Monetary policy communication in the wake of the great recession

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Introduction

"Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough." Those few words spoken by Mario Draghi, President of the ECB, in London on 26 July 2012 marked a turning point in the sovereign debt crisis confronting the euro area since the beginning of 2010. In early August, they were followed by the announcement of a programme of outright monetary transactions (OMTs) aimed at removing once and for all the doubts surrounding the irreversibility of the single currency. However, since then, the measure has not actually been applied, because the dissipation of the financial market tensions and the easing of the sovereign debt crisis that started at the end of July 2012 have proved long-lasting.

The impact of the speech by Mario Draghi in London is an excellent illustration of the importance of words in the current conduct of monetary policy. Nowadays, central bankers around the world make a specific point of explaining themselves and ensuring that they are clearly understood. Communication has been elevated to the position of a monetary policy instrument, and is a major factor in the effectiveness of that policy. Moreover, it is seen as a democratic responsibility of the central bank, which has been given a specific mandate and enjoys great independence in fulfilling it.

The transparency and openness of central banks regarding monetary policy is nothing new, but it has been given fresh impetus in recent years in the wake of the great recession. Key events include the announcement of quantitative inflation targets by the Federal Reserve and the Bank of Japan, and the ECB Governing Council's decision to publish accounts of its monetary policy meetings from January 2015. In that context, this article seeks to summarise the latest initiatives concerning communication by the leading central banks of the advanced economies, focusing particularly on the Eurosystem. The first section offers a brief history of central bank communication and tries to explain how central banks have emerged from the shadows into the limelight. The second section discusses recent developments in the United States, Japan, the United Kingdom, and more particularly the euro area. Finally, the third section addresses an aspect of central bank communication which is sometimes hidden but is no less important, namely its readability. It includes an empirical analysis of how the complexity of monetary policy statements has developed over time. The conclusion sums up the main findings while suggesting some ideas for future exploration.

1. Emerging from the shadows

1.1 Secrecy, mystique and opacity

For much of the 20th century, central banks maintained strict secrecy, basing their actions on a mystique derived from a somewhat metaphysical approach to monetary policy. That approach was based on the widespread belief among central bankers that the conduct of monetary policy was essentially an art, with access to that art and the exercise of it being confined to an initiated elite.

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The esoteric nature of that art was due to the impossibility of spelling out its principles in explicit and intelligible terms (Brunner, 1981, quoted by Issing, 2005). In such circumstances, amateurs were not expected to usurp the prerogatives of insiders and should not interfere in the monetary debate (Federal Reserve Board, 2004a).

In practice, the opacity shrouding the conduct of monetary policy took diverse forms, varying through time and space. In particular, it was reflected in the absence of explicit targets or strategies, the lack of publicity regarding decisions taken or operations carried out, and the vague, irregular or ambiguous nature of statements by the monetary authorities.

The maxim applied by Montagu Norman in his day as Governor of the Bank of England from 1921 to 1944 clearly illustrates the long-held view of monetary policy: "Never explain, never excuse". Some comments made later by Alan Greenspan, Chairman of the Federal Reserve from 1987 to 2006, are equally revealing. In 1987, he affirmed, somewhat tongue in cheek, that since becoming head of the American central bank he had "learnt to mumble with great incoherence", and when a journalist thanked him after a conference for the clarity of his statement, he retorted: "You've probably misunderstood what I said."

Apart from the fact that, historically, a rather secretive culture could reflect preferential relations with political power, the original status as a private bank (Dincer and Eichengreen, 2007), or a bureaucracy's natural desire to maximise its authority and prestige (Mishkin, 2004), there have also been some economic arguments justifying opacity in the conduct of monetary policy. In the late 1970s, for example, the Federal Open Market Committee (FOMC) of the Federal Reserve justified its opacity by stating that transparency (1) was liable to offer some major speculators an advantage and could therefore be a source of unfair competition; in addition, it threatened to trigger inappropriate reactions on the markets, to increase the cost of government borrowing, to tie the monetary authorities' hands, or to make it more difficult to smooth interest rates (Goodfriend, 1986) (2). Theoretical arguments justifying the secrecy which has long surrounded central banks were proposed by Cukierman and Meltzer (1986) in a landmark article on the theory of credibility, ambiguity and inflation under discretion and asymmetric information. They demonstrated that a degree of ambiguity in the conduct of their policy enables [monetary] authorities – whose preferences in terms of employment and inflation are assumed to vary over time – to stimulate economic activity by taking the economic agents by surprise. As a result, the optimum level of ambiguity is higher than the minimum that is technologically achievable. Finally, at one time, opacity was presented as a means of evading political control which would be prejudicial to the fight against inflation (Mishkin, 2004). This view was based on the theory of the time-inconsistency of optimal policies, which suggested taking the conduct of monetary policy away from the government in order to avoid political pressure in favour of an excessively expansionary monetary policy to exploit the short-run trade-off between unemployment and inflation.

1.2 Transparency and openness

From the mid-1970s, the central banks of the advanced economies gradually modified their policy on communication. Slowly but surely, opacity gave way to transparency and openness, a move which was accompanied by fundamental changes in the institutional framework and in the understanding as well as practice of monetary policy.

Two major developments started the trend: the switch to floating exchange rates following the collapse of the Bretton Woods system in 1973, and the stagflation of the 1970s. The end of the fixed exchange rate regime based on pegging the US dollar to gold ended the prevailing nominal gold-dollar parity and gave countries more flexibility to conduct an independent monetary policy (3). That drove central banks to adopt a new nominal anchor in order to preserve the purchasing power of what had become a fiduciary currency. The experience of stagflation in the 1970s demonstrated the absence of any systematic trade-off between inflation and unemployment and illustrated the vertical shape of the Phillips curve in the long term, noted in the late 1960s by Milton Friedman and Edmund Phelps. It thus encouraged acceptance of the idea that, in the long run, the central bank is only capable of influencing inflation and not real variables such as output and employment.

(1) From an economic point of view, transparency can be defined as the absence of asymmetric information (Geraats, 2013). Transparency in monetary policy is therefore related to the degree to which the information relevant for the conduct of that policy is made public.

(2) These arguments against transparency in the conduct of the Federal Reserve's monetary policy were preserved in the American court archives following the case of Merrill versus FOMC (1975-1981). In that case, David Merrill, a student at Georgetown University, sued the Federal Open Market Committee under the 1966 Freedom of Information Act, requiring publication of its policy guidelines and minutes immediately after each meeting. After proceedings lasting several years, the American court ruled in favour of the FOMC, arguing that the obligation to publish could be waived if it was detrimental to the government's monetary functions or commercial interests. The FOMC's arguments are based to a large extent on monetary and financial theory (see Goodfriend, 1986, for more details).

(3) According to Mundell's trilemma, in a context of capital mobility, monetary policy can aim at either an external target (such as the exchange rate) or an internal target (such as inflation), but not both at once. Under the international monetary system established at Bretton Woods in 1944, the maintenance of fixed (albeit adjustable) parities with the US dollar thus obliged the participating countries to make their monetary policy subordinate – to a very large degree – to that of the Federal Reserve.

These two events were very influential in prompting the central banks of the advanced economies to adopt price stability as the nominal anchor of monetary policy from the mid-1970s. Subsequently, the research that highlighted the benefits and success factors of controlling inflation and the examples of good practice gradually persuaded the monetary authorities to favour transparency (1) (2).

First, central bank independence came to be seen as the preferred solution to the time-inconsistency and inflationary bias of governments. Thus, from the 1980s, a central banker independent of the government and taking a conservative approach – i.e. aiming at price stability – has increasingly been viewed as essential to a credible non-inflationary monetary policy. In that context, there was no longer any justification for the opacity deemed to impede potential interference in fiscal policy. Conversely, democratic accountability emerged as the corollary to independence : the central bank given a mandate without any democratic legitimacy must account for its actions. That accountability includes in particular detailed communication on the way in which the central bank endeavours to perform its task. Although the link between independence and accountability was quickly established, it became steadily stronger against the backdrop of broader changes in society, according greater attention to democratic accountability in public administration in general (Dincer and Eichengreen, 2014).

Next, the actual adoption of a nominal anchor such as an effective commitment to preserve price stability also resulted in increased communication with the public, because in order to fulfil its commitments the central bank had to be credible : it had to convince economic agents that it could honour its commitments and that it was resolved to do so. In other words, it had to anchor inflation expectations (3). For that purpose, the public needs to gain a good understanding of what the central bank does and why ; it is therefore in the central bank's interests to be clear in announcing its targets, its strategy and its decisions.

Finally, there gradually emerged a consensus on the essential role of managing expectations, regarding not only inflation but also monetary policy in the broad sense (4). The interest rate relevant for decisions on consumption and investment is in fact the real long-term interest rate, which reflects expectations regarding future short-term rates plus an uncertainty premium. Consequently, the economy is influenced by expectations regarding future monetary policy rather than current policy. The readability and predictability of monetary policy are therefore important to its effectiveness and are achieved by judicious communication (5). The role accorded to communication becomes even more significant if the policy rates fall to the floor and conventional monetary policy therefore becomes ineffective (for more details, see Woodford, 2012).

The importance of central bank communication with the public has increased over time as expectations regarding future monetary policy have gained more influence over the monetary policy transmission mechanism. The increasing liberalisation of capital markets, progress in information and communication technologies, and the growing economic and financial interdependencies between countries have contributed to that by bringing closer links between the expectations and decisions of economic agents (ECB, 2002). Progress in information and communication technologies has moreover enhanced the ability of central banks to communicate promptly with the maximum number of people.

As mentioned above, from the mid-1970s, there was a move towards greater transparency in the conduct of monetary policy, in the context of the adoption of monetary targets and more attention to long-term price stability. In practice, however, the real revolution only began in the early 1990s with the adoption of inflation targets by the Reserve Bank of New Zealand, the Bank of Canada, the Sveriges Riksbank and the Bank of England. In principle, inflation targeting – which entails setting an explicit inflation target in order to anchor inflation expectations – requires particular transparency, as its success is closely linked to the credence that the markets accord to the central bank's ability and determination to meet its target (Mishkin and Schmidt-Hebbel, 2001) (6). Central banks that adopted inflation targeting thus enhanced their transparency measures in varying degrees and in successive stages,

(1) It should be noted that in ending the inevitable revaluations / devaluations – requiring maximum secrecy in order to ward off speculative attacks – the switch to floating exchange rates eliminated a major obstacle to greater transparency for some central banks (Chant, 2003).

(2) Goodfriend (1986) was one of the first to offer a detailed critique of the secrecy surrounding the operation of the Federal Reserve. On the basis of the theory of rational expectations – whereby the agents base their expectations on all the available information and are assumed to know about the real functioning of the economy – he points out that increased transparency should bring market reactions more into line with the intentions of the monetary authorities. His conclusion ("Given the inconclusiveness of the theoretical arguments and the presumption that government secrecy is inconsistent with the healthy functioning of a democracy, further work is required to demonstrate that central bank secrecy is socially beneficial") opened the way to more fundamental questions about the opacity surrounding the conduct of monetary policy.

(3) As illustrated by the expectations-augmented Phillips curve developed by Milton Friedman, inflation expectations in fact play a significant role in determining inflation.

(4) See Woodford (2003).

(5) Although, from a theoretical and empirical point of view, there are powerful arguments in favour of transparency, some studies nevertheless show that greater transparency is not necessarily beneficial, particularly if the disclosure of information is noisy (see Geraats, 2013). While a general consensus on the benefits of transparency in the conduct of monetary policy appears to prevail today, there is still an ongoing debate about its optimum level, connected partly with the institutional environment of the central bank. For a discussion on the limits of transparency, see for example Cukierman (2009).

(6) Demonstrating the particularly high level of transparency in central banks which have adopted inflation targeting, Eijffinger and Geraats (2006) show that, over the period 1998-2002, the most transparent central banks were the Reserve Bank of New Zealand, the Sveriges Riksbank, the Bank of England and the Bank of Canada. However, they note that this monetary policy framework is neither a prerequisite for transparency nor sufficient to ensure it.

not only by publishing a large amount of information on their objectives and strategies, but also by publishing inflation forecasts, inflation reports and minutes recounting the discussions of their monetary policy committee.

Central banks which opted for a different monetary policy strategy have taken similar action. For example, the Federal Reserve decided to announce its federal funds target rate decisions immediately from February 1994, and later that year it decided to supplement the FOMC statement with a description of the economy and the grounds for its decisions. However, it was only from May 1999 onwards that the FOMC systematically published a statement at the end of each of its meetings. In 1998, in the context of a new law increasing its independence, the Bank of Japan opted to announce its monetary policy decisions immediately and to publish the votes and the minutes of its committee meetings. The Bundesbank has long since favoured transparency regarding objectives and performance, and numerous official publications bear witness to that. Its strategy of monetary targeting, applied since the mid-1970s – which includes an inflation target – gave it a framework for signalling its intentions and explaining its decisions to the public (Posen, 1997). Modelled explicitly on the independence and strategy of the Bundesbank, the Eurosystem naturally accorded a prominent role to communication, which Otmar Issing (1) referred to as the "hidden pillar" of its monetary policy strategy (Issing, 1999). By way of illustration, back in the autumn of 1998, the Governing Council announced a quantitative definition of price stability and a clear strategy for achieving it. Since the introduction of the euro in January 1999, decisions have been invariably explained and justified at a post-meeting press conference (2) and in the Monthly Bulletin (renamed the Economic Bulletin in 2015), which also includes a detailed analysis of the economic situation and the risks to price stability.

(1) Chief economist at the ECB and a member of its Executive Board from 1998 to 2006.
(2) In that respect, the ECB can be considered more open and transparent than the Bundesbank, whose decisions were only announced in a press release. Nor did the Bundesbank board members appear before the Bundestag, whereas members of the ECB Executive Board are regularly heard by the European Parliament.

TABLE DEVELOPMENTS IN CENTRAL BANK TRANSPARENCY

Frequency of divulging information (in %)	1998	2004	2010
Transparency of the monetary policy framework			
Formal statement of objectives	90.8	95.0	96.6
Quantification of objectives	44.2	60.8	66.4
Independence of the instruments	34.2	49.2	53.4
Transparency regarding economic information			
Publication of projections	14.2	46.7	54.3
Quarterly medium-term projections for inflation and GDP	3.3	11.7	19.8
Transparency regarding decisions			
Explicit monetary policy strategy	50.0	65.0	73.3
Minutes	5.0	9.2	16.4
Publication of votes	4.2	6.7	10.3
Transparency in communicating decisions			
Immediate announcement of decisions	15.0	40.0	46.6
Explanation of decisions	12.5	32.5	43.1
Indications regarding future monetary policy measures	0.0	2.5	4.3
Transparency in the implementation of the measures			
Evaluation of performance in relation to the main operational target	9.2	20.8	22.4
Information on disruption affecting the transmission process	15.8	42.5	47.4
Sample size (1)	120.0	120.0	116.0

Source: Geraats (2013).
(1) The reason for the reduction in the sample size between 2004 and 2010 is that Cyprus, Malta, Slovakia and Slovenia joined the euro area.

The 2000s brought a second wave of transparency and greater openness on the part of central banks which was not confined to the advanced economies [1]. As shown by the above table, in 2010, most central banks around the world were adopting an explicit monetary policy strategy while more than half of them were publishing macroeconomic projections specified in figures. Although the number of central banks publishing minutes of monetary policy discussions and the outcome of committee voting remained small, there was a significant increase. It had also become much more common to offer explanations when announcing the decisions. Finally, a number of central banks had begun providing explanations regarding the direction, timing or likely pace of policy changes. After the move by the Reserve Bank of New Zealand in 1997, Norges Bank and Sveriges Riksbank decided in 2005 and 2007 respectively to publish the expected path of their key interest rates. The Bank of Japan offered forward guidance on its policy rates for the first time in September 1999, and in May of that year the Federal Reserve began indicating what path its monetary policy might follow, before introducing actual forward guidance in 2003.

2. New impetus in the wake of the crisis

The fundamental trend towards more communication by central banks which had begun in the 1970s has never faltered. The transparency and openness actually have been given new impetus against the backdrop of the recent economic and financial crisis, which presented a huge challenge to the world's monetary authorities. Firstly, they communicated extensively on macroeconomic developments, the risks to price stability, and the measures they have taken in order to fulfil their mandate. The complexity of the situation and the renewed uncertainty made it necessary to step up the communication in order to offer explanations and reassurance. Next, the central banks made direct use of communication as an instrument of monetary policy. Communication about the central bank's future intentions provides information on its reaction function and can bring the private sector's expectations regarding inflation and interest rates into line with the central bank's intentions. In view of the scale of the shocks hitting the economies, and faced with the zero lower bound for nominal interest rates, the central bank naturally endeavoured to do more to influence the monetary policy stance by direct intervention in the longer-term segment of the real yield curve. Finally, the central banks took unprecedented steps to stabilise the financial system, performing to the full their role as lender of last resort. In order to safeguard public confidence and establish their democratic legitimacy in that context, they had to demonstrate clarity in their actions and operations.

To illustrate this new impetus, we shall now review the recent progress in communication on the part of the main central banks of the advanced economies, namely the Federal Reserve, the Bank of Japan, the Bank of England and the Eurosystem [2]. The developments concerning the Eurosystem will form the subject of particular attention owing to their scale and because they are of more direct concern to us.

2.1 Federal Reserve

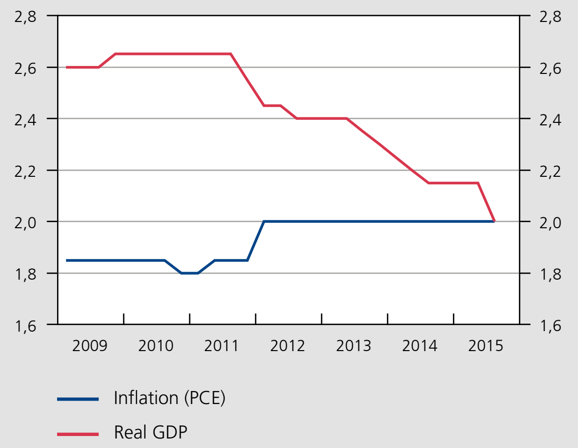
At the instigation of Ben Bernanke, its Chairman from 2006 to 2014, the Federal Reserve was unsparing in its efforts to increase its transparency and enhance its democratic legitimacy. There have been numerous initiatives recently, but they have merely speeded up a gradual process that began in 1977 with the adoption of two fundamental monetary policy targets. The weaknesses of the Federal Reserve on the eve of the recent crisis included in particular its lack of transparency regarding objectives, owing to their multiplicity and the failure to prioritise and quantify them. Moreover, when it came to taking decisions, the Federal Reserve had no explicit strategy defining its monetary policy framework. Finally, its economic projections were not published very frequently (Eiffinger and Geraats, 2006). Conversely, one of its strengths was that the Federal Reserve had for some time been publishing minutes, the outcome of voting in the FOMC, and transcripts of its meetings. In addition, FOMC members already had a long tradition of addressing Congress. Some of the recent initiatives helped to close the gap in relation to the central banks considered to be the most transparent.

In November 2007, the FOMC announced that in order to raise its democratic accountability and improve the public's understanding of the conduct of its monetary policy, it intended to boost the frequency and content of its members' economic projections. The projections were to be published four times a year instead of twice, and the projection horizon would be extended to three years rather than two. It was also decided to publish individual projections for headline inflation at the same time as the projections for real growth, unemployment and core inflation. However, the projections for nominal GDP growth were dropped. Since 1979, a summary of the members' economic projections had been published in the Federal

(1) See Dincer and Eichengreen (2014) or Geraats (2013) for a detailed review of the progress in transparency over the period 1998-2010.
(2) An annex contains a summary table showing, for each of these central banks, the main transparency measures adopted and the date of their introduction.

CHART 1 SUMMARY OF THE LONGER-TERM ECONOMIC PROJECTIONS OF FOMC MEMBERS

(central tendency (1), central value, annual growth)



Source: Federal Reserve Bank of St Louis.

(1) The central tendency excludes the three highest projections and the three lowest projections for each variable.

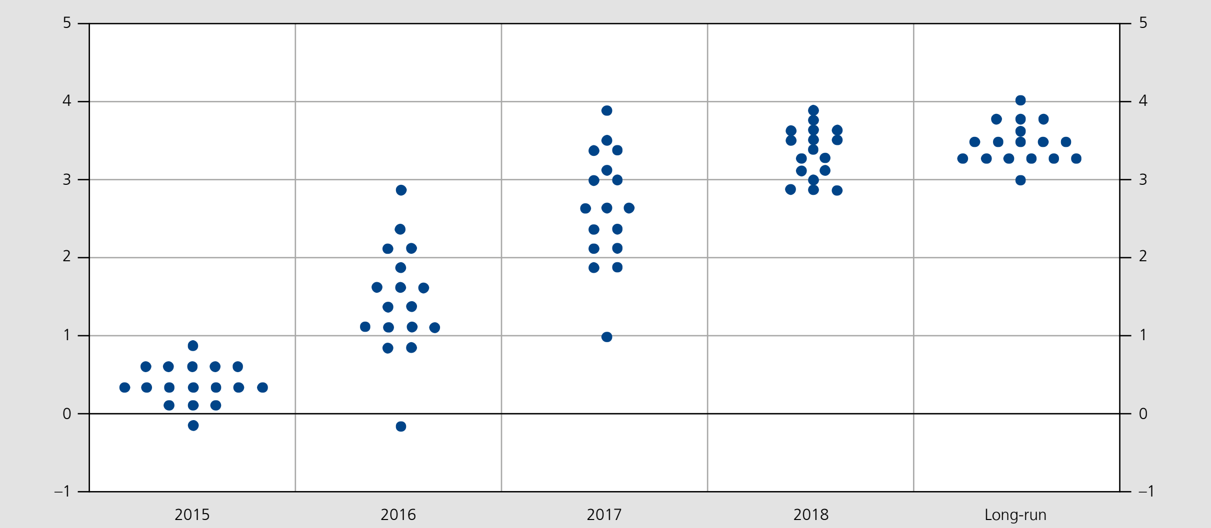
Reserve's half-yearly monetary policy report to Congress and in the minutes of the FOMC meetings. But since April 2011, the projection ranges and central trends have been made public at a Chairman's press conference. In February 2009, long-term projections were also published for the first time for headline inflation, real growth and the unemployment rate. It is worth noting that the long-term inflation projections are not far off the 2% target adopted subsequently. The intention to publish long-term inflation projections can thus be interpreted as an initial step along the way to the adoption of a quantitative target.

Two important steps were taken in January 2012. First, the FOMC began publishing its members' individual projections for the federal funds target rate. Those projections concern the rate expected at the end of the current year and the ensuing three years, and the long-term rate. They are shown in a dot plot published with the economic projections. These interest rate projections are anonymous but they indicate how the FOMC members feel about the economic outlook and the expected monetary policy stance. In the long term, they also offer indications on the equilibrium interest rate, i.e. the rate deemed to prevail when economic activity has achieved its potential level and in the absence of price pressures.

The FOMC also issued a statement setting out its long-term objectives and its monetary policy strategy. For the first time, it set an explicit long-term target of 2% for inflation measured according to household consumption expenditure (PCE inflation). The FOMC stated that clear public communication of this target helped to anchor inflation expectations and therefore encouraged price stability and moderate long-term interest rates, strengthening its ability to promote maximum employment in a turbulent economic context. In other words, the FOMC

CHART 2 PROJECTIONS FOR THE FEDERAL FUNDS TARGET RATE IN SEPTEMBER 2015

(central values expected at the end of the calendar year)



Source: FOMC.

considered that setting a target inflation figure helped it to fulfil its dual mandate of full employment and price stability.

Finally, in recent years, the Federal Reserve has been very open about the future path of its monetary policy. In December 2008, it adopted qualitative forward guidance on its policy rates after having reduced the federal funds target rate to its effective lower bound, corresponding to a range of 0 to 0.25%. In September 2011, it offered details on timing, announcing that the economic conditions justified keeping interest rates on the floor for at least the next two years, while between December 2012 and March 2014, it set specific thresholds, clarifying the key factors that would influence future policy changes. Apart from the information on how its policy rates were expected to move, the Federal Reserve also indicated the factors influencing the scale, pace and composition of its securities purchases. That applied specifically to its latest asset purchase programme, which ended in October 2014. When that programme was approved in September 2012, the Federal Reserve did not determine an end date but stated that the programme would continue until there was substantial improvement on the labour market in a context of price stability. It later amended its statements on a number of occasions (for more details, see for example Cordemans and Ide, 2014, or Engen *et al.*, 2015).

2.2 Bank of Japan

Following the new law governing the Bank of Japan which came into force in April 1998, the Japanese central bank had taken a number of steps to increase the transparency of its monetary policy. In particular, it had promoted the disclosure of information via various channels, such as the publication of minutes and a monthly report on economic and financial developments, and the organisation of press conferences, hearings before Parliament or speeches. Despite this progress, the Bank of Japan still appeared to be relatively opaque (Eiffinger and Geraats, 2006). It had not given a quantitative definition of its price stability objective and had no explicit monetary policy framework. Nor did it systematically offer explanations after each meeting of its Monetary Policy Committee. However, the Bank of Japan is among the central banks achieving the largest increase in the level of transparency over the recent period.

After having introduced a new framework for conducting its monetary policy in March 2006, the Bank of Japan decided in July 2008 to extend its communication strategy "against the backdrop of an ever-changing economic situation and an uncertain outlook". It justified its decision by its desire to provide a timely, thorough explanation regarding the economic situation and the outlook for the economy and prices, as well as risk factors in line with its framework for the conduct of monetary policy. First, it announced that in future, after every monetary policy meeting – and not just the ones resulting in a change of policy – a summary of the assessment of the economic and price situation and the Bank's thinking on the future conduct of its monetary policy would be issued along with the policy decision. Next, it chose to increase the projection horizon of its economic forecasts from two years to three. Third, it agreed on a quarterly based publication of the forecasts of the "majority of the members" of its Monetary Policy Committee[(1)] and risk balance charts. As the fourth and final point, it announced that the minutes of monetary policy meetings would be released systematically, subject to their approval, after the subsequent meeting.

In December 2009, in order to overcome deflation and return to a growth path compatible with price stability, the Bank of Japan "clarified" its understanding of medium- to long-term price stability. In April 2009, it had already stated that price stability meant an annual rise in the consumer price index (CPI) "in the range approximately between 0 and 2 %, with most Policy Board members' median figures at around 1 %". In December 2009, it specified that the committee members would not tolerate an annual rise in the CPI equal to or below 0 %, and that price stability should therefore be understood as positive inflation of 2 % or lower, the midpoint for most committee members being 1 %. In February 2012, aiming to affirm its determination to beat deflation, it set an explicit goal of "1 % for the time being". In October of that year, the Bank of Japan and the government also issued a joint statement on their concern to overcome deflation "as early as possible" and their commitment to "working together" to achieve that. The Bank announced that it intended to achieve its inflation goal "by powerful monetary easing, conducting its zero interest rate policy and implementing the asset purchase programme mainly through the purchase of financial assets". It stated that it would continue with this until its 1 % goal was in sight. Finally, in January 2013, the Bank of Japan revised its medium/long-term price stability objective and decided to introduce a "price stability target" set at 2% in terms of the year-on-year rise in the consumer price index. The Bank announced that it would maintain its accommodative policy in order to attain that target as soon as possible. A note setting out the details of the Bank of Japan's "new" understanding of price stability was published in parallel (Bank of Japan, 2013a).

(1) The forecasts of the majority of the Monetary Policy Committee members consist of ranges based on the individual forecasts of each member, excluding the highest and lowest forecasts.

In June 2015, the Policy Board of the Bank of Japan announced its unanimous decision to expand the monetary policy deliberations and step up the Bank's communication on the subject. It stated that, from January 2016[1]: (1) the Outlook for Economic Activity and Prices (Outlook Report) would be published quarterly rather than twice yearly, (2) as well as the Policy Board's forecasts, the individual forecasts of each board member and their individual risk assessments would be released, (3) a document containing a summary of the opinions expressed at the meetings would be published about a week after the meeting, and (4) the number of meetings would be cut from around 14 at present to 8 per year.

Finally, just as it had done in 1999, the Bank of Japan recently issued forward guidance on its monetary policy. In October 2010, against the backdrop of its policy of comprehensive monetary easing (CME), it had announced that it would maintain its zero interest rate policy "until it has achieved its price stability target, on condition that there are no significant risks, including the accumulation of financial imbalances". In addition, when launching its programme of quantitative and qualitative easing (QQE) in April 2013, it stated that this asset purchase programme was intended to achieve its price stability target of 2 % as quickly as possible, over a two-year horizon. The launch of this programme was accompanied by statements stressing its firm intention to eliminate deflation expectations by communicating its monetary policy stance to the markets, businesses and households in a "clear and intelligible" manner (Bank of Japan 2013b). It should be noted that the Bank of Japan's QQE policy caused it to change its operational target from the overnight interest rate on uncollateralised loans to the monetary basis. Its forward guidance over the recent period has therefore concerned the size and composition of its balance sheet, rather than its policy interest rates.

Although inflation expectations have risen to some degree, they are still far short of the 2 % target defined in 2013 (Boeckx *et al.*, 2015).

2.3 Bank of England

The Bank of England was one of the first central banks to adopt inflation targeting, back in 1992. Well before the crisis, it had established a solid reputation for transparency by regularly communicating its views on the economic outlook and its forecasts for GDP growth and inflation, and by explaining the factors underlying its policy changes. Before the crisis, its main communication tools already included a quarterly inflation report accompanied by a press conference, publication of the minutes of Monetary Policy Committee meetings and disclosure of the voting in the Committee, as well as regular parliamentary hearings. Among the few negative points, the Bank of England did not offer immediate explanations of its monetary policy decisions nor indications of its future policy, in the form of either a press conference or a statement.

Although the Bank of England could rely on its existing instruments during the crisis, it nevertheless expanded its communication still further, notably in order to explain its unconventional policy measures, such as its quantitative easing policy (QE), adopted early in 2009. In August 2013, in view of the weakness of the economic recovery and in order to preserve the accommodative stance of its monetary policy, the Bank of England also introduced explicit forward guidance for the first time, linking the movement in its policy interest rate and its stock of assets to the level of unemployment. An extensive document was published, detailing the reasons why the Committee considers that this explicit information may have enhanced the effectiveness of its monetary policy (Bank of England, 2013).

Finally, in December 2014, the Bank of England announced changes to the way in which it presents and explains its interest rate decisions; those changes represented the most significant revision since the Bank gained its independence in 1997, and were intended to "enhance transparency and make the Bank more accountable to the British people". First, the Committee stated that from March 2015 it would publish the transcripts of the monetary policy meetings after eight years. It considered that this delay ensured the right balance between the need to offer members freedom of debate and the requirements of democratic accountability and transparency governing its activities. Second, the Committee stated that, from August 2015 onwards, it intended to publish the minutes of the discussions and – in the months concerned – the Inflation Report at the same time as the monetary policy decision, as it considered that a single announcement containing all that information would make its communication more effective, by giving the clearest possible monetary policy signal. Third, the Monetary Policy Committee decided to reduce the number of its meetings from twelve to eight [per year] with effect from 2016.

2.4 Eurosystem

While the Eurosystem exhibited a fairly high degree of transparency from the start, there has not been much

(1) In so far as the plan is approved by the Prime Minister's office.

significant progress between its creation in 1998 and the recent crisis. However, two developments are worth mentioning. The first is the May 2003 decision by the Governing Council to clarify the definition of price stability adopted in 1998. Thus, it confirmed that it intended to pursue a medium-term price stability objective by aiming at an inflation rate below 2 %, while specifying that it meant a rate close to 2 %. That clarification indicates in particular that the Governing Council is concerned to guard against the risk of deflation. The Governing Council also considered it necessary to take account of any bias in the HICP and of inflation differentials between euro area countries. The second relevant development is the switch from twice-yearly to quarterly inflation and output projections from June 2004. The Eurosystem's weakness, which was regularly pointed out, had always been the non-publication of Governing Council minutes and votes. The recent period has brought more extensive communication, plus the use of that communication for instrumental purposes and the creation of a new communication tool.

Throughout the crisis, the ECB made its communication more explicit in order to continue to manage the expectations of economic agents in an environment which had become particularly complex and uncertain. Using "traditional" communication tools such as its President's press conferences, press releases or the speeches of members of its Executive Board, it continually reaffirmed its mandate, and explained its medium-term policy stance, its overall view and the symmetrical character of price stability. It thus sought to keep inflation expectations firmly anchored by suppressing both fears of excessive inflation and fears of a deflationary spiral, in a context featuring high debt levels and balance sheet adjustments (ECB, 2014a). The ECB also offered more information on its view of economic and financial developments, and explicitly discussed the variables that it considered relevant for the conduct of its monetary policy (1). Finally, it naturally explained the many – predominantly unconventional – monetary policy measures that it implemented in order to deal with the recession and the disruption in the transmission of its monetary policy.

In 2013, confronted by the limits of the interest rate instrument and various contingencies, the Eurosystem expanded its communication by opting to offer forward guidance on the movements in its key interest rates, to indicate its future policy intentions and to clarify its reaction function. In order to provide reassurance on its future monetary policy stance, the Governing Council thus abandoned its "mantra", famous during the days of Trichet, "to never pre-commit". More recently, it has also offered forward guidance on its expanded asset purchase programme announced on 22 January 2015.

Finally, in 2014, the Eurosystem decided to create a new communication tool by publishing an account of the Governing Council meetings from January 2015 onwards. On the same occasion, it announced that the frequency of monetary policy meetings would be reduced.

The decisions to offer indications about its future monetary policy and to publish accounts of its Governing Council meetings both mark significant turning points in the conduct and transparency of the Eurosystem's monetary policy. They therefore merit a closer look. The question of the reduction in the number of meetings is in line with a general trend, as is evident from the recent decisions by the Bank of Japan and the Bank of England. All these central banks have thus joined the Federal Reserve, the Bank of Canada and the Reserve Bank of New Zealand in the group of monetary authorities whose committees meet eight times a year. That is another development worthy of comment.

FORWARD GUIDANCE

At its July 2013 meeting, the ECB Governing Council announced that "its monetary policy stance would remain accommodative for as long as necessary" and that it expected "the key ECB interest rates to remain at present or lower levels for an extended period of time". It specified that this expectation was based on "the overall subdued outlook for inflation extending into the medium term, given the broad-based weakness in the real economy and subdued monetary dynamics". This was the first time in its history that the ECB had given an explicit indication regarding its monetary policy stance. That information was offered in the context of a still fragile economic recovery and a decline in inflation. It came after a marked and unjustified rise in euro area interest rates, beginning in the spring of 2013, following the statements by the Chairman of the Federal Reserve mentioning a possible reduction in asset purchases by the US central bank (for more details see Boeckx *et al.*, 2013). Since then, the Governing Council has continually reaffirmed its forward guidance on the ECB's key interest rates.

By indicating the expected level of future interest rates, depending on the outlook for price stability, forward guidance helps to clarify both the central bank's assessment of the macroeconomic situation and its reaction function. Forward guidance thus plays on the two components of the expectations channel for the transmission of

(1) In his speech at Jackson Hole in August 2014, Mario Draghi (ECB, 2014c) stated, for example, that the five-year swap interest rate five years ahead was the ECB's usual metric for defining medium-term inflation.

monetary policy. As it reduces uncertainty, forward guidance is a particularly suitable instrument in times of crisis. In addition, it is a way of exerting more direct influence on long-term interest rates and is therefore a valuable monetary policy instrument when the key interest rates are approaching their lower bound (1). Forward guidance thus helps to ensure that inflation expectations are firmly anchored and permits closer control over the monetary policy stance.

Apart from indications about the expected movement in interest rates, in April 2014 – taking account of the risk of a protracted period of low inflation – the ECB also presented a number of contingencies together with the appropriate monetary policy responses (ECB, 2014a).

The first contingency consisted in an unwarranted tightening of the monetary policy stance (caused by external developments) to which the ECB would respond by adopting new conventional measures. The second contingency concerned a persistent deterioration in the bank lending channel, which would give rise to targeted credit easing measures. Finally, the last contingency considered the possibility of a worsening of the medium-term inflation outlook and/or a weaker anchoring of inflation expectations, which would justify the launch of an expanded asset purchase programme.

When these contingencies actually arose, the Governing Council matched its actions to its words by taking a range of new monetary policy measures at the end of 2014 and the beginning of 2015. First, it cut its key interest rates on two occasions, in June and September 2014, lowering the interest rate on the main refinancing operations to 0.05 %, the marginal lending facility rate to 0.30 % and bringing the deposit facility rate down to –0.20 %. Next, in June 2014, it announced that it would conduct a series of targeted longer-term refinancing operations (TLTROs), to encourage the banks to lend to the private sector. Finally, in September 2014, it decided to ease its monetary policy further by adopting a programme for the purchase of private sector assets. In January 2015, that was incorporated in an expanded programme which also included massive purchases of government bonds. The Governing Council then announced that the monthly purchases, set at € 60 billion, were "intended to be carried out until at least September 2016" and would continue in any case until the Governing Council saw "a sustained adjustment in the path of inflation that is consistent with its aim of achieving inflation rates below, but close to, 2 % over the medium term". The "open" character of the expanded asset purchase programme demonstrates the Eurosystem's determination to do whatever is necessary. By influencing the expectations of economic agents, it thus performs an automatic stabilising role which reduces uncertainty over inflation and helps to ensure that expectations are firmly anchored.

After that, the Governing Council constantly showed that it was ready to use all the available instruments within its mandate to respond if necessary to any (new) undue tightening of its monetary policy.

PUBLICATION OF ACCOUNTS

Since the creation of the European Central Bank, there has been much discussion regarding the publication of the minutes of Governing Council meetings. The initial decision not to publish the minutes of monetary policy meetings was repeatedly criticised, and prompted many observers to conclude that the ECB was less transparent than other central banks.

There were several arguments underlying that decision. First, prior to the establishment of the monetary union, none of the euro area central banks published any minutes of discussions by their decision-making bodies. Next, unlike other central banks such as the Federal Reserve, the ECB had chosen to explain and justify its decisions systematically after the meetings of its Governing Council by means of a President's statement and a press conference followed by a question-and-answer session. It therefore seemed unnecessary to offer subsequent explanations and justifications in minutes published several weeks later. Third, it had considered that the publication of minutes might impair the frank and open nature of the discussions. It was felt that keeping the debates confidential would ensure the independence of the members of the Governing Council and would thus encourage them to take a European rather than a national standpoint. Also, the publication of minutes was liable to shift the real debate to the informal meetings of the Governing Council, which would have made the minutes much less relevant (Bini Smaghi and Gros, 2001). Finally, on the basis of international experience it had been suggested that the publication of minutes did not necessarily enhance the effectiveness of monetary policy or improve the understanding of policy decisions. On the contrary, *ex-post* publication of the discussions would tend to focus the attention of the media and the public on differences of opinion between committee members, at the expense of the fundamental questions relating to the conduct of monetary policy.

Although these arguments may not have become totally irrelevant, they have nevertheless been partly superseded

(1) For a more detailed discussion of the ECB's forward guidance, see Praet (2013).

over time. For example, a number of central banks nowadays explain and justify their monetary policy decisions immediately, but without abandoning the publication of minutes. Furthermore, various authors have shown that the publication of minutes offered useful information and helped to shape expectations regarding future monetary policy decisions (for a review of the literature on the subject, see Kedan and Stuart, 2014). In recent years, the economic environment and the conduct of monetary policy have also become considerably more complex. Uncertainty has grown, as have the differences of opinion among members of monetary policy committees.

In these circumstances, the ECB Governing Council felt the need to expand its communication, and more particularly to provide a more detailed commentary on the rationale behind its decisions. In July 2014, after careful consideration, it announced that it intended to publish accounts of its monetary policy meetings with effect from January 2015. It felt that this would allow the public and markets to further improve their understanding of the Governing Council's reaction function, its assessment of the economy and its response to evolving economic and financial conditions (ECB, 2014a). These accounts thus fulfil the monetary authority's need to be accountable while also being conducive to a more effective monetary policy.

The accounts are sub-divided into two quite separate main sections. The first section describes the recent financial, economic and monetary developments and lists the available policy options. The second summarises the discussions in the Governing Council, the main arguments put forward and the monetary policy decisions approved. So as not to compromise the independence of the members – who are acting in a personal capacity and not as representatives of their country – and to preserve the collegiality of the discussions, it was decided that contributions would not be attributed to individuals and that the results of any voting would not be disclosed. In this respect, the Eurosystem differs from the main central banks of the advanced economies. However, in order to permit an assessment of the extent of support for the opinions expressed and the decisions adopted, it was agreed to use qualifiers. Four expressions in particular were chosen to indicate the support for the decisions taken: consensus, majority, large majority and unanimity. The accounts should be deemed to complement the real-time messages conveyed in the press conferences, and are certainly not a substitute for those messages (ECB, 2014a).

REDUCTION IN THE FREQUENCY OF MEETINGS

Following the announcement of the publication of accounts of its monetary policy deliberations, the Governing Council indicated that the frequency of its monetary policy meetings would be reduced to a six-week cycle with effect from January 2015. It stated that meetings not concerned with monetary policy would continue to be held at least once a month.

To justify that decision, ECB President Mario Draghi (ECB, 2014b) explained that every monetary policy meeting of the Governing Council inevitably generated expectations of potential action. He stated that those expectations were reflected in market behaviour and could thus be self-fulfilling, even if they had nothing to do with economic fundamentals. But he stressed that the horizon used by the Governing Council in assessing the risks to price stability was medium-to long-term and that monetary policy measures were therefore not adopted on the basis of short-term considerations. In that situation, monthly meetings were considered too frequent. Spacing them out was meant to match the timing of the decisions more closely to the creation of the associated expectations. However, the reduction in the annual number of Governing Council monetary policy meetings should certainly not be seen as a sign that the Governing Council considered its job was largely finished so that it would need to intervene less. If necessary, an emergency meeting could always be arranged on an *ad-hoc* basis, as it was in October 2008 at the height of the crisis.

Another reason put forward for spacing out the meetings is the decision to publish the accounts. From a practical point of view, an interval of six weeks rather than one month between meetings was considered preferable as it allowed the time needed to produce an account offering timely information on decisions previously adopted but without disturbing expectations of future action.

Finally, apart from any considerations regarding communication, but with the aim of ensuring efficient decision-making in the Governing Council, the system of rotating voting rights was launched on 1 January 2015. In 2003, the Council of the European Union had in fact decided that this system would take effect once the number of national central bank governors in the Governing Council exceeded 18. That has been the case since 1 January 2015, when Lithuania joined the euro area. The rotation implies that the number of votes in the Governing Council is limited to 21 and each governor's voting frequency is adapted to take account of the representativeness of the various member countries in the economy of the euro area as a whole. However, all the governors still take part in the Governing Council meetings and debates. The six members of the Executive Board are not subject to the rotation system and retain a permanent right to vote. For more information on the rotation system, see ECB (2009).

3. Communication, accountability, efficiency and readability

The recent global economic and financial crisis undeniably gave an extra push towards greater transparency and openness among central banks. It resulted not only in more intensive use of the existing tools but also in the development of new means of communication. In addition, it is behind a veritable revolution in the use of communication as a monetary policy instrument. Finally, the great recession undoubtedly triggered closer convergence in the ways central banks conduct monetary policy, and hence communicate on the subject.

Nowadays, the Federal Reserve, the Bank of Japan, the Bank of England and the ECB all have an explicit quantified inflation target and publish a full account of their monetary policy committee deliberations within a reasonable period of time. All these central bank committees or councils systematically issue statements or give explanations after their meetings and they all offer or have offered indications about their future monetary policy stance. They all have quarterly projections for inflation and GDP in their respective economies – whether produced by their staff or their members – and soon they will all meet eight times a year. The main differences in terms of communication between these four central banks will therefore lie only in the transparency of their decision-making procedures and the more or less explicit character of the indications regarding their future monetary policy stance.

While there is not the slightest doubt that central banks have recently extended the scale of their communication, there are nevertheless two fundamental questions on qualitative aspects : exactly to what extent have they increased the democratic accountability of the monetary authorities ? And how much have they done to enhance the efficiency of monetary policy ? This concerns the rationale for central bank transparency : democratic accountability and the effectiveness of monetary policy, the source of better economic performance. It is beyond the scope of this article to give exhaustive, definitive answers to these questions. Nevertheless, it is appropriate to end by examining a key element which is sometimes overlooked : the readability of central bank communication.

In a more complex and uncertain environment, the monetary authorities have endeavoured to provide explanations and reassurance. However, the question is whether their greater transparency has been at the expense of clarity in their statements. Accessible communication is crucial from the point of view of both democratic accountability and the effectiveness of monetary policy, as it not only has to enable the general public to understand the economic situation and the actions of the central banks, but must also allow the markets to assess and anticipate the monetary policy stance. A properly understood and correctly anticipated policy forms the basis of a responsible and effective policy, leading economic agents to take the optimum investment and consumption decisions in the light of the prevailing economic and financial situation and future prospects.

It is interesting to analyse the clarity of monetary policy committee statements on the basis of the Flesch-Kincaid grade level index, which assesses the difficulty of an English text according to the length of the sentences and the number of syllables per word. The score obtained corresponds in practice to the number of years of education generally required to understand the text – according to the American education system. For example, a score of 12 indicates that the text is accessible to a person who has completed compulsory schooling and is therefore about 18 years old. We have used this index to study the changes over time in the readability of the monetary policy statements of the FOMC, the Bank of Japan Policy Board and the ECB Governing Council (1).

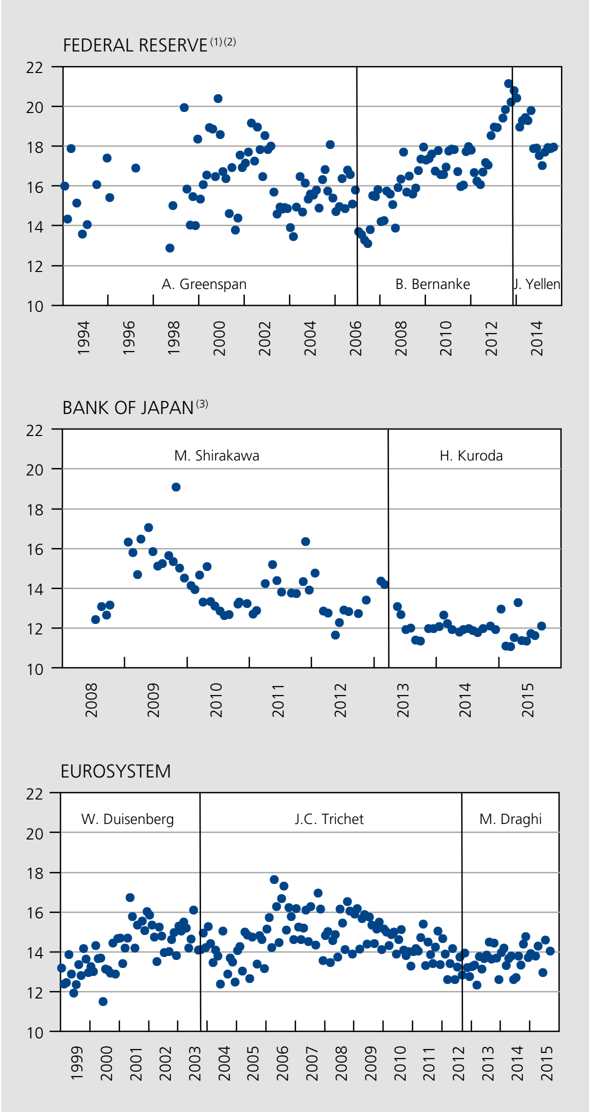
The results show that, in general, the complexity of statements by the Federal Reserve has varied considerably over the years. While there was no clear trend between 1994 and 2007, the statements became noticeably more complex from the end of 2008 when the Federal Reserve embarked on a policy of quantitative easing. Thus, while FOMC statements between 2006 and 2008 would have been readily comprehensible to people with 15 years of education, between 2009 and 2011 that figure increased to 17 years, and to almost 19 years between 2012 and 2014. However, since Janet Yellen became Chairman in February 2014, a tendency towards simplification has emerged. Nonetheless, according to our analysis it currently takes 18 years of education to understand a Federal Reserve statement, which implies a level of schooling comprising around six years of higher education.

In the case of the Bank of Japan, it seems that the Policy Board's messages have become slightly more accessible in recent years, despite the many unconventional monetary policy measures adopted. Between July 2008 and March

(1) The statements studied were issued in February 1994 for the FOMC, July 2008 for the Bank of Japan and January 1999 for the Eurosystem. The Bank of England does not issue statements following decisions by its Monetary Policy Committee but, since August 2015, publishes a monetary policy summary with the Minutes. It was therefore not included in the analysis. The exercise was conducted using the on-line program : http://www.online-utility.org/english/readability_test_and_improve.jsp. The information tested for each statement is that relating in the strict sense to monetary policy. Titles, dates, ancillary information and any results of committee votes were excluded.

CHART 3 MONETARY POLICY COMMITTEE STATEMENTS

(Flesch-Kincaid grade level index)



Sources: Federal Reserve, Bank of Japan, ECB, own calculations.

(1) The FOMC started issuing statements in February 1994 but has only done so systematically since May 1999.

(2) The results obtained differ in some respects from the findings of the study by Hernández-Murillo and Shell (2014). That applies in particular to the period when Alan Greenspan headed the Federal Reserve. Following consultation with the authors, it seems that the divergences are due in particular to differences in the selection of the analysed texts. To a lesser degree, differences in the test programs may also have been a factor.

(3) Statements made before July 2008 were disregarded because they were very few in number.

2013, when Masaaki Shirakawa was Governor, a ready understanding of the Bank of Japan's monetary policy statements required about 14 years of education. Since Haruhiko Kuroda became head of the institution, it seems that 12 years are sufficient.

In the case of the ECB Governing Council, it seems that the number of years of education presumed necessary for a ready understanding of the introductory statements has varied over time, although it has fluctuated within a narrower range than in the case of the FOMC statements. Moreover, in contrast to the Federal Reserve's messages, those issued by the ECB do not appear to have become more complex since the crisis. It even appears that, on average, the Governing Council's statements have tended to become more accessible since 2007. Between 2006 and 2007, it took about 16 years of education to understand an introductory statement, whereas since 2012 the average requirement has fallen to 14 years.

Except for the Federal Reserve, it seems that the readability of monetary policy committee statements has not been impaired by the complexity of the economic environment and monetary policy decisions in the recent period. The communication of both the Bank of Japan and the Eurosystem would even appear to have become somewhat clearer in recent years. While these developments are reassuring, two caveats are appropriate.

First, while the Flesch-Kincaid index takes account of the length of words and sentences, two factors recognised as contributing to the difficulty of reading, it does not consider the context in which the words are used nor the background knowledge needed to understand a text. It is therefore likely to underestimate the difficulty of the monetary policy committee statements to some degree. Second, although there has been some improvement in the accessibility of monetary policy statements, they are still not universally comprehensible. In the euro area in particular, it is notable that in 2012 the average number of years of education was 11.2 [(1)]. That is therefore still well below 14 years. To put this in perspective, it is worth noting that the latest State of the Union address by the US President Barack Obama in January 2015 scored 9.3 on the Flesch-Kincaid index. It thus seems that central banks still have some scope for improving the readability of their statements.

Monetary policy committee statements are certainly not the only sources of information on the economic situation and on the conduct of monetary policy, as there are many publications that try to explain the aims and activities of central banks to the broadest possible public [(2)]. But, as preferential

(1) Average value weighted by the size of the population on the basis of UNESCO data for Belgium, Cyprus, France, Germany, Italy, Lituania, Malta, the Netherlands, Portugal, Slovenia and Spain.

(2) However, it should be noted that despite the central banks' efforts at communication, the general public's knowledge of monetary policy evidently remains very limited. For example, on the basis of a Dutch household survey, van der Cruijsen *et al.* (2015) conclude that very few people are aware of the monetary policy objectives of the Eurosystem, but also that a considerable section of the population does not necessarily want to receive information on the subject. The results of their study nevertheless suggest that knowledge of monetary policy plays a significant role in forming inflation expectations. They also stress the importance of the media in the acquisition of that knowledge.

instruments for announcing new monetary policy decisions, the statements are special communication tools. It is without any doubt a sizeable challenge to make these texts easy to read without sacrificing the complexity of the economic environment and the decisions adopted. That challenge is even more daunting for the Eurosystem because it has to address not only various audiences but also diverse and varied cultures.

Conclusion

For much of the 20th century, central bankers maintained strict secrecy, but nowadays they make a specific point of explaining themselves and making sure that they are clearly understood. Communication on the subject of monetary policy is perceived as a democratic responsibility of the central bank, which has been given a specific mandate and enjoys great independence in fulfilling it. Since communication is a significant factor influencing the expectations of economic agents, it is also considered a key element of an effective monetary policy.

A move towards greater transparency in the conduct of monetary policy emerged in the mid-1970s, when price stability was accorded increased attention. But the real revolution came about in the early 1990s in parallel with the adoption of the inflation targeting strategy, and it was followed by a new wave of openness in the 2000s.

The transparency and openness of central banks regarding monetary policy has been given fresh impetus in the wake of the recent economic and financial crisis. The great recession prompted not only wider use of existing tools but also the development of new means of communication. In addition, it triggered a veritable revolution in the use of communication as a monetary policy instrument. Finally, it undeniably led to closer convergence in the ways central banks conduct monetary policy and hence in their communication on the subject.

Except in the case of the Federal Reserve, it seems that the readability of monetary policy committee statements was not impaired by the complexity of the economic environment and monetary policy decisions over the recent period. Communication by both the Bank of Japan and the Eurosystem would even appear to have become a little clearer in recent years. These developments are reassuring, since a proper understanding and correct anticipation form the foundation of a responsible and effective policy. However, monetary policy statements are still not accessible to everyone, and there appears to be considerable scope for improving their readability.

In view of a fundamental tendency that has persisted continuously since the mid-1970s and the recent spate of new initiatives, it is reasonable to ask about the limits of central bank transparency concerning monetary policy.

The subject is not new. Some authors have in fact already suggested that there might be an optimum level of transparency (see for example Morris and Shin, 2002, or van der Cruijsen *et al.*, 2010). Beyond a certain point, it could be that economic agents become over-reliant on public information and therefore neglect their own information sources, especially if they cost money. Furthermore, swamped by information, they might cease to be able to identify the most relevant factors determining their expectations. Finally, the surfeit of information could potentially damage the central bank's credibility by revealing its uncertainty.

The optimum level of information in the conduct of monetary policy is clearly an elastic concept: it depends on such factors as the type of information, the macroeconomic environment, the level of uncertainty, the conduct of monetary policy and the policy transmission channels. These last variables have changed radically in recent years. Nonetheless, a cost-benefit analysis of increased monetary policy transparency is still well worthwhile. The large number of recent initiatives has very probably made such an exercise even more relevant, thus opening up new perspectives for research.

TABLE

	Federal Reserve (1913)	Bank of Japan (1882)	Bank of England (1694)	Eurosystem (June 1998)
Transparency of the monetary policy framework				
Formal statement of objectives	Since 1977 (Federal Reserve Reform Act): maximum employment, stable prices and moderate long-term interest rates.	Since 1998 (Bank of Japan Act): price stability.	Since 1998 (Bank of England Act): price stability.	Since its creation: price stability is the primary objective.
Quantification of objectives	Since January 2012: an inflation rate (PCE) of 2% in the medium term.	Range from April 2009: CPI inflation between 0 and 2%; explicit quantification since February 2012: 1% inflation goal; since January 2013: inflation target of 2% in the medium/long term.	Price stability is defined each year by the Chancellor of the Exchequer. Since 2004, the target has been 2% for CPI inflation.	Quantitative definition of price stability adopted in 1998 and clarified in 2003: inflation (HICP) "below, but close to, 2% in the medium term."
Transparency of economic information				
Publication of internal projections for GDP and inflation	Summary of FOMC members' projections published twice yearly since 1979 and quarterly since 2008; publication available with the minutes since the end of 2007 and at the chairman's press conference since April 2011.	Projections of the majority of Policy Board members published twice yearly since October 2000 and quarterly since January 2009.	Staff quarterly projections since February 1993; the committee has published on a quarterly basis a collective judgement since May 1997.	ECB / Eurosystem staff projections published twice yearly since December 2000 and quarterly since June 2004.
Publication of individual committee members' projections	No.	From January 2016.	No.	No.
Publication of key interest rate projections	Since January 2012.	No.	No.	No.

Sources: Federal Reserve, Bank of Japan, Bank of England, ECB.

TABLE (continued 1)

	Federal Reserve (1913)	Bank of Japan (1882)	Bank of England (1694)	Eurosystem (June 1998)
Transparency in decision-making				
Explicit monetary policy strategy	Since January 2012.	Since 2008.	Since 1993.	Since its creation.
Account of the deliberations at monetary policy meetings	Since 1936. Minutes published in their present form since 1993; publication delay cut from around six weeks to three in 2005.	Since January 1998; published after next meeting since 2008.	Since April 1994 (after five to six weeks; since October 1998 (after two weeks); immediately since August 2015.	Minutes published after thirty years; accounts published since January 2015, usually after four weeks.
Publication of votes in the monetary policy committee	Since 2002.	Since January 1998.	Since June 1997.	No.
Publication of transcriptions of monetary policy discussions	Since 1993, after five years.	Since January 1998, after ten years.	Since March 2015, after eight years.	No.
Transparency in communication of decisions				
Immediate announcement of decisions passed	Since February 1994.	Since January 1998.	Since January 2000.	Since January 1999.
Explanation of decisions passed	Since May 1999.	Since July 2008	In the minutes.	Since January 1999.
Statement after each committee meeting	Since May 1999.	Since July 2008	No.	Since January 1999.
Indications of future monetary policy measures	Since May 1999.	No.	No.	Since April 2014 (1).
Forward guidance	For the first time in 2003.	For the first time in 1999.	For the first time in August 2013.	For the first time in July 2013.

Sources: Federal Reserve, Bank of Japan, Bank of England, ECB.
(1) ECB (2014a).

TABLE (continued 2)

	Federal Reserve (1913)	Bank of Japan (1882)	Bank of England (1694)	Eurosystem (June 1998)
Transparency in the implementation of measures				
Assessment of performance compared to objectives	Superficial [1].	Superficial [1].	Superficial [1].	Superficial [1].
Assessment of the balance of risks to the outlook	Since 2000.	Since 2008.	Since 1993.	Since 1999.
Independence and democratic accountability				
Independence	Since the 1951 Accord [2].	Since 1998.	Since 1997.	Since its creation.
Hearings before Parliament	Twice a year since 1975.	Regularly since 1998.	Regularly since 2003.	Four times a year since 1999.
Frequency of monetary policy committee meetings	Eight times a year since 1981.	Fourteen times a year since 1998; eight times a year from 2016	Twelve times a year since 1997; eight times a year from 2016.	Twelve times a year from 1999 to 2014; eight times a year since 2015.

Sources: Federal Reserve, Bank of Japan, Bank of England, ECB.
(1) Source: Dincer and Einchengreen, 2014.
(2) Treasury-Federal Reserve Agreement. The independence of the Federal Reserve has been stepped up since 1977 with the reform of the Federal Reserve Act.

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