

Allard, Julien; Catenaro, Marco; Vidal, Jean-Pierre; Wolswijk, Guido

Working Paper

Central bank communication on fiscal policy

ECB Working Paper, No. 1477

Provided in Cooperation with:

European Central Bank (ECB)

Suggested Citation: Allard, Julien; Catenaro, Marco; Vidal, Jean-Pierre; Wolswijk, Guido (2012) : Central bank communication on fiscal policy, ECB Working Paper, No. 1477, European Central Bank (ECB), Frankfurt a. M.

This Version is available at:

<https://hdl.handle.net/10419/153910>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



EUROPEAN CENTRAL BANK

EUROSYSTEM



WORKING PAPER SERIES

NO 1477 / SEPTEMBER 2012

CENTRAL BANK COMMUNICATION ON FISCAL POLICY

Julien Allard, Marco Catenaro,
Jean-Pierre Vidal and Guido Wolswijk



In 2012 all ECB
publications
feature a motif
taken from
the €50 banknote.



NOTE: This Working Paper should not be reported as representing the views of the European Central Bank (ECB). The views expressed are those of the authors and do not necessarily reflect those of the ECB.

Acknowledgements

We are grateful to P. Koerbitz for providing a PERL algorithm that eased construction of the fiscal communication indicator. Moreover, comments by M. Ehrmann, P. Jonasson, J. Marin, as well as an anonymous referee are gratefully acknowledged. The views expressed in this paper are the ones of the authors and do not necessarily represent those of the European Central Bank (ECB).

Julien Allard

was a trainee at the ECB's Monetary Policy Strategy Division when this project was initiated.

Marco Catenaro

at European Central Bank, Kaiserstrasse 29, D-60311 Frankfurt am Main, Germany; e-mail: marco.catenaro@ecb.europa.eu

Jean-Pierre Vidal

at European Central Bank, Kaiserstrasse 29, D-60311 Frankfurt am Main, Germany; e-mail: jean-pierre.vidal@ecb.europa.eu

Guido Wolswijk

at European Central Bank, Kaiserstrasse 29, D-60311 Frankfurt am Main, Germany; e-mail: guido.wolswijk@ecb.europa.eu

© European Central Bank, 2012

Address

Kaiserstrasse 29, 60311 Frankfurt am Main, Germany

Postal address

Postfach 16 03 19, 60066 Frankfurt am Main, Germany

Telephone

+49 69 1344 0

Internet

<http://www.ecb.europa.eu>

Fax

+49 69 1344 6000

All rights reserved.

ISSN 1725-2806 (online)

Any reproduction, publication and reprint in the form of a different publication, whether printed or produced electronically, in whole or in part, is permitted only with the explicit written authorisation of the ECB or the authors.

This paper can be downloaded without charge from <http://www.ecb.europa.eu> or from the Social Science Research Network electronic library at http://ssrn.com/abstract_id=2148414.

Information on all of the papers published in the ECB Working Paper Series can be found on the ECB's website, <http://www.ecb.europa.eu/pub/scientific/wps/date/html/index.en.html>

Abstract

While the established literature on central bank communication has traditionally dealt with communication of monetary policy messages to financial markets and the wider public, central bank communication on fiscal policy has so far received little attention. This paper empirically reviews the intensity of central banks' fiscal communication by five central banks (the US Federal Reserve, the ECB, the Bank of Japan, the Bank of England and the Swedish Riksbank) over the period 1999-2011. To that end, it develops a fiscal indicator measuring the fiscal-related communication in minutes or introductory statements.

Our findings indicate that the ECB communicates intensively on fiscal policies in both positive as well as normative terms. Other central banks more typically refer to fiscal policy when describing foreign developments relevant to domestic macroeconomic developments, when using fiscal policy as input to forecasts, or when referring to the use of government debt instruments in monetary policy operations. The empirical analysis also indicates that the financial crisis has overall increased the intensity of central bank communication on fiscal policy. It identifies the evolution of the government deficit ratio as a driver of the intensity of fiscal communication by central banks in the euro area, the US and Japan, and for Sweden since the start of the crisis. In England the fiscal share in central bank communication is related to developments in government debt as of the start of the crisis.

JEL codes: E58, E61, E63

Keywords: Central bank communication, fiscal policy, quantification of verbal information.

Non-technical summary

This article offers a first broad-brushed study of central bank communication on fiscal policy. It provides some quantitative insights on how often central bank officials openly communicate on fiscal matters, and how this has developed over time. Our approach combines both a qualitative analysis and a more quantitative-type analysis, based on an indicator specifically built to measure the intensity of central bank communication on fiscal issues. Fiscal communication by central banks is shown to be related to fiscal developments such as changes in government deficit or debt.

Fiscal policy directly affects the economic environment in which central banks operate, and in particular the outlook for inflation and growth. In the short-term, automatic fiscal stabilisers tend to dampen business cycle volatility, while discretionary fiscal policy impacts prices and output mainly through its effect on aggregate demand. Prices are also affected by indirect tax changes. In the long-term, expansionary fiscal policy may erode the sustainability of public debt and raise inflation expectations, while structural policies using fiscal instruments can foster potential growth if spending notably improves overall productivity of the factors of production.

Against this backdrop, central bankers typically refer – albeit through different channels and in different shapes – to fiscal policy in their public communication for essentially two reasons: first, fiscal policy is one of the key elements contributing to the shaping of monetary policy decisions, which then themselves require explanation to the general public; second, central banks may sometimes find it appropriate to present their views on the desirable forward-looking direction of fiscal policy, typically in an attempt to convey to responsible authorities an assessment about what is required to ensure the longer-term sustainability of public finances. Of course, the specific features of each country/union of countries greatly matter.

To measure the intensity of central banks' fiscal communication, a synthetic quarterly indicator was constructed for the Federal Reserve, the European Central Bank, the Bank of Japan, the Bank of England, and the Swedish Riksbank, over a 12 year period starting from 1999 to 2011. The indicator reflects the intensity – in terms of size – of external communication on fiscal policy developments, based on the main official monetary policy publication that includes information on the monetary policy deliberations (minutes of the decision-making bodies or introductory statements at press conferences). All statements on fiscal policy were classified according to six categories:

- 1) “Positive” statements on domestic fiscal policy as an element taken into account by the central bank when assessing the monetary policy stance,
- 2) Normative statements calling on the government(s) in the bank's jurisdiction to take some defined action,
- 3) References to fiscal policy as an input to or outcome of central bank forecasts,

- 4) References to government financing instruments (government bonds, bills, deposits) in the context of the implementation of monetary policy,
- 5) References to fiscal policy of other countries in the international macroeconomic and financial outlook, and
- 6) Remarks by government representative(s) on fiscal policy issues.

Scaling the statements with the overall length of the minutes/introductory statements, the ECB communication on fiscal policy is sizeable (around 12% on average) and largely normative in nature. An econometric analysis of the fiscal communication indicator, aggregated over the relevant categories, shows that increases in government deficits lead the central banks of the US, of the euro area and of Japan to pay relatively more attention to fiscal developments in their main communication channel for monetary policy. Since the start of the financial crisis in 2008, government deficit (Sweden) and debt (UK) developments also matter for the respective central banks in our sample. These results are fairly robust to alternative specifications.

“Central banks are often accused of being obsessed with inflation. This is untrue. If they are obsessed with anything, it is with fiscal policy.” (M. King, 1995)

1. Introduction

A perhaps not much advertised side-effect of the financial crisis is that central bankers increasingly – and more publicly – communicate on fiscal policy developments and perspectives. Such communication, which may occur for a variety of reasons, takes place amidst the acknowledged importance for central bankers to be clearer and more transparent about their policy decisions and underpinning analysis.

While the established literature on central bank communication traditionally deals with communication of monetary policy messages to the general public and financial markets¹, the more specific issue of central bank communication on fiscal policy has so far received very little attention.² Yet, given the numerous ways in which fiscal policy affects the environment in which monetary policy operates, the question arises what fiscal policy aspects enter into a central bank’s main communication channel of monetary policy, and whether public finance issues have gathered more attention recently. This paper aims to shed some light on these questions by empirically reviewing the intensity of central banks’ communication on fiscal policy for a set of five central banks (the US Federal Reserve, the ECB, the Bank of Japan, the Bank of England and the Swedish Riksbank).

Our findings indicate that the Federal Reserve, the Bank of Japan, the Bank of England and the Swedish Riksbank devote about 2 to 4% of their main monetary policy communication outlet to fiscal issues, mostly describing recent fiscal developments and outlook. On average the ECB devotes around 12% of its introductory statements to fiscal issues, and for the larger part ECB’s communication on fiscal policy is of a normative nature. Cross-country comparability of our findings is warranted only to a very limited extent because of structural differences in the institutional frameworks and traditions of central banks. Government deficits are identified as a main driver of the intensity of fiscal communication in the US, the euro area and Japan. Since the onset of the financial crisis, developments in public finances have also become a driver of fiscal communication also for the Bank of England and the Swedish Riksbank.

The remainder of this paper is organised as follows. Section 2 briefly reviews the main channels through which fiscal policy affects the short to longer-term environment for monetary policy. Section 3 recalls the importance of central banks’ external communication. Section 4 sketches out our developed indicator for central bank communication on fiscal policy and carries out an empirical analysis of its intensity over the period 1999-2011. Concluding remarks are offered in section 5.

¹ Monetary policy aspects of central bank communication are extensively dealt with in the overview article by Blinder et al. (2008). Financial stability issues are analysed in Geraats (2010), exchange rate aspects in Fratzscher (2008) and money market aspects in Neuenkirch (2012).

² To our best knowledge, Moser-Boehm (2006, 2009) and Rozkrut (2008) are the only studies dealing with fiscal policy communication.

2. Fiscal policy effects on the economy and prices

Fiscal policy is one among the main factors determining the macroeconomic environment in which a central bank operates. There are three main channels through which fiscal policy affects the short-term environment for monetary policy: automatic fiscal stabilisers, discretionary fiscal measures and, among the latter, measures having a direct price-impact (e.g. value-added or sales tax rates). Taking a longer-term view, fiscal policies matter to central banks mainly because of their implications for the more general sustainability of public finances and their effects on potential economic growth.³

Automatic fiscal stabilisers are the first channel through which fiscal policy can affect the economy, and thereby the monetary policy setting. Automatic stabilisers by their very nature contribute to lower amplitudes of business cycles and less volatility in prices. Automatic stabilisation may arise from the responses of tax systems to income changes (e.g. progressive tax) and spending changes (notably unemployment benefits), but also from a more or less rules-based system of government spending reactions to economic developments, as in the US.

As regards discretionary measures, standard macroeconomic analysis suggests that expansionary fiscal measures have a positive effect on growth and price developments in the short-term. The resulting sign and size of fiscal multipliers vary depending on a range of factors including the composition of budget changes, product and labour market flexibility, and reactions in foreign exchange and bond markets (for a survey of fiscal multipliers in the literature, see Spilimbergo, Symansky and Schindler (2009)).

Some discretionary measures have a direct impact on price developments. Changes in indirect tax rates, such as value-added, sales, tobacco or energy taxes, feed into prices. Governments also set administered prices and provide subsidies, especially in areas with a public service character (for instance healthcare). Government wage agreements can also affect the price level, not only through their impact on aggregate demand, but also through a leading role for private wage negotiators.⁴

As to longer-term effects, unsustainable fiscal policies ultimately have very adverse macroeconomic effects: higher taxes, government default or high inflation. High inflation generates seignorage and reduces the real value of outstanding liabilities. While central bank independence has strengthened on a global scale, such independence is never absolute, and lasting fiscal concerns may eventually raise doubts about the capacity of a central bank to control inflation in the longer term.

³ While there are many more channels running from fiscal policy to economic developments, this section limits the overview to what can be considered the main channels, also being the ones that are most often alluded to in central bank communication. See e.g. ECB (2004).

⁴ On the leading role of public wages for private wages, see Lamo, Pérez and Schuknecht (2008).

Regarding potential economic growth, fiscal policy can impact its determinants (physical and human capital investment, technological change, employment and savings). Tax rates and the tax structure have an impact on incentives to work, save, invest and innovate, and government expenditure on physical and human capital can improve the quality of production factors. Lower public deficits can crowd-in private investments.

3. Why do central banks publicly communicate on fiscal policy?

In general, central banks communicate to the public, the media and financial markets for two main purposes. First and foremost, communication contributes to the effectiveness and efficiency of monetary policy; clarity about the mandate and the means of pursuing it helps central banks foster their credibility and better anchor inflation expectations. At the same time, transparent communication enhances market participants' understanding of the central banks' "reaction function", making monetary policy decisions more predictable.⁵ Second, better communication fosters public acceptance of the central bank's monetary policy strategy, contributing to accountability of independent central banks in modern democracies.

The role of fiscal policy in central bank decision-making and communication is likewise twofold. On the economic side, fiscal policy developments and plans are part of the information set that central banks use to assess macroeconomic and price developments and their outlook. In this respect, fiscal policy is not fundamentally different from e.g. oil price or wage developments. Central bank statements may not only refer to contemporaneous fiscal developments but also to forecasts that most central banks produce. References to fiscal policy in central bank communication in this context will most often refer to domestic fiscal policy but statements on fiscal policies of other countries are possible, especially in the case of a central bank in a small open economy. Also, references to fiscal policy are possible in the context of the implementation of monetary policy, for instance if government bonds are bought or sold in open-market operations.

Fiscal policy is the main macroeconomic policy area that, alongside monetary policy, determines the economic policy setting in a country. Governments and central banks interact, implicitly or explicitly, in their decisions. Central banks may share responsibilities in specific areas with respective fiscal authorities (e.g. country-representation in international meetings, exchange rate regimes), requiring mutual understanding and cooperation. External communication in this case may be used by central banks to

⁵ On the predictability of monetary policy decisions, see Blattner et al. (2008).

indicate the desired course of fiscal policy from a monetary policy perspective, i.e. adding a normative element.⁶

Given the importance of fiscal policy for central banks, a key issue is why and when central banks decide to communicate externally. As regards fiscal policy as an element in the information-set used by the central bank, this would be the case especially if fiscal policy has an unstable character, thereby strongly influencing developments in growth and inflation that matter most to central banks. For instance, frequent changes in indirect tax rates or an active discretionary fiscal policy could call for frequent central bank communication on fiscal policy. As to forecasts, there are differences in publication practices, but only few central banks publish own budgetary forecasts.

The financial crisis that started with the default of Lehman Brothers in September 2008 may have had a profound impact on fiscal communication. Fiscal policies in the initial phase of the crisis have been very accommodative to combat the economic fallout from the default. However, with financial market concerns later turning to the soundness of public finances, many countries changed course, and embarked on a restrictive fiscal policy course, especially when debt sustainability was questioned and liquidity in some sovereign bond markets dried up. These changes in fiscal policies are likely to have led to a larger part of minutes/statements being devoted to describing expansionary fiscal policies to avoid a severe economic downturn, government actions to rescue the banking sector, mounting government deficits and debt, and implications of the sovereign debt crisis. Central banks' asset purchase programmes, involving large purchases of government bonds, may also have added to the volume of fiscal communication of central banks concerned.

Public information about (informal) communication between central banks and governments is very limited and mainly anecdotal. Moser-Boehm (2006) reported that among industrialised countries, fiscal policy is one of the subjects of high-level meetings between the central bank and the government in slightly more than 40% of the meetings. Especially as regards normative aspects, one may postulate that external communication takes place in particular in case of adverse fiscal developments that complicate the achievement of central banks' goal(s). In such a case, a central bank has to weigh the chance of success with its statement and the clarification of its position against possible costs and risks, for example the risk of exacerbating financial markets uncertainty, a loss of central bank reputation in case of failure, retaliation by governments discussing and putting pressure on monetary policy, and direct or indirect government pressure on central banks to stop public communication. The stronger the institutional framework for monetary policy independence, the lesser would be the chance of effective government

⁶ See Buiters (2008). In this context, the interest rate instrument can also play a role for a central bank to state its view. In Lewis and Hughes-Hallett (2009) debt is shown to play a role in Taylor-rules for ECB interest rates: monetary policy tightens by 25 basis points for every 2.5pp rise in the debt to GDP ratio. On a more anecdotal basis,

pressure. Moreover, if a central bank faces several fiscal counterparties rather than just one, external communication may be preferred for reasons of efficiency, homogeneity and transparency of the message.

Central bank communication on fiscal developments is also sometimes demand-driven. It can be asked explicitly to provide a public opinion (e.g. by law or at the request of national parliament, either in the role of the country's monetary authority or as an independent adviser). Moser-Boehm (2006) reports that in the cases where central banks in industrialised countries comment on government's budgets, they do so because they are obliged in 10% of all cases (in 80% they choose to comment, in 10% they choose not to comment).⁷

4. An empirical analysis of central banks' fiscal communication

4.1. Measuring fiscal communication

In practice, central banks communicate in a variety of ways to markets and the public. Communication lines include press conferences, minutes of meetings, speeches and interviews, hearings in the context of central banks' accountability, articles in monthly, quarterly and annual reports, and analytical publications such as articles in an own working paper series or in external journals. Table 1 presents an overview of communication practices, based on an analysis of publications of the central banks concerned (see annex I for further details). It reveals a fairly large degree of heterogeneity in fiscal communication practices.

Table 1. Synoptic table of fiscal communication practices

	<i>Fed</i>	<i>ECB</i>	<i>BoJ</i>	<i>BoE</i>	<i>Riksbank</i>
Main monetary policy communication channel	Min	IS	Min	Min	Min
Other main channels of external communication †	S/T	MR,AR, S/T	None	S	S
References in testimonies before parliament	Yes	Yes	No	Yes	No
Publishes fiscal projections	No	No	No	No	Yes

† Notation: Min/IS: Minutes/Introductory Statement; MR: Monthly Report; AR: Annual Report; S/T: Speeches/Testimonies.

Our focus is the main official monetary policy publication by central banks that includes information on the monetary policy deliberations. These may take the shape of minutes of decision-making body meetings or introductory statements released on behalf of the decision-making body. These central bank

Jonas and Mishkin (2005) report that the central bank of Poland possibly kept interest rates high to exert pressure on the government to tighten fiscal policy.

⁷ When it comes to 'general aspects of fiscal policy', 50% of the central banks comment often/always, 30% comment at times, and 20% comment rarely. As to reasons for commenting, 50% refer to 'tradition' rather than to 'formal rules', 'personal preferences' or 'other reasons'.

statements reflect the discussion on monetary policy, being the core activity of central banks, therefore receiving much public attention.⁸ Inclusion of fiscal statements in such releases indicates best the role of fiscal developments in monetary policy decision-making and communication. The structure and contents of these main policy publications differ widely among central banks (see Jeanneau, 2009). For most central banks, minutes of the decision-making body are seen as the most informative publication. However, for the ECB this is the introductory statement at the press conference just after the meeting of its Governing Council. Some differences might exist between the nature of minutes, reflecting the internal deliberations and viewpoints, and introductory statements, focusing on explaining the rationale underlying monetary policy decisions, reflecting a collegial communication strategy (see Blinder *et al.* 2008). However, there is a large variety in approaches in central bank minutes, from rather global summaries of the elements discussed to detailed reports of each member's remarks. Given this fundamental diversity in central bank communication, our analysis focusses on the time-series dimension. Cross-country comparability of communication intensity is not warranted, because of structural differences in the institutional frameworks and traditions of central banks.

Covering practices of both smaller and larger central banks, this paper surveys communication practices by the US Federal Reserve (Fed), the European Central Bank (ECB), the Bank of Japan (BoJ), the Bank of England (BoE), and the Swedish Riksbank, over a 13 year period starting from 1999 to 2011. The starting year (1999) was chosen to be the year in which the ECB started its operations. Time-wise, this also follows the greater institutional independence granted to the Bank of England (1997) and the Bank of Japan (1998) thus avoiding possibly related breaks in communication practices. The cut-off date was chosen to include several quarters of the crisis to allow for empirical testing of changes in communication patterns.

The literature on central bank communication distinguishes a few methods to convert central bank statements into quantitative information, opening the way to empirical analysis and econometric specifications. The goal of these indicators usually is to predict changes in the monetary policy stance. Heuristic approaches have been applied, where the researcher qualifies central bank statements according to some guidelines, but based on his/her own interpretation. As an example, Rozkrut (2008) analyses the communication of the National Bank of Poland by assessing selected texts on four dimensions using judgement, assigning a binary value for each dimension; "criticizing fiscal situation" (value +1) or "favouring fiscal situation" (value -1). Relying on human subjectivity is time consuming but it makes it possible to adapt the indicator to the exact goal one wants to achieve. It makes it possible to detect some situations that a machine could not detect, thus reducing the probability of unduly attributing part of the text to communication on fiscal policy. Alternatively, fully automated approaches have the benefit of being objective, quick and replicable but they require text structures to remain fairly comparable over

⁸ Alternatively, press reports can be used as a source of information on fiscal policy statements of central banks (as e.g. in Lucca and Trebbi, 2009). However, fiscal statements do not always make headlines as such reports usually focus on news that can 'move' financial markets.

time. For instance, Lucca and Trebbi (2009) use such an automated approach to assess the Fed's Federal Open Market Committee (FOMC) statements on the hawkish – dovish axis.⁹

For the purposes of constructing our fiscal communication indicator, a mix of predefined guidelines and discretionary assessment (supported by a glossary of “word codes”) was used, in line with earlier work by Rosa and Verga (2006) who analysed ECB communication on monetary policy using keywords, and assessed the most relevant words on the hawkish-dovish axis. However, the authors underline in their paper the need for human appraisal. The KOF “Monetary Policy Communicator for the Euro Area” is another example in this category (KOF Swiss Economic Institute, 2007). While a fully automated approach would have the advantage of a low degree of subjectivity and a high level of consistency, we nevertheless deemed some room for discretionary assessment inevitable for increasing reliability. For instance, minutes of the Bank of Japan sometimes include statements made by government representatives within the decision-making body, which should not be confused with central bank communication.¹⁰

Based on a limited number of introductory statements/minutes, we set up a framework for automatically detecting relevant fiscal words, which were then discretionarily assessed for appropriate categorisation. To ensure ‘equal treatment’ of the central banks selected, the English versions of all the main policy communication devices have been used in the search. Annex II includes more details on the approach taken and some examples. Based on this, central bank statements containing fiscal elements were classified in one of the following mutually exclusive categories:

- 1 *Monetary policy stance*: (positive) statements on domestic fiscal policy as an element taken into account by the central bank when assessing the monetary policy stance
- 2 *Normative element*: a statement calling on government(s) in the relevant jurisdiction to take some defined action
- 3 *Forecast*: references to fiscal policy as an input to or outcome of central bank forecasts.
- 4 *Monetary policy instrument*: references to government financing instruments (government bonds, bills, deposits) in the context of the implementation of monetary policy.
- 5 *Fiscal policies in other countries*: references to foreign fiscal policies in the macroeconomic and financial outlook.
- 6 *Government representative*: statements by a government representative on fiscal policy issues.

Statements from government representative (category 6) are part of the minutes in the case of the Bank of Japan, and were identified separately and excluded from the empirical analysis below. They do not

⁹ Other examples include Hendry and Madeley (2010) for Canada and Jansen and De Haan (2010) for the ECB.

¹⁰ By excluding them, it is assumed that absent the fiscal policy statements made by the government representative, no other member of the committee would have made similar statements.

necessarily reflect a view of the monetary committee or one of its members when making monetary policy decisions.

“Fiscal” sentences were detected using the search function, corrected where deemed appropriate. For instance, the terms “after-tax income” or “fiscal year” are not directly related to fiscal issues. On the other hand, some sentences may contain references to fiscal policy even though they do not explicitly include fiscal keywords (e.g. when referring to ‘it’, being fiscal policy mentioned in a previous sentence). As a result, it was important to read the sentences detected by the “search” function as well as a few sentences before and after each of the detected sentences. All selected sentences were allocated to one and only one category. This proved to be particularly demanding for the categories referring to the monetary policy stance (category 1) and for the normative assessment (category 2). Pre-set priority rules were used when fiscal policy references could fit more than one category (see annex II for further details).

Subsequently, the number of words in each category and for each month was counted. Outcomes were normalised to account for the overall size of the minutes/introductory statements and its evolution over time, by dividing word counts by the total number of words contained in the relevant minutes/introductory statements. Quarterly averages were taken to smooth out high volatility in monthly data.¹¹

Table 2 - Key statistics of the fiscal communication indicator

(% of number of words in the minutes/ introductory statements unless indicated otherwise)

	<i>Fed</i>	<i>ECB</i>	<i>BoJ</i>	<i>BoE</i>	<i>Riksbank</i>
Average	4.2	11.9	2.4	3.5	3.2
Minimum	0	1.6	0	0.2	0
Maximum	10.4	31.1	7.5	12.4	10.0
Standard deviation	3.3	5.9	1.8	3.1	2.2
Standard deviation/Average	0.8	0.5	0.8	0.9	0.7
Crisis effect†	2.1 (0.6)	-2.3 (-0.4)	0.9 (0.2)	4.4 (2.0)**	0.0 (0.0)
Average: absolute number of fiscal words	222	172	235	130	183

†Defined as the average value of the fiscal communication indicator over the period 2008Q4-2011Q4 compared to the average value for the period 1999Q1-2008Q3. Numbers in brackets indicate levels of statistical significance.

¹¹ In addition, having only annual observations for the fiscal variables to be included in the empirical analysis, using quarterly data makes the monthly and annual data meet halfway.

Chart 1. Fiscal communication FED

(% of total words used in minutes)

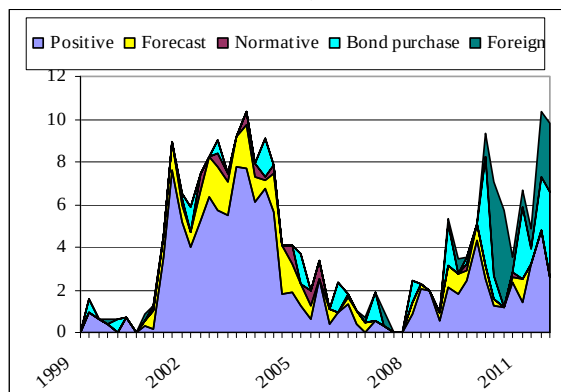


Chart 2. Fiscal communication ECB

(% of total words used in introductory statements)

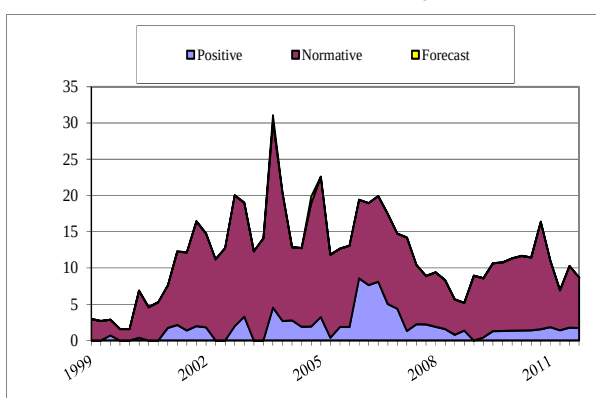


Chart 3. Fiscal communication BoJ

(% of total words used in minutes)

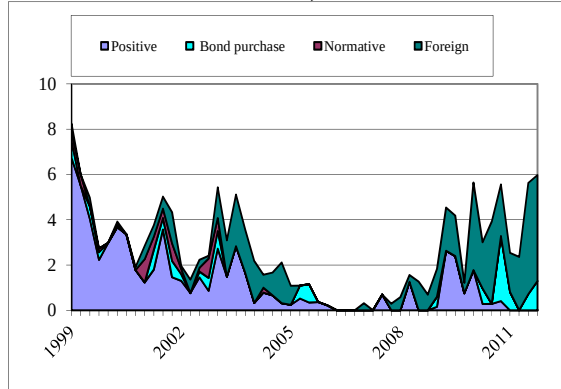


Chart 4. Fiscal communication BoE

(% of total words used in minutes)

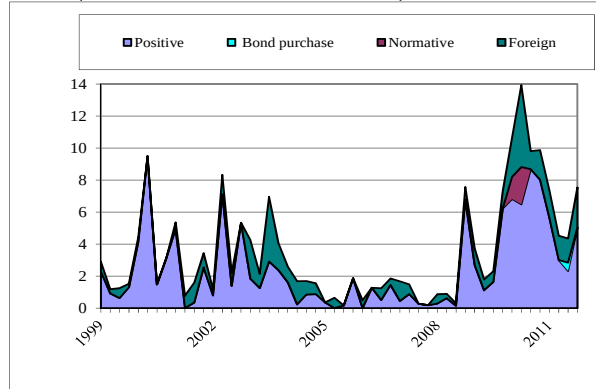


Chart 5. Fiscal communication Riksbank

(% of total words used in minutes)

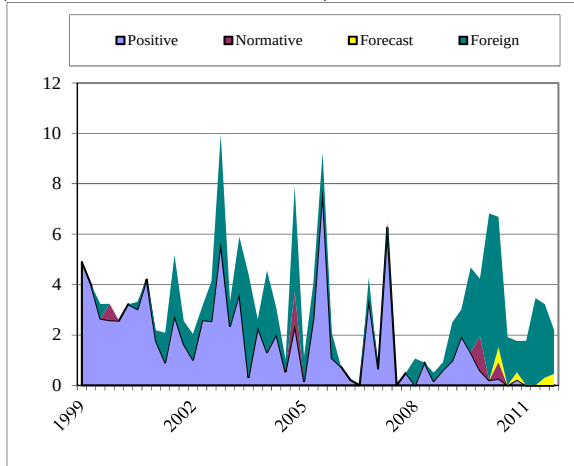
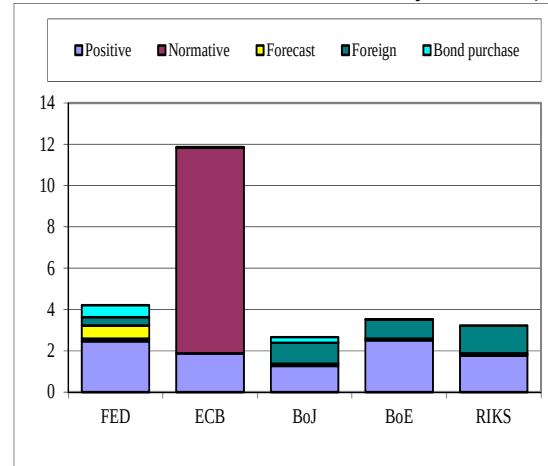


Chart 6. Averages 1999-2011

(% of total words used in minutes /introductory statements)



The main outcomes of this analysis are included in charts 1-6, showing developments over time for the 5 selected central banks. We refrain from making statements on cross-bank differences in fiscal communication given the heterogeneous nature of the main policy communication devices. For instance, the introductory statement from the ECB contains no references to positions taken by the individual members in the discussions while, on the opposite side, the minutes of the Riksbank show a detailed account of the viewpoints of all members. Table 2 summarises some relevant statistics of the series used in the econometrical part of the paper for the relevant period (generally 1999Q1-2011Q4).

4.2 Empirical analysis

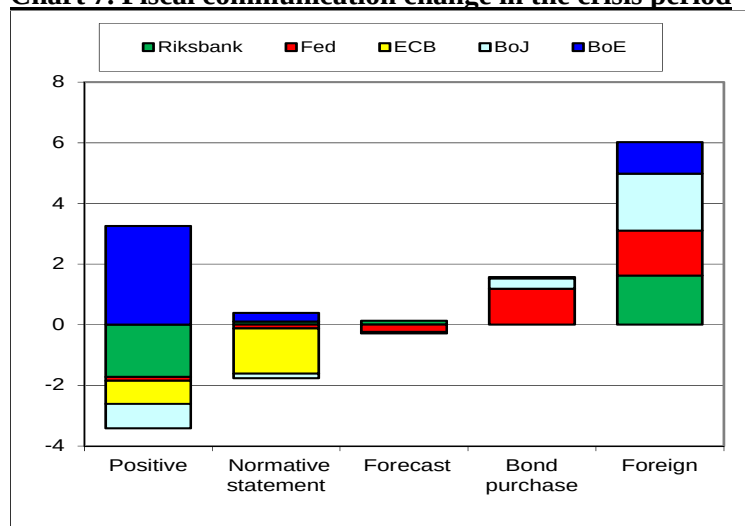
A global analysis of developments of the indicator and of main fiscal developments may already hint at some relationship between the size of fiscal communication and factors motivating them.

- *Federal Reserve*: The Federal Reserve discussed fiscal policy relatively more in the period 2001-2005 which was characterized by an accommodative fiscal policy in a period of low economic growth. A similarly high level was reached during the financial crisis. At the start of the period, (monetary policy) consequences of strong reductions in government debt or even its abolishment on account of budget surpluses were discussed.
- *ECB*: In the case of the ECB, a peak of 30% was reached in 2003/2004 with much discussion on re-interpretation of the Stability and Growth Pact.
- *Bank of Japan*: Fiscal policy statements in the Bank of Japan's minutes show a relatively high level in the beginning of the period, reflecting discussions on the role of fiscal policy in combating deflation, but that discussion had gradually faded out by mid-2000s. The financial crisis caused a renewed surge in fiscal statements in the minutes.
- *Bank of England*: Results for the Bank of England are rather volatile. Strong peaks in fiscal communication in the initial years reflect presentations of budgetary outcomes and plans, usually in spring. The role of this practice is somewhat reduced over time, with foreign fiscal policy developments gaining some ground. As of 2008, the quantitative role for fiscal policy statements in the minutes of the Bank of England increases again, reflecting national and international fiscal measures to combat real economy consequences of the Lehman default.
- *Swedish Riksbank*: The indicator for the Riksbank shows high volatility without a clear trend. In part, this may reflect the lower frequency of meetings, with sometimes just one meeting per quarter. Peaks appear in case of major fiscal events, both domestic and abroad, consistent with the notion of Sweden as a small open economy. The indicator reacts sharply but with a low degree of persistence.

A distinction is made between the ‘normal’, pre-crisis period (1999 to September 2008) and the crisis-period that started with Lehman Brothers’ default and includes the sovereign debt crisis. Such distinction could reflect more detailed descriptions of expansionary fiscal policies to avoid a severe economic downturn, government actions to rescue the banking sector, mounting government deficits and debt, and implications of the financial and the euro area sovereign debt crisis, including asset purchase programmes introduced by the main central banks. The period of crisis witnessed increased intensity of fiscal communication, on average (unweighted) by nearly 1 percent-point:

- *Federal Reserve*: References to bond purchases and to foreign fiscal developments increased a lot since 2008Q4 in the minutes of the FOMC meetings, as shown in Chart 7.
- *ECB*: The crisis brought about a statistically non-significant decline in the intensity of fiscal communication, reflecting some decreases in the number of positive and normative statements on fiscal policies in the period since the start of the crisis compared to the period before.
- *Bank of Japan*: Positive statements declined but were more than fully compensated by an increasing number of statements on bond purchases and, especially, foreign fiscal policy developments.
- *Bank of England*: All categories but forecasts contributed to increasing intensity of fiscal communication, but positive statements and foreign fiscal policy in particular. Positive statements most often referred to domestic VAT increases.
- *Riksbank*: The overall level of fiscal communication remained broadly stable, reflecting a decreasing number of positive statements and an increasing number of references to foreign fiscal developments.

Chart 7. Fiscal communication change in the crisis period



Note: the chart shows the average value of the communication indicator of central banks over the period 2008Q4-2011Q4 for the selected categories as percentage of the number of words in the IS/minutes, compared to the average value for the period 1999Q1-2008Q3.

A more formal econometric analysis can enhance understanding of the dynamics of fiscal communication by central banks over time. More precisely, we test whether the intensity of central bank communication on fiscal policy is related to public finance developments, and whether this has changed with the start of the financial crisis. Increases in public debt change the environment in which central banks operate via numerous channels, as indicated in section 2, and may bring about changes in central bank attitude to communication on fiscal policy issues.¹²

The period covered is 1999Q1 to 2011Q4. The dependent variable is defined as the number of words in ‘fiscal’ sentences over the total number of words in the minutes/introductory statements. An autoregressive approach was chosen to take into account any persistence in fiscal communication.

The change in the budget balance ratio and the change in the debt ratio are included to summarise public finances.¹³ The level of the budget balance is not included as it is closely correlated with the change in the debt ratio. The level of the debt-to-GDP ratio is not included, because it is clearly non-stationary over the period 1999-2011. Ideally, real-time forecasts of public debt and budget balances would be included to mimic the information-set available to central banks when discussing monetary policy but deriving such dataset over the entire period turned out to be very difficult, especially for the earlier years of the sample with many breaks in definitions. In addition, publicly available forecasts are not necessarily in line with internal projections or assessments prepared by central banks as inputs to the deliberations of their decision-making bodies. We have therefore not pursued this avenue further.

To test for effects of the crisis, a dummy was included taking value 1 as of 2008Q4, i.e., after Lehman’s default. This dummy appears as a separate variable in the estimation-equation but also in interaction with the budgetary variables to detect any change in the importance given by central banks to developments in public finance. Various control variables were included capturing non-fiscal developments that could require more attention in minutes/introductory statements, and therefore reduce the relative space devoted to fiscal developments.

- *Output gaps:* Output gaps are included to capture any cyclical elements. Assuming central banks worry equally about under- and overutilization, the absolute value of the output gap was taken. A negative sign can be expected as large output gaps (positive or negative) are a concern to central banks, limiting the relative space they devote to fiscal topics.
- *Inflation:* High inflation could lead a central bank to pay more attention to price developments, and therefore less to fiscal developments (unless inflation rises due to fiscal measures). We considered both the increase *per se* as well as the change in the deviation from 2%, being an

¹² In addition, the tone of the statements on fiscal policy could change with deteriorating fiscal developments, using the same number of words, but our analysis does not take that into account.

¹³ Unless indicated differently, changes refer to the contemporaneous value of a variable compared to its value 4 quarters ago.

approximation for price stability targets of central banks. In both cases, their absolute values were taken on the assumption that too low inflation and too high inflation receive the same weight.

- *Interest rates*: Changes in official interest rates, both increases and decreases, may require additional explanation, reducing the relative space devoted to fiscal developments. Again, we also tested using absolute values to reflect the idea that any change in interest rates, be it upward or downward, requires explanation.
- *Exchange rate*: Exchange rate developments may also call for attention in official central bank communication as a factor affecting growth and inflation, especially in a small open economy.

Specifically for the ECB, a dummy was included taking value 1 as of 2001Q3, reflecting a restructuring of the introductory statement. Additional variables tested include seasonal dummies with a view to capturing any seasonal elements in central banks' remarks on fiscal policy, for instance due to releases of budget plans or budget realisations at fixed points in time.

The estimation equation therefore is as follows:

$$\begin{aligned} Index = & \alpha_0 \cdot Intercept + \alpha_1 \cdot Index_{-4} + \alpha_2 \cdot \Delta Budget + \alpha_3 \cdot \Delta Debt + \alpha_4 \cdot D_{crisis} + \alpha_5 \cdot \Delta Budget \cdot D_{crisis} + \\ & \alpha_6 \cdot \Delta Debt \cdot D_{crisis} + \alpha_7 \cdot ABS(Inflation - 2\%) + \alpha_8 \cdot ABS(Output\ gap) + \alpha_9 \cdot ABS(\Delta R_{off}) + \\ & \alpha_{10} \cdot \Delta Exchange\ rate \end{aligned}$$

With:

Index = value of the fiscal communication indicator

ΔBudget = general government budget balance of the country/area in question as per cent of GDP minus the value 4 quarters before

ΔDebt = general government gross debt of the country/area in question as per cent of GDP minus the value 4 quarters before

D_{crisis} = Dummy taking value as of 1 as of 2008Q4

ABS (Inflation-2%) = absolute value of the deviation of the current inflation rate of the country/area in question from 2%

ABS (Output gap) = absolute value of the current output gap of the country/area in question as per cent of potential/trend output

ABS (ΔR_{off}) = absolute value of the change in the main official interest rate of the central bank of the country/area in question

ΔExchange rate = the exchange rate of the currency of the country/area in question versus the euro minus the value 4 quarters before

For the variables chosen, the default lag was 4 quarters to capture any seasonality not picked up by quarterly dummies but various other lags as well as leads have been tested for the right-hand side variables. The results are included in table 3.

Estimations were performed in OLS using a ‘general-to-specific’ approach, and the 10% significance level as cut-off. The results support the notion that the state of public finances plays a role in setting the length of the fiscal part of central bank minutes or introductory statements.

Table 3: Determinants of central banks’ communication on fiscal policy¹⁴

	<i>Fed</i>	<i>ECB</i>	<i>BoJ</i>	<i>BoE</i>	<i>Riskbank</i>
<i>Intercept</i>	0.04*** (4.6)	0.07*** (5.0)	0.016**** (5.1)	0.05*** (8.4)	0.041*** (7.4)
<i>Index_{t-4}</i>	0.50*** (5.0)	0.59*** (6.4)	0.35*** (4.9)		
Δ <i>Budget</i>	-0.004** (-2.0)	-0.016*** (-3.5)	-0.004*** (-4.3)		
Δ <i>Debt</i>					
<i>D_{crisis}</i>	0.05*** (4.0)				
<i>D_{crisis}* Δ Budget</i>					-0.018*** (-3.0)
<i>D_{crisis}* Δ Debt</i>				0.007*** (7.7)	
<i>ABS (Inflation-2%)</i>		-0.040*** (-3.4)			
<i>ABS(Output gap)</i>	-0.016*** (-3.9)			-0.011*** (-3.5)	-0.006** (-2.6)
<i>ABS(ΔR_{off})</i>				-0.013*** (-4.8)	
Δ <i>Exchange rate</i>					-0.012** (-2.0)
R ²	0.57	0.54	0.42	0.58	0.13
Estimation period	1999q1 – 2011q4	1999q2 – 2011q4	1999q1 – 2011q4	1999q1 – 2011q4	2000q1 – 2011q4

* indicates significance at the 10%-level, ** indicates significance at the 5%-level, and *** indicates significance at the 1%-level.

Notes: The dependent variable is defined as the number of words in ‘fiscal’ sentences over the total number of words in the minutes/introductory statements.

All difference operators refer to the contemporaneous value of a variable compared to the value of that variable 4 quarters ago.

¹⁴ All data have been taken from the OECD Economic Outlook database. Annual deficit and debt data have been linearly interpolated to quarterly data.

In particular, a worsening fiscal stance, as captured by a decrease in the budget balance, increases the space devoted to fiscal statements for the three main central banks, especially for the ECB.¹⁵ The effect ranges between a 1.6 percentage-point increase in the share of the introductory statement devoted to fiscal issues after a 1 percentage-point of GDP deterioration of the budget balance for the ECB, to less than half a percentage-point (0.4%) for the Federal Reserve or the Bank of Japan. In Sweden, deficit developments are significant only as of the start of the financial crisis. No significant effect of changes in government debt ratios was detected except for the Bank of England in the period of crisis. Possibly, this fiscal indicator is moving too slowly in normal circumstances for central bank to react to it.

As to the degree of significance and the signs of the other explanatory variables, a few remarks are in order.

- Lagged dependent variables, when statistically significant, have positive signs indicating some degree of persistence in fiscal statements.
- Deviations of inflation rates from 2% in absolute values have an impact on fiscal communication in the euro area. Thus, the further away actual inflation from 2%, the less attention is being paid to fiscal developments in the introductory statements, because the space devoted to inflation developments increases.
- The absolute value of the output gap has a negative impact on fiscal communication for the Fed and the Riksbank. The negative sign indicates that the number of monetary policy-related remarks on fiscal policy developments decreases with deviations from potential output. Concerns about real economic developments thus could crowd-out public finance related concerns.
- Changes in the main policy interest rate turn out significant for the Bank of England, the negative sign indicating that a change in policy rates leads to a decrease in the fiscal communication indicator, presumably as the interest rate decisions require more attention.
- Only in the small open economy of Sweden does the exchange rate (Krona vis-à-vis the euro) have a statistically significant impact. The negative sign indicates that a Krona appreciation is accompanied by less fiscal communication.
- The crisis-dummy only has limited effects in the sample, being restricted to the Riksbank in relation to deficit developments, to the BoE in relation to debt developments, and to the Fed for which the crisis had an upward effect on the fiscal communication indicator irrespective of deficit and debt developments.
- The 2001Q3 restructuring of the ECB's introductory statement does not have a statistically significant impact on the intensity of fiscal communication.

¹⁵ Possibly, this reflects the specific institutional set-up of macroeconomic policy coordination in the euro area, with multiple ministries of finance as counterparts. The ECB may need to rely more often on public communication to get messages across in a uniform and time-consistent way. The relatively recent establishment of the ECB and EMU

- Finally, the test on seasonality, which could for instance reflect recurrent annual fiscal statements, does not deliver satisfactory results for any of the central banks considered.¹⁶

Leads of variables have been extensively tested, to reflect the idea that central banks react to projected developments rather than current ones, but results did not outperform the ones shown in table 3.

Several tests were undertaken to check the robustness of the results. For one, the same equations were run using the absolute number of fiscal words in central bank minutes/introductory statements rather than as percentage of the total number of words. Results are shown in table 4.

Table 4: Empirical results with absolute number of fiscal words

	<i>Fed</i>	<i>ECB</i>	<i>BoJ</i>	<i>BoE</i>	<i>Riskbank</i>
<i>Intercept</i>	173.6*** (3.2)	95.2*** (4.6)	110.1**** (3.8)	186.6*** (8.1)	175.0*** (5.5)
<i>Index_{t-4}</i>	0.49*** (4.0)	0.58*** (5.7)	0.47*** (5.7)		
<i>Δ Budget</i>	-15.6 (-1.3)	-21.3*** (-3.0)	-28.0*** (-3.2)		
<i>Δ Debt</i>					
<i>D_{crisis}</i>	319.8*** (3.9)				
<i>D_{crisis}* Δ Budget</i>					-171.2*** (-5.0)
<i>D_{crisis}* Δ Debt</i>				25.3*** (6.6)	
<i>ABS (Inflation-2%)</i>		-42.8*** (-2.4)			
<i>ABS(Output gap)</i>	-59.9*** (-2.5)			-41.9*** (-3.3)	-9.6 (-0.7)
<i>ABS(ΔR_{off})</i>				-49.3*** (-4.3)	
<i>Δ Exchange rate</i>					-149.0** (-4.6)
<i>R²</i>	0.55	0.41	0.41	0.49	0.49
Estimation period	1999q1 – 2011q4	1999q2 – 2011q4	1999q1 – 2011q4	1999q1 – 2011q4	2000q1 – 2011q4

* indicates significance at the 10%-level, ** indicates significance at the 5%-level, and *** indicates significance at the 1%-level.

may also be ground for more communication on fiscal matters, flagging central bank's interpretation of the fiscal rules and urging fiscal policy-makers to live up to them.

¹⁶ This may reflect the fact that the day of announcement of the budget varies from year to year. The new budget therefore may be discussed in different monetary policy meetings.

The role of fiscal variables is confirmed with the exception of the change in the government deficit in Fed's communication, which now turns insignificant. The deficit-effect on fiscal communication in absolute terms is significant at the ECB and the BoJ. The effect at the BoJ being larger than that of the ECB reflects the much larger size of the BoJ minutes (close to 6300 words on average) compared to the number of words in an average ECB introductory statement (around 1500). The only other change from significance to insignificance is for the role of the output gap in the estimation for the Riksbank.

In general, t-statistics and R^2 suggest that our baseline specification, with fiscal communication expressed as a ratio of the total number of words in the minutes/introductory statements somewhat better fits our data than a specification in levels. Ratios seem to better reflect the concept of an intensity of fiscal communication in the context of monetary policy communication outlets. We therefore continue with the results of table 3 as the baseline.

While the results above reflect estimates taking total fiscal communication as the dependent variable, separate estimates were prepared for the two main components of the fiscal indices constructed for each central bank (see table 5). This refers to the positive statements (category 1) for all central banks, and for normative statements (category 2) for the ECB, and statements on foreign fiscal policy (statement 5) for the other central banks. This analysis allows for pinning down the type of statements that correlates with fiscal developments.

Solely judging the fiscal parameters, the results indicate that domestic fiscal developments drive positive statements for the Federal Reserve, the Bank of Japan, and the Bank of England, normative statements for the ECB, and foreign statements for the Bank of Japan, the Bank of England and the Riksbank. In other words, they do not drive positive fiscal statements by the ECB and by the Riksbank. The same applies to Fed statements on fiscal policies abroad that are significantly related to US budget developments, with an improvement in the US budget balance having a positive impact on comments made on foreign fiscal policies.¹⁷

Overall, therefore, the results as shown in table 3 are fairly robust to alternative and more detailed specifications but not all categories of fiscal communication defined are (equally) responsive to developments in fiscal policies.¹⁸

¹⁷ Foreign fiscal balance and debt variables have not been included in the estimation. Effects from the sovereign debt crisis are captured by the crisis variable.

¹⁸ This was also confirmed by the CUSOM of squared test on the equations in table 3, which revealed stability of the coefficients within a 5% confidence interval for all estimates except for the Fed estimate for 2011Q2. This may indicate that the start of the sovereign debt crisis in that quarter was more relevant for the Fed than the start of the financial crisis. Given a limited number of observations for the period of the sovereign debt crisis, we kept the start of the crisis dummy in 2008Q4.

Table 5. Determinants of sub-categories of central banks' communication on fiscal policy

	<i>Fed</i>		<i>ECB</i>		<i>BoJ</i>	
	<i>Positive</i>	<i>Foreign</i>	<i>Positive</i>	<i>Normative</i>	<i>Positive</i>	<i>Foreign</i>
<i>Intercept</i>	0.03*** (5.2)	0.05* (1.8)	0.02*** (3.8)	0.06*** (5.6)	0.004** (2.6)	0.005*** (2.8)
<i>Index_{t-4}</i>	0.36*** (3.8)	0.04 (0.3)	0.21 (1.5)	0.58*** (6.9)	0.42*** (8.0)	0.71*** (5.0)
<i>Δ Budget</i>	-0.004*** (-3.0)	0.002** (2.6)	0.02 (0.8)	-0.02*** (-5.0)	-0.002*** (-3.7)	-0.001** (-2.2)
<i>Δ Debt</i>						
<i>D_{crisis}</i>	0.02** (2.6)	0.02*** (4.5)				
<i>D_{crisis}* Δ Budget</i>						
<i>D_{crisis}* Δ Debt</i>						
<i>ABS (Inflation-2%)</i>			-0.003 (-0.5)	-0.04*** (-4.2)		
<i>ABS (Output gap)</i>	-0.012*** (-4.1)	-0.002 (-1.6)				
<i>ABS (ΔR_{off})</i>						
<i>Δ Exchange rate</i>						
R ²	0.55	0.42	0.04	0.62	0.57	0.39
Estimation period	1999q1 – 2011q4	1999q1 – 2011q4	1999q1 – 2011q4	1999q1 – 2011q4	1999q1 – 2011q4	1999q1 – 2011q4

* indicates significance at the 10%-level, ** indicates significance at the 5%-level, and *** indicates significance at the 1%-level.

Much of the literature on monetary policy communication by central banks is about the effectiveness of monetary policy communication, e.g. in changing perceptions of the public or financial markets. However, contrary to monetary policy statements, central banks in their fiscal communication probably are not primarily driven by such considerations. Most fiscal statements appear to explain or justify certain central bank actions; only in the case of normative statements can it be expected that there is some intention to affect fiscal policy. Studying such effect empirically, however, is fraught with difficulties, including capturing (many) other factors having an impact on fiscal policy, and the fact that governments may try to affect monetary policy, giving rise to dynamic interactions. We do not pursue this avenue further here therefore.

Table 5. Determinants of sub-categories of central banks' communication on fiscal policy (continued)

	<i>BoE</i>		<i>Riksbank</i>	
	<i>Positive</i>	<i>Foreign</i>	<i>Positive</i>	<i>Foreign</i>
<i>Intercept</i>	0.035*** (6.8)	0.011*** (4.8)	0.022*** (4.8)	0.019*** (5.6)
<i>Index_{t-4}</i>				
<i>Δ Budget</i>				
<i>Δ Debt</i>				
<i>D_{crisis}</i>				
<i>D_{crisis}* Δ Budget</i>			-0.002 (-0.4)	-0.015*** (-4.3)
<i>D_{crisis}* Δ Debt</i>	0.006*** (6.4)	0.002*** (3.9)		
<i>ABS (Inflation-2%)</i>				
<i>ABS (Output gap)</i>	-0.009*** (-3.2)	-0.001 (-1.1)	-0.003 (-1.4)	-0.003** (-2.3)
<i>ABS (ΔR_{off})</i>	-0.009*** (-3.6)	-0.004*** (-3.3)		
<i>Δ Exchange rate</i>			0.003 (0.5)	-0.013*** (-3.8)
R ²	0.47	0.30	0.00	0.31
Estimation period	1999q1 – 2011q4	1999q1 – 2011q4	2000q1 – 2011q4	2000q1 – 2011q4

* indicates significance at the 10%-level, ** indicates significance at the 5%-level, and *** indicates significance at the 1%-level.

5. Conclusion

This paper attempts to shed some light on the role of fiscal policy in central bank communication, a topic that thus far has received very little attention in economic research. Questions included are: how much central banks openly communicate on fiscal policy, on which aspects do their fiscal communications focus and has this changed with the financial crisis. To this purpose, we developed a fiscal communication indicator for five central banks based on their main official monetary policy publication that includes information on the monetary policy deliberations, using a combination of both objective guidelines and more subjective assessment.

Our analysis indicates that, compared to the overall length of the minutes/introductory statements, the ECB communicates intensively on fiscal policy, and especially on normative aspects. The other central banks tend to be largely descriptive when referring to domestic and foreign fiscal policy developments

and perspectives. Empirically analysing developments in fiscal communication between 1999 and 2011, we find some evidence that the part devoted to fiscal developments increases in case of higher government deficits in the US, the euro area and Japan, while in the UK and Sweden such effects are visible as of the start of the financial crisis for the debt and deficit ratio respectively. These results are fairly robust to alternative specifications such as using the absolute number of words devoted to fiscal policy rather than its share in the total number of words used in the main monetary policy communication device.

This study is – to our knowledge – the first one to quantify fiscal statements of central banks. Further work in this area could focus on enlarging the number of central banks covered; increasing the sample further would for instance allow for analyzing the role of institutional factors in explaining differences in the role of fiscal policy in central bank communication. Using real-time fiscal data could be used in econometrical analysis to better capture central bankers’ concerns about fiscal developments, just as using more sophisticated fiscal indicators.¹⁹

¹⁹ This could include forward-looking fiscal sustainability indicators or the “financing gap” (see e.g. Giammarioli et al., 2007).

Annex I. Communication channels for central banks on fiscal policy

In practice, central banks communicate in a variety of ways to markets and the public. Communication lines include press conferences, minutes of meetings, speeches and interviews, hearings in the context of central banks' accountability, articles in monthly, quarterly and annual reports, and analytical publications such as articles in an own working paper series or in external journals. This section provides an overview of the main outlets of fiscal communication for the five central banks considered in our analysis.

Federal Reserve

The Fed communication on fiscal policy issues is relatively frequent. Much of the substantive, more normative-type communication is channelled through Board Member's speeches or testimonies before the US Congress, with reviews contained in official publications tending to be short and rather factual. References to fiscal developments, in as much as these may affect the assessment of the broader macroeconomic outlook, can also feature in the minutes of the Federal Open Market Committee (FOMC), currently released three weeks after the date of monetary policy decisions.

The Federal Reserve Bulletin, introduced in 1914 as a vehicle to present policy analysis by the Federal Reserve Board, has developed throughout the years as a journal of record, serving to provide data generated by the Board to the public. The Bulletin includes topical research articles, legal developments, but unlike the ECB Monthly Bulletin its content is published (only online) on a continuing basis, as it becomes available²⁰. Latest references to fiscal policy issues/developments however only date back to the "Monetary Policy Report to the Congress" of spring 2005 (regular semi-annual review by the Fed Board), in which the "Government sector" section provides a factual overview of current year budgetary developments.

A more regular source of communication on fiscal policy issues is the Fed Annual Report, produced in pursuance to the requirements of section 10 of the Federal Reserve Act. The report contains a section entitled "The Government Sector" which, albeit concise (about 3 pages), provides an update on main deficit, revenue and expenditure developments (generally in nominal terms, no reference to cyclically-adjusted figures) at both the Federal and State and Local Government levels. However, this is only a descriptive section (aligned to the above-mentioned Monetary Policy Report to the Congress) and does neither comment or present fiscal projections. In this respect, although not available on its website, it is understood that the Fed conducts fiscal projections up to about 2 years ahead based on its staff's best guess as to likely policy actions; these forecasts are prepared eight times a year (corresponding to the FOMC cycle) but are made available to the public only with a 5-year lag. In terms of specific statistical releases, the Fed publishes the financial assets and liabilities of the government sector in the quarterly "Flow of Funds Accounts of the United States".

Speeches and Board Member's Testimonies before the Committee on the Budget of the US House of Representatives constitute the Fed's main avenue for more extensive communication.

All in all, while the Fed tends to be strictly factual in its regular publications, it nevertheless uses its Testimonies before Congress and/or other speeches as main vehicles for more extensive, normative-type communication on fiscal policy issues. In April 2011, the Fed also initiated the practice of holding press conferences, following meetings at which staff forecasts are discussed.

ECB

The monthly press conference by the President and the Vice-President of the ECB immediately after each of the monetary policy decision-making meetings of the Governing Council, together with the Monthly Bulletin some days later, are the main ECB tools for external communication on fiscal policy issues. On a less frequent or regular basis, the hearings of the President in the European Parliament, as well as various speeches and interviews are also important elements in the public communication of the ECB, including on fiscal policy matters.

Press conferences, held following the first Governing Council meeting in each month, also generally contain an assessment of recent budgetary developments in the euro area, with representatives of the

²⁰ The quarterly paper version of the Bulletin is no longer published. However, the Fed still prints an annual compilation.

media taking the opportunity of the ensuing question-and-answer session to ask for additional clarifications. An edited version of the introductory statement is subsequently published as the Editorial of each issue of the Monthly Bulletin.

The Monthly Bulletin provides the general public and financial markets with a detailed and comprehensive analysis of the euro area economic environment, in which past as well as expected fiscal policy developments are presented and assessed in each issue's Editorial. On a quarterly basis, the commentary section of the Monthly Bulletin also includes a more detailed fiscal policy section, notably in connection with the main regular pieces of fiscal "news" that can be used for euro area wide (or consistent cross-country) analysis. Additional boxes on topical public finance issues are also frequently included. Apart from the monthly editorials and quarterly sections, the Monthly Bulletin also contains longer articles providing additional insights on both technical and more policy-oriented fiscal policy aspects. Staff fiscal projections are not published. Main government finance statistics for the euro area (deficit/debt, revenue and expenditure developments; both annual and on quarterly basis) are presented under the euro area statistics section (6) at the end of the Monthly Bulletin.

A second important ECB instrument for regular written communication on fiscal policy issues is the Annual Report which is discussed in the European Parliament. The focus is not only on fiscal policy developments in the euro area but also in the non-participating Member States, and on the Stability and Growth Pact.

Other than that, the ECB has over the years issued a number of reports and working or occasional papers on public finance issues. Official ECB opinions, notably on the occasion of the more recent reform of the Stability and Growth Pact, have also been published in the Official Journal of the European Communities. A comprehensive list of the ECB's publications (including a detailed statistical section comprising euro area accounts of the government sector) can be found at the end of the Monthly Bulletin.

An additional avenue for ECB communication on fiscal policies is the Convergence Reports, issued at least once every two years "on the progress made in the fulfilment by the Member States of their obligations regarding the achievement of economic and monetary union".

Finally, as mentioned before, speeches, testimonies, interviews etc. have also played an important role in the ECB communication on fiscal policies. ECB Board members – and notably the President in connection with his quarterly hearings before the European Parliament – have made regular references to fiscal policy matters.

On balance, the ECB's external communication and assessment of euro area/EU budgetary developments is both systematic and detailed (with emphasis on normative assessments), which may reflect in part the uniquely decentralised fiscal policy setting characterising Economic and Monetary Union.

Bank of Japan

The main Bank of Japan's products for external communication are the Annual Review (AR), Monthly Report of Recent Economic and Financial Developments and Outlook for Economic Activity and Prices (OEAP). In addition, the Bank prepares and submits a Semi-annual Report on Currency and Monetary Control to the Diet, in June and December each year. A Quarterly Bulletin (introduced in 1993 as a means of presenting the Bank's research on economic and financial developments) ceased to be formally published in November 2006. This discontinuation was justified by the widespread use of the Internet in recent years, which has made more timely distribution of information possible via the Bank's web site. An inspection of these reports reveals only very marginal references to fiscal issues, notably in as much as projected developments of particular fiscal variables may contribute to affect the broader outlook for economic activity and prices. References are for example: "Developments in fiscal reform, such as reductions both in public investment, generally a powerful stimulant for the labour-intensive non-manufacturing sector, and in the salaries of local government employees, are also acting to constrain households' income. This situation is expected to continue for some time" (OEAP, May 2007 p. 18); "Meanwhile, public investment was basically on a downtrend" (AR 2006, p.40).

The Governor and other executives appear before parliament committees, when requested and to answer questions regarding the conduct of the Bank's policies and operations. Available English documentation of these Testimonies and other Board Members' speeches do not however point to prominent fiscal references.

The Bank of Japan releases the financial assets and liabilities of the government sector in its flow of funds updates. Main public finance statistics (general government revenues and expenditures) are also reported in the “Financial and Economic Statistics Monthly”, available online.

Thus, the Bank of Japan appears to be not particularly active in fiscal communication. However, it should be once again noted that a detailed search was hindered by the lack of fully-fledged (website-based) information. Typically, only short English summaries of documents/speeches are provided.

Bank of England

The main channel for external communication is the speeches by the Governor and members of the Monetary Policy Committee. References to fiscal policy developments are also made in regular publications like the Inflation Report, but these are typically only factual in nature.

The Governor and other executives appear before parliament committees, before which they may be requested to answer questions regarding the conduct of the Bank's policies and operations. On such occasion they may be prompted to address fiscal policy issues/developments.

All in all, also the Bank of England appears to be the very little active in fiscal communication, consistent with its pre-2000 communication policy, i.e. from the period previous to which the Bank was granted operational independence.

Swedish Riksbank

The communication on fiscal policy issues by the Swedish Riksbank's is likewise rather limited. Much of the substantive, more *normative*-type communication is channelled through Board Member's speeches and/or boxes in the Monetary Policy Report (Inflation Report), first published in 1996. References in the main text of the monetary policy report are short (about ½ pages) and mainly factual in nature, while hardly any reference is contained in the Riksbank's Annual Report. Likewise, Testimonies before Parliament contain no such references. References to fiscal policy can be found in some speeches made by the bank representatives. References to fiscal developments, in as much as these may affect the assessment of the broader macroeconomic outlook, can feature in the minutes, currently released two weeks after the date of monetary policy decisions. No fiscal references could be found in Working Papers.

The Riksbank also produces forecasts for fiscal policy. Fiscal policy is assumed to follow historical patterns and to act through automatic stabilisers as well as discretionary countercyclical policy. It is assumed that the target for public finances (a surplus of 1 per cent of GDP on average over an economic cycle) will be achieved in the long term. Different fiscal policy measures have, however, different effects on demand, supply and inflation (from the Monetary Policy Report 2008:3).

All in all, also the Riksbank's external fiscal communication policy appears to be very limited in both its scope and nature. This may largely be the resultant of the rules-based fiscal framework adhered to by the government, which has led the debt ratio on a downward trajectory since 1996.

ANNEX II. Detailed description of the fiscal policy communication indicator

This annex sets out some more detailed information on the process of constructing the indicator measuring the intensity of communication on fiscal issues by central banks.

The following sources have been used for counting fiscal statements:²¹

United States: Federal Reserve: minutes of the Federal Open Market Committee,
Euro area: introductory statement of the President of the ECB to the press conference,
Japan: Bank of Japan: minutes of the monetary policy meetings,
United Kingdom: Bank of England: minutes of the monetary policy committee decisions,
Sweden: Swedish Riksbank: minutes of the Executive Board's monetary policy meetings

The analysis started with a preliminary phase, aimed at identifying the nature of fiscal policy statements and deciding on specific categories in which the statements could meaningfully be classified. For this, first a limited number of minutes/introductory statements were selected for each of the central banks, and the entire text was analysed for fiscal sentences, and in particular fiscal key words to be used in the search. On this basis, for instance, the annex "Summary of Data presented by Bank" in the Bank of England's minutes was excluded. The final categorisation reflects the specific references to fiscal policy encountered in the minutes/introductory statements, and examples of statements included in each category are given in the box below.

Categorization of fiscal statements in central bank communication

The categorization is as follows:

- 1 Monetary policy stance: (positive) statements on domestic fiscal policy as an element taken into account by the central bank when assessing the monetary policy stance
- 2 Normative element: a statement calling on the government(s) in its jurisdiction to take some defined action
- 3 Forecast: references to fiscal policy as an input to or outcome of central bank forecasts.
- 4 Monetary policy instrument: references to government financing instruments (government bonds, bills, deposits) in the context of the implementation of monetary policy.
- 5 Fiscal policies in other countries: references to foreign fiscal policies in the macroeconomic and financial outlook.
- 6 Government representative: statements by a government representative on fiscal policy issues.

Examples of statements for each category:

- 1) "In connection with the question of monetary policy's possible limitations, she emphasised that fiscal policy also provides stimulation to the economy and therefore provides assistance to monetary policy. Ms Ekholm agreed with Mr Nyberg that fiscal policy is more expansionary in Sweden than in many other countries thanks to larger automatic stabilisers and pointed out that a better initial public finance situation could also contribute to fiscal policy having a greater effect." (Minutes of the Executive Board's monetary policy meeting, April 2009, Swedish Riksbank)

²¹ Relevant websites from which the material has been taken are:

Federal Reserve: <http://www.federalreserve.gov/monetarypolicy/default.htm>

European Central Banks: <http://www.ecb.int/press/html/index.en.html>

Bank of Japan: <http://www.boj.or.jp/en/theme/seisaku/index.htm>

Bank of England: <http://www.bankofengland.co.uk/monetarypolicy/decisions/decisions09.htm>

Sveriges Riksbank: <http://www.riksbank.com/templates/ItemList.aspx?id=43021>

- 2) “As regards fiscal policy, the Governing Council notes with concern the pressures emerging in a number of countries to relax previous fiscal consolidation targets. In the current overall benign economic environment, it is imperative that all governments comply with the provisions of the Stability and Growth Pact on fiscal consolidation in economic “good times” and that all the countries concerned honour the commitments they made at the Eurogroup meeting in Berlin on 20 April 2007.” (ECB Introductory Statement of the Press Conference, July 2007)
- 3) “The staff forecast prepared for this meeting suggested that the economy would continue to expand briskly for the rest of 2004 before decelerating somewhat in 2005 as fiscal policy shifted to a slightly restrictive stance. The considerable monetary and fiscal stimulus this year and still-strong advances in structural productivity were expected to cause businesses to shed still more of the caution they had been exhibiting in investing and hiring.” (Minutes of the Federal Open Market Committee, May 2004)
- 4) “Also, some participants were concerned that Federal Reserve purchases of longer-term Treasury securities might be seen as an indication that the Federal Reserve was responding to a fiscal objective rather than its statutory mandate, thus reducing the Federal Reserve’s credibility regarding long-run price stability.” (Minutes the Federal Open Market Committee, March 2009)
- 5) “Looking further ahead, however, there remained some downside risks to growth: in Germany, fiscal consolidation was due to be implemented in 2007; in Italy, there were concerns about competitiveness; and uncertainty over future reforms to pension and welfare benefit schemes in a number of euro-area countries might hold back growth in consumption.” (Minutes of the monetary policy committee decisions, January 2006, Bank of England)
- 6) “The representatives from the Ministry of Finance made the following remarks. (...) In these circumstances, the Government would continue to implement fiscal measures so that a smooth shift in the driving force for an economic recovery from public to private demand would be realized and a full-scale recovery led by private demand could be achieved. Based on this understanding, the Government would promptly implement the second supplementary budget for fiscal 1999. The budget for fiscal 2000 was being deliberated in the Diet.” (Minutes of the monetary policy meetings, February 2000, Bank of Japan)

Next, the process of finding, classifying and delimiting the statements on fiscal policy was manual. References were detected via a classical “search” Word function, based on the keywords: “fiscal”, “tax”, “government”, “deficit”, and “public”.²² Containing one of these words is not a sufficient condition to be included: the expression “after tax income” for instance appeared many times but was not always related to fiscal issues and therefore ignored. Moreover, some sentences contained references to fiscal policy even when they did not contain any of the previous keywords. Reading the sentences before and after the sentence in which the keyword was detected revealed that frequently several sentences in a paragraph were dedicated to fiscal issues whereas only some of them contain one of the keywords.

While the process therefore is governed by many ‘objective’ rules, there remain areas where subjective elements play a role. The remaining assessment was taken care of by two readers who brought forward ‘grey areas’ for common decision and understanding.

The analysis only took complete grammatical sentences into account. This enhances the consistency of the process although this may result in including parts of sentences that are not fully dedicated to fiscal policy. If sentences could be classified in two (or more) categories, they were allocated to only one of the six categories for reasons of consistency and simplicity, following the prioritization rule: 6 > 5 > (4 & 3 &

²² The word “sovereign” has not been included as a search term. While there are many references to the sovereign debt crisis in the euro area, this expression is used in a rather generic way, making it different in nature to the use of words referring to fiscal policies.

2) > 1. In this statement, the sign “>” means “has priority over”. No order rule was needed for categories 2, 3 and 4 as in practice there were no overlaps between these categories.

The final stage consisted in counting the number of words in each category and for each month in an automated manner. Automating of the counting process relied on specific symbols that the readers put into the text itself, and that the algorithm could recognise as delimiting and classifying the statements on fiscal policy. The algorithm used the PERL programming language.

In view of large variability in monthly numbers, quarterly averages were used, which were scaled by the total number of words used in the introductory statements/minutes.

References

- Blattner, Tobias, Marco Catenaro, Michael Ehrmann, Rolf Strauch and Jarkko Turunen (2008) "The Predictability of Monetary Policy", *ECB Occasional Paper Series*, No 83.
- Blinder, Alan S., Michael Ehrmann, Marcel Fratzscher, Jakob De Haan and David-Jan Jansen (2008), "Central Bank Communication and Monetary Policy: A Survey of Theory and Evidence", *Journal of Economic Literature*, (46), pp. 910-945.
- Buiter, Willem (2008), "Central Banks Should Stick to Their Knitting", Buiter's Maverecom, 28 January.
- ECB (2004), "Fiscal Policy Influences on Macroeconomic Stability and Prices", *April, Monthly Bulletin article*.
- Fratzcher, Marcel (2008), "Communication and Exchange Rate Policy", *Journal of Macroeconomics*, 30(4), pp. 1651-1672.
- Geraats, Petra (2010), "Talking Numbers: Central Bank Communication on Monetary Policy and Financial Stability", *paper prepared for the 5th ECB Statistics Conference*.
- Giammarioli, Nicola, Christiane Nickel, Philipp Rother and Jean-Pierre Vidal (2007), "Assessing Fiscal Soundness, Theory and Practice", *ECB Occasional Paper Series*, No 56.
- Hendry, Scott, and Alison Madeley (2010), "Text Mining and the Information Content of Bank of Canada Communications", *Bank of Canada Working Paper*, no 2010-31.
- Jansen, David-Jan, and Jakob de Haan (2010), "An Assessment of the Consistency of ECB Communication using Wordscores", *DNB Working Paper*, No. 259.
- Jeanneau, Serge (2009), "Communication of Monetary Policy Decisions by Central Banks: What is Revealed and Why?", *BIS paper*, No. 47.
- Jonas, Jiri, and Frederic S. Mishkin (2005), "Inflation Targeting in Transition Countries: Experience and Prospects," in: Michael Woodford (ed.), *Inflation Targeting*, University of Chicago Press, Chicago, pp. 353-413.
- King, Mervyn (1995), "Commentary: Monetary Policy Implications of Greater Fiscal Discipline", *Federal Reserve Bank of Kansas City Proceedings*, pp. 71-183.
- KOF Swiss Economic Institute (2007), "KOF Monetary Policy Communicator for the Euro Area – Supplementary Information, Description and Analysis of the Database," http://www.kof.ethz.ch/static_media/filer/upload/filer/public/2011/05/22/monetary_policy_communicator_2007_11_supplement.pdf.
- Lamo, Ana, Javier Pérez and Ludger Schuknecht (2008), "Public and Private Sector Wages: Co-movement and Causality", *ECB Working Paper Series*, No. 963.
- Lewis, John and A. Hughes-Hallett (2009), "Does the ECB React to the State of Fiscal Policy in Europe", *paper presented at the 5th Annual Workshop on Macroeconomic Forecasting, Analysis and Policy with Data Revision*.
- Lucca, David, and Francesco Trebbi (2009), "Measuring Central Bank Communication: An Automated Approach with Application to FMOG statements", *NBER Working Paper*, nr. 15367.

Moser-Boehm, Paul (2006), “The Relationship between the Central Bank and the Government”, *paper presented at the special meeting of Governors “Central banks and the challenge of development”*, 14-15 March 2006, BIS, Basel.

Moser-Boehm, Paul (2009), “Relations with government”, in: *The Issues in the Governance of Central Banks, Report from the Central Bank Governance Group under Chairman G. Ortiz*, May, Chapter 5, pp. 91-101.

Neuenkirch, Matthias (2012), “Managing Financial Market Expectations: The Role of Central Bank Transparency and Central Bank Communication”, *European Journal of Political Economy*, 28, 1, pp. 1–13.

Rosa, Carlo, and Giovanni Verga, (2006), “On the Consistency and Effectiveness of Central Bank Communication: Evidence from the ECB”, *European Journal of Political Economy*, 23, 1, pp. 146-175.

Rozkrut, Marek (2008), “It’s Not WHAT is Said, It’s WHO the Speaker is. Evaluating the Effectiveness of Central Bank Communication”, *National Bank of Poland Working Paper*, No 47.

Siklos, Pierre, and Martin T. Bohl (2005), “The Bundesbank’s Communications Strategy and Policy Conflicts with the Federal Government”, *Southern Economic Journal*, 72, pp. 395–409.

Spilimbergo, Antonio, Steve Symansky and Martin Schindler (2009), “Fiscal Multipliers”, *IMF Staff Position Note* No 09/11.