พฤติกรรมการซื้อขายแบบ Noise ในตลาดสัญญาซื้อขายล่วงหน้าของประเทศไทย
Noise Trading Behavior in Thai Futures Market

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บทคัดย่อ

จากการทดสอบด้วย the modified Mixture Distributions Hypothesis (MDH) ที่เสนอโดย Andersen (1996) การศึกษานี้พบว่า noise trading ในตลาดซื้อขายล่วงหน้าบนดัชนี SET50 มีสัดส่วนน้อยกว่า informed trading แต่ยังถือว่ามีขนาดใหญ่อย่างมีสาระสำคัญทางสถิติ โดยเฉพาะเมื่อเปรียบเทียบกับตลาดที่พัฒนาแล้ว จึงสรุปได้ว่า noise trading เป็นส่วนสำคัญของตลาดสัญญาซื้อขายล่วงหน้าในประเทศไทย นอกจากนี้ยังมีประเด็นที่น่าสนใจเมื่อพิจารณารายงานประจำปีของตลาดสัญญาซื้อขายล่วงหน้าประเทศไทย (TFEX) พบว่านักลงทุนรายย่อยบางส่วนเป็นนักลงทุนที่มีข่าวสาร (Informed Trader) ซึ่งแตกต่างจากหลักฐานเดิมที่ว่านักลงทุนที่ไม่มีข้อมูลข่าวสาร (Uninformed Trader) มักจะเป็นนักลงทุนรายย่อย อีกทั้งการศึกษานี้ยังสนับสนุนให้หน่วยงานที่กำกับดูแลหามาตรการเพื่อส่งเสริมการซื้อขายจากนักลงทุนที่มีข่าวสาร (Informed Trader) ให้มากยิ่งขึ้น

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Abstract

Under the direct test of the modified Mixture Distributions Hypothesis (MDH) suggested by Andersen (1996), noise trading is less dominant, but large in coefficient magnitude and statistically significant, in the SET50 index futures market. Specifically, the proportion of informed trading and uninformed trading is much less than that of developed markets. We conclude that noise trading is an important part in the futures market in Thailand. Interestingly, when considering with the official annual summary reports by the Thailand Futures Exchange (TFEX), we can infer that some local individuals are informed traders. This is not consistent with a traditional premise that uninformed traders are usually individuals. Moreover, our findings call for policymakers and market regulators to support more on informed trading.

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1. Introduction

Noise trading is one of the most interesting issues in finance, especially the role of noise traders in emerging markets. Several studies show that noise trading makes financial markets more volatile and that causes the markets to become less informationally efficient (e.g. De Long, Shleifer, Summers, and Waldmann 1989; Bloomfield, O'Hara, and Saar 2009). In addition, derivatives trading has for many years been suggested to be a major cause of the volatility in its corresponding underlying market (e.g. Figlewski 1981; Chang, Cheng, and Pinegar 1999; Butterworth 2000; Bae, Kwon, and Park 2004).[1] Thus, understanding whether derivatives prices are driven by noise or information calls for regulatory attention. Improper regulatory designs might hurt the entire economy. If security prices are largely driven by noise, new regulations may be warranted. In sum, consideration of the impacts of noise trading is necessary for academicians, practitioners, as well as regulators. Though both noise and derivatives are held responsible for market destabilization for various reasons,[2] they are still necessary and play important roles in liquid financial markets (e.g. Greene and Smart 1999; Bloomfield et al. 2009).

In 2004 the Thailand Futures Exchange (TFEX) as the derivatives exchange of financial and metal underlying products started operating under the supervision of the Securities and Exchange Commission (SEC).[3] The most active product listed in the TFEX is the SET50 index futures, launching on April 28, 2006.[4] Currently, the TFEX has been growing continuously and successfully, and there are now many products listed on the exchange.[5] The trading volume in 2013 has increased by 2,762% since 2006 or on average 394.6% per year. In general, major players are local investors, followed by local institutions and foreign investors, respectively. Nevertheless, the futures market in Thailand is still infancy and relatively small in terms of both trading volumes and trading values, which might imply

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[1] In contrast, several studies show that derivatives markets induce more informed trading (e.g. Antoniou and Holmes, 1995) and reveal the true value of the underlying assets (e.g. Black 1975; Back 1993; Easley, O' Hara, and Srinivas 1998; Pan and Poteshman 2006).

[2] The evidence on the impact of futures trading in stabilizing the cash market has remained mixed. For example, the supporting evidence is presented by Antonious and Holmes (1995), whereas the opposition is presented by Figlewski (1981).

[3] The TFEX is a subsidiary of the Stock Exchange of Thailand.

[4] The SET50 index comprises the top 50 companies listed on the Stock Exchange of Thailand (SET), which is updated every six months. The constituent stocks are available at http://www.set.or.th/th/market/constituents.html

[5] As of January 2014, there are 12 products traded in the TFEX. Most active products include the SET50 index futures, gold futures, and single stock futures, respectively. Source: TFEX Monthly Report, November, 2014.

the existence of only a small number of informed traders. Our study relies on data from Thailand due to unique facets mentioned above, especially a lack of previous studies dealing with a young futures market. In addition, there has existed little explicit evidence of noise trading in the futures markets of Thailand.[6] In a broad sense, the ASEAN Economic Community (AEC) in 2015 gives opportunities to international investors for portfolio diversification and risk management, and Thailand is considered to be a leading economic force in this region. In 2013, Thailand's GDP of about USD 387 billion was the second largest among emerging markets in the AEC and Thailand's GDP per capita of about USD 5,779 was the third largest. An importance of economic size and potential economic growth in this region encourages more international fund flows. In general, international investors look for higher returns and lower risk taking when making investments in foreign countries. Investments from abroad are usually referred to as informed trading, or at least foreign investors are assumed to possess more accurate information than local individuals; foreign trading is therefore considered to have a stabilizing role in reducing stock return volatility (Aimpichaimongkol and Padungsaksawasdi, 2013). Thus, understanding behaviors in the financial markets in Thailand benefits the entire ASEAN economy in bringing new fund flows, which in turn supports sustainable growths and financial market efficiencies. Moreover, our evidence would encourage policymakers and regulators to revise or improve current regulations and policies. Taking these issues addressed above into consideration, it is worthwhile to investigate the behavior of noise trading in the Thai futures market.

We build upon prior literature as follows. First, the results from the SET50 index futures market show that noise trading is less dominant, but still large in coefficient magnitude and statistically significant, when compared to the futures markets in developed countries. In addition, the ratio of informed trading to noise trading is four to one, which is still small compared to that of the U.K. futures markets.[7] Thus, noise trading in Thai futures market is counted as an important component and plays a relatively more important role than in developed countries. Investors with appropriate trading strategies and market timing ability are able to generate abnormal returns from this inefficiency. Second, our results help interpret to and contribute to the fact sheets officially announced by the TFEX as follows. Over the period of 2006-2013, the TFEX's annual summary reports show that a majority of

[6] Davidson and Piriyapant (2001) show that foreign investors in the Stock Exchange of Thailand are noise traders.

[7] The ratio of informed trading to noise trading in Holmes and Tomsett (2004)'s study is 12 times in FTSE100, 3,890 times in Long gilt, and 24 times in Brent oil.

trading volumes is individual local investors (56.42%), followed by local institutions (31.14%) and foreign investors (12.44%), respectively. Integrating this fact with our conclusion that noise trading is less dominant (approximately 20% of total trading volume), we can infer that while noise traders are usually considered as uninformed traders (e.g. Trueman 1988; Bloomfield et al. 2009), and most of them are individuals (Kurov 2008), some individual local traders are informed. Third, we employ the widely well-known and direct methodology for identifying trading components suggested by Andersen (1996) that is currently considered as the standard and unique test of the modified Mixture Distributions Hypothesis (MDH). Twelve equations with nine free parameters under the Generalized Method of Moments (GMM) approach show the components of noise trading and informed trading, which are of main interest in this study. To the best of our knowledge, only this approach allows us to directly separate the impacts of noise trading and informed trading. Last, our findings also suggest that policymakers and market regulators should focus on promoting informed trading: i.e. institutional trading. We suggest that the regulators should impose higher margins, reduce price limits, and put more constraints on the issue of new contracts (Holmes and Tomsett 2004).

The remainder of the paper is organized as follows: section 2 provides concepts and related issues concerning the effects of noise trading; section 3 describes the data; section 4 presents and discusses the empirical results; and the last section is the conclusion and policy implication.

2. Concept and Related Issues

In this section we present and discuss the concept of noise and related issues, which is divided into three subsections: Noise Trading, the Mixture Distributions Hypothesis, and the Samuelson Hypothesis. These help explain the impacts and roles of noise trading in futures markets.

2.1 Noise Trading

Black (1986) defines “noise” in several meanings, but all definitions share a common and important role in financial markets. Noise trading makes markets inefficient, but it is essential for liquid markets. Model builders assuming heterogeneous beliefs among market participants have to take the existence of noise trading into consideration, because it does not make sense that insiders and noise traders would possess the same set of information. Noise traders falsely believe that they would possess superior information regarding the movement of asset prices (De Long, Shleifer, Summers and Waldmann, 1990). Consequently, they incorrectly design their own investment strategies, making markets less efficient.[8] Pure noise traders overreact to price movements, causing a negative autocorrelation in returns and making markets more volatile and less informationally efficient. Palomino (1996) develops a theoretical model of noise trading in small markets. The result shows that under imperfectly competitive markets with risk averse agents, noise traders may beat rational investors to come away with both higher expected returns and higher expected utility. Thus, it is important to understand why noise traders exist in financial markets. It also calls for a policy to promote market efficiency so that everyone can equally access information and no one is better off. In this paper we define noise trading as a destabilizing investment or trading by utilizing incorrect information or beliefs, which ultimately makes financial markets become less informationally efficient.

2.2 Mixture Distributions Hypothesis (MDH)

In this section we aim at providing an overview of the Mixture Distributions Hypothesis (MDH), which is a pioneering information theory describing the relation between volume and volatility. The MDH employs the flow of information to explain volume and volatility (or price variability). In other words, information is an important underlying factor linking the trading volume of an asset and its volatility, assuming that both variables are normally distributed. The movements of volume and associated volatility are driven by the same set of information. Information flow (or news arrival) occurs at random. Unexpected good (bad) news causes an increase (a decrease) in prices. Thus, the positive volume-volatility relation is one of the outcomes of the rate of information flow and information arrival. In general, the volume-volatility relation is positive among financial products, such as stocks (Andersen 1996), bonds (Kalimipalli and Warga 2002), futures (Chen and Daigler 2008), and foreign exchanges (Smith 2012).[9]

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[8] At the beginning there were controversies between the efficient market hypothesis and the behavioral finance, however financial economists, at the present, agree that stock market movement is driven by the impact of human behaviors (Thaler 1999). For example, Kelly (1997) studies a smart money-noise trader model and finds that noise trading influences stock prices.

[9] O'Hara (1995) documents that most theoretical microstructure models support the positive volume-volatility relation.

Starting from the original work by Clark (1973) and other early seminal works (Epps and Epps 1976; Tauchen and Pitts 1983; Harris 1986), the model relies on the assumption that, on a transaction basis, variance of prices is associated with its trading volumes. Moreover, Tauchen and Pitts and Harris show that price variability is conditional on the number of transactions. Later, Richardson and Smith (1994), Lamoureux and Lastrapes (1994), and Andersen (1996) propose a modified version of the MDH and suggest a powerful and explicit test of the MDH. The test distinguishes between the roles of informed trading and noise trading, assuming that the arrival of information follows a stochastic volatility pattern. The model is built upon assumptions about randomness frequency and asymmetry of information to measure the proportion of informed trading within a given total trading volume. Empirically, Holmes and Tomsett (2004) apply the direct test of the modified MDH in the U.K. futures markets, finding that information flow is a key factor in explaining the volume-volatility relation and that informed trading is more prevalent than noise trading.[10] However, there has existed no such evidence in futures markets in Thailand.

2.3 Samuelson Hypothesis

Samuelson (1965) studies the relation between the volatility of futures prices and time to maturity. Under the assumptions of non-arbitrage condition and of futures as an unbiased predictor of future spot rates, higher volatility in changes in futures prices is expected when approaching to maturity. This is also called "Samuelson Effect" or "Samuelson Hypothesis." Later on, there are voluminous studies to validate this effect. Anderson and Danthine (1983) show that a negative relation between futures volatility and time to maturity depends on information flow. Not much flow of information exists at the beginning of futures contracts, causing lower volatility in futures prices. Oppositely, when approaching expiration, information flow is abundant, which subsequently causes high volatility. They conclude that the Samuelson effect is valid only when there exists a lot of information flow near the expiration. Later, Bessembinder, Coughenour, Seguin, and Smoller (1996) show that the effect is valid only when there exists a negative relation between changes in underlying spot prices and costs of carry. The negative relation is more pronounced when approaching maturity, confirming the Samuelson hypothesis. Thus, the Samuelson effect

[10] Holmes and Tomsett (2004) provide an excellent summary of the Mixture of Distributions Hypothesis, noise, and information (see page 715-717).

does exist in futures markets, but it is most clearly present in agricultural futures markets (Duong and Kalev, 2008).

Evidence of the Samuelson effect in financial products has remained mixed. Chen, Duan, and Hung (1999) and Duong and Kalev (2008) show that futures volatility decreases when approaching expiration. Gupta and Rajib (2012) do not find the Samuelson effect in commodity futures in the Indian market, but show that trading volume and open interest have a greater influence on volatility. However, some studies show the Samuelson effect in financial products (Akin 2003; Floros and Vougas 2006). These findings are largely based on the GARCH models. Dolsutham, Payattikul, Yanwaree, and Tharavanij (2001) show the existence of the Samuelson effect in the SET50 index futures. The effect is statistically significant when the maturity is longer than six months. Thus, the maturity effect does exist in the futures market of Thailand, supporting our use of nearby futures contracts in this study.

3. Data

Daily returns and their corresponding trading volumes of the SET50 index futures[11] are obtained from DataStream. The returns are calculated as the difference between natural logarithms in prices. Due to small trading volumes at the early stage of the market, the daily data start from January 1, 2007 to December 31, 2012, totaling 1,458 observations. Only nearby contracts are considered, which takes the Samuelson effect into consideration.[12] Detrended volume rather than raw volume is employed because it is more stationary (Holmes and Tomsett 2004).[13]

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[11] See the appendix for the details of the SET50 index futures contract.

[12] A nearby futures contract has the shortest time to maturity or the closest to the settlement date. Thus, the most liquid and informative contract is the nearby contract, representing a good sample and widely used in the study of futures markets. Investors' expectation is largely incorporated in the prices of nearby contracts.

[13] Detrended volume is estimated as follows. $W_t = (2_q + 1)^{-1} \sum_{t=-q}^{q} X_t + j$, where $q + 1 \leq t \leq n - q$ where X_t is the time series of nearby trading volumes and q is a non-negative number, which is equal to 125 in this study (50% of trading days in a year).

4. Methodology

In this study we follow the direct test of the modified MDH suggested by Andersen (1996). The distribution of the SET50 index futures returns is assumed as

$$(R_t \mid K_t) \sim N(O, K_t) \tag{1}$$

Trading volumes comprise the volumes of informed and uninformed traders. Detrended volume follows the Poisson process as

$$(\overline{V}_t \mid K_t) \sim c - Po(m_0 + m_1 K_t) \tag{2}$$

Twelve equations using the Generalized Method of Moments (GMM) are employed to identify the roles of information and noise. The equations are below.

$$E(R_t) = \bar{r} \tag{3}$$

$$E|R_t - \bar{r}| = \left(\frac{2}{\pi}\right)^{\frac{1}{2}} E\left[K_t^{\frac{1}{2}}\right] \tag{4}$$

$$E[(R_t - \bar{r})^2] = E[K_t] = \overline{K} \tag{5}$$

$$E|R_t - \bar{r}|^3 = 2\left(\frac{2}{\pi}\right)^{\frac{1}{2}} E\left[K_t^{\frac{3}{2}}\right] \tag{6}$$

$$E[(R_t - \bar{r})^4] = 3E[\overline{K}^2 + var(K_t)] \tag{7}$$

$$E[\hat{V}_t] = c[m_0 + m_1\overline{K}) = \overline{V} \tag{8}$$

$$E[(\hat{V}_t - \overline{V})^2] = c\overline{V} + c^2 m_1^2 var(K_t) \tag{9}$$

$$E[(\hat{V}_t - \overline{V})^3] = c^2\overline{V} + 3c^3 m_1^2 var(K_t) + c^3 m_1^3 E[K_t - \overline{K}]^3 \tag{10}$$

$$E[R_t \hat{V}_t] = \bar{r}\overline{V} \tag{11}$$

$$E[|R_t - \bar{r}|(\hat{V}_t - \bar{V})] = c\left(\frac{2}{\pi}\right)^{\frac{1}{2}} m_1\left(E\left[K_t^{\frac{3}{2}}\right] - E\left[K_t^{\frac{1}{2}}\right]\right) \tag{12}$$

$$E[(R_t - \bar{r})^2\hat{V}_t] = \bar{V}\bar{K} + m_1 var(K_t) \tag{13}$$

$$E[|R_t - \bar{r})^2(\hat{V}_t - \bar{V})^2] = c\bar{K}\bar{V} + c^2 m_1 var(K_t) + c^2 m_1^2[E[K_t - \bar{K})^3 - \bar{K}var(K_t)] \tag{14}$$

where R_t, $\bar{r}$, V_t, K_t , and c are the returns, mean of returns, detrended volumes, information intensity density variable, and positive constant, respectively. m_0 and m_1 are the components of the noise and informed trading volumes. $\bar{K}$ is the mean of the daily information density, which has to be, by construction, positive. It indicates the density of information flows. $var(K_t)$ represents the variation of the daily information density. $\bar{K}$ and $var(K_t)$ help identify the type of information flow, unpredicted information flow and periodic (regular) information flow. Small values of $\bar{K}$ and $var(K_t)$ indicate that information is from periodic announcements. $E[K_t - \bar{K}]^3$ is the skewness of information density. If it is positively skewed, information flows are on regular basis. Otherwise, they are random. Also, $E\left[K_t^{\frac{1}{2}}\right]$ and $E\left[K_t^{\frac{3}{2}}\right]$ are expected to be positive, by design. For brevity we focus on the m_0 and m_1, the components of the noise and informed trading volumes, which are of main interest in this study.

5. Empirical Results

Table 1 presents summary statistics of the return and detrended volume of the SET50 index futures. The return distribution is non-normal, showing slight negative skewness (-0.243) and large excess kurtosis (8.446). Similar to the return, detrended volume distribution is non-normal, but possessing smaller skewness and excess kurtosis. Our preliminary results are largely consistent with those of Andersen (1996) and Holmes and Tomsett (2004).

Table 1 Summary statistics

This table presents the summary statistics of return and detrended volume of the SET50 index futures. There are 1,134 observations for the entire sample. Standard deviation, skewness, and excess kurtosis are sample estimations, respectively. n and x is the total number of observations and individual observations. $\bar{X}$ and s are a sample mean and a sample standard deviation.

$$\text{Standard Deviation (s)} = \left(\sum_{t=1}^{n} \frac{(x_t - \bar{x})^2}{n-1} \right)^{\frac{1}{2}}$$

$$\text{Skewness} = \frac{n}{(n-1)(n-2)} \sum_{t=1}^{n} \left(\frac{(x_t - \bar{x})}{s} \right)^3$$

$$\text{Excess Kurtosis} = \frac{n}{(n-1)(n-2)(n-3)} \sum_{t=1}^{n} \left(\frac{(x_t - \bar{x})}{s} \right)^4 \frac{3(n-1)^2}{(n-2)(n-3)}$$

	Return	Detrended Volume
Mean	5.294×10^{-4}	1.000
Standard Deviation	2.012×10^{-2}	3.525
Skewness	-0.243	0.125
Excess Kurtosis	8.446	3.473

Table 2 presents the results of the MDH using the Generalized Method of Moments (GMM) technique. Nine estimated coefficients from twelve equations are all statistically significant. Our prime interests are m_0 and m_1, the measures of noise trading and informed trading, respectively. The estimated coefficient of m_0 (1158.195) is smaller than that of m_1 (4361.289), showing the dominant role of informed trading. Although informed trading is dominant, noise trading is counted as an important component in the market. The m_1 is approximate four times larger than m_0, showing that noise trading is a considerable part of the market. Our argument for this conclusion comes from the comparison with the results reported by Holmes and Tomsett (2004), which shows that the ratio of informed trading to noise trading in the U.K. futures markets is 12 times for FTSE 100, 3,890 times for Long gilt, and 24 times for Brent oil. This implies that the proportion of noise trading in Thai futures markets is still larger than that in the developed market. It is interesting to note that the majority in Thai futures market over the period of 2006-2013 are local individual investors.[14] Given our results and the facts reported by the TFEX, we can infer that some local individual investors are informed, which negates the common assumption of uninformed individual investors (Kurov 2008).

The remaining seven parameters from equations (3) to (14) are statistically significant.[15] $\bar{r}$ is small and positive. As expected, $\bar{K}$ and $var(K_t)$, the mean and variability of the density of daily information, are positive and small. It means that not much information is flowing into the futures market. Moreover, the information flowing in the market comes primarily from regularly scheduled announcements.

Table 2 GMM Estimation of the Modified Mixture Distribution Hypothesis

This table presents nine estimated parameters from twelve equations employing the Generalized Methods of Moments (GMM). The time period in this study starts from years 2006 to 2012. ** and * are statistically significant at 1% and 5% levels.

Parameters	Coefficients	Robust Standard Error	p-value
$\bar{r}$	1.195×10^{-3}	4.569×10^{-4}	0.009**
$E\left[K_t^{\frac{1}{2}}\right]$	1.778×10^{-2}	5.304×10^{-4}	0.000**
$\bar{K}$	4.044×10^{-4}	3.280×10^{-5}	0.000**
$E\left[K_t^{\frac{3}{2}}\right]$	1.190×10^{-5}	2.180×10^{-6}	0.000**
$var(K_t)$	2.720×10^{-7}	1.220×10^{-7}	0.025 *
$E[Kt - \bar{K}]^3$	6.357×10^{-4}	1.159×10^{-4}	0.000**
m_0	1158.195	121.364	0.000**
m_1	4361.289	804.419	0.000**
c	8.621×10^{-4}	5.660×10^{-5}	0.000**

[14] The largest average trading proportion over the period of 2006-2013 is local individual investors (56.42%), followed by local institutions (31.14%), and foreign investors (12.44%), respectively. See the TFEX annual summary report for more detail.

[15] We discuss the rest of the seven estimated parameters in brief, because they are not of prime interest in this paper. The variables explanations and interpretation are presented in Andersen (1996).

c, $E\left[K_t^{\frac{1}{2}}\right]$, $E\left[K_t^{\frac{3}{2}}\right]$ and $E[K_t - \bar{K}]^3$ are positive and small as anticipated.[16] The positive skewness ($E[K_t - \bar{K}]^3$) shows the asymmetry of the information flow and confirms that information intensity is based on periodic announcements. This evidence is consistent with the findings of Holmes and Tomsett (2004) in the U.K. futures market and is stronger than those of Andersen (1996) in individual stocks.

6. Conclusion and Policy Implication

In this study we aim to identify the magnitude of noise trading in the futures market in Thailand. Due to the fact that noise trading is usually dominant in developing countries, it is unclear how the noise trading affects the market. Alternatively, whether derivatives price changes reflect the influence of noise or information is of interest, and may require further regulations to increase the proportion of informed traders. Thus, it is important to investigate the impacts of noise trading in order to support long-term economic growth. In addition, the futures markets in Thailand are in an early stage with scarce empirical research. This paper attempts to provide further evidence in this regard.

We employ the direct test of the modified Mixture Distributions Hypothesis (MDH) suggested by Andersen (1996) in order to separate the components of trading (informed and uninformed (noise) trading), and compare our results with the evidence in developed markets. Our results on the SET50 index futures show that informed trading is dominant, which is consistent with the evidence in developed markets. However, we cannot neglect the importance of noise trading. We conclude that the noise trading is an important component in the futures market in Thailand. Thus, the futures market in Thailand is not “fully” informationally driven. Moreover, when integrating and interpreting our results with the official reports by the TFEX, we document that local individual investors are somewhat informed. This evidence contradicts the common belief in uninformed individual investors. We also find that information flows in the market are largely on a regular basis.

Our results call for attention to market regulators. Given the significant amount of noise trading in the futures market in Thailand, regulators need to promote informed trading in order to stabilize and support the growth of the market in the long run. The changes suggested in current regulations include increasing margins or decreasing price limits. These could potentially reduce the impacts of noise trading.

[16] *c* is a positive constant in the detrended volume process. The incorporation of c in the model does not restrict parameters to be time invariant.

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Appendix A The SET50 Index Futures Contract Specification

Items	Contract Details
Underlying Asset	SET50 Index which is compiled, computed and disseminated by the Stock Exchange of Thailand
Ticker Symbol	S50
Contract Multiplier	THB 1,000 per index point
Contract Months	3 nearest consecutive months plus next 3 quarterly months
Price Quotation	SET50 Index price
Minimum Price Fluctuations	0.10 index point (or THB 100 per contract)
Price Limit	± 30% of the previous settlement price
Trading Hours	Pre-open: 09:15 - 09:45 hrs. Morning session: 09:45 - 12:30 hrs. Pre-open: 14:00 - 14:30 hrs. Afternoon session: 14:30 - 16:55 hrs
Speculative Position Limit	Net 20,000 delta equivalent SET50 Index Futures contracts on one side of the market in any contract months of SET50 Index Futures and SET50 Index Options combined.
Last Trading Day	The business day immediately preceding the last business day of the contract month. Time at which trading ceases on Last Trading Day is 16:30 hrs.
Final Settlement Price	The final settlement price shall be the numerical value of the SET50 Index, rounded to the nearest two decimal points as determined by the exchange, and shall be the average value of the SET50 Index taken during last 15 minutes and the closing index value, after deleting the three highest and three lowest values.
Settlement Method	Cash Settlement
Exchange Fee	THB 35 per contract per side
Brokerage Commission	Freely negotiable

Source: Thailand Futures Exchange (http://www.tfex.co.th/en/products/set50futures-spec.html)