

Rationing rules and European Central Bank auctions

Thomas A. Gresik *

Mendoza College of Business, University of Notre Dame, Notre Dame, IN 46556, USA

Abstract

Theoretical analyses of multi-unit auctions tend to side-step the importance of rationing rules by assuming strictly decreasing aggregate demand. However, under European Central Bank rules, bidders are allowed to submit no more than ten price–quantity pairs. So even if the underlying demand is strictly decreasing, it is likely that several bidders may submit a market-clearing bid. If at the market-clearing bid, excess demand exists, it is necessary to ration how much each bidder receives. The effect on bidding behavior and equilibrium revenues under two distinct rationing rules is explored in this paper. © 2001 Elsevier Science Ltd. All rights reserved.

JEL Classification: E52; D44

Keywords: Discriminatory auctions; Rationing

1. Introduction

The use of auctions to carry out government policy has been viewed as new and novel when it comes to problems of pollution control and the allocation of government assets (e.g. spectrum licenses). However, with regard to oil or timber leases and government securities, auctions have long been an important regulatory instrument. In its general guidelines on policies and procedures, the nascent European Central Bank describes two specific “auction” formats for conducting open market operations (European Central Bank, 1998). The purpose of this paper is to study one

* Tel.: +1-219-631-9341; fax: +1-219-631-5255.

E-mail address: tgresik@nd.edu (T.A. Gresik).

particular component of these rules — how to ration excess demand at an issue-clearing price.

On a theoretical level, modern research on multi-unit auctions goes back to Vickrey's (1961) seminal work. With the recent PCS auctions conducted in the United States and the debate over uniform versus discriminatory multi-unit US Treasury auctions, economists have witnessed a surge in the interest in theoretical and empirical studies of multi-unit auctions. While I will review some of the recent advancements in this field of inquiry, for now let me simply point out that it is common in these studies (e.g. Ausubel and Cramton, 1998a) to assume strictly decreasing aggregate demand for the auctioned product and to allow for continuous bid functions. Such assumptions facilitate equilibrium and efficiency calculations that allow one to compare several different auction formats because rationing will not arise in equilibrium. However, presumably for purely practical reasons, the ECB auctions do not conform to these assumptions. In particular, for the "variable rate" procedures, bidders are allowed to submit at most ten price–quantity pairs with prices (interest rates) required to be multiples of 0.01% and quantities required to be multiples of EUR 100,000 (for main refinancing operations). If one assumes that a small number of sophisticated and well-informed bidders or primary dealers will participate in these auctions, then it is not hard to believe that interest rate spreads in the bids will be fairly tight and that several bidders will submit bids at the issue-clearing price. This "lumpiness" in the auction suggests that rationing rules may have an important strategic effect.

ECB rules for fixed and variable rate procedures specify that any excess demand be resolved by allocating the residual supply on a proportional basis where the proportions are based on how much a bidder's marginal bid contributes to the excess demand. On the margin such a rule encourages higher quantity bids at the issue-clearing price. It is easy to think of other possibilities. For example, one could allocate the residual supply by favoring those bidders who contribute the most to reducing the residual supply, that is, to those bidders who bid higher quantities at supramarginal prices. On the margin such a rule should encourage higher quantities bid at above issue-clearing prices and result in higher equilibrium interest rates and higher auction revenues (for liquidity-producing auctions).

The idea that rationing or tie-breaking rules may have strategic impact is not a new idea. In the Industrial Organization literature, Davidson and Deneckere (1986) showed that both the qualitative and quantitative features of equilibria in a two-stage capacity-output duopoly model were very sensitive to the rationing rule selected. In common value auctions, Wilson (1979), Back and Zender (1993) and Nyborg (2000) all study the significance of rationing. More recently, allowing for type-dependent or endogenous tie-breaking rules has been important in establishing the existence of equilibria in many important classes of games, including auctions (Simon and Zame 1990, 1999; Jackson and Swinkels, 1999). McAdams (2000) and Kweik and Schenone (2000) explore the extent to which rationing rules may provide the seller with a tool for deterring collusive bidding.

Rationing is also more than an intellectual curiosity. The ECB's first efforts to use their fixed rate procedure generated significant excess demands. Ehrhart (2001)

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات