

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

journal homepage: <http://www.elsevier.com/locate/kjss>

# Price volatility, trading volume, and market depth in Asian commodity futures exchanges

Tanachote Boonvorachote\*, Kritika Lakmas

Department of Agro-Industrial Technology, Faculty of Agro-Industry, Kasetsart University, Bangkok 10900, Thailand

## ARTICLE INFO

### Article history:

Received 5 June 2014

Received in revised form

8 March 2015

Accepted 4 June 2015

Available online 2 February 2016

### Keywords:

Commodity futures exchanges,

Open interest,

Trading volume,

Volatility

## ABSTRACT

This paper empirically investigates the impact of trading activity including trading volume and open interest on price volatility in Asian futures exchanges. Trading volume and open interest represent market information for investors. This study uses three different definitions of volatility: (1) daily volatility measured by close-to-close returns, (2) non-trading volatility measured by close-to-open returns, and (3) trading volatility measured by open-to-close returns. The impact of trading volume and open interest on price volatility is investigated. Following Bessembinder and Seguin (1993), volume and open interest are divided into expected and unexpected components. The GARCH (1,1) model is employed using expected and unexpected components of trading activity (volume and open interest) as explanatory variables. The results show a positive contemporaneous relationship between expected and unexpected trading volume and volatility, while open interest mitigates volatility. Policy makers can use these findings to suggest to investors that trading activity (volume and open interest) is a proxy of market information flowing to exchanges, especially unexpected trading activity. New information flowing to exchanges can mostly be noticed in unexpected trading volumes and open interests.

Copyright © 2016, Production and hosting by Elsevier B.V. on behalf of Kasetsart University.

This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## Introduction

The information role of trading activity (volume and open interest) in futures exchanges on price volatility has generated a lot of interest for a long time. Especially, in emerging exchanges, the relationship between trading activity and price changes is crucial because trading activity (volume and open interest) is thin, while price volatility is quite high. Futures trading volume and open interest are always supposed to

reflect information in futures exchanges about aggregate changes in the expectations of market participants such as hedgers' opinions, hedging demand, market depths, and differences in traders' opinions.

Nowadays, financial markets in both well-developed and emerging countries have liberalized capital movement, financial reforms, and advanced computer technology supporting speedy information processing. Hence, the importance of the relationship between trading activity and price changes (volatility) becomes more vital. Nevertheless, the

\* Corresponding author.

E-mail address: [tanachote.b@ku.ac.th](mailto:tanachote.b@ku.ac.th) (T. Boonvorachote).

Peer review under responsibility of Kasetsart University.

<http://dx.doi.org/10.1016/j.kjss.2016.01.004>

2452-3151/Copyright © 2016, Production and hosting by Elsevier B.V. on behalf of Kasetsart University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

meaning of trading activity itself is quite broad. Most literature defines trading activity as trading volume, open interest, and numbers of transactions. The relationships between these trading activities and price changes are explored extensively in well-developed exchanges, but the study of such relationships in emerging exchanges is quite limited. The definition of price changes also varies, for example, price changes in both dollars and percentages. Price changes can happen during trading time and the closed (overnight) period. Whether the trading volatility, overnight volatility (non-trading volatility as a proxy of global information) or the futures trading activity is the main source of information in the market, what are the relationships among these variables?

Derivatives that are traded in futures exchanges attract investors' attention for the purpose of hedging and speculating profits from trading derivatives. Thai futures exchanges are divided to: 1) The Agricultural Futures Exchange of Thailand (AFET), a market place for trading agricultural futures and 2) The Thailand Futures Exchange (TFEX), an exchange for futures, options, and options on futures where the permitted underlying assets are equities, debt instruments, and non-agricultural commodities such as exchange rates and precious metals, among others. In addition, although investors can make a profit from the price movement of goods, derivatives are also used as a tool to hedge against the risk of fluctuations in price.

Investors in futures exchanges found that derivatives are not a valid indicator for making an investment decision. To make the decision correctly and accurately, it is essential for investors to study the relationship between price changes and trading activity. This paper aims to explore empirically the relationship between price changes (volatility) and trading activity in Asian commodity exchanges, especially ribbed smoked sheet no.3 rubber (RSS3) contracts, gold futures contracts, and Index futures contracts. These three commodity products have a number of transactions and high values of transactions in several Asian futures exchanges.

This research focuses on the influence of the information content in trading activity including volume and open interest on price changes (volatility) in Asian futures exchanges. Price volatility can occur during trading and non-trading periods. This study uses three different volatility measurements based on different trading periods: (1) daily volatility measured by close-to-close returns, (2) non-trading volatility measured by close-to-open returns and (3) trading volatility measured by open-to-close returns.

---

## Literature Review

Our world today is in the era of globalization with modern communications. Such technological progress can connect the whole world, especially among financial markets. As mentioned above, trading information in exchanges spreads quickly. Thus, investors will recognize different information (Black, 1986), leading to performing trading based on emotions and feelings rather than reason. As a result, financial markets will be very volatile and have a high degree of risk in trading.

Several studies have suggested a positive contemporaneous relationship between price changes and trading volume as known by the mixture of distribution hypothesis or MDH (Clark, 1973; Epps & Epps, 1976; Harris, 1986; Lamoureux & Lastrapes, 1990; Tauchen & Pitts, 1983). The MDH explains that the positive relationship between price volatility and trading volume happens because of a common factor—information innovation. As information is unobservable, the proxy of information flow can be categorized to several observable variables such as trading activity (trading volume and open interest). Any unexpected information can affect both volatility and trading activity contemporaneously; therefore, volatility and trading activity are expected to be positively correlated.

In general, most of the empirical studies in developed and developing equity markets found a positive contemporaneous relationship between trading volume and volatility. In futures markets, the same results are confirmed. Nevertheless, besides trading volumes, open interest is also used as a proxy for trading activity. Generally, speculators in futures exchanges will not hold open interest overnight; hence, open interest can be used as a proxy for uninformed trading or hedging activity. Bessembinder and Seguin (1993) reported that an unexpected volume has a positive relationship with volatility, while, an unexpected open interest mitigates volatility in major futures contracts, for example, currency futures, index futures (Treasury bill/bond) and commodity futures contracts (gold and silver). Fung and Patterson (1998) produced evidence that volume increases volatility, and open interest reduces volatility in currency futures markets. However, both studies were done in well-developed futures markets.

In emerging futures exchanges, Chan, Fung, and Leung (2004) found that the volume and volatility relationship is positively correlated in Chinese futures exchanges for commodity contracts. Nevertheless, the relationship is opposite between open interest and volatility. Kumar and Pandey (2010) confirmed the positive relationship between volume and volatility. However, they reported that open interest does not proxy for information. Overall, most literature confirmed the positive relationship between volume and volatility, while the relationship between volatility and open interest is still ambiguous.

Our study examines the impact of the volume and open interest in Asian futures exchanges on the volatility of commodity futures contracts. Following Bessembinder and Seguin (1993), volume and open interest are divided into expected and unexpected components (shocks) to explore the information contents of those trading activity shocks (unexpected trading volumes and open interests) on the volatility of futures contracts.

---

## Research Methodology

We expect a positive relationship between the volume and open interest on price volatility in our study. However, the direction of the relationship between open interest and volatility will shed light on the information contents of open interest in Asian futures contracts. If the information content of open interest is found on volatility, open interest can be used

Download English Version:

<https://daneshyari.com/en/article/364330>

Download Persian Version:

<https://daneshyari.com/article/364330>

[Daneshyari.com](https://daneshyari.com)