# OH WHAT A TANGLED WEB WE WEAVE: MONETARY POLICY TRANSPARENCY IN DIVISIVE TIMES

#### Jon Faust

Louis J. Maccini Professor and Co-Director, Center for Financial Economics

Johns Hopkins University

The Federal Reserve's approach to communications has evolved substantially since 1994, when the Fed first began announcing its interest rate decisions. The Fed now issues a statement after each of its policy meetings, holds press conferences with the Chair, and publishes policymakers' projections of major economic variables (including interest rates) quarterly. Fed policymakers, particularly the 12 regional Fed bank presidents, speak publicly about policy much more often than they used to.

The new communications fall into two categories:

- 1. Communications that clarify how the Federal Open Market Committee is likely to adjust monetary policy in response to incoming economic information, and
- 2. Communications that elaborate the diversity of views among Fed policymakers while remaining largely devoid of information about how those diverse views will affect the consensus monetary policy choice.

The FOMC statement and Chair's press conference fall in the first category and are the main vehicles for explaining policy. The vast bulk of FOMC communication – including the projections and speeches of policymakers and the minutes of the FOMC meetings – falls into the second category. In the poorly understood and divisive policy environment we now face, this latter communication masquerades as helpful, but, in fact, has no clear relevance to understanding the likely course of policy.

Monetary policy for the foreseeable future will most likely result from constructive deliberations among members of a deeply divided FOMC. That is how Congress intended the FOMC to work when society itself was deeply divided. In confusing and contentious times, an uncritical "more is better" approach to communication is likely to erode both trust in and understanding of policy. FOMC communications policy should be directed at effective transparency that is tailored to the realities of the times.

#### What to do?

- Most policy communication by the FOMC should highlight the consensus policy and its rationale. That rationale should, in turn, reflect the reality that policy is a constructive compromise among deeply divided policymakers.
- The FOMC should consider significantly reducing the volume of communication elaborating the myriad policy views other than the one reflected in consensus policy.
- Because reducing communication in any way is often viewed as politically untenable, an alternative is for the FOMC to be much more explicit about which communication explains consensus policy and which – such as the policymaker projections – has no clear value in that task.

The author would like to thank Bob Barbera, Ben Bernanke, Don Kohn, Ellen Meade, Jay Powell, Louise Sheiner, and David Wessel for insightful comments.





Policymaking amid the financial crisis and its aftermath placed extraordinary demands on Federal Open Market Committee communications and brought about extraordinary changes in Fed transparency. When the crisis flared in 2008, the Fed's main policy interest rate was cut nearly to zero and the FOMC began using nontraditional policy tools in unprecedented ways. Simultaneously, new forms of FOMC policy communication were unveiled, both to explain the new tools and to clarify how they would be deployed. These communication efforts generally received high marks and undoubtedly played a role in stemming the macroeconomic freefall and helping to nudge the economy along the path of recovery.

As fears of imminent collapse waned, the Fed's focus shifted to engineering a gradual and well-telegraphed transition from extraordinary, crisis response measures to strong support for recovery, and then on toward policy normalization. During this period, the merits of the Fed's transparency efforts became progressively less clear. Despite the FOMC's array of new communications tools, policy announcements were regularly met by great surprise in financial markets. In a recent survey (Olson and Wessel, 2016), the median grade assigned Fed communications was a B-, a grade that slips yet further if the responses of academics are omitted. Put more colloquially, the narrative of a flip-flopping, goal-post-moving, stock-market-obsessed Fed took firm root in many circles.

How did this unfortunate state of affairs arise? Starting sometime in 2010, the traditional struggle between inflation hawks and doves re-surfaced inside the FOMC, and individual commentary from FOMC members rendered the split a very public affair. We now know from recently released internal documents that hawks and doves joined together in a second battle. In this case, the struggle pitted a unified FOMC fighting to maintain the FOMC's role as a collegial deliberative body against a potentially ruinous dynamic that a full bore support of transparency had unintentionally set in motion.

This paper argues for re-thinking the standard case for transparency and its strong presumption that every bit of additional information communicated to the public moves us closer to accountability, trust, and understanding. It draws on a very different theme the literature on transparency in governance, in which sharing information about a deliberative process – especially one addressing contentious, complex policies – may be destructive (e.g, Sunstein, 2016; Stasavage, 2007). When dealing with divisive public policy issues, increasing transparency can precipitate a breakdown of constructive deliberation, while at the same time eroding public trust in and understanding of policy. James Madison is probably the most famous advocate of this view: he argued that no U.S. Constitution would have been adopted if the delegates to the Constitutional Convention had been allowed to speak freely in public about the proceedings (Sunstein, 2016).

The paper argues that monetary policy raises uniquely difficult problems of the type Madison foresaw, and that the Fed's unique structure magnifies these problems. This argument is not simple, so I'll take some care developing the argument that the roots of destructive transparency dynamics are deeply intertwined with the most fundamental issues of Fed independence and governance.

<sup>1</sup> Throughout this paper, I'll refer to the full group of 19 governors and presidents as "members" of the FOMC, treating the nonvoting presidents as ex officio members. When the distinction is relevant, I'll say voting members nonvoting presidents. The Fed tends to call the full group "participants" and the voters "members."

I'll argue that the FOMC has been fighting these difficult dynamics since the recovery gained a solid footing. That fight gave rise to a rapid and ongoing sequence of transparency reforms, with ever more information shared through ever more channels. Based on the evidence of public confusion, I think that the net effect of this growing flow of information has been at best a wash.

A sketch of the transparency demon in action goes as follows. Broad-based support for ever more transparency leads to a willingness to release more and more information regarding policy. Equally strong support for preserving deliberative integrity leads to the decision to strip the vast bulk of the new information of essential content and context. The information that is then released has a surface patina of policy relevance, and thereby masquerades as helpful, but mainly foments puzzlement and confusion.

The essence of the argument can be seen in the peculiar construction of the FOMC's Survey of Economic Projections. The SEP provides a partial and disjoint summary of the remarkable dispersion of FOMC members' views about the outlook for the economy and policy. The SEP gives no hints whatsoever about how these views will be reconciled in a consensus policy. In this form, the SEP has little potential to do more than generate nagging questions regarding how folks with these views could possibly arrive at a nearly unanimous policy decision each meeting. Answering those nagging questions would be the essence of *effective* transparency, but those answers are missing almost entirely from all FOMC communication. I'll argue that this omission is due to the FOMC's desire to maintain the capacity to deliberate effectively in complex and divisive times.

In the final section, I'll provide some suggestions about how the Fed might communicate more effectively while still protecting a healthy climate of deliberation. The purpose of this paper, however, is not to make a case for particular fixes. Rather, I hope to stimulate a clearer conversation about effective transparency in divisive times, in hopes that the stakeholders in this discussion may generate more constructive solutions. What is at stake here? I will not try to quantify any benefit in terms of macroeconomic effectiveness that might flow from improving practices. The counterfactual entailed in doing so—if the Fed had only talked better, what might have gone differently?—is very hard to evaluate, especially given that talk during this period has been about unprecedented events. I make no presumption that large macro consequences are at stake.

The main motivation for raising these topics is more subjective. The survey reported by Olson and Wessel supports my own perception that there is no shortage of folks who frustrated, confused, and/or angered by Fed communication. Improving that climate can only be good.

Finally, let me make clear (confess?) that I was a special advisor at the Federal Reserve Board from January 2012 through August 2014. I observed a good deal of the period the paper focuses on from the inside, and participated deeply in discussions over the communication issues I'll be discussing. Most of the ideas raised in the paper first came to my attention in discussions with outstanding colleagues at the Federal Reserve Board and throughout the Fed system as we grappled with the very issues I'll be discussing. These arguments are not news to those confronting these problems daily. While I have had time to codify these views since returning to Johns Hopkins, I think there is no argument in this paper that was not a part of the conversation inside the Fed during my time there, and no argument that I would claim is strictly my own.

FAUST

3

#### 1. THE CONVENTIONAL CASE FOR TRANSPARENCY

The FOMC's statement on longer-run goals and policy strategy, first stated in January 2012, states,

The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society. (FOMC, 2016)

Similarly, The Bank of England's strategic plan states,

The new legal framework governing the Bank of England confers greater statutory duties on the institution than at any time in its history. Ultimately, these powers are only sustainable if the Bank earns and protects the democratic legitimacy to perform the functions given to it by Parliament. The Bank wants to be understood, credible and trusted, so that its policies are effective. To support that, the Bank needs to be transparent, independent and accountable to stakeholders. (Bank of England, 2016)

This section describes more fully the three intertwined justifications for transparency described in these passages: Policy effectiveness, democratic legitimacy, and accountability. The case laid out here echoes the arguments, e.g., of Fed Chairs Bernanke (2004, 2015) and Yellen (2013). To the extent I provide any special emphasis, it is on the specific nature of content that the different justifications call for.

# 1.1 Expectations and monetary policy effectiveness

In the wake of the gross monetary policy failures of the 1960s and 1970s, macroeconomists began focusing on the central role the expectations of private sector agents play in all sorts of macro dynamics, including monetary policy. While expectations play a role in many policy areas, in monetary policy expectations form the main channel for policy effectiveness.

Let's begin with a noneconomic example. You are driving down a bumpy road in a car with bad shock absorbers. As you approach each bump you slow down or swerve to avoid the expected bone-jarring jolt you'll get if you don't take evasive action. You get your shock absorbers fixed and then drive a more efficient path—straighter and at more nearly constant speed.

Although it is not completely obvious, the scenario just described depends importantly on expectations. To see this, imagine that your shocks are fixed unbeknownst to you. As you approach a bump, you will expect the bone-jarring jolt, and you will still swerve and slow down. Of course, at some point you'll figure out that you have new shock absorbers; and even before you do, you get some benefit from the smoother ride they provide. Much of the benefit, however, comes only after your behavior changes based on new expectations of what happens at the bumps.

This same argument works for all kinds of countercyclical macroeconomic policy. For example, imagine that the economy is hit periodically by disturbances that raise the likelihood that some workers will lose their jobs. Now compare two economies that have the same unemployment insurance program. In one economy, workers expect the insurance payments to be there if needed; in the other economy, the workers are unaware of the program. In both economies, those who happen to lose their jobs will benefit from the insurance payments. In the economy where workers expect the payments to be available if needed, though, the program has an additional benefit. The aware workers will tend to pull back on spending a bit less in the face of the disturbance. And knowing that consumers will be retrenching less after the shock, businesses may make smaller reductions in investment or otherwise pull back less as well. As in the bumpy road example, the full benefits arise only after expectations-based behavior changes. In this case, we also have a rich set of virtuous feedbacks throughout the economy that tend to moderate the effect of the shock.

Countercyclical monetary policy can work in much the same way.<sup>2</sup> Indeed, in this case, the bulk of the beneficial effects operate through the expectations channel. Imagine that an unemployment-causing disturbance hits and the central bank lowers the federal funds rate by 25 basis points. If economic decisionmakers know that this small rate cut is likely to be followed by more rate cuts, and that financial conditions generally are likely to be more accommodative for, shall we say, an extended period, then the shock absorbing benefits are realized. Confident of the effect of accommodative financial conditions, households and businesses may pull back less on spending than if they expected no subsequent Fed actions. Once again, the first cut and the subsequent cuts would have benefits even if they were not anticipated; but without the expectations, the effects would be minimal. On its own, a 25 basis point cut on its own is too small to have any important effects.

In short, countercyclical monetary policy works best to stabilize the economy after disturbances if households and businesses understand how policy will be adjusted in the face of disturbances and modify their behavior accordingly.

Economists label the way that central banks respond to incoming information its *reaction function*. The reaction function is the principle thing that the central bank needs to communicate in the name of policy effectiveness.

Of course, nothing in this argument *inherently* requires any communication from the central bank. What is required is that the private sector understand the reaction function. Just as in the automobile shock absorber example, if the situation is regularly repeated, folks will figure it out, and to the extent this has happened, effective countercyclical policy might not require much communication. To be clear, none of the argument that follows will contradict the basic view that, all else equal, it would be best if private sector decisionmakers understood the Fed's reaction function.

FAUST

5

<sup>2</sup> To those who followed macroeconomic thinking over this period, a confusion sometimes arises around the view that policy may have no effects at all unless the policy is a surprise. This might seem to imply that transparency and understanding would neuter policy. This is mixing up the particular action taken with the reaction function, or rule, driving the action. By systematically and predictably reacting to disturbances in the economy, policy attempts to offset a portion of the potential detrimental effects of the disturbance. The particular action taken in any period will have a surprise element exactly to the extent that the economy has provided a surprise that policymakers react to.

#### 1.2 Democratic legitimacy

Independent of the practical benefits, it is also widely agreed that democratic governments have a responsibility to explain themselves to the people from whom their powers are derived. A government that obscures its actions or, worse, deliberately misleads the public is violating the public trust. This imperative may, of course, be overcome by pragmatic considerations in some cases—national security secrets are often cited as examples. There is, nonetheless, a strong presumption in favor of transparency on democratic grounds alone.

In the central banking context, democratic legitimacy mainly requires that the central bank state its actions and the rationale for those actions for the public record. I am no political theorist, and have no strong view on what communication would meet some standard of adequacy here. I'll put forward, however, that the Fed's twice-annual monetary policy report to Congress, the associated testimony, and various other reports and testimony provided to Congress, along with the release of the FOMC transcripts would arguably meet a reasonable standard, especially in light of the fact that this is the standard set by Congress.<sup>3</sup> The principle of democratic legitimacy does not, for example, seem to demand myriad speeches from the policymakers or a summary of their personal economic projections.

#### 1.3 Accountability

Transparency is also endorsed in service of accountability. The basic case for accountability through transparency is pretty simple. Government organizations regularly go awry in various ways, and transparency is an essential factor if the public is effectively to monitor the government's use of power. Further, in any group of folks, there are some who behave less admirably in private than in public, so transparency may provide a good dose of preventive medicine.

Unlike the policy effectiveness and democracy justifications, there is no obvious way to circumscribe what should be made transparent in service of accountability. Thus, all else equal, accountability calls for not only throwing open the curtains, but throwing open the doors and inviting the general public into all aspects of decisionmaking. As we'll see, the modern appeal to maximal transparency-induced accountability sits very uncomfortably the conventional wisdom favoring central bank independence.

# 1.4 A clarification about the many roles of communication

In what follows, I'll argue that a large share of the Fed's policy-oriented communication is of limited value or is counterproductive from the standpoint of informing the public about the likely course of policy. I'll be focusing on information that is intentionally put forward as explaining the likely course of policy.

The Fed does an immense amount of communicating for other purposes, for example, explaining how economic research informs the policymakers about the functioning of the economy and of the Fed's nontraditional tools. I find this information very useful, and regularly assign it in my classes. In what follows, I'm focusing specifically on the effectiveness of communication intended to inform the public about the likely course of policy.

<sup>3</sup> Here I'm talking about monetary policy decisions. Other elements of Fed behavior require and receive other attention.

#### 2. FOMC MONETARY POLICY TRANSPARENCY IN PRACTICE: 2000 THROUGH 2010

To understand recent developments, it is useful to view them within the context of the broader transparency revolution underway at central banks around the world for decades.

#### 2.1 The end of the Greenspan years: 2000-2005

The Jackson Hole conference in 2005, centered on "The Greenspan Era: Lessons for the Future," and transparency was much discussed.<sup>4</sup> It was clear from the conference talks that many speakers believed the Fed fell well short of best practices of the most transparent of central banks. In particular, the Fed had no explicit inflation target and did not publish an economic forecast. Indeed, Woodford argued that virtually all central banks were falling short of the ideal in communicating about the likely future path of the policy interest rate.

That said, the general sense of the discussion at Jackson Hole seemed to be that from the practical standpoint—that is, based on macro outcomes alone, the Greenspan years had been outstanding. Nobody argued that better communication would have dramatically improved outcomes.

How could such good outcomes arise given the sub-par transparency practices? One part of the answer could be that the systematic behavior of the Fed in response to the modest fluctuations during the Great Moderation had meant that private sector decisionmakers could understand what the Fed was likely to do without much communication. Fixing the roof while the sun was shining became a popular metaphor used in prodding the Fed to adopt better practices.

To be sure, Greenspan did oversee a number of transparency advances. A principal innovation was the introduction of the post-meeting FOMC statement.<sup>5</sup> Originated in 1994, the nature of the statement evolved for the rest of the decade; practices settled into roughly their current form in 2000, with statements released after every FOMC meeting. Up until 2000, the main forward-looking information about policy provided by the FOMC had been something known as the bias in the directive.<sup>6</sup> In 2000, the bias statement was replaced with a balance of risk statement in the FOMC statement. The balance of risk statement was a sort of Goldilocks approach to forward guidance: is the main risk that the economy is too hot, too cold, or just right?

Of course, the FOMC statement is a highly flexible vehicle, and in August 2003 – perceiving deflationary pressures, the statement was first used to convey direct information about the future course of the policy interest rate:

The Committee judges that, on balance, the risk of inflation becoming undesirably low is likely to be the predominant concern for the foreseeable future. In these circumstances, the Committee believes that policy accommodation can be maintained for a considerable period. (FOMC, 2003)

<sup>4</sup> See, in particular, the contributions of Blinder, Maklem, Meltzer, Reis, Taylor, and Woodford, and the general discussion reported in Federal Reserve Bank of Kansas City, 2005.

<sup>5</sup> These advances are described at Federal Reserve Board, 2016b.

<sup>6</sup> That is, the FOMC's directive to the open market desk at the New York Fed.

This episode aside, however, I think it is a fair to say that under Greenspan, the FOMC statement generally provided very limited hints about the Fed's reaction function or about the future course of policy.

But this did not mean that there was no policy communication; and when a bare-bones FOMC statement was not sufficient, Greenspan found other ways to get the word out. For example, the FOMC held a conference call on January 3, 2001, resulting in a 50 basis point cut in the federal funds rate. This was the first cut following the popping of the share price bubble in tech. stocks and the ensuing recession.

A significant portion of the discussion during the conference call concerned how the Fed's press office should "spin" the policy action in off-the-record discussions with the press. FOMC members, in contrast, were reminded repeatedly that they should stick to the "mantra" in the FOMC statement. Greenspan further warned,

In the next several weeks, however, the issue with these reporters is ... going to be what the Committee is likely to do at its next meeting. There will be a competitive effort by those in the press to try to get a story out on that. There is no way that we can respond effectively to their questions other than to say "no comment" because any characterization whatever is quite capable of being read by these very experienced reporters to get a story on what is going on within the Committee. All they need is one or two straws. Well, one straw they usually will not take, but give them two straws and they will make a huge story. The most troublesome part of it is that they usually are correct. (FOMC, 2001)

One could fairly criticize these practices on democratic and accountability grounds, but from a policy effectiveness standpoint, the approach might have sufficed. The fact that Greenspan was troubled by the possibility that folks might be right about the future course of policy indicates less than complete commitment at that time to the Fed's more recent goal of explaining policy as clearly as possible.

Oversimplifying a bit, I think it fair to distill policy transparency in the later part of Greenspan's reign into two rules: i) Use very limited communication about the likely course of policy unless there is a dramatic need to do so, and ii) Attempt as chair to maintain autocratic control of communication about the likely future course of policy.<sup>7</sup> Of course, FOMC members could and did regularly discuss the macro outlook.

That said, none of the experts gathered at Jackson Hole argued that transparency deficiencies meaningfully degraded policy outcomes over this period.

# 2.2 The start of the Bernanke years: 2006-2010

Chair Bernanke came to the top job with the intention of implementing the sort of best practices for transparency that he had been instrumental in developing (e.g. Bernanke, et al. 2001), including those described at the 2005 Jackson Hole Symposium. In 2008, the FOMC adopted a version of one such practice by beginning to release a macroeconomic forecast (Federal Reserve Board 2016). Because the

<sup>7</sup> I thank David Wessel for pointing out to me that this characterization should not be extended to the earlier Greenspan years, before the period I'm discussing. The earlier period is harder to characterize and involved its own communications struggles (e.g., Murray, 1998).

FOMC did not, as a matter of course, formulate a group forecast, the Fed chose to publish a Survey of Economic Projections (SEP), in which 19 separate forecasts of the FOMC members were summarized. In principle, the SEP was a radical departure from Greenspan's principle of autocratic control of the policy message: after all, the SEP contained 19 messages. That said, as the Great Moderation (very briefly) rolled onward, the message in the initial SEPs seemed to be "We're all on pretty much the same page."

Late in 2008 the financial crisis flared. Regarding transparency, and all other issues, "fix the roof while the sun is shining" became "grab a bucket; water's pouring in." From late 2008 through much of 2009, the main focus of Fed actions and communication was crisis management, creating and explaining liquidity programs. While there are fascinating transparency issues raised by crisis management, my focus will be more narrowly on monetary policy as a tool in the recovery.

Once the economy was in freefall, the FOMC statement became the vehicle for laying out the Fed's exceptional measures to support the economy. At the October 2008 FOMC meeting, the policymakers added to the FOMC statement an open-ended clause expressing the intention to *do what it takes*: The Committee will monitor economic and financial developments carefully and will act as needed to promote sustainable economic growth and price stability. (FOMC, 2008a)

The first large-scale asset purchases, known popularly as QE1, were described in the FOMC statement; and in December 2008, the FOMC took the unusual step of explaining in the statement a variety of steps it was exploring:

The Committee is also evaluating the potential benefits of purchasing longer-term Treasury securities.... The Federal Reserve will continue to consider ways of using its balance sheet to further support credit markets and economic activity. (FOMC, 2008b)

Starting in March 2009 and continuing through June 2011, the FOMC statement included the forward guidance that "exceptionally low levels" of the federal funds rate would likely prevail for "an extended period." For those who followed these issues, it may be surprising in retrospect to remember that it was August 2011 before the forward guidance became more specific, with the Committee declaring that the exceptionally low federal funds rate would likely prevail "at least through mid-2013."

If we compare transparency in this period to the distilled Greenspan rules, it may not be obvious whether the first rule – use policy communication only when really needed – had been overturned. After all, it is difficult to imagine a more dramatic need for communication. The Fed was using new and complicated tools in ways never before tried in the U.S. or elsewhere, and there was great uncertainty about how the economy was functioning. In any case, it would soon be clear that the FOMC was no longer governed by an admonition to keep policy-oriented communication to the bare minimum.

The second rule, which specified the Chair's autocratic control of the policy message, was clearly gone. The 18 FOMC members other than the Chair had a newfound freedom to comment on the future of policy and began exploiting that freedom. Between the Greenspan and post-Greenspan eras, the average number of public speaking events by bank presidents rose from about 150 per year to about 200 per year.

FAUST

9

The number of speaking events for governors showed no similar change.8

In the deeply frightening period around the worst of the crisis, natural forces pushed toward a unified message, with speakers remained largely aligned in explaining the workings of the new policy tools and the rationale for using them.<sup>9</sup> But soon, relatively successful transparency reforms transmuted into a potentially ruinous dynamic that the FOMC has battled ever since.

# 2.3 Preview: The emergence of a deep conflict over policy and a troubling transparency dynamic

By the second half of 2010, the overwhelming need for unity of message was receding. By early fall, we now know that the FOMC was approaching the November decision to embark on the second round of asset purchases known as QE2. But deep divisions were emerging on the FOMC regarding the continued aggressive use of extraordinary measures, now that the economy no longer was teetering on the brink. Speeches of members through the fall revealed some of the disagreement, 10 and the December FOMC transcript makes clear that by year end, 5 FOMC members were of the opinion that policy accommodation was too accommodative.

The divisions on the Committee were also beginning to put stress on the FOMC's communications norms and transparency practices. Bernanke began the September FOMC meeting with a discussion of the fact that the FOMC's standard practices in creating the FOMC minutes had broken down after the previous meeting. The problem was that those practices simply did not allow for reporting the profound concerns of the nonvoting presidents regarding the dangers of further asset purchases, and those presidents wanted their views reflected. An ad hoc fix evolved shortly into standard practice.

In October 2010, the FOMC held a special conference call to discuss many issues of communication. The transcript of the conference call starts with Bernanke virtually paraphrasing James Madison, who had offered the following justification for the gag rule at the constitutional convention:

[M]uch was to be gained by a yielding and accommodating spirit. Had the members committed themselves publicly at first, they would have afterwards supposed consistency required them to maintain their ground... No Constitution would ever have been adopted by the convention if the debates had been public. (Quoted in Sunstein, 2016)

#### Bernanke put it this way:

I perceive an increasing tendency of FOMC participants to stake out strong policy positions in advance of our meetings. Now, it's perfectly fine for people to give their own views, and that has been a long-standing tradition; but I think that it has also been our tradition that when participants express their individual views, they do so in a way that emphasizes the collegiality of our process, the consensus

<sup>8</sup> This is based on the speaking engagements listed on the various Fed websites.

<sup>9</sup> For the period from 2010 to the present, public presentations by FOMC members are collected on the Federal Reserve Bank of St. Louis's "FOMC speaks" web page: https://www.stlouisfed.org/fomcspeak/viewbydate.

<sup>10</sup> E.g., Fisher, 2010, Plosser, 2010.

nature of our process, and the fact that our decisions are made collectively in the FOMC. If everybody has already made up their mind before the meeting, why don't we just phone in the votes and save ourselves the travel? (FOMC, 2010b)

At the December FOMC meeting, President Fisher expressed similar sentiments,

I hope that all of us, including myself, in terms of our future expression are able to convey the seriousness with which these decisions are made and support the Committee as a whole... I listened very carefully to the comments you all made recently, and there's a subtext there. I think we have to be very careful about what we say, and I think we need to unify as a team. (FOMC, 2010c)

Clearly, FOMC was beginning to register concern about the tensions between open public discussion of policy views by members and functioning of the policymaking body. The potentially damaging transparency dynamic was underway.

It is important to note that the 2010 transcripts are the most recent currently in the public domain, so we have very incomplete information about how the FOMC debated these issues that were bubbling up in late 2010. What we did observe was a rapid sequence of transparency reforms, with implications that are still evolving today.

For example, in 2011, the FOMC for the first time adopted an external communications policy for FOMC members and staff. Further, the Chair's press conference was initiated in June 2011, giving the Chair a bully pulpit to potentially rise above the cacophony that Fisher was concerned about. The FOMC minutes underwent a subtle change over this period, allowing the policy views of the full committee, as opposed to just the voting members, to be explicitly covered. In January 2012, the famous dot-plot, giving each member's assessment of the appropriate future path of policy, was debuted in the SEP. At that same meeting, the FOMC for the first time issued its statement of longer-run goals and strategy, which stated an explicit numerical goal for inflation as well as giving a subjective characterization of the FOMC's interpretation of the employment objective. As the FOMC minutes for these years report, other changes were explored, including an effort in 2012 to generate a consensus forecast.

To understand these changes, and why their net effect may have been confusion, it is useful to step back and re-examine the shaky foundation of the modern faith in maximal transparency.

# 3. RETHINKING TRANSPARENCY, INDEPENDENCE, AND ACCOUNTABILITY

There are not one but two pillars of thought in modern central banking. First, central banks should be independent. Second, they should be transparent and thereby accountable. As the Bank of England's strategy statement puts it, "the Bank needs to be transparent, independent and accountable...".

I suppose that the Bank of England's statement is meant to imply independence from bad forces and accountability to good ones. The Bank of England here is following a standard convention of ignoring the profound tension between the unquestioned support for independence and equally strong support

for accountability through maximal transparency. This convention is also common in academic work. For example, having summarize the Bank of England's transparency practices, Svensson (1999) asserts,

I believe it is fair to say that never before in monetary history has an incentive system been set up with such strong incentives for optimal monetary policy decisions.

But as Faust and Henderson (2004) argue, if transparency really brings powerful influences to bear, then we must explain why transparency does not also bring to bear the destructive forces that led society to adopt the extraordinary solution of independence in the first place.

Perhaps the reason that academic work ignores this tension is that academics tend to minimize the nature of the problem by giving a sugar-coated version of the democratic shortcoming. Political decisionmakers, the argument goes, are sometimes a bit short-sighted; granting independence will give the central bank the space to deliver the monetary policy that society really wants—or wants, at least, when it is thinking clearly. This argument still leaves a mystery about why transparency brings the scrutiny of more far-sighted than short-sighted folks to bear on the central bank; but at least in this account of the problem, we can imagine a possibly large, far-sighted group in the private sector that might push the central bank in a constructive direction.

But this sugar-coated version does not do justice to the corrosive political environment that can accompany highly stressed economic times. The FOMC was created and evolved into its current form in the mid-1930s, in the depths of the Great Depression. The framers of the FOMC foresaw highly stressful economic times in which the political environment would likely be corrosive and in which no party could realistically imagine that all far-sighted people would agree on optimal policy. The framers would have found preposterous the argument that maximal public scrutiny would be an unalloyed good at such times.

Not to put too fine a point on it, the framers of the FOMC were attempting to put in place a structure that would function well in times like those they were facing—and times like we face today. We have a corrosive political environment, in which policymakers, experts, and other commentators disagree strenuously about the most fundamental questions of appropriate monetary policy.

# 3.1 A ubiquitous problem and a peculiarly American solution

The framers of the Fed saw a long history of political systems adopting disastrous monetary policy in times of great economic stress.<sup>11</sup> Those policies often involved high inflation. As Senator Aldrich put it,

No government yet has been found strong enough to resist the urge for enlarged note issue in times of real or imagined stress. (in Kettl, 1986)

The framers also did not see the theorists' world, in which a neutral observer could pick what all sensible folks would agree was the right policy. The founders did *not*, thereby, seek independence from the divided interests in society. Rather, Congress opted to cede monetary policy control to a fairly large committee with membership that would tend to reflect the deep divisions in society.

<sup>11</sup> This episode is discussed more fully in Faust, 1996.

Specifically, by the early 1930, most everyone agreed that the Fed's original governance set up in the 1913 Federal Reserve Act was inadequate. The solution, however, was not so clear. Warburg (1930) put the institutional design problem this way:

A formula had to be found by which these two elements [pro-inflation and anti-inflation] would be called upon to balance one another.

The FOMC was created in the famous Glass-Steagall Act (Banking Act of 1933). In this act, the non-politically appointed Presidents of the Reserve Banks controlled the Committee—the politically appointed governors did have the option of attending meetings. The main governance issues were re-shuffled and settled in roughly their current form in the Banking Act of 1935. Glass and Steagall played a major role in the debates. In particular, Rep. Steagall sponsored a house bill in which only the politically appointed governors would have votes on FOMC decisions, and Senator Glass responded (ccc) that Steagall was "without peer in his advocacy of inflation" (Congressional Record, 1935, p.11825) In the end, the FOMC rules stipulated that 7 governors would vote, and 5 of 12 reserve bank presidents would vote on a rotating basis.

This would not be a Committee of experts charged with selecting optimal policy from a neutral perspective. Instead, Steagall summarized the solution this way:

[U]nder the bill embodied in the conference report the board will stand 5 to 7 giving the people of the country, as contradistinguished from private banking interest, control by a vote of 7 to 5 instead of by a vote of 3 to 2 [as proposed in the Senate]. (Congressional Record, 1935, p. 13706)

The choice of an even number (12) of votes reflected the hope that this group of representatives of the views in society would find a way to rule by consensus.

I will not attempt to argue that the framers chose the right solution; it is certainly the prerogative of society to re-consider that extraordinary solution. What is pretty clear, however, is that many of the features the framers had in mind are at work in the present.

The framers foresaw periodic stressful economic times when the proper course for monetary policy would not be obvious. They foresaw that in such stressful times, policy would likely be made in a toxic political environment. They designed an FOMC that they hoped would be deeply divided, if society itself was deeply divided. And, in particular, they designed the FOMC so that the 12 presidents (only 5 of whom vote) would tend be more hawkish regarding inflation than the 7 governors. Finally, if they had considered the question, the framers surely would have also predicted that in the stressful, certain populist politicians would propose shifting governance of the FOMC exclusively to political appointments.

Set aside whether the U.S. should consider a different approach to monetary policy independence, and focus instead on how the solution now in place functions in the transparency era. Of course, the framers

<sup>12</sup> E.g., Thornton and Wheelock, 2014.

<sup>13</sup> E.g., Sanders, 2016.

were living in a world in which silence was taken to be optimal transparency. They designed a system that presents transparency challenges. The full committee of 19 will be deeply divided, but the typical participant would tend to be more hawkish than the typical voter. Indeed, while the 7 governors are likely to

form a majority driving policy, from the standpoint of simply counting the talking heads out giving speeches, there will be as many nonvoting presidents as there are governors. With this backdrop, it is useful to start with the generic tensions between deliberation and transparency.

### 3.2 Transparency and deliberative processes: Generic issues

One doesn't need to do much searching to find generic reasons why deliberative transparency could degrade decisionmaking. Madison's reservations, and the appearance of similar issues in the FOMC in late 2010 provide examples, but there are many others.

For instance, in 2003, under pressure from Congress, the FOMC announced that it would henceforth release full transcripts of FOMC meetings 5 years after the fact. Up to that point, few people had been aware that transcripts were being created as an aid to producing the FOMC minutes. Meade and Stasavage (2008) studied the transcripts and concluded,

Analysis of FOMC transcripts before and after Committee members knew that they would be published shows how transparency deadened the debate and reduced the number of challenges to Greenspan's position.

It is an unavoidable fact that increasing the transparency of deliberative processes sets in motion a dynamic process that may fundamentally alter decisionmaking. As it turns out, however, monetary policy in contentious times presents particular problems in this regard. To understand them, it is best to start with a simpler policy choice.

Take a one-time decision over some highly controversial policy that is universally accepted to be of great importance to society. The decision is being made by a large group, say 20 people, who are deeply divided on the matter. What should the group communicate during the negotiation, and how should the private sector interpret that communication?

First, you might ask why there is communication at all. The negotiation might go better under a strict gag order or, say, under the venerable Chatham House rule, designed for contentious cases. Under this rule, participants are free to publicly discuss the ideas expressed in the negotiating room, but without attribution—that's a bit like how the forecasts are reported in the SEP.<sup>14</sup>

But let's suppose that there are no such rules in place in our hypothetical case. We are all familiar with one common outcome: during the negotiation, the speakers from both sides publicly profess intransigence in their support for positions that are far apart. Then (at least in those cases in which the system works) a compromise is reached just at the deadline. Both sides emerge to announce that they have compromised for the good of the country—and both sides claim to have gotten the better part of the deal. Congressional

<sup>14</sup> Chatham House, 2016.

negotiations over the debt ceiling tend to follow exactly this pattern, but many other negotiations – e.g., celebrity divorce negotiations – follow an analogous pattern.

From the standpoint of this paper, the key fact is that only the most naïve members in the public take the mid-negotiation posturing at face value. Savvy members of the public probably completely ignore the posturing.

I do not intend to present and defend a definitive theory of deliberative transparency, I simply want you to consider the inevitable fact that increased transparency regarding deliberative processes is likely to change those processes, and there is no presumption the changes will be beneficial. Further, mid-negotiation communication from parties to the negotiation should not be taken at face value. Thus, the contribution of such communication to effective transparency is at best ambiguous.

#### 3.3 Deliberative transparency regarding monetary policy raises special challenges

Several particularly vexing versions of these problems arise in the monetary policy context. The first problem arises because the policymakers meet every six weeks to re-consider the same question: How, if at all, has the appropriate stance of monetary policy over the medium term changed? In essence, the policymakers are in a perpetual state of deadline-driven re-negotiation. In this setting, the cathartic moment never comes when the parties emerge from the meeting room, throw off their intransigence, and rally around the chosen compromise.

Policymaker statements after an FOMC meeting are best thought of as the opening volleys in the next round of negotiation. In the wake of a decision, the policymakers must decide whether it is best to emphasize the positive merits of the compromise or to attack, or nitpick, or damn the decision with faint praise, hoping for a better outcome in six weeks. In this context, the policy adopted may appear to be an orphan at best and a whipping boy at worst.

Second, as emphasized above, the effects of monetary policy depend heavily on expectations. If the negotiation were, say, over banning a pesticide, the substantive environmental and economic merits of the policy would be largely unaltered by private sector anticipations of the outcome of the negotiation. In the monetary policy case, the communication during the negotiation can alter private sector expectations and, thereby, directly change the substantive merits regarding future policy. The most famous example of this is Draghi's (2012) famous statement, "Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough."

Once Draghi uttered these words, the spread on the yields of Italian and Spanish government debt versus German debt fell dramatically. <sup>15</sup> As outsiders, we cannot know whether Draghi had explicit support of the ECB's governing council before making this statement, but let's suppose just for the purposes of illustrating the point that he went beyond what had explicitly been agreed to. The change in expectations brought about by his *transparency* in this account, would have made it very difficult to turn back. I suspect that all the policymakers felt that a correction – "We may or may not do what it takes. We'll get back to you on that" – would not have been well received.

<sup>15</sup> Wessel, 2013 provides a good account of this episode.

While Draghi's gambit, if that's what it was, may go down among the most brilliant ever by a central banker, the mechanism we are talking about could get very messy in a situation with multiple stridently opposed policymakers out giving speeches—each one hoping for a mini-Draghi-style coup. One could easily imagine public communication by the policymakers devolving into an unseemly and counterproductive tug of war over private sector expectations.

Third, everyone agrees that, all else equal, it would be best if the private sector understood the reaction function arising through this negotiation.

Given the first two points alone, one might lean toward the constitutional convention solution of silence. But everyone agrees that policy is most effective if it is understood. That is, *conditional on a plan for policy being settled*, all the policymakers would be pleased if the public thoroughly understood that plan. Thus, the situation provides a deep tension.

I think only one thing is completely clear about this context: it is a game theorist's wonderland – and a wonderland not covered by the existing literature. The academic monetary policy literature in this area has endlessly elaborated a case where the problem is to keep a unitary policymaker from lying to the public. In my time as advisor at the Fed, I perceived almost the opposite: A deeply divided policymaking body struggling to find a way to *accurately* depict the likely course of policy (while maintaining a viable position in the future debate over policy).

### 4. THE FOMC TRANSPARENCY DYNAMIC, 2010 TO PRESENT

With this background, let's return to late 2010, when the FOMC began to grapple with the problem of deep divisions and the emergence of a potentially destructive transparency dynamic. FOMC members realized that FOMC policy might appear to be something of an orphan, with no one having an incentive to provide it a full-throated defense. To resolve this problem, in April 2011, the Committee ceded to the Chair the responsibility to speak for the consensus at a post-meeting press conference. As Bernanke explained at the first press conference (FOMC, 2011a),

Throughout today's briefing, my goal will be to reflect the consensus of the Committee, while taking note of the diversity of views as appropriate.

On its own, of course, this move would do nothing to prevent FOMC members' public statements from devolving into an unseemly tug-of-war waged through the media. To deal with this issue, in June 2011, the FOMC adopted an external communications policy. The policy, which covers many areas (information security, etc.), sets the ground rules for public disagreement on policy:

Committee participants will endeavor to enhance the public's understanding of monetary policy. They are free to explain their individual views but are expected to do so in a spirit of collegiality and to refrain from characterizing the views of other individuals on the Committee. In explaining the rationale for announced Committee decisions, participants will draw on Committee communications and the Chairman's press conference remarks as appropriate. (FOMC, 2011b)

In short, FOMC members can state their own positions, but to the extent they characterize the likely path of the consensus, they are to stick to the mantra articulated in the FOMC statement and press conference. These reforms typify the FOMCs response to the twin goals of opening up policy discussions while preserving the deliberative climate. These reforms have had the effect of driving most policy communication into one of two categories:

- Communication that clarifies how the consensus of the FOMC is likely to adjust policy in response
  to economic information.
- 2. Communication that elaborates the diverse views of the policymakers, but is largely devoid of information about how the diverse views will blend in the consensus policy choice.

The Committee's (arguably appropriate) response to the predictable dynamics, in essence, bifurcated communication along these lines. The Chair was given the primary responsibility for the first type of content, which is the most important content from a policy effectiveness standpoint. Communication policy mandated that other members' public statements fall into the second category: members would explain their view in isolation, leaving it to the Chair to explain how the isolated views come together in a consensus policy. Communication of the second type, I'll argue, has almost no ability to raise understanding of consensus policy in the current policy environment.

In this section, I discuss more fully how these issues affect the four main categories of FOMC communication about monetary policy: i) the FOMC statement, press conference, and other related policy pronouncements of the Chair, ii) speeches, interviews, and other communications by other FOMC members, iii) The FOMC minutes, and iv) the Survey of Economic Projections (SEP).

# 4.1 The Survey of Economic Projections

The SEP, in my view, deserves a special place in the annals of obfuscation in service of transparency. The SEP is the paradigm case of the second type of communication: it is purely a depiction of the policymakers' different views on the outlook and appropriate policy, with no hints about how any differences may be resolved. While the FOMC's policy strategy statement proclaims the aspiration to have communication that is as clear as possible, here we have an arrangement that unambiguously stands in the way of clarity.

Consider the following. The forecasts are pooled across all members. Currently, with 5 sitting governors, the forecasts of 7 nonvoting presidents outnumber the forecasts of the 5 always-voting governors, who are almost inevitably in the majority. The carefully constructed balance conceived by the FOMC's framers is at best obscured. Why not identify the voting members' forecasts? Or each of the forecasters? Or at least highlight the forecast of the Chair? Any of these changes would make the SEP more informative.

That said, these changes might also lead to dramatic changes in the internal dynamics of decisionmaking.<sup>16</sup> Bernanke expressed the view that if the forecasts were separately identified, he might be forced to cease submitting a forecast—the outside attention his forecast would garner could severely compromise his role in consensus building.<sup>17</sup>

<sup>16</sup> Might better forecasters gain undue influence? Might the forecasts become signaling elements in the public tug-of-war?

<sup>17</sup> This my recollection of a conversation at the Fed in 2012.

As noted above, the most important information to convey regards the reaction function of the policymakers. But the SEP approach of providing separate variable-by-variable summaries of the 19 forecasts obscures any link between the paths of the federal funds rate as depicted in the dot-plot and the forecasts of other variables.

For example, suppose that one submitter has inflation rising well above 2 percent. It would be important to know whether that forecast was associated with a very low path for the policy interest rate, which would suggest the submitter believes that a balanced approach to the dual mandate involves inflation overshooting the longer-run goal for a time. If instead the associated policy path for the federal funds rate were rising rapidly, the forecast would suggest that the FOMC is already behind the curve. One dovish FOMC member has expressed to me a reticence to show inflation rising above 2 precisely because the SEP could create this confusion. By showing the policy paths divorced from the economic determinants that drive them, the dot-plot seems more likely to obscure than to clarify the reaction function.

There is also a much subtler problem that has arguably been important almost since the inception of the dot-plot. The way the evidence is presented in the SEP may direct attention to the central tendency as a guide to where the consensus will likely take policy. The recent addition of the median interest rate path furthers this impression. Unfortunately, when the main sources of disagreements among policymakers are persistent differences about how the economy is working, it is perfectly understandable that a unanimously supported policy might be very far from the central tendency.

A familiar example from the Greenspan era illustrates this point.<sup>18</sup> Toward the second half of the 1990s, the economy was booming, and virtually the entire FOMC—hawks and doves alike—saw a need to raise the policy interest rate to stem incipient overheating. Greenspan, however, perceived an unprecedented productivity surge that would defuse any inflation pressures. Accordingly, at successive FOMC meetings, he said something like, "Let's put off tightening for one more meeting; then if that inflation materializes we'll tighten." This went on for many FOMC meetings as the inflation failed to appear.

If the FOMC had been publishing its Survey of Economic Projections at that time, Greenspan's dots, which reflected actual policy, might well have been the lowest on the FOMC over the entire period. And yet this need not be seen as an example of the Chair running roughshod over the Committee. The Committee preferences are fully and accurately reflected in the credible promise that the moment inflation appeared, the FOMC would tighten. When disagreements about the workings of the economy last multiple years, the Chair's consensus can for a very long time look quite different from the typical view of the 19.

Of course, we are once again in a period of persistent difference of opinion over how the economy is functioning. Almost since the beginning of the recovery, a hawkish contingent on the FOMC has been concerned that excessive inflation and/or other excesses are just around the corner. Hilsenrath and Peterson (2013a) beautifully document this in the Wall Street Journal article "'Doves' Beat 'Hawks' in Economic Prognosticating." Since 2012 when the dot-plot first appeared, the hawkish perspective on inflation dynamics has been observable in hawkish dots, and the typical dot has been much more hawkish than subsequent policy.

<sup>18</sup> Larry Myer (2006) gives a good account of this period. Another discussion is provided in Faust and Leeper, 2015.

The policy views underlying those hawkish dots *are* fully reflected in policy, but only in commitment to a conditional: if the inflation appears, the group would tighten. For seven years or so, those clear signs of overheating that concern the hawks have remained just around the corner, and the hawkish dots have remained in the realm of contingency plans as opposed to being reflected in actual policy.

This problem was clear from the first several editions of the dot-plot in 2012. At this time, the plot seemed to convey very limited support for the Fed's own forward guidance, leading to regular questions at the press conference. In April, Steve Liesman (FOMC, 2012) asked,

Mr. Chairman, according to the latest forecast, 10 members of the FOMC see a 1 percent or higher fed funds rate in 2014; 7 of them see a 2 percent or higher fed funds rate. Under that-those conditions, how can the guidance in the statement, that you remain exceptionally low through late 2014, be justified? And is there a point at which the dissonance between the individual forecasts and the guidance get to a point where one or the other is no longer tenable?

This remained a recurring theme at the press conference, and faced with a similar question two years later, Chair Yellen (FOMC, 2014) replied,

I can't speak for why people write down what they do... I think that one should not look to the dot plot, so to speak, as the primary way in which the Committee wants to or is speaking about policy.

Ignore the dots, which mainly have the capacity to confuse. Conveying a sense of the way diverse views are accounted for in conditional aspects of consensus policy is quite subtle. The FOMC statement has essentially always said that that if inflation picks up, the FOMC will react. Up until very recently at least, that was boilerplate from the standpoint of the typical dove. For the hawks, it was a vital part of sound policy, and likely to be triggered. What one sees in the SEP, however, are several puzzling years of the Fed signaling much higher rates than it subsequently delivers.

Let me be clear that the tendency of the SEP to report more rapid federal funds rate increases than actually ensue is only partly due to the issue I'm discussing. Hilsenrath and Peterson are right that the doves made better predictions than the hawks, but both sides persistently overestimated the strength of the recovery; thus, all tended to have policy rate projections above what was subsequently realized. This is no secret; for example, Yellen (2014) made this a main point of a speech about the conditional nature of policy. But the fact that this was a confusing period involving substantial learning only increases need for clear communication.

The Fed could, of course, stop producing the dot-plot. But short of that, people could stop looking at it. Those who defend the view that every release of information is good tend to lean heavily on this latter solution: the public will simply discard information that is not of value. In my view, it may well be that in the long run, the truth about the value of the dots will out, but I am partial to Keynes's insight about the long run. Again this March, as the surprisingly hawkish dots from earlier in the year began their fifth annual migration downward toward continued low interest rates, the SEP seemed to generate market-moving confusion (e.g., Stanley, 2016).

#### 4.2 Speeches by members other than the Chair

As already discussed, speeches, interviews and other public presentations by FOMC members other than the Chair are guided by a formal communication policy instructing speakers to stick either to their own views or repeat the mantra in the statement and press conference. The basic upshot of that policy is that If you think you learned something new in these speeches about how the consensus is likely to evolve, either you are wrong or the speaker violated policy. Statements of the speakers' personal views on policy, moreover, should probably be viewed as what they are—mid-negotiation posturing. The simplest rule of thumb would be to ignore them.

Let me cite an example of the wisdom of this advice from the taper tantrum period in 2013. At the June Press Conference, Bernanke reported that the FOMC had deputized him to lay out the following plan:

Going forward, the economic outcomes that the Committee sees as most likely involve continuing gains in labor markets, supported by moderate growth that picks up over the next several quarters as the near-term restraint from fiscal policy and other headwinds diminishes. We also see inflation moving back toward our 2 percent objective over time. If the incoming data are broadly consistent with this forecast, the Committee currently anticipates that it would be appropriate to moderate the monthly pace of purchases later this year. And if the subsequent data remain broadly aligned with our current expectations for the economy, we would continue to reduce the pace of purchases in measured steps through the first half of next year, ending purchases around midyear. (FOMC, 2013c)

#### Bernanke continued,

In this scenario, when asset purchases ultimately come to an end, the unemployment rate would likely be in the vicinity of 7 percent, with solid economic growth supporting further job gains...

Bernanke repeatedly stressed several criteria that would determine when the taper would begin, but the many financial market participants came to believe that the 7 percent unemployment criterion carried substantial weight. By September, with the unemployment rate already at 7.3 percent, financial market participants were very confident that the taper would begin. This view was held in spite of the fact that, on any reasonable reading, the more general criteria laid out by Bernanke had not been met. Torres and Kolet (2013) pre-chastized the FOMC, assuming that it would start the taper with its criteria unmet:

Federal Reserve Chairman Ben S. Bernanke and his colleagues meeting next week are poised to take two steps that appear inconsistent.... They will probably lower their estimates for growth for this year and next for the third consecutive time. Simultaneously, they are forecast to start scaling back the \$85 billion in monthly bond purchases they have been relying on to stoke the recovery.... And while the unemployment rate, at 7.3 percent in August, is falling, that's mainly because some Americans are leaving the labor force.

In the event, the Fed did not start the taper in September; and this event is often held up as the most potent example of a Fed flip-flop.

As a participant in this unfortunate episode, let me agree that Fed transparency efforts failed. But it is useful to investigate why. One contributing factor may be that some FOMC members had been out talking up the importance of the 7 percent criterion. Governor Stein (2013), for example, explained,

I view Chairman Bernanke's remarks at his press conference – in which he suggested that if the economy progresses generally as we anticipate then the asset purchase program might be expected to wrap up when unemployment falls to the 7 percent range – as an effort to put more specificity around the heretofore less well-defined notion of "substantial progress"... [This reflects] a greater willingness to spell out what the Committee is looking for, as opposed to a "we'll know it when we see it" approach.

Of course, Stein emphasized that these were his views alone. Thus, the audience was supposed to realize that the greater willingness he spoke of was a greater willingness on his part alone. In my impression (supported in the minutes and by regular pronouncements on behalf of the consensus), there was never any willingness on the part of the consensus to view an unemployment rate falling due to decreased labor force participation and accompanied by falling nonfarm payroll gains as the sort of progress that would warrant starting the taper.

After the decision surprised the market, FOMC members could have followed President Fisher's earlier advice to support the committee. In this case the message was pretty simple: in any natural interpretation of Bernanke's words, the criteria to start tapering had not been met. Instead, Fisher (2013) gave a speech asserting that the action by the consensus called into question the credibility of Fed communications. What gain could Fisher possibly have seen in assaulting the committee's credibility, unless this was an attempt to lobby future policy in his direction?

Once again, none of this would cause confusion if the audience fully understood the need to heavily discount any implications that individual members' speeches might seem to have for the likely course of consensus policy. For some reason, however, the market reaction to some speeches suggests a belief that the speakers are speaking for more than themselves, and, in fact, may be guided by some master plan to provide hints about the true direction of policy. Around the time of the Jackson Hole Symposium in 2015, the two Vice Chairs (Bill Dudley, Vice Chair of the FOMC and Stan Fischer, Vice Chair of the Federal Reserve Board) stated almost directly contradictory views about the future of policy (Condon and McKee, 2015; Spicer 2015). This should have helped underscore the fact that the speakers are, as they claim, speaking for themselves.

#### 4.3 The FOMC minutes

The minutes are a particularly perplexing case. It might seem that the minutes would be a natural place to look for explanations of how the consensus will evolve. But the minutes, too, are guided by a formal policy that, in practice, leaves them almost entirely devoid of content explaining how the diverse views reported translate into consensus policy. As is documented in Danker and Luecke's (2005) excellent explanation of the minutes, the minutes are a quite literal account of things said at the meeting, and only things said at the meeting. In particular, there is a strict prohibition on adding content that might be needed to convey the sense of the meeting.

One might wonder about the source of this restriction, but once again it is a natural response to the potential for contentious discussion. All of the members must approve the minutes, and attempting to get agreement on anyone's version of *the sense of the meeting* would likely involve re-litigating the entire meeting in editing sessions.

Nonetheless, as explained by Danker and Luecke, this restriction can make the minutes quite misleading:

[O]nly opinions that were expressed at the meeting are included... Moreover, tracking expressions of support for particular viewpoints in the give-and-take of a meeting tends to be an imprecise science. For example, a meeting participant speaking relatively late in a meeting may choose not to repeat views expressed earlier by others, or speakers may alter or amend their views in the course of the meeting. Therefore, these quantitative words [as in 'a few said' this or 'several said' that] should be read as indicative rather than definitive. (2005)

Once again, a reasonable constraint renders the communication at least somewhat opaque.

In my experience, this is no minor issue. To give one example, the policy discussion at each FOMC meeting is centered on three alternative proposed FOMC statements—the A, B, and C alternatives. These are formulated in advance of the meeting, after canvassing the members so that the alternatives span a good range of the opinions on the committee. Alternative B is the likely position of the consensus. <sup>19</sup> This prior canvassing, and the alternatives that result, set the context for deliberation. More specifically, they very much determine what remains to be said at the meeting. But the minutes report a summary of what was said, without sharing the document that determines what gets said.

In attempting to understand the FOMC's decision, if I could choose between reading the policy discussion portions of the minutes or the three alternatives, I would much rather see the alternatives. The alternatives often have bracketed choices of language at various places, and seeing these along with the ultimate decision conveys a good deal of texture about what issues were least settled going into the meeting and how they were resolved. The minutes, in contrast, reveal none of this information.

Just as with the communications policy and the way the SEP is reported, the rules governing content in the minutes very stand in the way of the FOMCs stated goal of explaining policy as clearly as possible. So why not release the alternatives with the minutes? Once again we are back to Madison: the alternatives are a place where new suggestions for potential policy may be floated and, thereby, discussed. The public could not know what was being floated as a possibly offbeat idea in the spirit of innovation and what was highly likely to appear in the official statement at subsequent meetings. My own opinion is that sharing the alternatives would have an effect akin to the effect publishing the transcripts had: it would deaden the range of alternatives proposed for discussion.

There is a subtler problem in times of deep division. The minutes are a summary of what is said in a negotiation. And one iron-clad rule of negotiation is "when you've won, shut up." At the typical meeting,

<sup>19</sup> The meeting often sees some cutting and pasting from among the alternatives, or fresh language crafted, but something close to the B alternative is generally chosen.

everyone enters broadly knowing the likely outcome: some version of the B alternative. And a very important purpose of the meeting is to facilitate a full airing of concerns. At the most contentious of times – when clear communication about policy may be most needed – the minutes may tend to read as a detailed explanation of the reasons *not* to accept the chosen policy, with the victorious side having chosen to shut up, or at least be brief and modest in their claims. At such times, the minutes tend to systematically understate support for the chosen policy.

Let me provide a hypothetical example. Imagine that the members entering an FOMC meeting are pretty sure that dovishness will win the day. A couple of hawks sincerely express deep concern that policy is behind the curve and that accelerating inflation is major risk. The doves could pick one of two responses: "That's nuts. You've been saying that since 2010." Or "I agree, we must watch carefully." You don't have to be the world's greatest negotiator to choose the latter, and if this happens, the minutes will accurately read, "Most FOMC members expressed serious concern about accelerating inflation."

This example is intentionally fanciful, but from my experience of watching FOMC meetings and reading the subsequent minutes, I believe that this effect is often present to at least some degree.

Once again the taper tantrum period provides a vivid example. The March 2013 FOMC meeting came months before the Chair would dangle the taper of purchases in his May testimony. The minutes from March contained the following characterization of tepid support of the voting members for continued purchases:

In light of the current review of benefits and costs, one member judged that the pace of purchases should ideally be slowed immediately. A few members felt that the risks and costs of purchases, along with the improved outlook since last fall, would likely make a reduction in the pace of purchases appropriate around midyear, with purchases ending later this year. Several others thought that if the outlook for labor market conditions improved as anticipated, it would probably be appropriate to slow purchases later in the year and to stop them by year-end. (FOMC, 2013a)

Taken seriously, this says that at least 8 of the 12 voting members wanted the program over by year end. It was June before Bernanke suggested that the taper would likely *begin* by then. In my subjective understanding of the views of FOMC members at the time, the views summarized in the minutes were a clear case of those supporting continued purchases *making nice*—finding a basis to sound sympathetic to those desiring an early end.<sup>20</sup>

So what effect did this hawkish passage in the minutes have? In the survey of securities dealers conducted by the New York Fed a few weeks after the release of the minutes, the median dealer did not foresee even a start to the taper by year end. Perhaps the portion of the audience represented by dealers, at least, had it right: ignore mid-negotiation posturing and diplomacy that is summarized in the minutes.

The minutes summarize what was said at the meeting. But generally, nobody at the meeting explains how the diverse views map into the near unanimous support for the B alternative. In fact, most aspects of that issue are settled in the process of crafting the B alternative in advance of the meeting. Instead, discussion may be tilted toward problems with the chosen policy.

<sup>20</sup> Bernanke (2015) shares a good deal of detail about his perspective on internal decisionmaking in this period.

#### 4.4 Communication on behalf of the consensus

The communication on behalf of the consensus is not plagued by the sorts of incentives and constraints that make the preponderance of FOMC policy communication so difficult to properly interpret. One could make an argument that the Chair too has an incentive to spin things in her direction, but a powerful factor militates against this possibility. The Chair, and all the members, have an incentive to make this system work. Further, due to the ongoing nature of policymaking, the parties to the negotiation have ample opportunity to hold the chair accountable for wandering from an acceptable characterization of the consensus.

Of course, even if we set aside nefarious intentions on the part of the Chair, there are still great challenges conveying the likely course of consensus policy. One aspect of this challenge is that the FOMC statement and press conference play a dual role. As Bernanke explained at the first press conference, these vehicles explain the consensus and also convey some sense of the range of opinions on the committee.

With some regularity, the private sector seems to take statements that mainly just express a diversity of views as veiled attempts to signal something more specific. For example, in April 2013, as the committee was gearing up to begin the taper, the following sentence was added to the FOMC statement:

The Committee is prepared to increase or reduce the pace of its purchases to maintain appropriate policy accommodation as the outlook for the labor market or inflation changes. (FOMC, 2013a)

My sense is that this meant nothing more than it said: the FOMC will respond as appropriate to changing conditions. The statement was, however, met with a jump in equity prices, and commentators attributed this jump to the fact that the Fed had signaled that it was considering increasing the pace of purchases. In reality, the taper was soon to be announced (Hilsenrath, et al., 2013b).

I'll offer one bit of speculation about a possible explanation for why this sort of two-handed statement might be taken this way. The FOMC statement is too often interpreted as if it were the preferred policy of some unitary policymaker named consensus. If there were a unitary policymaker, however, the new sentence presumably would not have been added at all: the statement already had language talking about adjusting as necessary.<sup>21</sup> Correctly reasoning that nothing in the statement changes without reason, the listeners were left to infer what a unitary policymaker might have been trying to hint by bothering to include this passage. With no guidance provided, I suspect that the reaction was roughly a toss-up.

But the statement is easier to rationalize as a compromise between deeply divided contingents on the FOMC. For example, as the minutes (FOMC 2013b) indicate, hawks wanted the statement to explicitly posit the possibility of a taper. Doves wanted a reminder that any winding down of the policy would not mean that the LSAP ammunition was used up, and that purchases could also be ratcheted up if needed. So both statements were added, and anyone inferring a hint from a unitary policymaker was off base.

<sup>21</sup> Specifically, "In determining the size, pace, and composition of its asset purchases, the Committee will continue to take appropriate account of the likely efficacy and costs of such purchases as well as the extent of progress toward its economic objectives." FOMC, 2013b.

I believe that the FOMC statement and other communication on behalf of the consensus could often appear more comprehensible if everyone abandoned the fiction of a reasonable, unitary decisionmaker in favor of the reality of a reasonable compromise among deeply divided policymakers.

For example, my personal belief is that the FOMC's approach has involved some elements of the following compromise. The hawks wanted to get the process of rate normalization started sooner rather than later. The doves wanted as much accommodation as possible. Thus, the doves agreed to start earlier than their preferred timing, so long as the hawks agreed to more gradual path of increase that they would otherwise prefer.<sup>22</sup> Interpreting the policy adopted by the FOMC as the preferred policy of a unitary policymaker may confuse both doves and hawks on the outside. Why is the FOMC starting so early? Why is the FOMC planning to go so slow? The answer to those questions is somewhat clearer if the compromise nature is an integral part of the explanation.

#### 5. SUMMARY AND SUGGESTIONS

Monetary policy, for the foreseeable future, will most likely emerge from ongoing negotiations among members of a deeply divided FOMC. That is exactly how Congress intended policy to work in difficult times. Overlaying this policymaking process with an uncritical pursuit of transparency has given rise to a tangled web indeed.

The fundamental considerations that drive policy negotiations are rich, varied, and filled with unknowns. Policy deliberations can involve a subtle mix of timing issues—normalization earlier and slower, or later and faster? Strongly held policy views may for a very long time be reflected only in contingency plans—if and only if inflation appears will we see the policy reflected in those perpetually hawkish dots. The compromise policy may also importantly depend on different views about tail risks—is the risk of falling into a pernicious deflation or the risk of falling behind the rising inflation curve most salient?

Additionally, in any negotiation, mid-negotiation statements from the parties must be taken with at least a grain of salt, and perhaps one should pile on enough salt to entirely blot out the message. That is, it is reasonable to ask whether mid-negotiation communication by parties to the negotiation makes any contribution to *effective* transparency.

In the current situation, even setting aside any spin the negotiators may apply, the observable path of a unanimously supported policy may bear little or no resemblance to the typical path of policy projected by the policymakers. Add the possibility of spin, and scattered individual views about policy will have no clear relevance to understanding the likely path of policy.

From my time involved in the policy process, I know that the FOMC perceives these problems and has been working constantly to overcome them. I think that those efforts would be more effective if the FOMC abandoned the general presumption that any release of information is good, and instead considered how most effectively to convey the likely course of *consensus policy* in light of the constraints posed by

<sup>22</sup> In standard thinking there is even a rough equivalence in macro stimulus terms between a lower-slower and later-faster approach to the start of rate increases and the pace of subsequent increases.

preserving the FOMC's function as a constructive deliberative body. I have three concrete suggestions that may illustrate this approach.

First, communication on behalf of the consensus might more explicitly discuss the fact that those subscribing to the policy disagree on its merits. Depicting the policy as a reasonable and constructive compromise, rather than treating it as the preferred choice of a unitary policymaker, might raise trust and understanding. In the presence of so much transparency about the deep divisions, the artifice of a unified policymaker's rationale for the chosen policy may mainly cause confusion and leave the public legitimately suspecting that the *real rationale* remains hidden.

Second, transparency reforms should probably take as given that unless the communication is explicitly on behalf of the consensus, it is likely to be driven—in service of deliberative integrity—into a form that nullifies much of its value to explaining likely policy. I think this fact lies behind the Olsen and Wessel's survey result that folks would like the Chair to talk more and everyone else to talk much less. This maps directly onto the fact that only the Chair speaks for the consensus and that others, as a matter of policy, are forbidden from doing so.

One response to this problem would be to stop sharing so much information about the diverse views of FOMC members. The strong tendency to view every increase of information conveyed as an *a priori* good may make reducing the flow of information infeasible. Thus, it would also help if the audience wised up a bit and heavily discounted the import of this mid-negotiation posturing.

Third, communication on behalf of the consensus might more clearly indicate the role of past errors. In the recent experience, the FOMC, like most forecasters, persistently overestimated the strength of the recovery. Thus, one communications challenge has been the fact that even many doves have consistently anticipated raising interest rates faster than what subsequently occurred. This is no secret (e.g., Yellen, 2014), but given the prominence and persistence of the errors, this topic could play a more central role in explaining policy. Without this explanation, what has actually been a period of learning about the economy by those inside (and outside) the Fed may be mistaken for moving goal posts or bait-and-switch. Of course, errors by the powers that be have been a common theme in the ongoing anger and frustration on the part of the public. The general trend toward transparency in government seems to have come least far when it comes to transparently taking responsibility for past errors and, perhaps, even transparently expressing contrition. This may well have contributed to the corrosive political environment that provides a painful backdrop for the recent period.

On that note, I apologize for my role in creating confusion about monetary policy while I was at the Fed. This paper is part of my effort to make amends.

# REFERENCES

Bank of England, 2016. Strategic Plan.

http://www.bankofengland.co.uk/about/Pages/strategicplan/default.aspx

Bernanke, Ben, 2004. Remarks by Governor Ben S. Bernanke at the Meetings of the American Economic Association, San Diego, California, Federal Reserve Board, January 3.

Bernanke, Ben, 2015. Fed Communication. November 6.

https://www.brookings.edu/blog/ben-bernanke/2015/11/06/fed-communication/

Bernanke, Ben S., Thomas Laubach, Frederic S. Mishkin, and Adam S. Posen, 2001. *Inflation Targeting:*Lessons from the International Experience, Princeton University Press.

Chatham House, 2016. Webpage: Chatham House Rule.

https://www.chathamhouse.org/about/chatham-house-rule

Condon, Christopher and Michael McKee, 2015. Fischer Sees Good Reason to Believe U.S. Inflation Will Rise, Bloomberg News, August 29. <a href="http://www.bloomberg.com/news/articles/2015-08-29/fischer-sees-good-reason-to-believe-inflation-will-move-higher">http://www.bloomberg.com/news/articles/2015-08-29/fischer-sees-good-reason-to-believe-inflation-will-move-higher</a>

Danker, Deborah and Matthew Luecke, 2005. Background on FOMC Meeting Minutes, Federal Reserve Bulletin, Spring, 175-179. <a href="https://www.federalreserve.gov/pubs/bulletin/2005/spring05">https://www.federalreserve.gov/pubs/bulletin/2005/spring05</a> fomc.pdf

Draghi, Mario, 2012. Speech by Mario Draghi, President of the European Central Bank at the Global Investment Conference in London, July 26.

https://www.ecb.europa.eu/press/key/date/2012/html/sp120726.en.html

Faust, Jon, 1996. Whom can we trust to run the Fed? Theoretical support for the founders' views, *Journal of Monetary Economics*, 1996, v.37, n. 2-3, 267-283.

Faust, Jon and Dale Henderson, 2004. Is Inflation Targeting Best Practice Monetary Policy? Federal Reserve Bank of St. Louis Review, July/August, v.86 n.4, 117-43.

Faust, Jon and Eric Leeper, 2015. The Myth of Normal: The Bumpy Story of Inflation and Monetary Policy, in Inflation Dynamics and Monetary Policy, Federal Reserve Bank of Kansas City.

https://www.kansascityfed.org/~/media/files/publicat/sympos/2015/2015faust\_leeper.pdf

Federal Reserve Bank of Kansas City, 2005. The Greenspan Era: Lessons for the Future, Federal Reserve Bank of Kansas City.

Federal Reserve Board, 2016, Web page: Detailed Description of Documents Available, <a href="https://www.federalreserve.gov/monetarypolicy/fomc\_historical.htm">https://www.federalreserve.gov/monetarypolicy/fomc\_historical.htm</a>

Fisher, Richard, 2010. Speeches by Richard W. Fisher, Vancouver, British Columbia. October 1.

http://www.dallasfed.org/news/speeches/fisher/2010/fs101001.cfm

Fisher, Richard, 2013. Review, Reflect and Deflect, Remarks before the Independent Bankers Association of Texas Annual Convention, San Antonio, September 23, 2013.

http://www.dallasfed.org/news/speeches/fisher/2013/fs130923.cfm

FOMC, 2003. FOMC Statement, August.

https://www.federalreserve.gov/boarddocs/press/monetary/2003/20030812/default.htm

FOMC, 2008a. FOMC Statement, October.

https://www.federalreserve.gov/newsevents/press/monetary/20081029a.htm

FOMC, 2008b. FOMC Statement, December.

https://www.federalreserve.gov/newsevents/press/monetary/20081216b.htm

FOMC, 2010a. FOMC Transcript, September.

https://www.federalreserve.gov/monetarypolicy/files/FOMC20100921meeting.pdf

FOMC, 2010b. FOMC Conference Call Transcript, October.

https://www.federalreserve.gov/monetarypolicy/files/FOMC20101015confcall.pdf

FOMC, 2010c. FOMC Transcript, December.

https://www.federalreserve.gov/monetarypolicy/files/FOMC20101214meeting.pdf

FOMC, 2011a. FOMC Press Conference Transcript, April.

https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20110427.pdf

FOMC, 2011b. FOMC Policy on External Communications of Committee Participants,

https://www.federalreserve.gov/monetarypolicy/files/FOMC ExtCommunicationParticipants.pdf

FOMC, 2011c. FOMC Statement, August.

https://www.federalreserve.gov/newsevents/press/monetary/20110809a.htm

FOMC, 2012. FOMC Press Conference Transcript. April.

https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20120425.pdf

FOMC, 2013a. FOMC Statement, April.

https://www.federalreserve.gov/newsevents/press/monetary/20130501a.htm

FOMC, 2013b. FOMC Minutes, April.

https://www.federalreserve.gov/monetarypolicy/files/fomcminutes20130501.pdf

FOMC, 2013c. FOMC Press Conference Transcript, June.

https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20130619.pdf

FOMC, 2014. FOMC Press Conference Transcript. March.

https://www.federalreserve.gov/mediacenter/files/FOMCpresconf20140319.pdf

FOMC, 2016. Statement on Longer-run Goals and Monetary Policy Strategy. Federal Reserve Board.

https://www.federalreserve.gov/monetarypolicy/files/FOMC\_LongerRunGoals\_20160126.pdf

Hilsenrath, Jon, Victoria McGrane, and Brian Blackstone, 2013a. Fed Presses Ahead With Bond Buys as Inflation Slows, *Wall Street Journal*, May 1.

http://www.wsj.com/articles/SB10001424127887324582004578457164283144142

Hilsenrath, Jon and Kristina Peterson, 2013b. Federal Reserve 'Doves' Beat 'Hawks' in Economic Prognosticating, Wall Street Journal, July 28.

http://www.wsj.com/articles/SB10001424127887324144304578624033540135700

Kettl, D.F., 1986. *Leadership at the Fed*, University Press, London.

Meade, Ellen and David Stasavage, 2008. The dangers of increased transparency in monetary policy-making, VOX, June. <a href="http://voxeu.org/article/cost-central-bank-transparency-closed-doors-open-minds">http://voxeu.org/article/cost-central-bank-transparency-closed-doors-open-minds</a>

Meyer, Laurence H. 2006. A Term at the Fed: An Insider's View, Harper Collins.

Murray, Alan, 1998. The Open Mouth Committee, Wall Street Journal, April 22.

Olson, Peter and David Wessel, 2016. Federal Reserve Communications: Survey Results, manuscript, Brookings Institution.

https://www.brookings.edu/research/we-asked-fed-watchers-to-rate-the-feds-communications/

Plosser, Charles, 2010. Economic Outlook, September 29. <a href="https://www.philadelphiafed.org/publications/">https://www.philadelphiafed.org/publications/</a> <a href="mailto:speeches/plosser/2010/09-29-10">speeches/plosser/2010/09-29-10</a> vineland-chamber-of-commerce

Sanders, Bernie, 2015. To Rein in Wall Street, Fix the Fed. New York Times, Dec. 23.

http://www.nytimes.com/2015/12/23/opinion/bernie-sanders-to-rein-in-wall-street-fix-the-fed.html

Spicer, Jonathan, 2015. Market turmoil makes September rate hike 'less compelling', *Reuters*, August 26. http://voxeu.org/article/cost-central-bank-transparency-closed-doors-open-minds

Stanley, James, 2016. USD Down the Drain after Dovish Fed, DailyFX, March 17.

https://www.dailyfx.com/forex/fundamental/daily\_briefing/session\_briefing/daily\_fundamentals/ 2016/03/17/usd-drops-gold-yen-catch-bids-after-fomc-srepstans.html

Stasavage, David, 2007. Polarization and Publicity: Rethinking the Benefits of Deliberative Democracy, *Journal of Politics*, v. 69, n. 1, February, pp. 59–72

Stein, Jeremy, 2013. Comments on Monetary Policy, June 28.

https://www.federalreserve.gov/newsevents/speech/stein20130628a.htm

- Sunstein, Cass, 2016. Output Transparency vs. Input Transparency, manuscript.
- Svensson, Lars E.O., 1999. Inflation Targeting as a Monetary Policy Rule? *Journal of Monetary Economics*, June, v.43 n.3. 607-54.
- Thornton, Daniel and David Wheelock, 2014. Making Sense of Dissents: A History of FOMC Dissents Federal Reserve Bank of St. Louis Review, v.96, n.3.
- Torres, Craig and Ilan Kolet, 2013. Fed Message Muddled as Misunderstood Taper Meets Slowing Growth Bloomberg News, Sept. 13. <a href="http://www.bloomberg.com/news/articles/2013-09-13/fed-message-muddled-as-misunderstood-taper-meets-slowing-growth">http://www.bloomberg.com/news/articles/2013-09-13/fed-message-muddled-as-misunderstood-taper-meets-slowing-growth</a>
- Warburg, P.M. 1930, The Federal Reserve System, Vol. II. MacMillan, New York.
- Wessel, David, 2013. How Jawboning Works, Wall Street Journal, Jan. 9.
  - http://www.wsj.com/articles/SB10001424127887324442304578231443615397304
- Yellen, Janet, 2013, Revolution and Evolution in Central Bank Communications, Federal Reserve Board. https://www.federalreserve.gov/newsevents/speech/yellen20121113a.htm
- Yellen, Janet, 2014. Monetary Policy and the Economic Recovery, April 16. https://www.federalreserve.gov/newsevents/speech/yellen20140416a.htm