



Trade Surveillance Handbook – Series One

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1. Trade Surveillance Handbook

1.1. Introduction

This Trade Surveillance Handbook is introduced as part of the ongoing collaborative effort between SGX and its Members to foster good trading practices, and uphold market integrity and investor confidence in our marketplace. The Handbook will be released in series. The first series, set out in Chapter 2, describes the types of potential trading misconduct that may be observed in the market. It also provides a set of guidelines that Members can incorporate as part of their surveillance programs in detecting and examining the respective malpractices.

In this release, the potential trading malpractices of Spoofing, Layering and Marking the Close are featured. Other trading malpractices will be discussed in subsequent releases.

A fair and orderly market that reflects the forces of genuine demand and supply promotes public confidence and efficiency. Improper conduct that creates a false or misleading impression of trading activities, price movements or market information compromises fair and orderly markets.

Trade Surveillance forms part of a Member's overall risk management and internal control framework. To supplement trade surveillance, a Member could consider instituting preventive controls such as automated pre-trade checks targeted at reducing and eliminating the occurrence of trading malpractices.

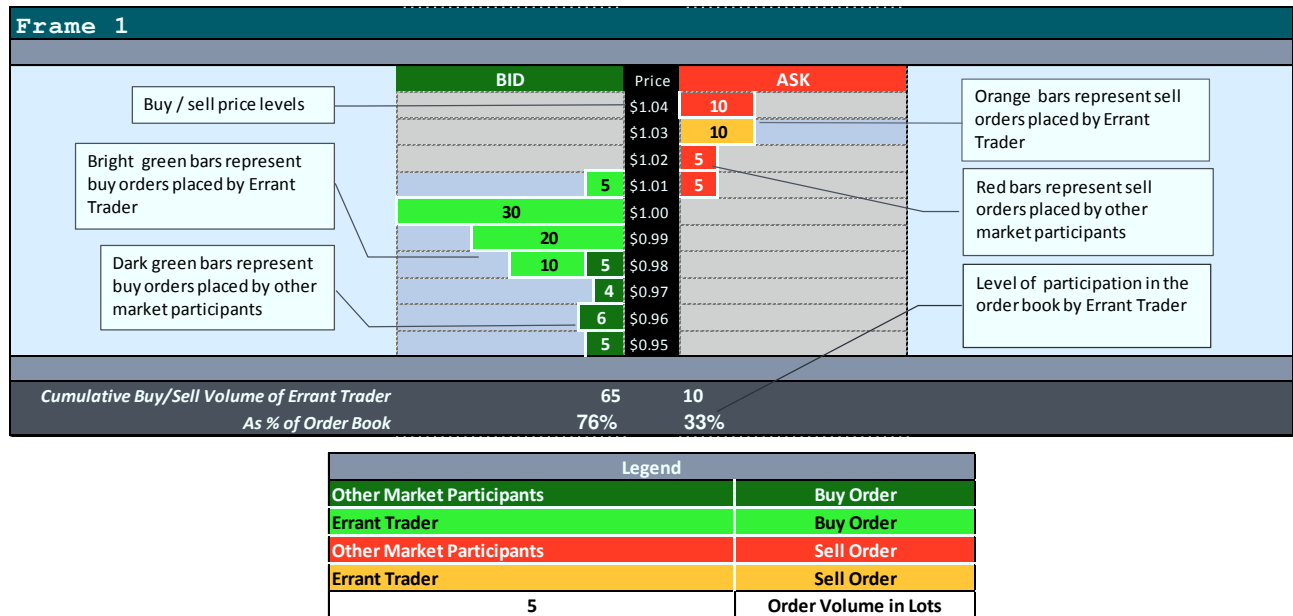
Members are reminded to exercise caution at all times in the course of their trading activities. They should not execute trades that are manipulative in nature, whether carried out on behalf of customers or for proprietary or principal undertaking.

Members should note that the examples in the Hand Book are simplified for illustrative purposes and not necessarily representative of actual market conditions. These illustrations are not intended to be exhaustive and Members may experience other complex scenarios involving a variety of malpractices.

1.2. Explanatory Notes on Charts

The following segment depicts the main types of charts and diagrams that will be used for illustrative purposes throughout the Handbook.

Order Book Diagram – A pictorial representation of the buy and sell sides of an order book. It shows the orders placed by market participants and an “Errant Trader”, as well as the level of participation by the latter at a given point in time.



2. Types of Trading Malpractices

2.1. Relevant Rules & Regulations (“Relevant Rules”)

The Singapore Securities and Futures Act (“SFA”) prohibits various forms of market misconduct. An individual may be fined up to \$250,000 or jailed for up to seven years, or both for contravening Sections 197, 198, 206 and 208 of the SFA. Alternatively, under Section 232 of the SFA, a civil penalty may be imposed for up to three times the amount of the profit gained, or the loss avoided, or where there is no gain or loss, up to \$2 million. All market participants, including Members and their registered representatives¹, are subject to these laws.

Members and their registered representatives are also subject to the SGX Trading Rules on market misconduct. They are expected to exercise caution when executing trades for proprietary or principal transactions. When carrying out transactions on behalf of customers, they are also expected to be vigilant, and shall not assist customers in executing trades which are manipulative in nature. Members and their registered representatives who are found to have breached the SGX Trading Rules on market misconduct will be subject to disciplinary actions. SGX may also refer any investor, Member or registered representative suspected of being involved in market misconduct to the relevant authorities.

The provisions under the SFA, SGX-ST and Futures Trading Rules on false trading, market rigging and market manipulation that are relevant to this series of the Handbook are as follows:-

Rules & Regulations	Market	
	Securities	Derivatives
SFA	Sections 197 and 198	Sections 206 and 208
SGX Trading Rules	SGX-ST Rule 13.8.1	Futures Trading Rules (“FTR”) 3.4.1, 3.4.3 and 3.4.8

¹ For the avoidance of doubt, registered representatives include Trading Representatives, Approved Traders and Registered Representatives.

2.2. Spoofing / Layering

The following segment introduces spoofing and layering, trading behaviours that an errant trader may employ to create a false or misleading appearance of active trading in an instrument. This appearance, which can lead to the creation of a false market, may induce market participants into transacting based on their impression of the changes in the demand and supply of the instrument, which are caused by the errant trader.

A false market may exhibit one or more of the following characteristics:

- (a) information is false, exaggerated or tendentious;
- (b) contrived factors are in evidence, such as buyers and sellers acting in collaboration to bring about artificial market prices; or
- (c) manipulative or fictitious orders, transactions or other devices have been employed.

2.2.1. Spoofing

Spoofing typically occurs when an errant trader submits a genuine order on one side of the order book, and then submits excessively large orders (“fictitious orders”) on the other side of the order book which he does not intend to trade. Upon execution of the genuine order, the trader will rapidly cancel the fictitious orders.

The fictitious orders are entered to create a false impression of the supply and demand balance. Other market participants may unwittingly enter the market to place orders, either to buy or sell based on these fictitious orders. The orders also improve the errant trader’s chance of another market participant matching his genuine order. Trading behaviour of this nature is likely to be in breach of the Relevant Rules.

An errant trader’s spoofing activities may follow the sequence below, or with variations:

- Step 1 -** Entering a genuine order on one side (the “genuine side”) of the order book.
- Step 2 -** Entering large fictitious orders at the prevailing best bid or ask price on the other side of the order book. This is carried out in an attempt to induce other market participants into believing that there is an increased demand or supply for the instrument. In some cases, these orders may take up a significant proportion of the order book. They may also be amended, deleted and re-entered within a short span of time depending on the mode through which these actions are being carried out (e.g. manual or algorithms). This deletion and re-entry may be repeated multiple times.

This step may alternatively be carried out through the layering of buy or sell orders at multiple price levels above or below the prevailing best bid or ask prices in the order book. See Section 2.2.2 on Layering.

- Step 3 -** Entry of other market participants who may place orders, either behind or ahead of the errant trader’s fictitious orders to gain order priority. This usually results in the market participants trading against the errant trader’s genuine order.
- Step 4 -** The sequence may be repeated multiple times with the errant trader frequently switching sides in the order book.

A spoofing scheme typically occurs over the course of a few seconds, in multiple cycles, throughout a trading session. As a result, the trader profits from the repeated executions of his genuine orders at favorable prices.

2.2.1.1. Case Illustration - Spoofing

The following example depicts the trading behavior of an errant trader who has employed a combination of fictitious orders, rapid order entries and deletions in carrying out a spoofing scheme.

The errant trader enters fictitious orders on the buy side of the order book of a futures contract in a bid to induce market participants into reacting to the false buy volume information. These orders are for volumes several times larger than the errant trader's genuine sell order to draw market participants (e.g. algorithms) into believing that there is buying interest emerging in the order book. As soon as the participants enter the market to place buy orders, their orders are matched against the errant trader's genuine sell order resting on the other side of the order book. Upon successful execution of his genuine order at an advantageous price, the errant trader deletes his fictitious orders.

Note: The below example is simplified for illustrative purposes and shall not be deemed representative of actual market conditions. Members may in the course of their business activities observe trading behaviours involving varying complexity and circumstances.

Frame 1				
Order book prior to entry of the Errant Trader				
	BID	Price	ASK	TIME: 15:25:19.083 HRS
Bid orders of other market participants		\$312.30	8	Ask orders of other market participants
		\$312.20	6	
		\$312.10	4	
		\$312.00	3	
	4	\$311.90		
	5	\$311.80		
	2	\$311.70		
	4	\$311.60		
	4	\$311.50		
	10	\$311.40		
Cumulative Buy/Sell Volume of Errant Trader		0	0	
As % of Order Book		0%	0%	

Frame 1 - There are only bid and ask orders of other market participants, represented by the green and red bars respectively, present in the order book during this time.

Frame 2				
Entry of Genuine and Fictitious Orders				
	BID	Price	ASK	TIME: 15:25:19.084 HRS
Errant Trader enters large buy order (20) Errant Trader enters large buy order (23)		\$312.30	8	Errant Trader enters genuine sell order (7)
		\$312.20	6	
		\$312.10	4	
		\$312.00	3	
	20	\$311.90	7	
	23	\$311.80		
	2	\$311.70		
	4	\$311.60		
	4	\$311.50		
	10	\$311.40		
Cumulative Buy/Sell Volume of Errant Trader		43	7	
As % of Order Book		60%	25%	

Frame 2 - The errant trader enters a genuine sell order, represented by the orange bar, for 7 lots of the futures contract at \$312.00. This is the price at which he is willing to sell the contract. At the same time, he enters 2 large fictitious buy orders for 20 and 23 lots at \$311.90 and \$311.80 respectively. These orders are several times larger than the volume of his genuine order.

Frame 3				
Entry of Other Market Participants				
Market participant enters buy order (10)	BID	Price	ASK	TIME: 15:25:20.150 HRS Market participant matches Errant Trader's sell order
		\$312.30	8	
		\$312.20	6	
		\$312.10	4	
	10	\$312.00	3 7	
	20	\$311.90		
	23	\$311.80		
	2	\$311.70		
	4	\$311.60		
	4	\$311.50		
	10	\$311.40		
Cumulative Buy/Sell Volume of Errant Trader		43	7	
As % of Order Book		52%	25%	

Frame 3 - The errant trader's buy orders induced another participant into believing that new buying interest has emerged in the order book. The participant skips ahead of the queue by placing a buy order for 10 lots at \$312.00 which trades against all sell orders (including the errant trader's genuine resting sell order) at the same price.

Frame 4				
Deletion of Fictitious Orders upon Execution of Genuine Order				
Errant Trader deletes large buy order Errant Trader deletes large buy order	BID	Price	ASK	TIME: 15:25:20.568 HRS
		\$312.30	8	
		\$312.20	6	
		\$312.10	4	
		\$312.00		
	20	\$311.90		
	23	\$311.80		
	2	\$311.70		
	4	\$311.60		
	4	\$311.50		
	10	\$311.40		
Cumulative Buy/Sell Volume of Errant Trader		0	0	
As % of Order Book		0%	0%	

Frame 4 - Upon execution of his genuine sell order, the errant trader immediately deletes his fictitious buy orders.

Frame 5				
State of Order Book after the Errant Trader's Exit				
	BID	Price	ASK	TIME: 15:25:20.569 HRS
		\$312.30	8	
		\$312.20	6	
		\$312.10	4	
		\$312.00		
	4	\$311.90		
	5	\$311.80		
	2	\$311.70		
	4	\$311.60		
	4	\$311.50		
	10	\$311.40		
Cumulative Buy/Sell Volume of Errant Trader		0	0	
As % of Order Book		0%	0%	

Frame 5 - The order book returns to its original state, prior to the entrance of the errant trader.

2.2.2. *Layering*

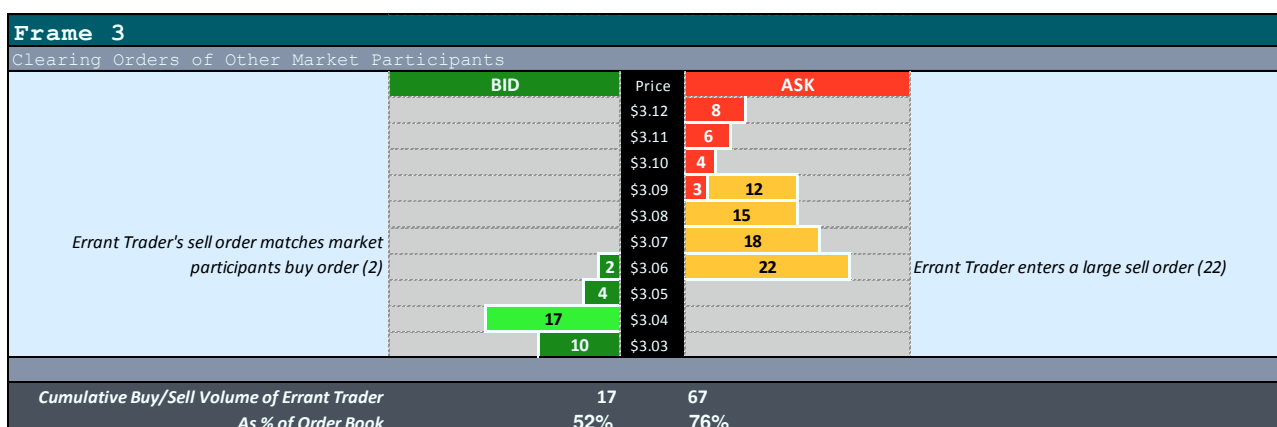
Layering occurs when multiple order entries are made at, above or below the prevailing best bid or ask prices. It is at times carried out in certain legitimate business activities such as market making which are generally not representative of market manipulation.

However, where these “layered orders” are used to induce market participants to enter their orders at prices not representative of actual demand and supply, a false market may be created. This allows the errant trader to take advantage by trading on the opposite side of the order book against the orders of market participants at prices advantageous to him. Trading behaviour of this nature is likely to be in breach of the Relevant Rules.

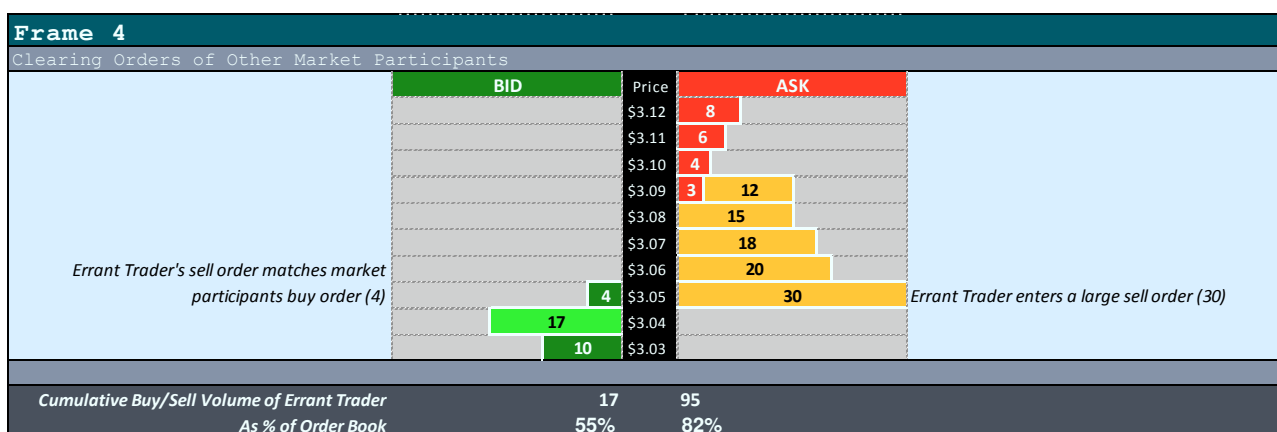
An errant trader’s layering activities may follow the sequence below, or with variations:

- Step 1 -** Layering buy or sell orders at, below or above the prevailing best prices on one side of the order book. These orders typically represent a significant proportion of the order book.
- Step 2 -** Making multiple order entries/amendments/deletions to existing layered orders to give the impression of increased demand or supply in the order book. As this is being carried out, the trader may clear resting orders belonging to other market participants.
- Step 3 -** Entering genuine order(s) on the other side of the order book.
- Step 4 -** Entry of other market participants who trade against the trader’s genuine order(s).
- Step 5 -** Deletion of layered orders upon successful execution of genuine order(s) by the trader.
- Step 6 -** The entire sequence can be repeated on either side of the order book.

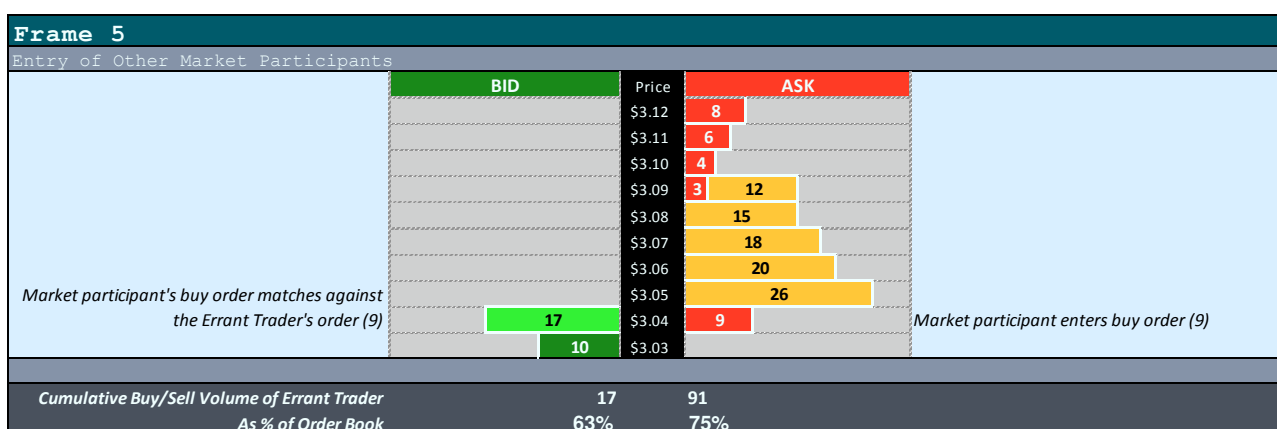
SGX published Circular No. ST/DM/3/2016 on disciplinary action taken against a trader who utilized layering in the creation of a false market. Members may refer to the circular in the Appendix for more information.



Frame 3 - The Errant Trader enters a sell order for 22,000 shares at \$3.06. This order is partially matched against the resting buy order of 2,000 shares placed by another market participant. The excess volume from the Errant Trader's sell order forms a new layer and sets a new best ask price of \$3.06. At this point, he accounts for 76% of the sell order volume in the order book between prices ranging from \$3.06 to \$3.12.



Frame 4 - The Errant Trader enters a large sell order for 30,000 shares at \$3.05. This order is matched against the resting buy order of 4,000 shares at \$3.05 placed by another market participant. The excess volume from the order is left as a layer in the order book and sets a new best ask price of \$3.05. The cumulative sell orders that he has entered may have created an impression of increased selling pressure in the security.



Frame 5 - The appearance of increased selling pressure created by the Errant Trader begins to draw other market participants into the security. Participants that are seeking to sell their shares would either queue behind the Errant Trader's resting sell orders or enter at the prices below the current best ask price of \$3.05. In this scenario, the market participant enters a sell order at \$3.04 for 9,000 shares which partially matches against the Errant Trader's resting buy order.

Frame 6				
Entry of Other Market Participants				
	BID	Price	ASK	
Market participant's buy order matches against the Errant Trader's order (8)		\$3.12	8	
		\$3.11	6	
		\$3.10	4	
		\$3.09	3	12
		\$3.08		15
		\$3.07		18
		\$3.06		20
		\$3.05		26
		\$3.04	8	
	10	\$3.03		
Market participant enters buy order (8)				
Cumulative Buy/Sell Volume of Errant Trader		8	91	
As % of Order Book		44%	76%	

Frame 6 - Another market participant enters an 8,000 share sell order at \$3.04 clearing the remainder of the Errant Trader's resting buy order.

Frame 7				
Deletion of Layered Sell Orders				
	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6	
		\$3.10	4	
		\$3.09	3	12
		\$3.08		15
		\$3.07		18
		\$3.06		20
		\$3.05		26
		\$3.04		
	10	\$3.03		
Delete (12) Delete (15) Delete (18) Delete (20) Delete (26)				
Cumulative Buy/Sell Volume of Errant Trader		0	91	
As % of Order Book		0%	81%	

Frame 7 - Following the successful execution of his buy order at his target price (which would otherwise not have been available before the Errant Trader entered the layered sell orders), the Errant Trader deletes all of his layered sell orders from \$3.05 to \$3.09.

Frame 8				
State of Order Book after the Errant Trader's Exit				
	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6	
		\$3.10	4	
		\$3.09	3	
		\$3.08		
		\$3.07		
		\$3.06		
		\$3.05		
		\$3.04		
	10	\$3.03		
Cumulative Buy/Sell Volume of Errant Trader		0	0	
As % of Order Book		0%	0%	

Frame 8 - Following the exit of the Errant Trader, the order book returns to the state it was in prior to his entry (i.e. a wide bid-ask spread).

Frame 9				
	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6	
		\$3.10	4	
		\$3.09	3	
		\$3.08		
		\$3.07		
Market participant enters the market (13)	13	\$3.06		
		\$3.05		
Market participant enters the market (5)	5	\$3.04		
	10	\$3.03		
Cumulative Buy/Sell Volume of Errant Trader		0	0	
As % of Order Book		0%	0%	

Frame 9 - Other market participants enter the market to place buy orders for the security.

Frame 10				
Entry of Genuine Sell Order and Initiation of Buy Side Layering				
	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6 24	Errant Trader enters genuine sell order (24)
		\$3.10	4	
		\$3.09	3	
		\$3.08		
Errant Trader enters buy order (16)	16	\$3.07		
Errant Trader enters buy order (3)	3 13	\$3.06		
Errant Trader enters buy order (15)	15	\$3.05		
	5	\$3.04		
	10	\$3.03		
Cumulative Buy/Sell Volume of Errant Trader		34	24	
As % of Order Book		55%	53%	

Frame 10 - The Errant Trader enters a genuine sell order for 24,000 shares at \$3.11. This is the price at which he intends to sell his shares. The trader concurrently enters several layers of buy orders between \$3.05 and \$3.07. These buy orders are meant to narrow the spread and bring the best bid price closer to his target sell price of \$3.11.

Frame 11				
	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6 24	
		\$3.10	4	
		\$3.09	3	
		\$3.08		
Errant Trader enters buy order (8)	8	\$3.07		
	16	\$3.06		
	3 13	\$3.05		
	15	\$3.04		
	5	\$3.03		
	10			
Cumulative Buy/Sell Volume of Errant Trader		42	24	
As % of Order Book		60%	53%	

Frame 11 - The Errant Trader enters a buy order for 8,000 shares at \$3.08 creating a new layer meant to narrow the spread.

Frame 12				
Market participant enters the market (5)	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6	24
		\$3.10	4	
		\$3.09	3	
	5	\$3.08		
	16	\$3.07		
	3	\$3.06		
	13	\$3.05		
	15	\$3.04		
	5	\$3.03		
	10			
Cumulative Buy/Sell Volume of Errant Trader		42	24	
As % of Order Book		56%	53%	

Frame 12 - A market participant enters a buy order for 5,000 shares at \$3.08. The order is second in priority at the price level.

Frame 13				
Order Amendment by the Errant Trader				
Errant Trader amends buy order (9)	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6	24
		\$3.10	4	
		\$3.09	3	
	9	\$3.08		
	16	\$3.07		
	3	\$3.06		
	13	\$3.05		
	15	\$3.04		
	5	\$3.03		
	10			
Cumulative Buy/Sell Volume of Errant Trader		51	24	
As % of Order Book		61%	53%	

Frame 13 - The Errant Trader amends his initial buy order for 8,000 shares to 17,000 shares at the price level of \$3.08. This amendment causes the trader to lose his priority and for his order to be placed at back of the queue. It reduces the likelihood of his order getting matched against other market participants'. At the same time, it can also give a false impression of increased buying interest at the price level.

Frame 14				
Clearing Orders of Other Market Participants				
Errant Trader enters buy order (25)	BID	Price	ASK	
		\$3.12	8	
		\$3.11	6	24
		\$3.10	4	
		\$3.09	3	
	25	\$3.08		
	17	\$3.07		
	16	\$3.06		
	3	\$3.05		
	13	\$3.04		
	15	\$3.03		
	5			
Cumulative Buy/Sell Volume of Errant Trader		76	24	
As % of Order Book		70%	53%	

Frame 14 - The Errant Trader enters a buy order for 25,000 shares at \$3.09. This large order clears the existing sell orders of other market participants at \$3.09. The excess volume from the order is left as a layer and it creates a new best bid price of \$3.09.

Frame 15				
Clearing Orders of Other Market Participants				
Errant Trader enters buy order (30)	BID		Price	ASK
			\$3.12	8
			\$3.11	6
			\$3.10	4
	30			24
		22	\$3.09	
		17	\$3.08	
		16	\$3.07	
		3	\$3.06	
		13	\$3.05	
		15	\$3.04	
		5	\$3.03	
		10		
Cumulative Buy/Sell Volume of Errant Trader		103	24	
As % of Order Book		76%	57%	

Frame 15 - The Errant Trader enters a buy order for 30,000 shares at \$3.10. Similar to the previous frame, the order clears the existing sell order at \$3.10 and sets a new best bid price at this level. He now accounts for 76% of the buy order volume between the price levels of \$3.03 and \$3.10.

Frame 16				
Entry of Other Market Participant				
Market participant enters buy order (10)	BID		Price	ASK
			\$3.12	8
			\$3.11	6
			\$3.10	24
		26	\$3.09	
		22	\$3.08	
		17	\$3.07	
		16	\$3.06	
		3	\$3.05	
		13	\$3.04	
		15	\$3.03	
		5		
		10		
Cumulative Buy/Sell Volume of Errant Trader		99	24	
As % of Order Book		70%	63%	

Frame 16 - The appearance of increased buying interest in the order book induces other market participants into buying the security. In this instance, a market participant enters a buy order for 10,000 shares at \$3.11 which is matched to another market participant's order for 6,000 shares and partially matches the Errant Trader's sell order for 4,000 shares.

Frame 17				
Entry of Other Market Participant				
Market participant enters buy order (15)	BID		Price	ASK
			\$3.12	8
			\$3.11	20
		15	\$3.10	
		26	\$3.09	
		22	\$3.08	
		17	\$3.07	
		16	\$3.06	
		3	\$3.05	
		13	\$3.04	
		15	\$3.03	
		5		
		10		
Cumulative Buy/Sell Volume of Errant Trader		99	20	
As % of Order Book		67%	71%	

Frame 17 - Another market participant enters a buy order for 15,000 shares at \$3.11 and matches against the Errant Trader's sell order.

Frame 18				
Entry of Other Market Participant				
	BID	Price	ASK	
Market participant enters buy order (5)		\$3.12	8	Market participant's buy order matches against the Errant Trader's order (5)
		\$3.11	5	
		\$3.10		
	26	\$3.09		
	22	\$3.08		
	17	\$3.07		
	16	\$3.06		
	3	\$3.05		
	13	\$3.04		
	15	\$3.03		
	5			
	10			
Cumulative Buy/Sell Volume of Errant Trader		99	5	
As % of Order Book		72%	38%	

Frame 18 - Another market participant enters a buy order for 5,000 shares at \$3.11 and matches against the remainder of the Errant Trader's sell order.

Frame 19				
Deletion of Layered Orders				
	BID	Price	ASK	
		\$3.12	8	
		\$3.11		
Delete (26)	26	\$3.10		
Delete (22)	22	\$3.09		
Delete (17)	17	\$3.08		
Delete (16)	16	\$3.07		
Delete (3)	3	\$3.06		
Delete (15)	15	\$3.05		
	5	\$3.04		
	10	\$3.03		
Cumulative Buy/Sell Volume of Errant Trader		99	0	
As % of Order Book		75%	0%	

Frame 19 - Following the successful execution of his sell order at his target price (which would otherwise not have been available before the Errant Trader entered the layered buy orders), the Errant Trader deletes all of his layered buy orders from \$3.05 to \$3.10.

Frame 20				
State of Order Book after the Errant Trader's Exit				
	BID	Price	ASK	
		\$3.12	8	
		\$3.11		
		\$3.10		
		\$3.09		
	5	\$3.08		
		\$3.07		
	13	\$3.06		
		\$3.05		
	5	\$3.04		
	10	\$3.03		
Cumulative Buy/Sell Volume of Errant Trader		0	0	
As % of Order Book		0%	0%	

Frame 20 - State of the order book following the Errant Trader's exit. This example shows that the orders and trades by the Errant Trader created an appearance of active trading in the security at prices determined by the trader.

2.2.3. *Guidelines on Detection and Investigation*

Spoofing and Layering may be employed to create a false or misleading appearance of active trading in an instrument. As part of the detection and investigation processes for these potential trading malpractices (regardless of their mode of trading execution), the indicators below could form the baseline considerations for Members when examining cases. While these guidelines are not intended to be exhaustive, Members may consider tailoring their internal detection/investigation processes to commensurate with the complexity of cases in question as well as their business activities.

The general indicators to consider in spoofing and layering cases include the following:

- i. The **liquidity profile** of the instrument. For instance, spoofing may be used to induce market participants into trading a liquid instrument at the prevailing best bid and ask prices. Layering, on the other hand, may be employed to narrow the existing bid-ask spread of an illiquid instrument to draw market participants into trading.
- ii. The **nature of the activity** that a trading account is used for. For instance, orders could be placed through an account designated for market making in an instrument. Market making activities typically do not warrant significant attention as they:
 - operate with a primary goal of providing liquidity to both sides of the market (i.e. quoting 2-way prices on a continuous basis); and
 - do not seek to exert pressure in any direction in the order book of an instrument.
- iii. **Public information** that can have an impact on prices. Price movement in an instrument can at times be legitimately explained by market moving information. For instance, positive news on a company (e.g. analyst reports, deals and transactions) can result in rapid upward price movement in its shares. A trader may be acting on such information by entering orders across several price levels to acquire the shares. In the case of a derivative instrument, news on the underlying instrument, cash market or commodity may also affect the pricing of the instrument.
- iv. Size of the Fictitious or Layered Orders –
 - Instances where the **orders entered by a trader represent a significant portion of the order book** across multiple price levels on either side (or both sides) of the market suggest that he may be controlling the order book and could potentially mislead the market into altering its order flow.
 - To determine the **significance of the trader's fictitious or layered orders**, the Member may consider the order size against:
 - i. the total volume at the price step where the trader's order(s) were placed;
 - ii. the average daily traded volume; or
 - iii. the size of his executed trades to ascertain if there is a significant imbalance (i.e. order to trade ratio).

v. Price of the Fictitious or Layered Orders –

- For spoofing cases, the orders are typically entered at **prices near to the best bid or ask** to have the effect of creating a price ceiling/floor. In layering scenarios, multiple orders may be placed **above or below the prevailing best prices** in an attempt to narrow the spread or create a price floor/ceiling to shift the best prices in the trader's favour.
- For layering cases, Members should also observe if the continuous entering of orders and the resultant trades by the trader caused a **price impact**. For spoofing cases, there is likely to be a lower price impact as the trader is typically inducing market participants to cross the spread and trade against his orders.

vi. Activities of the Trader –

- Attention should be given where the trader is **active on the opposite side** of the market at or during the time that the fictitious or layered orders are being entered.
- A trader seeking to bring about a change in the order flow of other market participants may utilize a variation of **order entries/amendments/deletions** to facilitate his genuine trades on the opposite side of the order book. For instance, the trader could make frequent amendments to increase the size of existing orders or enter multiple orders at a single price level creating a large block of orders. This action creates a misleading appearance of increased buying or selling interest in the instrument by multiple parties. Members can also consider assessing the order amendment/deletion rate to determine whether there has been a high proportion of entered orders being eventually amended or deleted by the trader.
- The order amendment/deletion rate can be evaluated in conjunction with the **order-to-trade ratio** to provide an indication on the proportion of orders placed by the trader that have resulted in trade executions. A high order volume entered with a low volume of executed trades should warrant Members' attention.
- There may be **legitimate explanations** to frequent order changes. For instance, a trader may amend orders according to movements in indexes or underlying instruments as part of his arbitrage or hedging strategies. The strategies may also involve the trader taking positions across multiple markets and trading through different brokerages. Members should be cognizant of how these strategies are executed and assess their appropriateness.
- Resting orders with **longer exposures** could be indicative of genuine orders as they are at greater risk of execution. The prices at which orders rest should also be taken into consideration. Resting orders that are several price ticks away from the best prices are exposed to a lower risk of execution.
- On the other hand, orders that are **deleted within a short time period** of their entry or upon cessation of trading on the genuine side may indicate a lack of the trader's intention for them to be executed.

- Members should note that trade execution on the genuine side of the order book need not be for a significant volume. The trader generally stands to profit from **multiple repeated attempts** of spoofing or layering. It is therefore useful for Members to monitor patterns of such repeated trading behaviours.

vii. Other factors –

- Traders may work in concert to avoid detection. Multiple traders may collude to place orders to create a false appearance of increased demand and supply in an instrument. While the behaviour of a single trader may not raise suspicion, the combination of activities undertaken by a group of traders working in concert can provide an indication of a scheme to bring about this false appearance.

2.3. Marking the Close

Marking the close is a form of market manipulation involving the purchase or sale of an instrument near or at market close with the objective of artificially fixing the closing price. It gives the impression that the instrument is of a higher or lower value than what it actually is and is not a genuine reflection of market forces.

As closing prices are regularly quoted as a measure of an instrument's price performance, a trader wishing to support or depress its price may attempt to enter orders and execute trades towards the end of the trading session, and avoid trading in the other parts of the day where better prices may be available.

Nonetheless, a trader attempting to establish closing prices of an illiquid or thinly traded instrument need not necessarily trade at the close to "mark the close". Trades executed outside of the closing routine may also set the closing price, in the absence of subsequent transactions.

A trader that frequently trades close to or at the intra-day high/low price for an instrument should warrant Members' attention. The trading malpractice of marking the close can emerge as the execution of a series of trades (at or near the end of the trading session) over a period of time, depending on the trader's objective.

SGX has released the following circulars and publication on marking the close:

- Circular No. ST/DM/1/2015 and ST/DM/2/2015 on disciplinary actions taken against 2 traders who engaged in the manipulative activity of making the close
- Regulator's Column - 23 December 2014

Members may refer to aforementioned materials in the Appendix for more information.

2.3.1. Case Illustration – Marking the Close

The following example shows how marking the close may be carried out. The errant trader bids up the price of the security and attempts to maintain the closing price above \$1.00 over the 5-day period whenever the price falls below this level. The chronology of trades executed for the security over 5 trading days is set out in following table:

Note: The below example is simplified for illustrative purposes and shall not be deemed representative of actual market conditions. Members may in the course of business activities or monitoring observe trading behaviours involving varying complexity and circumstances.

Client	Buy/ Sell Initiated	Time	Last Done Price	Trade Price	Bid Change	Volume
Trade Day 1						
Other Participant	Sell	15:34	\$1.00	\$0.88	(12)	5,000
Other Participant	Sell	16:10	\$0.88	\$0.87	(1)	3,400
Errant Trader	Buy	17:04	\$0.87	\$1.00	13	100
Trade Day 2						
Other Participant	Sell	10:04	\$1.00	\$0.92	(8)	5,500
Other Participant	Buy	13:15	\$0.92	\$0.90	(2)	6,500
Other Participant	Sell	14:45	\$0.90	\$0.88	(2)	10,000
Errant Trader	Buy	17:04	\$0.88	\$1.05	17	100
Trade Day 3						
Other Participant	Buy	09:05	\$1.05	\$0.95	(10)	1,000
Other Participant	Sell	15:39	\$0.95	\$0.93	(2)	15,000
Other Participant	Buy	16:17	\$0.93	\$1.02	9	1,000
Trade Day 4						
Other Participant	Sell	10:02	\$1.02	\$0.98	(4)	8,900
Other Participant	Sell	10:06	\$0.98	\$0.92	(6)	5,000
Errant Trader	Buy	17:04	\$0.92	\$1.03	11	100
Trade Day 5						
Other Participant	Sell	11:15	\$1.03	\$0.96	(7)	3,000
Other Participant	Sell	12:12	\$0.96	\$0.87	(9)	5,000
Errant Trader	Buy	17:04	\$0.87	\$1.10	23	100

With reference to the above table, the errant trader entered to buy the security during the closing routines of Trade Day 1, 2, 4 and 5 to support its price. As a result of his trade executions, the security closed at \$1.00 or higher on each of the mentioned trade days.

The trader however did not transact in the security on Trade Day 3 as the price of the security remained above \$1.00. As such, he was not compelled to enter the market to support the price.

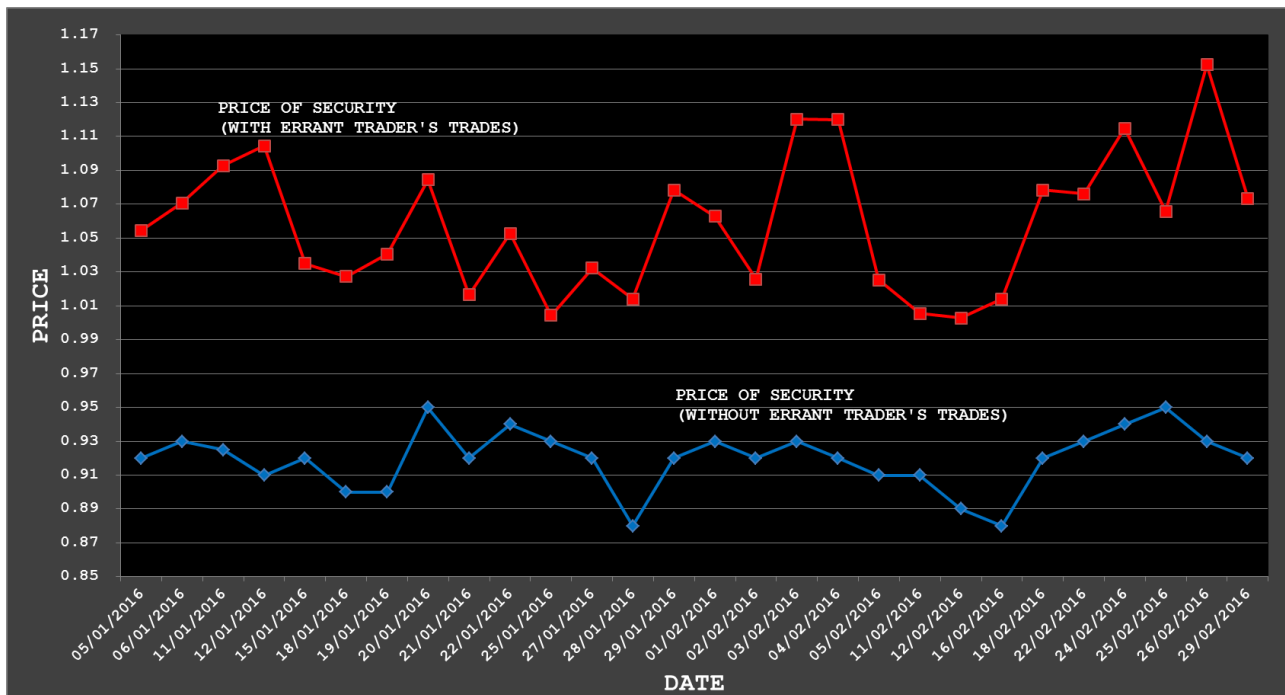


Diagram 1 – Comparison of closing prices of the security with and without the Errant Trader's presence

Diagram 1 shows the impact of the errant trader's marking the close activities on the closing prices of the security over a 2-month period. It compares the closing prices set by the trader with what they would have been without him marking the close. The prices were maintained or supported at \$1.00 or higher as a result of the trader moving prices upwards between 8% and 24%. It is apparent that the security would have closed at prices significantly lower if not for his marking of the close.

In looking into suspected cases involving marking the close, Members should examine a range of dates or over an extended period to ascertain if their traders exhibit any specific pattern of trading or have impacted the prices of instruments.

2.3.2 Guidelines on Detection and Investigation

As part of the detection and investigation process for potential trading malpractices involving marking the close (regardless of their mode of trading execution), the below indicators could form the baseline considerations for Members when examining cases. While these guidelines are not intended to be exhaustive, Members may consider tailoring their internal detection/investigation processes to commensurate with the complexity of cases in question as well as their business activities.

The general indicators and information to consider in marking the close cases could include a combination of the following:

- i. The **liquidity profile** of the instrument. There is generally a lower probability that a trader is able to manipulate the prices of highly liquid instruments. As these instruments are traded by a large pool of market participants, a trader will have to place orders or trades for larger volumes in order to influence prices. On the contrary, a trader will be able to alter prices with relatively lower volume orders or trades (i.e. lower financial risk) for illiquid instruments where there is lower market participation.
- ii. Price / Volume Movement –
 - Attention should be focused on significant price changes caused by the trader over at least the **last fifteen minutes of trading** for the day. Where necessary, the period of review should be extended across longer time durations. Members should be cognizant that while most cases of marking the close occur near or at market close, it is not uncommon for trades that are executed earlier in the day to prop up the share price following price falls caused by other market participants.
 - In assessing the price impact caused by the trader, Members should consider whether his order entries or trade executions materially altered the price of the instrument and if they are **consistent with the recent trading history**. Where appropriate, Members should also assess the price movement of the instrument in relation to its sector and the broader market.
 - If a trader is constantly observed executing **trades at the day's high or low price** for an instrument, Members should determine the rationale for trading at those prices.
 - **Price amendments** to existing orders may be employed to mark the close. An order placed earlier in the day at a price far from the prevailing best prices may be amended near or at close resulting in a trade that marks the close. Members should therefore not limit their scope of review to only order entries.
 - In the securities market, the **Force Key** functionality is intended to mitigate the risk of “fat finger” errors on price. The frequent usage of the Force Key at or near the close may provide an indication as to whether the trader is attempting to mark the close.
 - Aside from price, Members should consider the **size of the orders** placed by the trader. For instance, a low volume order for 100 shares in a security priced at \$0.10 is valued at \$10. The frequent execution of low value trades lacks economic rationale. Where these trades are concentrated at or near market close, they can be indicative of attempts to mark the close. A possible rationale for these trades will be to cause a price movement at the least possible financial cost to a trader. This however does not mean that large orders or trades will not be used to mark the close.

- Orders that are placed during the **closing routine** can potentially impact the closing price of an instrument. A trader placing buy or sell orders in a specific manner can influence the Indicative Equilibrium Price (“IEP”) of an instrument. It is therefore important that Members take note of frequent order entries during the closing routine that have significant impact on the IEP.

iii. Trading Period –

- Members should examine the proportion of the trader’s total traded volume for the day to his **volume executed near market close**. As an example, the trading behaviour of a trader as depicted in the table below should warrant attention:

Entered orders	830 to 9 AM	9 to 10 AM	10 to 11 AM	11 to 12 NN	12 to 1 PM	1 to 2 PM	2 to 3 PM	3 to 4 PM	4 to 445 PM	445 to 5PM	5 to 505 PM	Total
# orders	1	10	2	0	0	0	0	0	12	38	22	85
% of all orders	1.18%	11.76%	2.35%	0.00%	0.00%	0.00%	0.00%	0.00%	14.12%	44.71%	25.88%	100%
Avg Vol.	1,000	1,000	1,500	0	0	0	1,000	0	1,000	500	100	6,100

As shown above, 71% of the trader’s orders were entered between 4:45PM and 5:05PM, i.e. near to market close. It is observed that the average order volume entered during the mentioned time period was considerably smaller than those placed during the other parts of the day.

- Aside to assessing the activities of the trader during the intra-day, Members should consider if he has been exhibiting the behaviour of **marking the close over an extended period of time**. This analysis can reveal the existence of patterns which may occur over:
 - Single/several days to several months;
 - End of reporting periods (month/quarter/year-end); or
 - Period of time preceding corporate transactions.
- As part of the information gathering process, Members should also examine the **order receipt time** and **time of order entry** by the trader and look out for any instructions concerning the time of order entry and at a particular price. Where applicable, Members can consider reviewing phone recordings and other forms of electronic communication to gather corroborative information. For instance, Members may query circumstances where the execution of the child orders is deliberately delayed towards the end of the day when the parent order is received early in the trading day.

iv. Client Profile –

- Where a trader has a **large holding in the securities or related derivatives** and/or his holding is the subject of a charge, mortgage, pledge, or margin agreement that requires the maintenance of a certain price level, price manipulation of these pledged instrument(s) may possibly result in the avoidance of margin calls or meeting of the required price level. For instance, a trader may attempt to maintain the underlying security within a certain price range in order for the related warrants which he holds to expire in the money.
- Where the issuer company of an instrument is the **subject of a takeover or impending corporate action**, the price of the instrument may be manipulated in an attempt to attain a certain price valuation. In such circumstances, Members should, to the best of abilities, ascertain if the trader is associated with the issuer company. Examples of connected persons of the company include directors, employees or persons with familial connections to the directors or employees.

- In cases where the trader is a **fund manager or hedge fund**, Members should bear consideration that the performance of fund managers is typically measured through the value of the funds that they manage as at the end of a reporting period, such as the last trading day of the year. Where the value of the fund is derived based on the closing prices of the constituents of the fund's portfolio, there may be a motivation to manipulate closing prices by marking the close.
- v. Other factors –
- In cases where **multiple clients** belonging to a single Member are involved in trading in a manner as described in this Section, Members should ascertain if these clients are connected or if they are represented by a single Trading Representative. This can provide insights as to whether the clients are working in concert to influence the price of the instrument or whose trading accounts have possibly been used for unauthorised trading.

Appendix

Past Disciplinary Actions

29 Aug 2016

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SGX-ST Disciplinary Committee Imposes Fine and Suspension Order against Lu Hai

CIRCULAR No.: ST/DM/3/2016
 SUBJECT: Members' Circular on Disciplinary Matters
 FROM: Secretariat to SGX-ST Disciplinary Committee
 DATE: 29 August 2016

Members' Circular on Disciplinary Matters

1. This circular is issued in relation to Rule 13.8.1(2)(c) of the Rules of Singapore Exchange Securities Trading Limited ("SGX-ST").
2. On 28 June 2016, the Disciplinary Committee heard three (3) charges brought by SGX-ST against Mr. Lu Hai for his alleged contraventions of Rule 13.8.1(2)(c) of the SGX-ST Rules as follows:

First Charge

That on or about 16 April 2015, in Singapore, while a trading representative of Maybank Kim Eng Securities Pte. Ltd. ("MBKES"), Mr. Lu engaged in a practice in relation to the shares of Informatics Education Ltd. ("IEL"), a body corporate whose shares were traded on the Mainboard of the Singapore Exchange Limited ("SGX"), a securities exchange in Singapore, to wit, by:

initiating aggressive buy trades in IEL shares within a short span of time, to ramp up the share price and trading volume, so as to create an impression of a large positive change in the buying interest in IEL shares;

layering large buy orders for IEL shares at a minimum of four (4) price levels at or below the prevailing best bid price to create an imbalance between the quantum of demand and supply on the order book;

making multiple amendments to these buy orders (i.e. amending a buy order several times) to substantially increase the order quantities to create a false impression of significant demand for IEL shares. In so doing, the large layered buy orders induced other market participants to react to the false price and volume information on the order book;

executing sell orders, by either receiving an execution on an already resting sell order or obtaining an execution by entering a sell order subsequent to the market's reaction, at prices advantageous to Mr. Lu (which would otherwise not have been available before Mr. Lu entered and amended the layered buy orders);

deleting the large layered buy orders (at or near the prevailing best bid price) which had been designed to create the false impression of buying interest in IEL shares;

and by doing so, the manipulative orders and transactions did lead to a false market in respect of IEL shares, and Mr. Lu had thereby contravened SGX-ST Rule 13.8.1(2)(c).

Second Charge

That on or about 9 April 2015, in Singapore, while a trading representative of MBKES, Mr. Lu engaged in a practice in relation to the shares of IPCO International Limited ("IPCO"), a body corporate whose shares were traded on the Mainboard of the SGX, a securities exchange in Singapore, to wit, by:

initiating aggressive buy trades in IPCO shares within a short span of time, to ramp up the share price and trading volume, so as to create an impression of a large positive change in the buying interest in IPCO shares;

layering large buy orders for IPCO shares at a minimum of four (4) price levels at or below the prevailing best bid price to create an imbalance between the quantum of demand and supply on the order book;

making multiple amendments to these buy orders (i.e. amending a buy order several times) to substantially increase the order quantities to create a false impression of significant demand for IPCO shares. In so doing, the large layered buy orders induced other market participants to react to the false price and volume information on the order book;

executing sell orders, by either receiving an execution on an already resting sell order or obtaining an execution by entering a sell order subsequent to the market's reaction, at prices advantageous to Mr. Lu (which would otherwise not have been available before Mr. Lu entered and amended the layered buy orders); and

deleting the large layered buy orders (at or near the prevailing best bid price) which had been designed to create the false impression of buying interest in IPCO shares;

and by doing so, the manipulative orders and transactions did lead to a false market in respect of IPCO shares, and Mr. Lu had thereby contravened SGX-ST Rule 13.8.1(2)(c).

Third Charge

That on or about 6 April 2015, in Singapore, while a trading representative of MBKES, Mr. Lu engaged in a practice in relation to the shares of Mirach Energy Limited ("MEL"), a body corporate whose shares were traded on the Mainboard of the SGX, a securities exchange in Singapore, to wit, by:

initiating aggressive buy trades in MEL shares within a short span of time, to ramp up the share price and trading volume, so as to create an impression of a large positive change in the buying interest in MEL shares;


layering large buy orders for MEL shares at a minimum of four (4) price levels at or below the prevailing best bid price to create an imbalance between the quantum of demand and supply on the order book;

making multiple amendments to these buy orders (i.e. amending a buy order several times) to substantially increase the order quantities to create a false impression of significant demand for MEL shares. In so doing, the large layered buy orders induced other market participants to react to the false price and volume information on the order book;

executing sell orders, by either receiving an execution on an already resting sell order or obtaining an execution by entering a sell order subsequent to the market's reaction, at prices advantageous to Mr. Lu (which would otherwise not have been available before Mr. Lu entered and amended the layered buy orders); and

deleting the large layered buy orders (at or near the prevailing best bid price) which had been designed to create the false impression of buying interest in MEL shares;

and by doing so, the manipulative orders and transactions did lead to a false market in respect of MEL shares, and Mr. Lu had thereby contravened SGX-ST Rule 13.8.1(2)(c).

3. Mr. Lu admitted to the First Charge and Second Charge and agreed to the Third Charge being taken into consideration for sentencing purposes.
4. The Disciplinary Committee ordered the following sanctions against Mr. Lu on the basis of the proceeded First Charge and Second Charge, with the Third Charge taken into consideration:
 - (1) fine of S\$90,000 for each of the First Charge and Second Charge (amounting to an aggregate fine of S\$180,000 for the two (2) Charges); and
 - (2) suspension from trading for a period of three (3) months to run consecutively for each of the First Charge and Second Charge (amounting to a total suspension period of six (6) months for the two (2) Charges). The six (6) -month suspension term is backdated to take effect from 13 April 2016.
5. For further information, please refer to the attached Grounds of Decision of the Disciplinary Committee. 

Ng Ee San

Secretariat to the SGX-ST Disciplinary Committee



Past Disciplinary Actions

10 Jul 2015

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SGX-ST Disciplinary Committee Imposes Fine and Education Program on Low Kok Boon

CIRCULAR NO.: ST/DM/1/2015
SUBJECT: Members' Circular on Disciplinary Matters
FROM: Secretariat to SGX-ST Disciplinary Committee
DATE: 10 July 2015

Members' Circular on Disciplinary Matters

1. This circular is issued in relation to Rule 13.8.1 of the Rules of the Singapore Exchange Securities Trading Limited ("SGX-ST") ("SGX-ST Rules").
2. On 27 May 2015, the Disciplinary Committee heard two charges brought against Mr. Low Kok Boon for the alleged contravention of Rule 13.8.1(2)(c) of the SGX-ST Rules, as follows:

First Charge

That between 17 April 2012 and 30 October 2012, Mr. Low had allegedly contravened SGX-ST Rule 13.8.1(2)(c) as he had engaged in manipulative transactions which led to a false market in respect of the shares in China Environment Limited ("CHINAENV"), a body corporate whose shares were traded on the SGX Mainboard, by executing trades in respect of CHINAENV shares, in the share trading account of Liu Gendong, at or near the close of trading, in order to alter the closing price of CHINAENV shares.

Second Charge

That between 2 September 2011 and 16 April 2012, Mr. Low had allegedly contravened SGX-ST Rule 13.8.1(2)(c) as he engaged in manipulative transactions which led to a false market in respect of CHINAENV shares, by executing trades in respect of CHINAENV shares, in the share trading accounts of Liu Gendong, Lau Chee Heng and Lee Chee Seng, in order to alter the closing price of CHINAENV shares.

3. Mr. Low admitted to the First and Second Charges and consented to SGX-ST proceeding on the First Charge, with the Second Charge being taken into consideration for the purpose of sentencing.
4. The Disciplinary Committee imposed the following sanctions against Mr. Low:
 - i. a fine of S\$35,000 for the proceeded charge against Mr. Low after taking into consideration the Second Charge;
 - ii. attend an education program on securities regulation before being allowed to resume his duties as a trading representative; and
 - iii. make the grounds of decision of the case public.

The Disciplinary Committee allowed Mr. Low to pay his fine in instalments.

5. For further information, please see the full text of the Grounds of Decision of the Disciplinary Committee attached.



Regards,

Ng Ee San

Secretariat to the SGX-ST Disciplinary Committee



Past Disciplinary Actions

10 Jul 2015

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SGX-ST Disciplinary Committee Imposes Fine and Education Program on Teo Cheng Kiat

CIRCULAR NO.: ST/DM/2/2015
SUBJECT: Members' Circular on Disciplinary Matters
FROM: Secretariat to SGX-ST Disciplinary Committee
DATE: 10 July 2015

Members' Circular on Disciplinary Matters

1. This circular is issued in relation to Rule 13.8.1 of the Rules of the Singapore Exchange Securities Trading Limited ("SGX-ST") ("SGX-ST Rules").
2. On 27 May 2015, the Disciplinary Committee heard three charges brought against Mr. Teo Cheng Kiat for the alleged contravention of Rule 13.8.1(2)(c) of the SGX-ST Rules, as follows:

First Charge

That between 4 July 2011 and 15 April 2013, Mr. Teo had allegedly contravened Rule 13.8.1(2)(c) of the SGX-ST Rules as he had engaged in acts which led to a false market in respect of the shares in Chosen Holdings Limited ("CHOSEN"), a body corporate whose shares were traded on the SGX Mainboard, by executing trades in respect of CHOSEN shares, in the share trading account of Ong Boon Leong, at the close of trading, in order to alter the closing price of CHOSEN shares.

Second Charge

That between 31 May 2011 and 27 November 2012, Mr. Teo had allegedly contravened Rule 13.8.1(2)(c) of the SGX-ST Rules as he had engaged in acts which led to a false market in respect of the shares in Tat Seng Packaging Group Ltd ("TATSENG"), a body corporate whose shares were traded on the SGX Mainboard, by executing trades in respect of TATSENG shares, in the share trading account of Ong Boon Leong, at the close of trading, in order to alter the closing price of TATSENG shares.

Third Charge

That between 11 May 2011 and 8 November 2012, Mr. Teo had allegedly contravened Rule 13.8.1(2)(c) of the SGX-ST Rules as he had engaged in acts which led to a false market in respect of the shares in Poh Tiong Choon Logistics Ltd ("PTC"), a body corporate whose shares were traded on the SGX Mainboard, by executing trades in respect of PTC shares, in the share trading account of Ong Boon Leong, at the close of trading, in order to alter the closing price of PTC shares.

3. Mr. Teo admitted to the First, Second and Third Charges and consented to SGX-ST proceeding on the First Charge, with the Second and Third Charges being taken into consideration for the purpose of sentencing.
4. The Disciplinary Committee imposed the following sanctions against Mr. Teo:
 - i. a fine of S\$45,000 for the proceeded charge after taking into account the additional two charges;
 - ii. attend an education program on securities regulation; and
 - iii. make the grounds of decision of the case public.

The Disciplinary Committee allowed Mr. Teo's application to pay his fine in instalments.

5. For further information, please see the full text of the Grounds of Decision of the Disciplinary Committee attached.



Regards,

Ng Ee San

Secretariat to the SGX-ST Disciplinary Committee

Regulator's Column

23 Dec 2014

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Manipulation of stock prices

Manipulation of stock prices may be spurred by different intentions, including but not limited to market participants being motivated to maintain the price of their pledged shares to avoid margin calls; companies that use their share price as a reference for impending corporate actions; and fund managers motivated to demonstrate positive performance of their funds.

How SGX detects market manipulation

SGX detects possible market manipulation activities through its team of analysts supported by an advanced surveillance system. The system generated during 2014 an average of 120 alerts per day, or over 2,400 alerts a month, each of which is evaluated to determine if there is basis for further action.

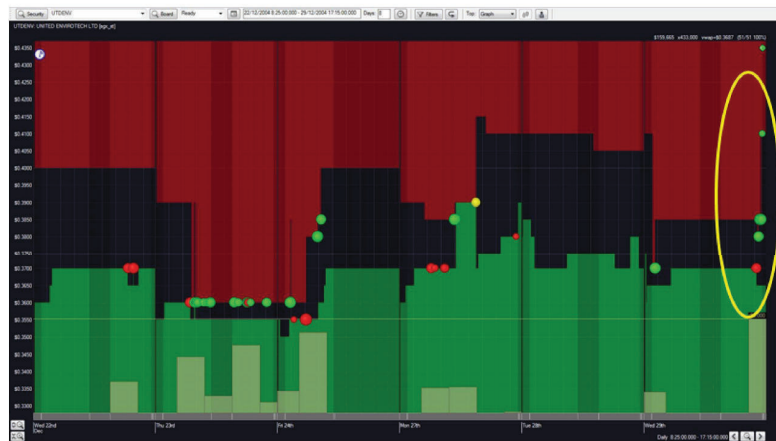
SGX does not possess "police-equivalent" powers to call for records or interview potential suspects in its investigative activities. Rather, SGX will review the trading activity to identify any suspicious trading behavior. After completing the initial investigations, SGX will hand the case to statutory bodies such as the Monetary Authority of Singapore (MAS) and the Commercial Affairs Department (CAD). Both MAS and CAD have the powers to enforce the law against stock price manipulators.

Anyone found guilty of false trading or stock manipulation, faces a jail term of up to seven years or a maximum fine of S\$250,000, or both, under the Securities and Futures Act (SFA). Alternatively, a person found liable for false trading under the SFA's civil penalty regime may be ordered to pay a civil penalty not exceeding three times the profit gained or loss avoided subject to a minimum of \$50,000 for individuals, or \$100,000 for corporates.

Case Study: United Envirotech Ltd shares (circa 2004)[1]

United Envirotech Ltd is an environmental solution provider focusing on water and wastewater treatment. SGX detected a sudden sharp increase in the price of United Envirotech shares on 29 December 2004 towards the end of market close. This was unusual compared to its recent trading activity at that time, as is evident in Diagram 1 below.

Diagram 1- Sudden Spike in Share Price of United Envirotech on 29 December 2004



Source: SMARTS

Legend:

Green circles represent buyer-initiated trades

Red circles represent seller-initiated trades

Yellow circles represent the opening/closing trades

SGX noted that Pheim Asset Management Sdn Bhd (Pheim Malaysia) had chosen to trade only towards the end of trading on 29 December 2004 even though it could have purchased the stock at lower prices earlier during the trading day. This aggressive buying behavior near the close of trading drove the stock price up from \$0.37 to close at \$0.41.

SGX continued to monitor the share price movement in the days after. Pheim Malaysia continued to buy up the share price, towards the close of trading, on 30 and 31 December 2004. Its purchases accounted for more than 50% of the total market volume on the respective days and set the intraday high price as well as the closing price on these days. In total, Pheim Malaysia managed to influence the closing price of United Envirotech by 20.3% through its three days of trading.

On 3 January 2005, the first business day of the following year, Pheim Malaysia did not continue its purchases and United Envirotech's stock price fell subsequently.

Buying a stock at higher prices is not advantageous to the fund holders, particularly if such prices are not sustainable as evidenced by the correction of United Envirotech's stock price on 3 January 2005. On the other hand, the performance of fund managers are typically measured through the value of the funds they manage at the end of a financial period, such as the last trading day of the year. The value of the fund would be derived using the closing price of the constituents of the fund's portfolio. Such behavior allowed the fund manager to report a higher net asset value for their funds which would in turn translate into higher performance fees for the fund manager.

Diagram 2 - Pheim Malaysia's trading activities over the relevant period.



Source: SMARTS

Legend:

Blue circles represent suspect's trades

Grey circles represent trades by other market participants

Through our investigation and subsequent referral to the MAS in January 2005, civil action was brought against Pheim Malaysia and its founder and CEO in 2008. The Singapore High Court found that the CEO had purchased United Envirotech stock with the intention of creating a false or misleading appearance in the stock price. In particular, the sole or primary purpose of the trades was to raise and set a higher market price for the stock.

This higher stock price enabled 15 funds managed by Pheim Malaysia and its related company, Pheim Asset Management (Asia) Pte Ltd (Pheim Singapore) to post about \$1.1 million increase in net asset value for 2004. The High Court ordered Pheim Malaysia and its CEO to each pay a civil penalty of \$250,000 and legal costs to the MAS. Subsequently, Pheim Singapore and CEO of Pheim Malaysia appealed to the Court of Appeal, which upheld the decision of the High Court.

Kelvin Koh

Head of Surveillance

[1] SGX is only able to share on cases which have been concluded as we have to maintain the confidentiality of on-going investigations in order to preserve its integrity.