

MILENA WITTWER

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<u>Education</u>	Ph.D. in Economics Stanford University, USA Dissertation: Market Microstructure in Modern Times	June 2021 (expected)
	Ph.D. in Economics, European University Institute, Italy	2014-2018
	Master of Science, Economics, University of Bonn, Germany	2011-2013
	Bachelor of Science, Economics, Humboldt University, Germany	2008-2011

Fields **Finance, Market Design, Industrial Organization**

<u>References</u>	Prof. Liran Einav Econ. Dep., Stanford +1 (650) 723 3704 leinav@stanford.edu	Prof. Matthew Gentzkow Econ. Dep., Stanford +1 (650) 721 8375 gentzkow@stanford.edu	
	Prof. Darrell Duffie GSB, Stanford +1 (650) 723 1976 duffie@stanford.edu	Prof. Paul Milgrom Econ. Dep., Stanford +1 (650) 723 3397 milgrom@stanford.edu	Prof. Monika Piazzesi Econ. Dep., Stanford +1 (650) 723 9289 piazzesi@stanford.edu

JMP **Centralizing Over-the-Counter Markets?** with Jason Allen

In traditional over-the-counter (OTC) markets investors trade bilaterally through intermediaries, called dealers. An important regulatory question is whether to centralize OTC markets by shifting trades onto centralized platforms. We address this question in the context of the Canadian government bond market, which is liquid and price transparent. We document that, even in this market, dealers charge significant markups when trading with investors. We also show that there is a price gap between large investors who have access to a centralized platform and small investors who do not. We specify a model to quantify how much of this price gap is due to platform access, and assess welfare effects. The model predicts that not all investors would use the platform, even if platform access were universal. Nevertheless, the price gap between small and large investors would close by 35-52%. Further, total welfare would increase by 9-30% because the platform better allocates high-valued buyers to low-valued sellers.

Published Papers **Wittwer, M. (2021) Connecting Disconnected Financial Markets?**

Forthcoming in American Economic Journal: Microeconomics

In most financial markets, securities are traded in isolation. Such a disconnected market design can be inefficient if agents trade more than one security. I assess the welfare effects of connecting markets by allowing orders for one security to depend on the prices of other securities. I show that everyone trades identical amounts under both market structures if and only if the clearing prices are perfectly correlated or all are price-takers. Prices in disconnected markets might allow strategic traders to extract higher rents from non-strategic traders. In expectation, connected markets generate higher welfare, but all markets become efficient as they grow large.

Wittwer, M. (2020) Interconnected Pay-as-Bid Auctions

Games and Economic Behavior, volume 121, May 2020, pages 506-530

I develop a framework to study common situations, in which substitute goods are sold in separate, good-specific multi-unit (pay-as-bid) auctions. I characterize bidding behavior and investigate auction design features that could increase revenues. The setting I develop gives rise to an essentially unique symmetric Nash equilibrium in which bidders shade their bids more strongly when goods are close substitutes. To increase revenues, the seller can offer total supply quantities that are (stochastically) unequal in size. This fosters more aggressive bidding and provides a rationale to hold separate, parallel auctions instead of selling all in one auction.

Working
Papers

Allen, J., Kastl, J. and M. Wittwer (2021) Primary Dealers and the Demand for Government Debt

Leveraging the fact that in many primary debt issuance markets securities of varying maturities are sold simultaneously, we recover participants' full demand systems by generalizing methods for estimating individual demands from bidding data. The estimated preference parameters allow us to partition primary dealers into two main classes. For the first class, which largely coincides with the largest money market players, we find significant complementarities in their demand for Treasury bills in primary markets, while for the second class the patterns in their willingness to pay are mixed and time-varying. We present a dealer-client model that captures the interplay between the primary and secondary market to provide a rationale for our findings. We argue that the complementarity likely arises from the large dealers "making markets," and hence requiring to hold inventory of all securities. Our results are useful both for minimizing the cost of financing of government debt and for optimally implementing financial regulation that is based upon partitioning financial institutions according to their downstream business strategies.

Wittwer, M. (2018) Pay-as-Bid vs. First-Price Auctions: Similarities and Differences in Strategic Behavior

Pay-as-bid auctions extend the rules of the well-known first-price auction to the sale of multiple units of the same good. According to a common understanding of the recent literature, strategic incentives in pay-as-bid auctions differ from those in the first-price auctions when bidders have multi-unit demand. I show that each of N symmetrically informed bidders shades his bid for 1 of N shares of a perfectly divisible good in a pay-as-bid auction as if he competed with $(N-1)N$ bidders for one indivisible good in a first-price auction. This analogy carries over to environments where bidders have private information if equilibrium demand schedules are additively separable in the type but breaks otherwise. Whether bidding in pay-as-bid auctions is more complex than in first-price auctions thus depends on the type of uncertainty bidders face.

Positions

Teaching Assistant

Finance for Non-MBAs, Micro for Policy, Junior Honors Seminar (Stanford)	2018-2020
Macroeconomics II (European University Institute)	2016
Industrial Organization (University of Bonn)	2013

Research Assistant

For Claudia Robles-Garcia, Greg Buchak, Paul Milgrom (Stanford University)	2020-2021
German Institute for Economic Research, Berlin, Germany	2014
Laboratory for Experimental Economics (University of Bonn)	2011
Institute of Economic Policy (Humboldt University of Berlin)	2010

Referee American Economics Review, Games and Economics Behavior

Non-Academic

Consultant at Innovative Auctions (private company)	2016-2017
Trainee (Blue Book) at the European Commission	2013-2014

Awards

SIEPR Fellowship	2020-2021
Fellowship of Stanford's Economics Department	2017-2020
Shultz Graduate Student Fellowship in Economic Policy, SIEPR	2018-2019
Grant of the German Academic Exchange Service (DAAD)	2014-2017
Scholarship of the German National Academic Foundation	2008-2014
Excellency Scholarship of the University of Bonn	2012
Award for the best bachelor's degree in Economics in 2011	2011
Merit based full scholarship of Duke University	2010

Computer
Languages

Matlab, R, STATA, Mathematica
Fluent: German (mother tongue), English, Italian, French; Basic: Spanish