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The trading dynamics of close-substitute futures markets: evidence of margin policy spillover effects

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Abstract

Volatility spillover is well documented among closely related securities. I investigate the relationship between margin policy and trading dynamics of the Nikkei 225 index futures markets of Osaka Securities Exchange (OSE) and Singapore Exchange (SGX). I find that OSE's margin policy influences trading dynamics across both markets, although it is the less liquid SGX market that performs price discovery. This suggests that policy markers of close substitute markets should coordinate, or at least communicate policy intentions due to policy spillover. SGX's market design facilitates price discovery, suggesting that a microstructure framework capable of overcoming the liquidity entry barrier is of interest to any futures exchange contemplating contract proliferation.
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"In the past two years the Japanese authorities have repeatedly raised commissions and margin requirements. . . Buyers of futures in Osaka now have to put up 30% of the value of the contract (compared with 13% on SIMEX), of which 13% must be a non-interest-bearing cash deposit" (The Economist, 30th May 1992, p. 83).

1. Introduction

Two futures exchanges offering a similar derivative contract raises an interesting question concerning the strategies that one exchange adopts to draw order flows from the other. This

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question is particularly relevant if trading hours of the competing markets overlap. Di Noia (2001) suggests that financial exchanges are firms competing to deliver quality financial services, including trading service. Ferrarini (1998) proposes that competition to provide trading services covers a spectrum that includes immediacy, depth, transparency, price continuity and price discovery.

As one of the world's most heavily traded contracts, the Nikkei 225 index futures is traded on the Osaka Securities Exchange (OSE), Singapore Exchange (SGX) and Chicago Mercantile Exchange (CME). Nevertheless, competition for order flow is primarily between OSE and SGX, as comparatively the CME contract has significantly lower trading volume.[1] In this paper, I examine the Nikkei 225 index futures contracts of OSE and SGX, which I subsequently refer to as ONK and SNK, respectively.

The data for this paper is unique in that it is based on the same contract with synchronised trading hours and settled in the same currency. Hence, SNK and ONK are close substitute futures contracts used by investors with similar trading needs. While contractual specifications differ between ONK and SNK, they remain stable during the sample period, allowing me to focus on the diverging margin policies of OSE and SGX.

Prior studies considered the time variation in margin requirements on trading activity in a single market setting. Analysing margin requirement variability across two similar markets allows me to test for potential margin policy spillover effects. Furthermore, the ability of traders to choose between two substitute trading venues represents a direct measure of competition. This allows me to examine how two futures exchanges compete for order flows through their independent policy settings.

First, I analyse volatility and trading volume spill over between OSE and SGX. Second, I examine the effects of divergent margin policies on the trading dynamics and price discovery of ONK and SNK. My results suggest that a series of margin increments handed by OSE affected trading dynamics of both markets. SGX's margin policy, which reverts around a mean level, influenced only its own trading volume. I find evidence of volatility and trading volume spillover from SNK onto ONK, but not vice versa.

The following are some background information. SGX introduced the contract in September 1986, exactly two years before OSE. Both contracts are written on the Nikkei 225 index,[2] denominated in Yen and are contemporaneously traded, despite a one-hour time zone difference between Osaka and Singapore. Their main contractual specifications are contrasted in Table 1.[3] To reiterate, this paper's results are robust in light of the existing contractual differences, which are stable during the sample period.

Trading activity history of the two markets between 1986 and 1997 is plotted in Fig. 1. Trading in SNK has been struggling to gain momentum since its commencement in 1986.

[1] The contract on CME is denominated in USD, and is traded mainly during the US time zone. This makes it a niche market rather than a directly competing market. That may explain why most empirical studies on this particular contract, including Bacha and Vila (1994); Board and Sutchliffe (1996); Ito and Lin (2001) and West and Frino (2003), focus only on OSE and/or SGX.

[2] A price-weighted average of 225 of the largest stocks listed on the Tokyo Stock Exchange (TSE).

[3] The SNK is half that of ONK in terms of both contract and tick size. OSE imposes narrower daily price limits on its contract. Brokerage commissions on ONK are fixed by regulation, but are competitively determined for SNK. Lastly, SNK is floor traded while ONK is screen traded.

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