



# Competition without fungibility: Evidence from alternative market structures for derivatives

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## Abstract

In this paper, we compare option contracts from a traditional derivatives exchange to bank-issued options, also referred to as covered warrants. While bank-issued option markets and traditional derivatives exchanges exhibit significant structural differences such as the absence of a central counterparty for bank-issued options, they frequently exist side-by-side, and the empirical evidence shows that there is significant overlap in their product offerings although options are not fungible between the two markets. The empirical analysis indicates that bid-ask spreads in either market are lowered by 1–2% due to competition from the other market, providing evidence that the benefits of competing market structures are available in the absence of fungibility.

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## 1. Introduction

Does competition between markets lower trading costs even when contracts are not fungible between them? In this paper, we use a natural experiment to address this important question. Our experiment is to compare bank-issued options to option contracts from a traditional derivatives exchange. Bank-issued options are *exchange-traded*, securitized options issued by banks and other financial institutions. The options are non-standardized, and individual issuers are free to choose any option characteristics for which they expect investor demand. Each issuer is the sole counterparty to its own option contracts. However, issuers compete by issuing similar or identical options and usually obligate themselves to serve as market makers for their own products on an organized exchange. For investors, bank-issued option markets represent an alternative to traditional derivatives exchanges such as the Chicago Board Options Exchange (CBOE). Trading activity in bank-issued options is frequently of considerable magnitude compared to trading activity in option contracts from traditional exchanges as illustrated by the fact that the trading volume of bank-issued options for the most active underlying asset in our sample would rank among the top five underlying assets on the CBOE during the same time period.

We provide evidence that competition between the markets indeed significantly lowers quoted bid-ask spreads in both markets despite the fact that contracts are not fungible between them.<sup>3</sup> For example, bid-ask spreads of traditional option contracts with direct competition from the bank-issued option market are approximately 1–2% lower than bid-ask spreads for otherwise comparable traditional option contracts without direct competition. This finding is broadly consistent with related work by Battalio et al. (2004), De Fountnouvelle et al. (2003), Mayhew (2002), and Wang (2000) examining the effect of competition among traditional US option exchanges on liquidity and market-making quality. However, an important difference exists between our results and the aforementioned studies of traditional option exchanges. Since US option exchanges share joint clearing facilities, contracts bought on one exchange can be sold on another exchange with minimal difficulty (De Fountnouvelle et al. (2003)). Therefore, the existing studies provide evidence of the (generally) beneficial effects of competition when contracts are exchangeable between markets. On the other hand, in the bank-issued option market studied in this paper, options are not exchangeable between issuers or between the bank-issued market and a traditional derivatives exchange in the sense that an option position entered into with a particular issuer cannot be liquidated with another issuer or on the derivatives exchange. The ability to take off-setting positions or to arbitrage between markets is further restricted by the fact that investors cannot write bank-issued options thereby imposing a short-sale constraint.<sup>4</sup> Thus, we contribute to the existing literature by showing that benefits from competition between markets in the form of lower bid-ask spreads are obtainable even in the absence of fungible contracts/securities.

The remainder of the paper is organized as follows. The next section explains the structural and institutional features of bank-issued option markets in more detail. Data and

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<sup>3</sup> Other papers which study bank-issued options are Chan and Pinder (2000), Petrella (2001), Horst and Veld (2002), and Bartram et al. (2006).

<sup>4</sup> While issuing banks continuously quote bid and ask prices, the bid quotes are conditional on the investor having previously purchased the option.

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