions, with a view to dampening the upward movement in long-term rates, which could threaten the recovery.

Still, exit-related issues around financial stability remain. Central banks need to keep questioning and probing as to how serious the issues are. They need to consider how effective the tools of enhanced supervision, regulation and capital can be in the context of global capital flows and internationally coordinated

agreements. And they must continue to question how their exit plans affect stability and whether exit aimed at achieving broad macroeconomic objectives, such as inflation targets, is consistent with holding threats to financial stability to acceptable levels.

4.5 What are the potential implications of exit for the fiscal condition of the government in general, and the central bank in particular?

The unconventional monetary policies of a number of central banks have had important implications for the fiscal stance of the government (or governments) within their jurisdictions. Low nominal rates – in many cases, negative real interest rates – have reduced the cost of funding deficits and relieved pressure to tackle long-term debt sustainability problems. Purchases of long-term government securities have had the effect of reducing the quantity of higher yielding long-term debt in the hands of the public, in effect substituting overnight reserves on the books of the central bank at much lower interest rates. The resulting interest saving has been reflected in very high levels of remittances from the central bank to the treasury and a reduction in treasury borrowing requirements. In the process, the central bank has taken duration and – in some jurisdictions – credit or asset price risk out of the market and onto its balance sheet, conflating fiscal and monetary policies to an extent.

Of course, this will be reversed on exit. Treasuries will need to fund deficits at higher interest rates; remittances from the central bank will drop as short-term rates rise relative to the earnings on their portfolios. The effects of the rise in short-term rates on central bank income arise from the need to pay higher returns on the balances banks carry at the central bank and on the market transactions – reverse RPs and term deposits for the Federal Reserve – to absorb those reserves. In addition, central banks with long-term assets on their balance sheets will have mark-to-market losses that will in effect be interpreted as their having negative capital, even if technically the accounting is done in some way that does not require the explicit write-down of capital.

Some have expressed concern that rising interest rates on exit, together with increasing government debt-to-income ratios, could undermine confidence that the government is willing or able to meet its obligations, which could put the central bank in the no-win situation of having to choose between allowing government debt default and tolerating rising inflation by purchasing the debt itself ('fiscal dominance'). So far, judging from exceptionally low long-term bond yields and low inflation expectations in most jurisdictions, this seems to be a theoretical possibility or a very small tail risk, rather than something that is at the forefront of market concerns. But that could change and, in any event, tighter monetary policy and still-high, if not growing, government debt-to-income ratios could have less drastic but still adverse effects in the form of a crowding out of private capital spending.

Central banks should address concerns over these issues and emphasise the need to re-establish the divide between fiscal and monetary policies once circumstances no longer require extraordinary policy actions. Because exit should occur in a stronger economy, the effect of higher interest rates on government borrowing needs should be offset to a substantial extent by higher revenues and lower spending on income support. But central banks should insist that the remaining effects of higher rates and lower central bank remittances on deficits be reflected in the projections of deficits that are used by the fiscal policymakers, so no one can say they were not warned. Central banks have already been pointing out the importance of debt sustainability for macroeconomic stability. They need also to highlight the adverse effects on private capital spending of keeping high deficits when better times return.

They also need to explain that the adverse effects of higher interest rates on their own balance sheets and income statements should not adversely affect their ability to achieve flexible inflation targets. There is no economic reason that small or even temporarily negative cash flows or implicitly negative capital accounts would impede the ability of central banks to tighten policy. The capital of central banks is not indicative of their ability to remain going concerns or their ability to achieve price stability. Central banks can sell assets or issue central bank bills to meet expenses and absorb reserves if their cash flow is temporarily impaired.

The main threat to price stability from the interaction of fiscal and monetary policy in exit is through the political process and the potential for legislative actions that would impinge on the ability of the central bank to use its best judgement to adjust its instruments to hit its objectives. Strong objections to policy tightening are inevitable, and must be lived with as part of accountability and public discourse in democracies. The primary instrument central banks have to reduce the odds of talk turning to action is to discuss the exit, the conditions under which it will be undertaken, and its potential effects well before the exit itself is undertaken. Building support and understanding in the public and among its elected representatives is ultimately the only real protection for preserving the institutional integrity of the central bank in conducting policy. **A high degree of central bank independence will be a prerequisite for successful exit from the current situation.**

4.6 Transparency and plans

I have emphasised at several points in this chapter the beneficial effects of the central bank spelling out in advance as well as it can its plans for exit. There are likely to be fewer accidents and unintended consequences when market participants, other authorities at home and abroad, and elected representatives have information about the central bank's expectations of how it will operate in the new steady state ('exit to what?'), the conditions for exit, the tools for exit with their sequencing and how they are expected to work, and the potential consequences of exit (e.g. for financial stability and the fiscal stance of the government). Such a plan, along with the surrounding discussion by the central

bank, would help build confidence that the monetary policy authorities have thought through the issues and have the technical skills and tools to exit in a timely way. It would also reduce the element of surprise as exit begins, and would help defuse some of the political blowback that will inevitably arise. It should be updated as exit requirements shift with new actions to fight the slump and with new thinking by the central bank.

Expounding such a plan is not without its own difficulties and risks. There is no precedent for exiting from these extraordinary policies; the actual exit will be affected by how economic circumstances evolve and will need to be adjusted. There are multiple tools and levers to operate, far more than just the short-term interest rate; a diversity of views within each central bank makes it hard to reach consensus and communicate unambiguously. And discussion of exit may leave an incorrect impression that the central bank believes exit is closer than it really believes. The strong reaction of global financial markets to the discussion by the Federal Reserve in May and June of 2013 of the circumstances in which it would start to wind down its purchases illustrates the difficulty of communicating complex plans clearly and the extreme sensitivity of the markets to changing expectations about central bank actions in the current circumstances. The Fed has had to repeat and clarify how it expects to adapt various forms of unconventional policy to incoming economic data.

So there is ample room for miscommunication and misunderstanding. But that is not a reason for not trying. These risks are manageable with communication and are dwarfed by the risks and costs of leaving people in the dark about intentions and capacity for transitioning to a more normal policy environment.

5 Discussion: How to Prepare for Exit and What Order of Exit?

5.1 Comments by Lorenzo Bini-Smaghi, Harvard University

It is not just coordination between fiscal and monetary authorities that is imperative, financial regulators too must act appropriately. Indeed, the exit from unconventional monetary policy will have a significant effect on the financial system. The financial sector must be adequately capitalised well before monetary authorities exit from crisis-fighting measures. If not, exit may create problems for financial stability.

In Europe, a number of banks need to be recapitalised. When central banks will want to exit, they should not be concerned about the capitalisation of banks and be led to delay the exit. In fact, this should be a concern for the fiscal authorities, not the central banks. But what if the fiscal authorities remain inactive? Will the central banks be forced to substitute for the fiscal authorities? At stake is central bank independence, also because of the (unintended) redistributive consequences of QE. Central banks need to be given enough power to push the treasury to act in order to foster the recapitalisation of banks well ahead of time.

For all these reasons, the optimal phasing out of unconventional monetary policies should see the fiscal authorities exiting earlier than the monetary authorities. Contrary to what Donald Kohn said, this is not just relevant for the Eurozone, but is also crucial for the US since the fiscal authorities might not be keen to exit first, in light of the polarisation of politics in Washington. Optimally, it is desirable that fiscal authorities tighten their budgets before monetary policy starts to exit, in order to generate a primary surplus so that, when the central bank raises interest rates, the debt-to-GDP ratio is not destabilised. On the other hand, by keeping interest rates very low, the central banks are not putting enough pressure on the fiscal authorities to start tightening and in some ways are delaying the exit. If central banks stay in an accommodative monetary policy for too long, then exiting will become more difficult.

Regarding the timing of the exit, it is most likely that the monetary authorities will exit too late because this is the tendency of human nature. If the monetary authorities delay their exit, they can always catch up by exiting faster, but we will need to watch out for unintended consequences. The more monetary authorities are behind the curve, the faster they will need to exit and this risks returning to a deflationary environment and/or a recession.

The ECB faces a particularly complex problem, since its monetary policy is not accommodative enough for some countries, but too accommodative for others. Given the risk for debt sustainability in the Eurozone, the ECB must spell out all the plausible effects of the monetary policy exit in order to prepare financial markets and avoid rocking the boat.

Disagreeing with Alan Blinder, Lorenzo Bini-Smaghi believes that, since we are all in the same cycle in this global crisis, international cooperation should be considered a very relevant issue. Japan has realised that the exchange rate is a transmission channel of monetary policy, and hence embarked on a dramatically expansionary policy. Clearly, Japan is aware that a deep depreciation is the only way to raise inflation, but this leaves other countries vulnerable to excessive exchange rate appreciation. If the Federal Reserve is the first to exit – the ECB is still in a crisis-fighting mode – the US will face an exchange rate appreciation. Some international coordination is needed to avoid exchange rate issues or beggar thy neighbor policies. Hence, for a successful exit it is necessary to coordinate monetary, fiscal and regulatory authorities, not just nationally but also internationally, to avoid exchange rates misalignment.

5.2 Comments by Kiyohiko Nishimura, University of Tokyo

Japan stands apart. For more than two decades, its inflation rate has been much lower than that of other OECD countries, in fact zero on average. This chronic non-inflation, the fact that inflation started to decline again in 2012, and the resulting political repercussions explain the new policy adopted by the Bank of Japan last April. The policy combines quantitative and qualitative easing, hence its nickname Q²E policy. The Bank intends to double in two years the size of its balance sheets and, in particular, the monetary base through purchases of Japanese Government Bonds (JGBs) as well as risk assets such as ETFs. At the same time, it plans to change the composition of its portfolio of assets by acquiring more long-dated assets. In this way, the Bank of Japan will have bought around 75% of the gross issuance of JGBs in the fiscal year of 2013 alone. With the Bank as the dominant player, the JGB market will be fundamentally transformed.

None of this is innovation, however; the Bank of Japan had previously undertaken the very same actions. The key difference is that now this policy is stretched to its limit, which is risky. Another difference also concerns communication: the Bank of Japan presents itself as decisive rather than incremental. In fact, through this decisiveness, it is trying to manipulate market expectations rather than observing and reacting to them. Thus, it has switched from being guardian of stability to being promoter of variability and risk-taking. The question is whether this policy will be effective. Early signals are positive, but it is too early to tell. The dangers are well known: risk is accumulated on the balance sheet and fiscal dominance is looming as the government simultaneously increases the budget deficit.

Donald Kohn emphasises the need for central banks to discuss thoroughly their exit strategies well in advance. At this stage, the Bank of Japan refuses to discuss

this issue, considering it 'premature'. Unfortunately, the Bank's rather opaque stance has raised the volatility of the financial markets, which have difficulty reconciling the goal of '2% inflation in two years' with the stated purpose of substantially lowering long-term nominal rates.

The question of whether Japan will eventually head to exit has a broader perspective, beyond Japan. The issue is relevant in other countries, including the US. Is there a 'new normal' in advanced economies that suffered from the 2007-08 financial crisis? One view is that advanced economies will exit to the 'old normal', because nothing significant changed in 2007-08. The fact that the shock has been large only means that it will take longer to return to normal. Another view, however, is that there will be a 'new normal' because 2007-08 was just the tip of the iceberg as many advanced economies are facing a significant ageing population problem that will substantially lower the equilibrium long-run interest rate. In this view, QE will remain a permanent fixture in advanced economies, including Japan.

Finally, there is one issue related to the effectiveness of monetary policy. There may also be structural reasons why inflation cannot be controlled by monetary policy. Domestic services prices have trended downward despite previous QE, suggesting that this kind of monetary policy is rather ineffective in the services sector. Domestic goods prices are increasingly influenced by global factors. These observations raise the issue of what inflation targeting will consist of in the future. Moreover, a particular difficulty in this respect for Japan is that owner-occupied housing rent carries a large weight in the CPI, which is trending down, reflecting a declining share of young people who typically rent a house. This makes achieving higher inflation very hard unless nominal housing prices increase significantly. But such a large increase will, if it is not sustainable, make exit even more complicated.

So, to put it differently, if the target is not domestic prices, which are becoming increasingly independent of domestic monetary policy, should it be asset prices? This could be attractive as wealth effects would be welcome, but does it mean that financial stability is ignored? In addition, what instrument will be used to carry out such asset-price-targeting monetary policy? Or if we stick to domestic prices, given the importance of global factors, does this mean that domestic monetary policy is tied to international cooperation? Maybe that means global targeting.

5.3 Comments by Hugh Pill, Goldman Sachs

One legacy of the crisis will be more monetary and fiscal interactions in Europe. However, there are potential problems both with exit and non-exit from unconventional monetary policy. The unconventional measures are progressively zombifying the peripheral banking systems in Europe. This is not a criticism of the ECB; without its unconventional measures, the Eurozone economies would have been destroyed. In order to exit smoothly, policymakers should remind themselves why they used these measure in the first place and that the real cure does not lie in the hands of the ECB. The fiscal authorities too need to

exit, optimally first. However, the institutional framework in Europe is very complicated, which will make exit more difficult. It is not just that the Eurozone interbank market does not function anymore. The more general problem is the deep lack of institutions in the fiscal and regulatory areas. This is why the ECB took unconventional measures and strayed outside its strict mandate. The core of these measures was in response to the second wave of the crisis, when confidence in governments was shaken. The lack of confidence in the sovereign led to a crisis when it contaminated the banking markets. The issue here is the relationship between banks and the sovereign.

Another legacy concerns the risks taken by the ECB when it intervened directly in the interbank market in order to support banks. The quality of its balance sheet has now become questionable. The reason for these interventions is that the risk of break-up was greater than previously thought because the Eurozone did not have a fiscal union. The legacy of the crisis would be to clearly demonstrate that Europeans need to accept more integration if they want to have a monetary union. However, member countries, especially creditor countries such as Germany, have not signed up to fiscal integration. The realisation that monetary union requires much more than countries have signed up to initially when they adopted the euro will be one of the long-lasting impacts of the crisis.

A more general, but very important impact of the crisis will be the emergence of a grey area where fiscal dominance may arise. This grey area will be most visible when inflation starts to be driven by fiscal policy. We have lost our virginity, but we do not have the baby yet. The Eurozone has not managed to create an institution that would act as a single fiscal authority and this will have consequences. It will be very difficult for the ECB to exit as long as we are in a crisis and the ECB has to be elusive about its off-balance-sheet policy. This concerns the Outright Monetary Transactions (OMT). With the OMT, the ECB has issued a derivative that does not appear on its official balance sheet. The OMT gives the markets a put option for free, which could be exercised at any moment. The advantage of this off-balance-sheet exposure is that the ECB does not have to put up any capital or collateral in support.

5.4 General discussion

This section presents a summary of the debate on the exit strategy. It does not aim at reproducing each and every of the many interesting statements by conference participants. Rather, it brings together the various issues into a coherent analysis that synthesises the rich exchange of views.

5.4.1 When to exit?

The general view was that it is too early to exit for several countries whose economies are still in recession or are fragile. In these countries, the central banks continue to develop unconventional monetary policies. The decision on when to exit obviously depends crucially on an assessment of the economic situation

and its likely evolution. Andrew Levin pointed out that the success the monetary authorities will have in exiting will depend on the vigour of the economic recovery, which will inevitably determine the rate and amount of adjustment. Even if the Federal Reserve is still some distance away from exit, it is already using forward guidance to prepare the markets and orient expectations.

The timing of exit also depends on a number of preconditions that are likely to determine the eventual success of the operation. Among the required preconditions for exit, the monetary authorities must also understand the problems that exit could create. As noted above, the financial system in general, and banks in particular, need first to be strengthened. Peter Praet indicated that the Eurozone authorities are indeed putting in place new rules and regulations for the banking sector. He thought that optimism was justified in this respect, and that the question is whether the Eurozone authorities are progressing too quickly or too slowly.

Not everyone was convinced that the Eurozone is in the process of putting in place the preconditions for an exit by the ECB. Hans-Helmut Kotz observed that the Eurozone has been backpedalling on banking union. This will not help the ECB to exit when it is time to do so. Peter Praet agreed and added that the exit cannot be engineered as long as there are problems in the deleveraging process of economic agents. Regarding the Eurozone exit plan, Donald Kohn argued that it is important to have an anchor during the exit. However, if the ECB's anchor is 2% inflation on average, the heterogeneity of the Eurozone will make matters quite complicated. The result could be that, during the exit, Germany will have an inflation rate of 3% while other countries will have negative inflation rates, which will create significant problems in their banking sectors.

Even in the US, which is less heterogeneous, there is confusion as to the exit strategy of the Federal Reserve. Many economic agents are unclear as to when the Federal Reserve is going to stop buying assets and when it will start raising interest rates. These are obviously two different events, but the Federal Reserve has been much clearer about when it will start raising rates than when it will stop its assets purchases. A factor that will complicate the exit strategy is that central banks have very little experience of estimating the effects of changing the amount of their assets purchases, but have much more experience of the effects of changing interest rates.

5.4.2 On which side to err? Too early or too late?

Given the uncertainty about when to start, a key question is whether it is preferable to err on the side of exiting too early or too late. Addressing this issue from the ECB's vantage point, Peter Praet asserted that central bank effectiveness will primarily depend on credibility. When the dust settles, central bank credibility will be another legacy of the crisis. Indeed, the general impression is that the situation in the Eurozone is more complicated than in the US due to the diversity of the Eurozone country members. If needed or just unavoidable, debt restructuring has the potential to intensify the Eurozone crisis and further complicate the job of the ECB.

Responding to Lorenzo Bini-Smaghi, who considered a late exit as practically unavoidable, Christian Kastrop argued that it is much more risky to exit too late rather than too early. Prolonged monetary easing should be phased out as soon as possible and to do so, central banks need clear rules. This view was supported by another argument developed by Alexander Swoboda. Central banks face a dilemma: exiting means raising interest rates, but this will lead to collateral damages if leverage is too high. In the pre-exit environment characterised by very low interest rates, the longer we wait the more leveraged the economy will be. Put differently, the longer we wait, the more difficult and costly the exit process becomes.

Acknowledging this point, Donald Kohn remains more worried about exiting too early. Exiting as soon as possible could start a new recession, because of the creation of new distortions and financial problems. Central banks should try to exit without initially raising interest rates. A good start would be to rigorously stress test the banks and to require more capital when needed.

Edmond Alphandéry injected some political considerations in the debate. Echoing other speakers, he observed that political pressure might be exerted on the monetary authorities to delay exit. For instance, the US Treasury might be concerned with declining revenue transfers to the Treasury as highly profitable unconventional monetary policies come to an end. More generally, governments are unlikely to encourage actions that could lead to an economic slowdown. Peter Praet shared this concern, as he noted that the crisis has complicated central bank independence and that monetary authorities' actions have affected the fiscal authorities' budgets.

5.4.3 Preparing the markets

For all these reasons, there was widespread agreement that it will be essential to prepare the financial markets, even though Peter Praet warned that exit entails moral hazard and that early announcements may worsen the problem. The ensuing discussion strikingly foreshadowed what happened a few weeks later when Chairman Bernanke reminded markets that monetary policy would not remain loose forever. This was hardly a piece of news, but it was followed by sharp market reactions.

Charles Goodhart warned that central banks might find that, in the event, the policy rates do not respond as they are supposed to. Markets could overreact and make central banks very hesitant to roil the markets. A solution would be to initially leave the policy rate unchanged and instead increase the deposit rate or, more generally, to alter monetary policy setting norms. Instead of changing interest rates by 25 basis point increments, as has been done in the past before the crisis, interest rates could be changed in smaller increments, such as 5 basis points. Smaller increments could act as a signal to the markets and thus limit the negative market effects of interest rate changes. The objective would be to avoid strong negative effects on profitability and capital ratios, with the overall concern of not tipping the economy back into recession.

Alan Blinder agreed that, as soon as central banks start talking about exit, markets will hyper-accelerate the exit, pushing up the interest rates. This is difficult for central banks to beat. This observation is relevant to the too early versus too late debate. Because markets will react much faster than commonly expected, exiting too late may thus be preferable. For Donald Kohn, who agreed that there is a high probability that markets would react violently to the exit, the best response is for central banks to communicate a clear plan and a clear exit strategy, talking about the circumstances under which they want to raise interest rates, whether they plan to sell assets or not, and how gradually they plan to raise interest rates. At the same time, recalling the experience of 2003-05, central banks should not be that predictable. There should be a balance between dampening overreactions and allowing appropriate reactions.

Central banks have limited power, tools and control over market reactions resulting from their exit strategies. The natural implication is that they should provide more and better forward guidance and clearly state what the path of future interest rates depends upon. Central banks should clearly state that interest rates depend upon economic conditions, and how.

5.4.4 Sequencing of monetary policy instruments

Part I emphasises that central banks have acquired more instruments during the crisis. A natural implication is that they will have to decide how they will sequence the normalisation of these instruments. The main discussion concerns the interest rate (possibly the policy and deposit rates, separately) and the balance sheet. A related discussion concerns the relative use of fiscal and monetary policies.

Andrew Levin first observed that deciding on the order of exit can be very complicated in a scenario where the central bank has to fight inflation, while at the same time facing losses on the assets purchased during the crisis. If it faces losses on its assets, then it would find it difficult to pay interest on commercial bank reserves in order to prevent them from lending out, which would threaten price stability and therefore its credibility. The choice might then be between printing money to pay interest on reserves and face the threat of inflation, or awkwardly asking for a recapitalisation from the government. One solution would be to raise the reserve requirements for commercial banks, forcing them to hold more reserves. This would alleviate the problem of commercial banks using their reserves to increase credit and would thus help preserve price stability. However, it is not clear what central banks can do when they face losses on their assets. In a previous discussion (see Chapter 3), some participants argued that there is no economic reason why central banks cannot operate with negative equity, but others thought that positive equity is both a prudential policy and a policy to preserve independence.

Peter Praet noted that it is perfectly possible for central banks to simultaneously raise interest rates and provide liquidity to financial institutions. Edwin Truman reminded the audience of a precedent regarding exit from loose monetary policy from 1994, when the Federal Reserve exited quickly after the recession of the

early 1990s. If central banks are worried about their balance sheets, they could short sell their assets and start, as the Federal Reserve did in 1994, to raise interest rates.

Donald Kohn argued that policy and deposit rate changes have the same effects on markets. If the Federal Reserve raised the deposit rate first and the policy rate second, in the end there would be no difference on markets. However, the sequencing of these actions would have effects on the functioning of money markets, which are an important part of the financial markets.

5.4.5 International cooperation

While accepting Bini-Smaghi's view that international cooperation will be a very relevant issue, Christian Kastrop noted that the crisis has shown that international cooperation is necessary, but difficult to achieve. In line with the lesson derived from the crisis, a new market equilibrium should be encouraged to assure that there will be no more bailouts in the Eurozone and that default or restructuring is possible for both financial institutions and sovereigns. However, this cannot happen without significant reforms and structural changes. Peter Praet observed that policymakers well understand that the exit strategy and the timing of exits will affect exchange rates and hence there is room for international cooperation to prevent a flaring up of exchange rate issues.

5.4.6 The special case of the Eurozone

One specificity of the Eurozone is that it has now undergone two crises: first, the financial crisis, through exposure by some banks to the US mortgage market, and second, its own debt crisis. The latter, most likely not yet over, has challenged the monetary union institutions and even the very existence of the euro. Many changes have been introduced since the start of the crises and more are to come. The pre-crisis shortcomings and the solutions adopted are bound to affect the exit. It is no surprise, therefore, that parts of the discussion focused on Europe.

It is inevitable that the exit will create distortions and that it will mean the end of cheap financing for finance ministers, noted Christian Kapstrop. He then stated that the legacy of the crisis will be powerful and long-lasting. The crisis has pushed Eurozone countries closer in terms of banking regulation, fiscal coordination and structural reforms. However, the euro project remains unfinished. There is no closer union as far as Eurozone finance ministers are concerned and the rate of integration has been slowing down lately. There has been a contractual approach to fiscal policy, but the Eurozone ought to use all of its structure and institutions to achieve deeper integration. One clear legacy of the crisis will be that the ECB will play a bigger role in the economic management of the Eurozone, and its role will become similar to those of the Federal Reserve and the Bank of England. Yet, despite its newfound role, the ECB should keep its policy mandate of low inflation, he concluded.

Peter Praet elaborated on the very particular institutional framework in the Eurozone. When it introduced the OMT, the ECB acted within its price stability

mandate, but the OMT will have a lasting legacy on the Eurozone. In order to be able to increase the size of its balance sheet, the ECB needed to rely on its significant stock of credibility. On the other hand, finance ministries did not have much credibility at the beginning of the crisis, and this will be another part of its legacy. Indeed, their lack of credibility led the ECB to play a larger role by taking some market, liquidity, credit and duration risk. As a result, the Eurozone currently finds itself in an institutional vacuum.

Edmond Alphandéry argued that one legacy of the crisis will be greater involvement of governments in central bank matters. One recent example was the 'removal' of the governor of the Bank of Japan by the Abe government. This raises the question of whether interest rate policy is a technical issue or a political one. At any rate, the line separating fiscal and monetary policies has been blurred in Japan.

Another legacy, according to Christos Gortsos, will arise when it is decided whether the resolution authority should lie within the ECB or if it should be a separate institution. Participants agreed that it is likely that the resolution authority will not lie within the ECB.

Concluding the debate, Peter Praet agreed on the importance of dealing with the issue of bail in versus bail out in the banking sector. Bail in is needed and will be operational when a pecking order is officially adopted, with a clear seniority ranking for bondholders and other stakeholders. This is not enough, though. The Eurozone needs a trained bureaucracy to carry out the resolution work. Resolution authorities already exist at the national level; all that is required is that their mission be adapted to the Eurozone level and, importantly, that appropriate funding be established together with a closer scrutiny of the relationship between the regulator and the resolution authority. Peter Praet agreed that the ECB cannot be the regulator and the resolution authority at the same time. It needs to concentrate on monetary policy, which should be based on rules rather than discretion.

PART III

Exit to a New Macroprudential Framework

6 Exit to a New Macroprudential Framework: The Swiss Approach

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6.1 Introduction

With respect to exit strategies and the post-crisis world of central banks, two important questions arise in the context of financial stability. To what extent should central banks pursue a financial stability goal that may be different from the one before the crisis? And do central banks have the appropriate tools to achieve this goal? In other words, do we need to ‘exit’ to a new macroprudential framework, as the goal and necessary instruments in the *ex post* crisis world have most probably changed with respect to the *ex ante* world? Let me share with you my thoughts about how a new macroprudential framework should or could be built. In doing so, I will also refer to the approach Switzerland is currently adopting.

When discussing reasons for a change in the policy framework, it is always a good idea to start with lessons from the past. We have learned the following main lessons from the crisis.

- First, systemic financial risk was clearly underestimated. Moreover, microprudential regulation is insufficient to contain system-wide financial stability risk effectively.
- Another important lesson is that monetary policy which focuses on price stability is no guarantee of financial and macroprudential stability.
- Finally, it is very costly to clean up after a crisis.

The conclusions from these lessons are clear. We need better preventive measures in order to contain financial excesses and strengthen system-wide resilience. This would result in significant positive welfare effects.

6.2 Monetary policy, financial stability and the involvement of central banks

Even if we all agreed on the need to strengthen preventive measures, we might still disagree about the role of central banks in financial stability. An extreme view is that central banks should not be involved in financial stability or

²³ The author thanks Robert Bichsel and Rita Kobel for their helpful comments.

macroprudential issues at all. I do not share this view. So, why should central banks be involved?

First, because financial stability is a prerequisite for sustainable growth and the smooth transmission of monetary policy.

Second, central banks act as lender of last resort. It is therefore an illusion to think that central bankers can avoid dealing with financial stability issues. Indeed, financial stability is a traditional part of central banking.

There is thus no question that central banks should play a role in this area. The crucial question is rather, what role exactly should central banks play? Having said this, lessons from other crises should not be forgotten. One lesson from the years of the Great Inflation was that the overall result is not improved when monetary policy tries to achieve too many goals at the same time, with too few instruments.

In my view, safeguarding price stability remains essential, and steering monetary policy decisions more strongly in the direction of financial stability without having the necessary instruments to hand could overburden monetary policy and pose a threat to central bank credibility.

This risk is particularly real where there is a tradeoff between the optimal rate of interest for maintaining price stability, on the one hand, and the optimal rate of interest for maintaining financial stability, on the other. And even if the two goals – price stability and financial stability – required a similar response, monetary policy might still be too blunt a tool to be the most appropriate instrument for addressing financial stability concerns.

Therefore, in order to successfully deal with both price stability and financial stability goals, central banks should respect the following two rules. First, target hierarchy should be observed when using monetary policy instruments, namely price first and financial stability second. This means using monetary policy instruments primarily to maintain price stability. Second, additional specific preventive tools should be developed, which can be used to target financial stability more directly, if necessary.

6.3 Current instruments

Before the time of the crisis, many central banks had two types of instruments for financial stability. The first type was moral suasion to change the behaviour of banks. The main instrument of the Swiss National Bank (SNB) in this respect was the annual financial stability report (FSR). Alongside this, we conducted a periodic exchange of views with the banks. The second type was extraordinary liquidity assistance (ELA) for systemically important banks.

This traditional toolkit was far from satisfactory. With the FSR, we can only express concerns and recommendations with, in general, little impact on the behaviour of the banks. Moreover, ELA is clearly not a preventive instrument and may even induce banks to engage in more risky behaviour.

6.4 New instruments and a new institutional framework

Thus, for a macroprudential framework we need an enhanced toolkit, but also an adequate institutional setup. Which instruments are necessary and what should the institutional setup look like?

Macroprudential policy is generally aimed at two distinct but not mutually exclusive goals. First, macroprudential policy should strengthen the resilience of the financial system as a whole. Second, it should prevent system-wide excesses on asset and credit markets. Obviously, microprudential and monetary policy instruments can also contribute to stabilising the financial system. But they have other main goals, namely the stability of single institutions and price stability. Macroprudential instruments enhance the toolkit so that it is possible to tackle the system-wide risks more directly.

New instruments have to be assigned to institutions and the use of existing instruments for macroprudential purposes may have to be coordinated and clarified. Thus, the institutional setup of the macroprudential framework is very important.

Different countries have chosen different solutions. They range from the building of new financial stability boards comprising different institutions to the concentration of all responsibilities for macroprudential policy in the central bank. The optimal setup obviously depends on aspects specific to the country in question.

6.5 Swiss governance

How did Switzerland address the governance issue? In Switzerland, we have a general preference for lean frameworks. In the current context, this means that only a limited number of new instruments should be introduced without creating any new bureaucracy. The responsibility for a specific instrument should be clearly assigned to a single institution, avoiding shared or unclear responsibility among different institutions. Collaboration and exchange of information between the institutions should be ensured through memorandums of understanding (MoU).

Let me explain the Swiss case in more detail. Regarding macroprudential policies, we have a clear division of responsibilities between FINMA, the Swiss financial market supervisory authority in charge of microprudential policy, and the SNB. The division of labour rests on a distinction between structural and cyclical tools.

Macroprudential instruments that are *structural* in nature, such as, for instance, the capital surcharge for systemically important financial institutions (SIFIs), are the responsibility of FINMA. These kinds of instruments are very close to microprudential tools and aim at improving the regulation of and incentives for individual institutions.

The SNB has a key responsibility regarding *cyclical* macroprudential instruments. This is reflected in its central role in countercyclical buffer decisions. These kinds

of tools aim at reducing procyclicality and require a similar analysis to that which the SNB usually carries out for its monetary policy decisions.

In Switzerland, we did not set up a new financial stability board. Since the interdependencies between these policies require some coordination and intensive exchange of information, FINMA and the SNB concluded a MoU. Of course, this institutional setup may evolve over time and the question of governance has to be revisited.

6.6 Importance of careful but determined approach

The enhanced role of central banks in the area of macroprudential policies is of course not without risks. In the light of the high costs of a financial crisis, there is no real alternative to an enhanced role. However, in my view, central banks should take a careful but determined approach.

It is crucial that new instruments be carefully defined as well as thoroughly evaluated. It is important that answers are found to the following questions. Which instruments can be best used for macroprudential policy? Which instruments are most effective? How can we measure effectiveness?

In doing this, it is important to be aware of the interactions between microprudential, macroprudential and monetary policy. These interactions should be understood as far as possible, in order to obtain the best possible outcome. But, equally, we have to acknowledge that uncertainties will prevail.

However, this uncertainty should not be a reason for inaction. We must proceed with setting up an efficient macroprudential framework. Macroprudential instruments actually have to be defined and introduced. In my view, it is best to concentrate on a few, essential tools. And very importantly, we must have the courage to actually use the new instruments if this is necessary.

6.7 Swiss experience

What about the Swiss experience? So far we have introduced two major macroprudential instruments.

The first is a set of rules which aim to reduce the ‘too big to fail’ problem. This set of rules is structural in nature: a package of higher capital requirements, a capital surcharge for SIFIs, CoCos and specific organisational measures. The intended effects are to improve financial incentives and to reduce the likelihood of a bank failure. At the same time, this set of rules will increase the potential for resolution without the need to use taxpayers’ money.

The other tool is a countercyclical instrument, the ‘countercyclical capital buffer’ (CCB) – a Basel III instrument. The aim of the CCB is to increase the capital buffer to absorb potential losses and dampen growth in mortgage lending.

In February 2013, on the proposal of the SNB, the Federal Council activated the CCB. As of 30 September 2013, banks will be required to hold more capital for residential mortgage loans in Switzerland (1% of relevant risk-weighted assets).

Implementation and activation of the CCB in Switzerland are well in advance of the baseline Basel III timetable; Switzerland is a frontrunner in this respect. Due to the build-up of imbalances on the mortgage and real estate markets in Switzerland, it was necessary that action be taken now.

What we have learned in this context is that using the CCB as an instrument is far from trivial. How tangible will the impact of a CCB activation be on the banks' capital situation and on credit market dynamics? Based on what indicators should the CCB be activated, adjusted or deactivated? These are difficult questions and we do not yet have all the final answers.

Let me illustrate this point with an issue we face in Switzerland in the context of the CCB decision-taking process. The requirement is that the CCB should be activated and increased gradually, in real time, as imbalances in the credit market develop. However, by definition, excesses or imbalances in the credit or housing market are hard to measure and detect while they are developing. Some indicators, such as a prolonged phase of unusually high credit growth, point to a major risk of future imbalances in the credit market. Other indicators give contradictory messages on the presence and severity of emerging imbalances. However, in order to be effective, countercyclical macroprudential measures have to be taken despite the uncertainty in the build-up phase of credit market imbalances.

At the SNB, we came to the conclusion that this uncertainty would best be dealt with by using a small set of indicators rather than a single metric of imbalances. Furthermore, decision-making should encompass both a rule dimension and a discretionary dimension. Both dimensions are important. A rule is important to ensure that decisions and communications are consistent across time. Discretion is important because of the need for flexibility in CCB decision-making that arises because of the uncertainty and complexity surrounding the assessment of imbalances in the credit market.

6.8 Conclusions

The discussion on macroprudential policy started about five years ago. Early on, governments, central banks and supervisory institutions agreed on the fact that macroprudential policies were needed to enhance financial stability worldwide

Since then, significant progress has been made. At the structural level, policies have been designed to alleviate the 'too big to fail' problem. A set of common rules has been agreed on at the international level; even bolder steps have been taken in some countries and in particular in Switzerland. These measures are currently being implemented.

At the cyclical level, the countercyclical capital buffer is the instrument of choice at the international level (Basel III). Due to the build-up of imbalances in its mortgage and housing market, Switzerland has been quick to adopt this instrument.

Using the CCB – and, more generally, using cyclical macroprudential instruments – implies taking decisions in a situation of high uncertainty. Given

the high costs of financial instability, this uncertainty does not justify inaction. However, it justifies prudent decision-making. And this requires flexibility and a readiness to learn from mistakes.

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Central banks have broken new ground in the aftermath of the Great Financial Crisis. They have brought interest rates down very close to the zero lower bound and have committed to keeping them there for an extended period of time. They have multiplied the sizes of their balance sheets several times over. Hopefully, the exceptional circumstances that led to these extraordinary measures will dissipate. Undoing extraordinary actions is bound to be out of the ordinary, and therefore fraught with difficulties, if not dangers. The exit strategy, as the pending operation is called, needs to be thought through with great care.

Bringing together contributions by present and past central bankers, financial market participants and academics, the 15th *Geneva Report* offers a fascinating wealth of clues about issues that will eventually emerge. In particular:

- Will the next 'normal' look like the pre-crisis one? The general view is that we are not returning to the old status quo. New instruments have been tested and will not be thrown away. The financial markets have changed and central banks have now accepted responsibility for financial stability.
- How will central banks go from here to there? They will have to raise interest rates and shrink, partly at least, their balance sheets. These are two different actions, which must be driven by different objectives. The interest rate is likely to be used for classic monetary policy action, with a widespread, but far from unanimous, view that flexible inflation targeting will remain the strategy of choice. Balance sheet reduction will be driven by financial stability considerations.
- What will central banks look like in the 'new normal'? Their mandates have changed; they now include new responsibilities for financial stability (macroprudential policies). This new situation is far from innocuous. Central banks will have to wade into troubled waters, including redistributive policies and quasi-fiscal operations. This may well test their independence, which is so crucial for the conduct of classic monetary policy.

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