# Why do markets react to words?

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#### Abstract

Purpose - The purpose of this paper is to explain why central banking as a practice needs to be based on everyday language and communication because a central bank must be able to act flexibly. The meaning of a central bank's language and communication is not a linear transferred meaning from the sender to the receiver. Language is not the gateway to transmitting a pre-given meaning. Whereas the meaning of a coded language is rooted in a pre-defined system independent of changing environment and context, everyday language is not. Expectation-building cannot be anchored in an artificial system such as formal language, codes and deductive premises based on formal language. In guiding expectations of economic agents, a central bank is a part of its own context through the language it uses in both its communication and in its policy of information disclosure concerning its own

Design/methodology/approach - The paper explains the constitutive function of language for common understanding in central banking and monetary policy.

Findings - The paper contributes to the literature on central bank communication and transparency. Originality/value - The interaction between the markets and the central bank is understandable within a particular history and context which also helps to build up or to restore confidence in monetary transactions and relations.

Keywords Communication, Transparency, Monetary policy, Central bank, ECB, FED Paper type Conceptual paper

# Introduction

The meaning and understanding of a central bank's communication are not given ontologically like those of a stone or a car. The meaning is not a composite of different properties but rather depends on the experience and common understanding of the agents involved, both central banker and market participants. The meaning is not driven by mechanical procedures like those needed to direct a car on a highway toward a certain goal. The communicative interactions of both central banks and financial markets are performed by language activities. The main thesis of the paper is that transparency, communication and credibility are connected through the use of language, not by a presupposed mechanical procedure. The thesis implies at least four themes:

- 1. A central bank's decision-making is embedded in changing contexts and uncertainty and it is for this reason that a central bank does not act on a basis of linear mechanisms or predefined fixed rules independently of changing contexts.
- 2. A central bank's action and decision-making is always a communicative interaction with markets (or institutions of the markets) which itself affects its environment and hence leads to repercussions on the central bank itself.
- The central bank's decision-making moves beyond the mastery of calculus.
- 4. As a central bank's language is part of, and socially embedded in, its environment, it

The author is grateful to Tanweer Ali for his advice and two anonymous referees for helpful comments on an earlier becomes a major criterion for the market's judgment about the decision-making and communication practices of the central bank.

The paper emphasizes the need to acknowledge the constitutive role of language activities in central bank theory..

This paper refers to the modern view of a central bank which can be summarized by the statement that monetary policy is "steering market expectations" (Blinder *et al.*, 2008; Gürkaynak *et al.*, 2005; Woodford, 2005). The modern view emphasizes that a "central bank owes the public transparency and accountability". Communication is at the heart of both (Blinder *et al.*, 2001, p. 2). Moreover, transparency of a central bank is linked both to the communicative interactions of the central bank with the financial markets, and to the perception of these interactions by market participants (Ehrmann and Fratzscher, 2009a, 2009b).

The paper proceeds as follows. The second section discusses the "Draghi Effect" and its implication. The third section explains the interactive process between the Federal Reserve (FED) and the markets based on changing modes of communication and language. The fourth section will discuss why everyday language and communication matters in central banking. The fifth section provides brief concluding remarks.

# The "Draghi Effect"

Draghi's speech at the Global Investment Conference in London on 26 July 2012 was history in the making and is worth quoting. Draghi (2012a) said: "I asked myself what sort of message I want to give to you. I wouldn't use the word 'sell', but actually I think the best thing I could do, is to give you a candid assessment of how we view the euro situation from Frankfurt. [...] We think the euro is irreversible. And it's not an empty word now, because I preceded saying exactly what actions have been made, are being made to make it irreversible. But there is another message I want to tell you. Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough".

Draghi (2012a) stated that the risen spreads, the risk premia, were due to the "risk of convertibility", i.e. the risk that some countries will leave the Eurozone immediately. He also added: "Now to the extent that these premia do not have to do with factors inherent to my counterpart – they come into our mandate. They come within our remit". The announcement of the OMT program (Outright Monetary Transaction) by Draghi (2012a) and the subsequent disclosure of detailed steps of its implementation led to a reduction of the "risk of convertibility", hence the risk premium in the euro market and thus served to support the euro (ECB, 2012c). In its press conference at 6 September 2012, the President and the Vice President of the European Central Bank (ECB) explained that the OMT program did not imply the seniority of the ECB regarding government bonds which would be bought in the case that the OMT program would have been implemented in the euro area (Draghi, 2012b). In that case the ECB would act *pari passu* with the other creditors, which implies that the level of interest rates in the markets were presumably lower than if a hierarchy had existed.

What can be said about the context of that speech at the time? Tremendous uncertainty drove the expectation-building of the investors. There were several factors contributing to the uncertainty, for example negative experiences with the SMP program of the ECB in 2010. In May 2010, after having introduced the *Securities Market Program (SMP)*, the ECB started to intervene in secondary debt markets (ECB, 2010, 2011; Ehrmann *et al.*, 2011). Grave doubts about the functioning and acceptability of the European Stability Mechanism can be seen as another factor. The following aspects seem to be very important and can be interpreted as playing an important part in the creation of the uncertainty (Calvo, 2013; Cour-Thimann and Winkler, 2013): massive capital flows from debtor countries to credit countries within the Eurozone in 2012; the fear of default by some EU members, indicated

by rising spread on sovereign bonds; and, finally, the ongoing perception of a liquidity crisis in the European banking system.

It is worth mentioning that markets had been starting to pay more attention to government debt, particularly since the end of 2010. The empirical literature underlines that the increase of spreads on sovereign debts in peripheral countries of the Eurozone was due to the fact that they – like all member states of the Eurozone – are not able to act as sovereigns. Investors are accustomed to judge the government debt in stand-alone countries like, for instance, the USA and United Kingdom differently because of the existence of a lender of last resort (Bindseil and König, 2012; De Grauwe, 2011). In May 2012, Draghi had introduced a proposal to create a banking union in Europe in which the ECB would be endowed with the power of a lender of last resort; details are given by Draghi (2014).

In September 2011 the ECB published its program called LTRO (Long Term Refinancing Operation), aimed at supporting the commercial banking system with massive and longer-term liquidity at very low interest rates. The implementation of the LTRO in December 2011 and February 2012 relieved the negative state of expectations only temporarily. It did not provide greater certainty regarding the continuance of the Eurozone as a whole (Bindseil and Jablecki, 2013; ECB, 2011, 2012b). Draghi (2011) had also emphasized that the independence of the ECB was not on shaky grounds and that it was not responsible for government fiscal failures. Whether a central bank should be responsible for financial stability is a controversial subject in the current literature (Borio, 2011; Issing, 2013; Woodford, 2012).

The compelling question is why did markets react with great confidence to the speech of Draghi at that time, in July 2012? The speech of the Chairman documents the constitutive function of language. This consideration will be discussed in the fourth section. The suggested logic of the announcement of the OMT program – which has not been implemented up until now – is comparable to a situation in which the danger of a "run on the bank" is being forced by a self-fulfilling prophecy. The ECB's responsibility for the mandate of price stability also implies its obligation to make the needed liquidity available to European banking system to indemnify a workable monetary transmission process in the Eurozone.

Given this background sketched above, it is convincing to argue that Draghi addressed the OMT program at a moment crucial to financial markets. One characteristic of this situation was fragile confidence regarding any further program offered by the ECB and consequently at the same time high uncertainty about the future steps of the European monetary union. Draghi's emphasis on the irreversibility of the euro, his promise that the ECB would act and to make the decisions required to safeguard the functioning of the euro was a credible message to financial markets regarding the context sketched above. As empirical studies indicate, the market reaction to this speech was and still is without a doubt optimistically positive (De Grauwe and Yuemei, 2013). The announcement of the OMT program was intended to interrupt a vicious circle in capital flows between member states of the European currency union which was indicated by rising spreads (Orphanides, 2013, pp. 27-28).

As a new institution constructed in a historically unique framework, the ECB's actions have been accompanied by many criticisms and advice (IMFS, 2013). From its inception in 1999, the ECB has been aiming at transparency, credibility and common understanding by successfully using different forms of communication (Issing, 2005; Muchlinski, 2005). Recently, in July 2013, the ECB made the decision to implement a forward guidance strategy to achieve a greater coherence of the expectation-building of private and public spheres. The forward guidance strategy attempts to conceptualize a central bank's announcement about the future short-term rate as trustworthy because this then has significant effects on economic decisions and performance. The forward guidance strategy implies at least one main goal: to restrain the volatility of the main interest rates to mitigate

the oscillation of other interest rates in the money markets. "Our objective is therefore not to steer money market rates toward a predefined value but to ensure that their fluctuations remain within reasonable bounds and not to hurt economic recovery" (Coeuré, 2013).

The statement of the ECB not to change the short-term interest rate "for an extended period of time" (Coeuré, 2013) implies neither a commitment not to change it in the nearest future, nor a promise not to change it at all one day. It is a statement which establishes – or should establish – credibility by using everyday language when issued in specific circumstances and contexts; it is context-sensitive.

According to the main thesis of this paper, the credibility of sentences cannot be separated from the context of communication and speaking. So where and how can the borders of a context be exactly defined? The context of Chairman Draghi's speech was influenced by the communicative interactions of the ECB as sketched above; it was created by the institution and its context (Muchlinski, 2011; Lamla and Sturm, 2013). However, the ECB also acts within a context of the international monetary system in which the "risk of convertibility" influences international capital movements motivated by "aggressive risk-taking" (Borio and Disyatat, 2011; ECB, 2012a). Therefore, the context of communicative interaction for the ECB can hardly be reduced to the Eurozone itself.

The following section will concern the FED's forward guidance strategy introduced by the former Chairman Bernanke.

# The misleading analogy

Bernanke, former Chairman of the FED (USA), emphasizes the misleading analogy of the US economy to be a car and the Fed or Federal Open Market Committee (FOMC) to be a driver (Bernanke, 2004a, p. 1). Bernanke objects to this analogy because it suggests that monetary policy is also a simple, linear and mechanical procedure (Bernanke, 2004b). He rejects the concepts of "instrument rules" and "targeting rules" because these terms are used in traditional theories of monetary policy to describe mechanical adaptation; a critique of these traditional assumptions is pointed out by – for instance – Vickers (1998) and Winkler (2000).

In describing monetary policy as an interactive process, Bernanke proposes to introduce a different terminology. He reframes traditional concepts and replaces "rule" with "policy" because the term "rule" signifies a concept of rigid adherence to the old view on central banking as fighting against markets. Furthermore, for "instrument rule" and "targeting rule", he substitutes "simple feedback policies" and "forecast-based policies". Both new terms, feedback policies and forecast-based policies, Bernanke claims, are suitable for explaining the interaction of central banks with markets. The term "policy" underlines the process and time which are needed to aim at the mandate of price stability. Any expected changes of the federal funds rate (FFR) will change other economic variables with a longer-lasting horizon which the market normally focuses on.

The term "simple feedback policy" indicates a relation to a limited set of indicators to describe the macro economy at a certain moment and to relate policy reaction to indicators which are easily separately measured. In contrast, "forecast-based policy" refers to more complex indicators which are not clearly defined and/or exactly measurable, and hence quantifiable and observable "facts", but rather factors such as perception, understanding and expectations. "While specifying a complete policy rule is infeasible, however, there is much that a central bank can do – both by its policy actions and its words – to improve the ability of financial markets to predict monetary policy actions. [. . .] Words are also necessary" (Bernanke, 2004c).

Since 2001 the FED had started to implement a policy of disclosure and communication (Kohn and Sack, 2003). Since 2008 the FED has been experimenting with different modes by choosing particular sentences or parts of particular sentences. In April 2011 the FED held its first press conference at the age of 98. In the middle of 2011 the FED began to

improve its communication by using a new mode of language: "The Committee currently anticipates that economic conditions [...] are likely to warrant exceptionally low levels for the federal funds rate at least through mid-2013". By explaining that it will not change the target "for some time", the FED tried to guide expectations over a longer period. The FOMC subsequently improved its communication in the meeting on 13 December 2011. The FOMC stated that it implies a more flexible form of communication (Minutes of the Federal Open Market Committee [FOMC] meeting on December 13, 2011, p. 9; Federal Reserve Bank, 2011). The FED introduced an additional element, an explicit statement, to its forward guidance strategy called the interest rate projection in its press conference on January 25, 2012 (Federal Reserve Bank, 2012; Transcript of the Press Conference January 25, 2012; Bernanke, 2014). Whereas the FOMC in its session in January 25, 2012, moved toward a new sentence "at least through late 2014", it changed its language in September 2013 again by extending the time frame to "mid-2015" (Federal Reserve Transcript, 2013). According to the modern view of central banking, central banks should be transparent about their monetary policy decisions and about their own views of future development, as the new strategy of disclosing the interest rate projection by the FOMC indicates. The FED has continued to improve its communication by the forward guidance strategy. The FOMC explained, "an accompanying narrative will describe the key factors underlying those assessments as well a qualitative information regarding participants' expectations for the Federal Reserve's balance sheet" (Federal Reserve Transcript, 2013, p. 10).

The new mode of language involves the articulation of expectations about the appropriate future level of the FFR and its target by the members of the FOMC. The new mode of language poses the question how and why publishing the FOMC's expectations about the changing economic context could function as a strategy to anchor expectations? The forward guidance strategy of the FED concerns the *future* short-term policy rate, i.e. the FFR. By announcing a longer period in which the policy rate shall be unchanged, a central bank tries to guide markets' expectation and therefore to stabilize economic decision-making. Expectation-building is influenced by common understanding and also by the history of how a central bank has acted in the past.

#### Expectation-building as language interaction

The forward guidance strategy of the FED and the ECB are indispensable for a communication strategy, as a central bank's main instrument for guiding market expectations is to set the short-term interest rate in money market. As context and environment change over time, so do communication and language. Any action of a central bank is itself a part of conceptual actions within a complex situation. The use of language structures thought and reality through its constitutive function. It creates institutional facts. It is for this reason that central bank communication matters and why the use of language plays a central role in shaping the position of central banks. As depositories of knowledge and experience (King, 2004), central banks have to recognize the epistemic preconditions of a successful communicative interaction with the market.

Both central banks have been starting to develop solutions by implementing unconventional monetary policy in a situation in which the short-tem interest rate has already reached a low level, close to zero, which creates a totally new situation and context (Cour-Thimann and Winkler, 2013; White, 2012; Woodford, 2012). At this point, one has to recognize that the central bank's power is asymmetric. As present strategies of central banks indicate, a policy of easing money in times where the agents do not possess an optimistic view of the economy is not possible. The actions of the FED and ECB, its words and deeds, aiming at restoring confidence in the markets after the Lehman default, are linked to a central bank's reputation and credibility and on its institutional context.

As both the FED and the ECB explain, the communication and language of central banks are neither a commitment, nor a promise, so how is it possible to anchor the market expectations to changing language at all? To understand how monetary policy works

through markets, one has to acknowledge the process of perception, communicative interaction and understanding of what the central bank is talking about. Monetary policy can neither be explained by a linear input-output-transmission nor by pure deductive arguments based on formal language. With uncertainty in the landscape, central banking needed to be anchored in everyday language.

Academic economics is predominantly couched in formal language. However, certain critiques on the predominant formal language approach to economic questions have already infiltrated the agenda of economic meetings, particularly the agenda of central bank theory and monetary policy (Borio, 2013; Calvo, 2013). A formal language or code is an appropriate mode, for example, to steer cars through highways and tunnels. It is not suitable to steering expectations of a heterogeneous formation – such as markets. Guiding of expectations by central banks cannot be separated from the use of language and communication. To promise to adhere to a certain rule implies fooling the public and is simply not credible. However, expectations are not mental states. Expectations are perceived and judged as articulation in communicative interaction (Trabant, 2009).

At this point the meaning of language or of a sentence, a word, does not refer to a mental state or intention but rather to communicative interaction. It follows from the modern view of language science that there is no reason to assume a divergence between the statements of the central bank and its intention or beliefs. "The meaning of a word is its use in the language" (Wittgenstein, 1978, p. 43). The meaning results out of the practice of how words and sentences are used in different situations. Wittgenstein revolutionizes the traditional view in philosophy and its premises that only thoughts, mental states or thinking matter because language is to be seen as neutral. He emphasizes that language is an instrument of thinking (Wittgenstein, 1978, p. 569). Language is "doing work" (Wittgenstein, 1978, p. 132). Language is not neutral. Language is not neutral regarding its function in a monetary economy. This position is in line with the modern view of language science (Trabant, 2009).

Furthermore, common understanding is a prerequisite step to achieve a coherence of private and public expectations. This coherence does not imply substituting private expectations building by the FED because steering market expectations is linked to central bank transparency and credibility (Yellen, 2014). A central bank's communication is an attempt to create a common understanding by stating how a central bank itself evaluates the current state of the economy. Although central bankers also point to the danger of miscommunication, they do not pay much attention to the prerequisite of understanding (Woodford, 2013, p. 14). However, successful communicative interaction is based on common understanding (Simmons, 2006). How is understanding possible? Borio states, "understanding in economics does not proceed cumulatively" (Woodford, 2013, p. 7). Understanding depends on how market participants in fact interact. Davidson, 1982, p. 327), a philosopher, argued that, "(t)o understand the speech of another, I must be able to think of the same things she does: I must share her world. I don't have to agree with her in all matters, but in order to disagree we must entertain the same proposition, with the same subject matter, and the same standard of truth. Communication depends, then, on each communicant having, and correctly thinking that the other has the concept of a shared world, an interactive world. [...] The conclusion of these considerations is that rationality is a social trait. Only communication has it".

This consideration can be supported by the proposition that language provides a system of mutual orientation for both speaker and listener which enables them to configure a context for communicative interaction. It goes beyond merely being viewed as only a medium of transforming information; language is not neutral (Trabant, 2009). Using language is part of an activity. The use of language, hence language interaction, is not based on fixed rules. This view implies two important consequences:

- 1 the meaning of a used word or sentence is not fixed; and
- 2 the meaning of words and sentences does not arrive by accounted words or "wording" (Searle, 1969, p. 17).

The language or "the language game" is based on "agreement in action. [...] We say that, in order to communicate, people must agree with one another about the meaning of the words. But this criterion for this agreement is not just agreement with reference to definitions, e.g. ostensive definitions – but also an agreement in judgments. It is essential for communication that we agree in a large number of judgments" (Wittgenstein, 1983, pp. 342-343). This quotation indicates high relevance to central bank communication of the use of everyday language. Agreement is an implication of interaction based on everyday language.

The modern view of central banking is rooted in the realm of central bank practice, not in premises which are of no relevance to this practice, for instance, the neutrality of money or neutrality of language. Winkler proposes defining monetary policy as language analogy. Winkler concludes "from this perspective a monetary policy strategy is like a language. Like a language it provides tools, and a frame for reasoning, and a vehicle for communication" (Winkler, 2000, p. 23). Language is not a veil of thoughts. Words or sentences have no meaning beyond their use in a context (Wittgenstein, 1978, p. 432). Language is not a vehicle to transmit the ready-made meaning or informational content from a sender to a receiver. Furthermore, meaning and understanding are embedded in action. Neither money nor language is neutral. Calvo (2013) refers to the work of John M. Keynes who explained why money cannot be interpreted as neutral. However, mainstream economics has ignored Keynes' analysis of money and finance by stating that money is a veil (Muchlinski, 2012).

Acting means that market agents shape contexts and create new contexts which require the use of language as a public medium. Any decision-making process and communicative interaction must be anchored in a reference to the practice. It makes more sense to focus on everyday language to explain a strategy regarding uncertainty and the unstable current economic conditions than to promise to base a judgment on a numerical fixed rule. If central banks speak with formal language or codes, they have to use a given meaning of this formal language or codes independent of changing contexts and times. Exactness is a property of formal language and formal theory and is limited in its proper application to experience. Non-exactness and vagueness characterize everyday language as a social phenomenon embedded in changing contexts. Non-exactness, vague terms and concepts are not bounded, whereas codes and formal language are.

# Conclusions

The success of monetary policy depends on a central bank's capability to judge the changing context and to interact convincingly with the agents in the market. Central banking is seen as an interactive procedure between the central bank and the financial markets.

This paper argues that choosing different modes of communication, language and explaining decision-making seem to be a more adequate way to guide market expectations than promising to base a central bank's decision-making on a fixed numerical rule or formal language. Expectation-building cannot be anchored in an artificial system such as formal language, codes and deductive premises based on formal language. The meaning of a coded language is rooted in a predefined system independent of a changing environment and context. Steering market expectations do not at all occur by mechanical moves or steps.

Therefore, adjusting language and changing modes of communication according to changing context strengthens the credibility of the central bank and stabilizes the economy. Market expectations need to be anchored in changing circumstances and

contexts, and hence in everyday language. Communicative interaction is not a linear process because information and the meaning of sentences are not given by the sender, but rather through common understanding. A coded language appears as a sure guide toward the best choice among financial opportunities and simulates certainty. This is illusory. The use of code words implies the danger of misunderstanding and of veiling the context in which a central bank has to operate flexibly and decisively. Contrary to its assumed beneficial effects, the use of a coded language will create and exacerbate situations where parties are misled and misunderstood – as the financial crises have made clear. In contrast to a coded language, the language in communicative economic interactions can neither be explained nor understood by an analogy to a mechanical impulse-resonance. The effectiveness of a central bank is a result of its capacity to act and of the acceptance of its actions by society.

### References

Bernanke, B.S. (2004a), "The logic of monetary policy", Washington, DC, available at: www. federalreservereserve.gov/boarddocs/speeches/2004/20041202/default.htm (accessed 26 January 2014).

Bernanke, B.S. (2004b), "Central bank talk and monetary policy", Speech before the Japan Society, New York, NY, 7 October, available at: www.federalreserve.gov/Boarddocs/Speeches/2004/2004100 72/default.htm (accessed 26 January 2014).

Bernanke, B.S. (2004c), "Fedspeak", available at: www.federalreserve.gov/BoardDocs/Speeches/2004/200401032/default.htm (accessed 26 January 2014).

Bernanke, B.S. (2014), "Speech at the annual meeting of the american economic association", *The Federal Reserve, Looking Back, Looking Forward*, Philadelphia, PA, 3 January, available at: www.federalreserve.gov/newsevents/speech/bernanke/20140130a.html (accessed 26 January 2014).

Bindseil, U. and Jablecki, J. (2013), "Central bank liquidity provision, risk-taking and economic efficiency", ECB Working Paper Series No. 1542, May 2013, Frankfurt am Main, available at: www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1542.pdf

Bindseil, U. and König, P.J. (2012), "Target2 and the European sovereign debt crisis", *Kredit und Kapital*, Vol. 45 No. 2, pp. 135-174.

Blinder, A.S., Goodhart, C.A.E., Hildebrand, P., Lipton, D. and Wyplosz, C. (Eds) (2001), *How Do Central Banks Talk? International Centre For Monetary And Banking Studies (ICMB)*, Geneva Reports on the World Economy, No 3, Geneva, Oxford.

Blinder, A.S., Ehrmann, M., Fratzscher, M., De Haan, J. and Jansen, D.J. (2008), "Central bank communication and monetary policy: a survey of theory and evidence", *Journal of Economic Literature*, Vol. 46 No. 4, pp. 910-945.

Borio, C. (2011), "Central banking, post-crisis: what compass for uncharted waters?", BIS Working Papers Series No 35, Basel, available at: www.bis.org (accessed 26 November 2013).

Borio, C. (2013), "The financial cycle and macroeconomics", BIS Working Paper Series No. 395, Monetary and Economic Department, Basel.

Borio, C. and Disyatat, P. (2011), "Global imbalances and the financial crisis: link or no link?", BIS Working Papers Series No. 346, Basel.

Calvo, G. (2013), "Puzzling over the anatomy of crises – liquidity and the veil of finance", The Mayekawa Lecture. Bank of Japan, available at: www.imes.obj.or/jp/research/abstracts/english/me3 1-4.html (accessed 26 November 2013).

Coeuré, B. (2013), "The usefulness of forward guidance", Speech, Member of the Executive Board of the ECB, available at: www.ecb.int/ (accessed 26 January 2014).

Cour-Thimann, P. and Winkler, B. (2013), "The ECB's non-standard monetary policy measures. The role of institutional factors and financial structure", ECB Working Paper Series, No. 1528, Frankfurt.

Davidson, D. (1982), "Rational animals", Dialectica, Vol. 36, pp. 317-327.

De Grauwe, P. (2011), "The governance of a fragile Eurozone, No. 346", Centre for European Policy Studies (CEPS), Brussels, available at: www.ceps.eu (accessed 26 October 2012).

De Grauwe, P. and Yuemei, J. (2013), "Self-fulfilling crisis in the Eurozone: an empirical test", *Journal of International Money and Finance*, Vol. 34, pp. 15-36, available at: www.sciencedirect.com/science/article/pii/S0261560612001829

Draghi, M. (2011), "Hearing before the plenary of the European parliament on the occasion of the adoption of the resolution on the ECB's 2010", Annual Report, available at: www.ecb.int (accessed 8 January 2012).

Draghi, M. (2012a), President of the European Central Bank at the Conference in London, available at: www.ecb.europa.eu/press/key/date/2012/html/sp120726.en.html (accessed 2 December 2012).

Draghi, M. (2012b), *President of the European Central Bank to the Press Conference on 6 September*, available at: www.ecb.europa.en/press/pressconf/2012/html/is120906.en.html (accessed 6 October 2012).

Draghi, M. (2014), President of the European Central Bank at the Conference for the 20th anniversary of the establishment of the European Monetary Institute, Brussels, 12 February, available at: www.ecb.europa.eu/press/key/date/2014/html/sp/140212.en.html (accessed 22 March 2014).

Ehrmann, M. and Fratzscher, M. (2009a), "Explaining monetary policy in press conferences", *International Journal of Central Banking*, Vol. 5, pp. 41-84.

Ehrmann, M. and Fratzscher, M. (2009b), "Purdah – on the rational for central bank silence around policy meetings", *Journal of Money, Credit and Banking*, Vol. 41 Nos 2/3, pp. 517-528.

Ehrmann, M., Fratzscher, M., Gürkaynak, R.S. and Swanson, E. (2011), "Convergence and anchoring of yield curves in the euro area", *Review of Economics and Statistics*, Vol. 93 No. 1, pp. 350-364.

European Central Bank (2010), "The ECB's response to the financial crisis", *Monthly Bulletin*, June, Frankfurt, pp. 59-74.

European Central Bank (2011), "The financial crisis in the light of the euro area accounts: a flow-of-funds perspective", *Monthly Bulletin*, October, Frankfurt, pp. 99-120.

European Central Bank (2012a), "Money and credit growth after economic and financial crisis – a historical global perspective", *Monthly Bulletin*, February, pp. 69-85.

European Central Bank (2012b), "Global liquidity: concepts, measurements and implications for a monetary policy perspective", *Monthly Bulletin*, October, Frankfurt, pp. 55-68.

European Central Bank (2012c), "Editorial", Monthly Bulletin, September, pp. 5-11.

Federal Reserve Bank (2011), Minutes of the Federal Open Market Committee (FOMC) Meeting on 13 December, available at: www.federalreserve.gov/monetarypolicy/fomcminutes20111213.htm (accessed 18 December 2012).

Federal Reserve Bank (2012), *Transcript of the Press Conference 25 January 2012*, available at: www.federalreserve.gov/mediacenter/files/FOMCpresconf20120125.pdf (accessed 18 February 2012).

Federal Reserve Bank (2013), *Transcript of Chairman Bernanke's Press Conference*, available at: www.federalreserve.gov/mediacenter/files/FOMCpresconf20130918.pdf (accessed 16 October 2013)

Gürkaynak, R.S., Sack, E. and Swanson, E. (2005), "Do actions speak louder than words? The response of asset prices to monetary policy actions and statements", *International Journal of Central Banking*, Vol. 1 No. 1, pp. 55-92.

IMFS Interdisciplinary Studies in Monetary and Financial Stability (2013), About the ECB and its Watchers Conference 2012, Frankfurt.

Issing, O. (2005), "Communication, transparency, accountability: monetary policy in the twenty-first century", *The Federal Reserve Bank of St. Louis Review*, Vol. 87 No. 2, pp. 65-83.

Issing, O. (2013), "A new paradigm for monetary policy"?, Working Paper No. 423 (2013/12), available at: www.ifk-cfs.de Frankfurt (accessed 18 February 2012).

King, M. (2004), "The institutions of monetary policy. The Richard T Ely lecture", *American Economic Review*, Vol. 94 No. 2, pp. 1-13.

Kohn, D.L. and Sack, B.P. (2003), "Central bank talk: does it matter and why?", available at: www.federalreserve.gov/pubs/feds/2003/200355/200355abs.html (accessed 18 May 2012).

Lamla, M.J. and Sturm, J.E. (2013), "Interest rate expectations in the media and central bank communication", KOF Working Paper No. 334, March, ETH Zurich, available at: www.kof.ethz.ch/en/ publications/p/kof-working-papers/334/

Muchlinski, E. (2005), "Central bank transparency: reasons for creative ambiguity", in Hölscher, J. and Tomann, H. (Eds), Globalization of Capital Markets and Monetary Policy, Palgrave Macmillan Houndsmills, Basingstoke, pp. 130-147.

Muchlinski, E. (2011), Central Banks and Coded Language. Risks and Benefits, Palgrave Macmillan, Houndsmills, Basingstoke.

Muchlinski, E. (2012), "Keynes's economic theory - judgment under uncertainty", in Cate, Th. (Ed), Keynes's General Theory. Seventy-Five Years Later, Edward Elgar, Cheltenham, pp. 58-74.

Orphanides, A. (2013), "Is monetary policy overburdened"?, Working Paper Series No. 75, Institute for Monetary and Financial Stability, Goethe University Frankfurt Main, Frankfurt.

Searle, J.R. (1969), Speech Acts, Cambridge University Press, Cambridge.

Simmons, B. (2006), "The Future of Central Bank Cooperation", BIS Working Paper Series No.200, February 2006, Basel.

Trabant, J. (2009), Die Sprache, C.H. Beck, München.

Vickers, J. (1998), "Inflation targeting in practice: the UK experience", Bank of England Quarterly Bulletin, November, pp. 368-375.

White, W.R. (2012), "Ultra easy monetary policy and the law of unintended consequences", Working Paper No. 126, Federal Reserve Bank of Dallas, Globalization and Monetary Policy Institute.

Winkler, B. (2000), "Which kind of transparency? On the need for clarity in monetary policy-making", European Central Bank Working Paper Series No. 26, Frankfurt am Main.

Wittgenstein, L. (1978), Philosophical Investigation, Basil Blackwell, Oxford.

Wittgenstein, L. (1983), Remarks on the Foundation of Mathematics, in Wright, G.H., Rhees, R., Anscombe, G.E.M. (Eds), The MIT Press, Cambridge, MA, London.

Woodford, M. (2005), "Central bank communication and policy effectiveness", Working Paper 11898, National Bureau of Economic Research (NBER), Cambridge, MA.

Woodford, M. (2012), "Methods of policy accommodation at the interest-rate lower bound", Revised Version of a Presentation at the Federal Reserve Bank of Kansas City Symposium on 'The Changing Policy Landscape' at Jackson Hole, WY, 31 August, available at: www.columbia.edu/

Woodford, M. (2013), "'Fedspeak': does it matter how central bankers explain themselves"?, Columbia University, available at: www.columbia.edu/ (accessed 15 September 2013).

Yellen, J. (2014), Transcript of Chair Yellen's Press Conference, 19 March, available at: www. federalreserve.gov/mediacenter/files/FOMCpresconf20140319.pdf

### Further reading

Bernanke, B.S. (2012), "Monetary policy since the onset of the crisis", available at: www. federalreserve.gov/newsevents/speech/bernanke20120831a.htm (accessed 26 January 2014).

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