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# Bidder behavior in central bank repo auctions: Evidence from the Bundesbank

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## Abstract

For many central banks, repo auctions are the most important monetary policy instrument. This paper employs a unique data set of individual bids submitted in the repo auctions of the Bundesbank to analyze the determinants of banks' bidding behavior and the empirical performance of repo auctions. We conduct a panel analysis to estimate how banks bidding is affected by various auction as well as bidder-specific factors including interest rate expectations, interest rate uncertainty, maturing allotment, reserve fulfillment and a bank's size.

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## 1. Introduction

The way in which monetary policy is implemented can have significant consequences for the transmission of monetary policy actions. This does not only hold for the specification

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of the operational target but also for the setup of central bank open market operations. Institutional details of the operational framework may influence the working of money markets, banks' demand for reserves, and the volatility of short-term interest rates. For many central banks, including the German Bundesbank and the European Central Bank (ECB), repo auctions are the predominant instrument for the money market management and the control of the monetary base. In fact, virtually all money market operations of the Bundesbank and the ECB are carried out using repo auctions.

This paper employs a unique data set of individual bids submitted in the repo auctions of the Bundesbank to shed more light on the determinants of banks' bidding behavior and the empirical performance of repo auctions. We characterize the bidding behavior of a bank by its participation decision and the individual bid amount. These endogenous bidding variables will be explained by various auction-specific as well as bidder-specific factors including interest rate expectations, interest rate uncertainty, maturing allotment, reserve fulfillment and the bank's size.

Our paper is closely related to [Bindseil et al. \(2004\)](#) and [Scalia and Ordine \(2003\)](#) who analyze banks' bidding behavior in the repo auctions of the ECB. Both studies find that bidder behavior in repo auctions differs from those documented for Treasury bill auctions in two important respects. First, in contrast to the empirical literature on Treasury bill auctions, they found no evidence for the winner's curse effect in repo auctions.<sup>1</sup> Second, bidders in the ECB's repo auctions are particularly concerned about interest rate expectations. For example, when banks expect interest rates to decrease, they underbid, i.e. they refrain from bidding.

In the following, we will estimate panel regressions for the probability of bidding and a bank's individual bid amount. We explicitly account for the censored distribution of the bid amount by applying a tobit model that uses both, the probability of a bank's participation and the distribution of the bid amount given that it is positive.<sup>2</sup> In the same vein, in the logit analysis of banks' participation decision, we did not remove the bidders never participating in an auction to avoid distorting effects on the estimated probabilities.

Our main results can be summarized as follows. First, in line with the evidence provided by [Bindseil et al. \(2004\)](#) and [Scalia and Ordine \(2003\)](#) we found no convincing evidence for a winner's curse effect in the Bundesbank repo auctions. Second, in contrast to the ECB's experience the estimated impact of interest rate expectations on banks' bidding in the Bundesbank's repo auctions is only small. In particular, underbidding or even bidder strikes were not an issue in the Bundesbank auctions.

The remainder of the paper is organized as follows. Section 2 briefly reviews institutional details of repo auctions and the evidence on the impact of interest rate expectations and rate uncertainty on the behavior of bidders. In Section 3, we introduce the data and variables used in the following panel regressions Section 4 presents the empirical analysis of banks'

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<sup>1</sup> Evidence for the winner's curse effect in Treasury bill auctions is provided by, e.g. [Gordy \(1999\)](#) and [Nyborg et al. \(2002\)](#).

<sup>2</sup> The bid amount is left-censored since it can only be observed if a bank actually participates in an auction. This property of the data is often neglected in the empirical literature on auctions, see, e.g. [Scalia and Ordine \(2003\)](#), [Nyborg et al. \(2002\)](#) and [Bjornnes \(2001\)](#) or [Breitung and Nautz \(2001\)](#). Notable exceptions are [Ayuso and Repullo \(2001\)](#) and [Linzert et al. \(2004\)](#).

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