



Investigating the monetary policy of central banks with assessment indicators[☆]



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ABSTRACT

This paper proposes a new approach to use qualitative information for investigating central banks' monetary policy strategy. Quantitative assessment indicators which are generated from a central bank's public statement with the balance statistic method are used to estimate Taylor-type rules. This procedure allows to directly capture a policymaker's assessment of macroeconomic variables which are relevant for the decision making process. As an application of the proposed method, a novel real time data set consisting of assessment indicators for the Bundesbank is generated to re-investigate its monetary policy. The analysis provides evidence that (i) the Bundesbank was a flexible monetary targeter and (ii) that the proposed indicator variables contain information beyond that of standard macroeconomic variables used in monetary policy analysis.

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1. Introduction

Empirical analyses of monetary policy are usually characterized by estimating interest rate rules which express the central bank's policy rate as a function of data on macroeconomic variables. One strand of that literature uses qualitative information to capture a policymaker's assessment of variables with importance for the policy stance. The analysis in this paper extends that literature and outlines how survey methodology can be used to quantify central banks' assessments of macroeconomic variables. These assessment indicators about economic and monetary developments can then be used to estimate a monetary policy rule. As an application of the outlined method, a real time data set based on public communication records of the Bundesbank is used to re-investigate its monetary policy between 1970 and 1998.

The information contained in a policymaker's assessment of macroeconomic variables is not available when estimating monetary policy rules as a function of these variables only, that is, the policymaker's assessment of a specific variable can generally be different from the numerical value of that variable. For example, a policymaker might consider that a shock to a variable that plays an important role for monetary policy, such as the inflation rate, is of temporary nature only. In this case the shock will not be attributed much weight for the central bank's monetary policy decisions. By contrast, if a policymaker judges the shock to be of permanent nature,

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its actions are likely to be shaped in response to the shock. The central bank will take decisions depending on its assessment of the shock and communicate both, decision and its underlying motivation, to the public.

Central banks' public communication is aimed to achieve an understanding of the policy stance, not least to improve efficiency of monetary policy. To capture information about a central bank's assessment of variables important for its decision making process a central bank's public statements can be used. Such statements are available, for example, in its regular economic statistical bulletin. The approach proposed in this paper consists, in a first step, of assigning these statements ordinal marks depending on whether they are indicative of (i) upward, (ii) downward, or (iii) no deviation of the assessed macroeconomic variables from expected trend, that is, the variable's trend which the central bank judges to be consistent with its monetary policy stance. In a second step these ordinal marked statements are quantified with the balance statistic method into assessment indicators which can be used to analyze monetary policy.

As an application of the proposed method, a new real time data set that allows re-examining the monetary policy strategy of the Bundesbank is set up. The Bundesbank's monetary policy is chosen as showcase for two reasons. First, its long publication history of monthly bulletins which are used as basis for generating the assessment indicators allows for setting up long time series for investigation. Second, though the Bundesbank continues to be considered a benchmark in light of its success in maintaining price stability, one specific element of its monetary policy strategy was subject to debate. This distinctive feature consisted of targeting growth in monetary aggregates. As to whether the Bundesbank actually targeted monetary aggregates was challenged by [Bernanke and Mihov \(1997\)](#) as well as [Clarida et al. \(1998\)](#) who find monetary aggregates to be statistically insignificant when estimating Taylor-type rules for the Bundesbank. In contrast, using the method proposed in this paper provides evidence that the Bundesbank indeed took into consideration monetary aggregates but also economic activity and inflation developments in its monetary policy decisions since 1975. The analysis therefore adduces evidence in favor of the findings of [Gerberding et al. \(2005\)](#) as well as [Clausen and Meier \(2005\)](#) who also find monetary aggregates to play a significant role in the Bundesbank's monetary policy.

This paper is broadly related to the literature on (i) central bank communication, (ii) monetary policy rules, and (iii) real time data. First, the literature on central bank communication investigates the role of communication for monetary policy implementation. A general overview is provided in [Blinder et al. \(2008\)](#). [Lamla and Sturm \(2013\)](#) investigate how ECB communication and actual interest rate decisions affect expectations of future interest rates delivered by the media. Using a sample of media coverage from the *Financial Times* between 1999 and 2005, they provide evidence that both interest rate changes and central bank communication impact interest rate expectations which are transmitted by the media. [Middeldorp \(2011\)](#) uses regression analyses to identify three periods of communication reform of the U.S. Federal Open Market Committee (FOMC) and provides evidence that reforms carried out in 1990 and 2003 improved policy predictability. [Neuenkirch \(2012\)](#) uses a transparency index as well as a measure of central bank speeches for a sample of nine major central banks over the period 1999 to 2007 to investigate the impact of central bank transparency and internal communication on the formation of money market expectations. He finds that transparency reduces bias and variation in money market expectations and that informal communication helps reducing the variation of expectations. Using a monetary policy communicator index in a VAR framework, [Neuenkirch \(2013\)](#) studies the role of the European Central Bank's (ECB) communication in monetary policy transmission between 1999 and 2012. He finds that communication impacts inflation expectations to a similar magnitude as actual target rate changes. The contribution of the present paper to the literature on central bank communication is to demonstrate how central banks' public communication records can be used to generate continuous quantitative assessment indicators about macroeconomic developments which are otherwise not available. Analyses provide evidence that the assessment indicators contain information about central banks' monetary policy stance beyond that of standard variables normally used in monetary policy analysis such as the output gap.

Second, this paper is related to the literature on monetary policy rules which analyze how a central bank adjusts its policy rate in reaction to changes in inflation or other macroeconomic conditions.¹ In particular, the paper contributes to monetary policy analyses using qualitative information. [Berger et al. \(2011\)](#) analyze the role of money in the ECB's monetary policy using an indicator set up from qualitative information of the introductory statements of monthly press conferences between 1999 and 2008. They find that the indicator of the monetary policy only plays a minor role in the ECB's interest rate decisions. [De Haan and Jansen \(2010\)](#) examine whether ECB statements on the main refinancing rate and future inflation are significantly related to interest rate decisions. Using data from 4 January 1999 to 2 May 2002 they show that communication based models do not outperform models based on macroeconomic data in predicting policy rate decisions. [De Haan and Sturm \(2009\)](#), use several qualitative central bank communication indicators² between 1999 and 2007 to analyze whether ECB communication offers additional information as compared to the information content in standard Taylor rules. They provide evidence that the indicators indeed contain additional information that helps predict future policy decisions from the ECB.³ [Gerlach \(2007\)](#) constructs quantitative indicators of the ECB Governing Council's assessments of economic conditions between 1999 and 2006 to analyze its interest rate decisions and finds that the ECB did not react to temporary inflation shocks but to economic activity. Finally, [Pakko \(2005\)](#) investigates the predictive content of the FOMC statements about subsequent tightening or easing of monetary policy between 1984 and 2002. Using a Taylor rule framework, he provides evidence that these statements are useful for forecasting changes in the federal funds target. The contribution of this paper to the outlined

¹ For a general review on Taylor-type rules see, for example, [Orphanides \(2008\)](#).

² The communication indicators are (i) an updated version of the [Rosa and Verga \(2007\)](#) index, (ii) the index of [Heinemann and Ullrich \(2007\)](#), (iii) the aggregate index of [Berger et al. \(2011\)](#), (iv) the indicator of [Ullrich \(2008\)](#), and (v) the [Eidgenössische Technische Hochschule Zürich \(2007\)](#) ECB president's statements index concerning risks to price stability.

³ Further evidence for an improved model fit when augmenting the information set with communication indicators can be found in [Hayo and Neuenkirch \(2010\)](#) as well as [Hayo and Neuenkirch \(2011\)](#) for the Federal Reserve and the Bank of Canada, respectively.

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