Stock Market Liquidity: Role of Short-term and Long-term Traders

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A DISCUSSION

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MAY 20, 2016

Major contributions: Role of STTs

A new algorithm used to classify short term and long term traders. The concept of HFT did not emerge in India during the time of the study (first three months of 2006).

Authors look at the behaviour of the traders during normal price fluctuations and fast crash.

During normal price fluctuations, short term traders (STT) buy when prices decline and sell when prices rise thereby providing liquidity and bringing price stability.

During fast crashes, it is the slow moving (longer term)traders who play stabilizing role and the STTs withdraw liquidity.

Major contributions- Inventory management

STTs use hot potato trading as an inventory risk management tool- they sell to other long term traders at the end of the trading day and buy from them at the beginning of trading the following day.

Price elasticity is related to the inventory level of short term liquidity providers- *authors find ask side more liquid when STTs inventories are higher. In contrast, the relationship is negative and significant for mutual funds.*

During more than one third of the days, price changes are in opposite direction to trade imbalance- further suggesting reluctance of STTs to hold onto inventory.

Characteristics of STTs

STTs rarely carry inventory overnight. Even during the day, they hold inventory positions for very short period (less than 10 minutes).

However, during fast crash in price, inventories of STTs increased and the same declined when the recovery was well under way.

The crash in price was not triggered by STTs but due to selling pressure of FIIs.

Major contribution: Role of order modifications

Authors decomposed returns into two orthogonal components- *private return*(price change due to market order) and *public return* (price change due to fresh limit orders and order changes/ cancellations).

In other words, arrival of public information in general results in a change in the stock's price with little trade taking place.

During fast crash (May 19, 2006), most of the price decline was due to private information (sell orders depleting the limit order book without the book getting replenished).

The public return component was positive indicating that order modifications prevented prices from falling further.

Same was not true for May 22 crash.

Inadequacy of data

Single stock.

Data for 53 trading days during April-June 2006.

During this period, most of the traders (95%) on the spot market were active for 10 or less days.

Almost half of all traders were active during only one day in the entire period.

Hence, the period was dominated by low frequency traders.

Since the overall trading activity was lower during the sample period, classifying STTs (proxy for HFTs) on the basis of trading activity is debatable.

HFT in India

DMA and Algo trading was allowed in India since April 2008.

High frequency and automated trading took off in India with the launch of NSE's co-location services in January 2010.

An EU study[1] show that colocated market participants account for around 75% of value traded as well as 92% of the number of orders.

SEBI formally defined AT in 2012.

It was only when NSE significantly reduced (50%) the co-location charges in 2012, that HFT in India gained momentum.

However, relying only on colocation would inflate statistics on HFT activity. One way to handle overestimation is to only consider proprietary trading by participants using colocation facility.

1. European Securities and Markets Authority, *High Frequency Trading Activity in EU Equity Markets, No.1, 2014*

Snapshot of order book

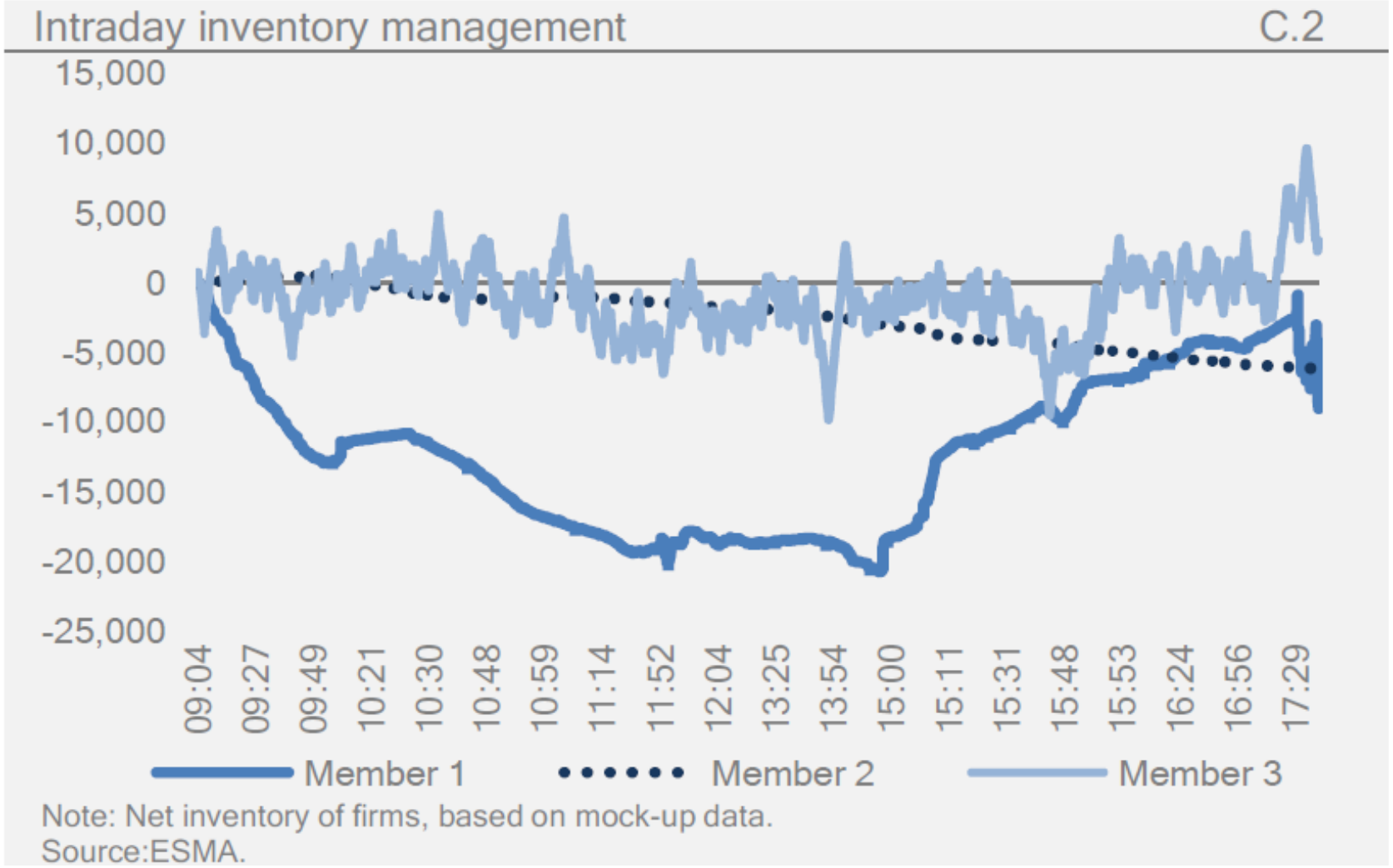
order_no	buysell	activity_typ	symbol	series	vol_discl	vol_orgnl	limit_prc	trig_prc	mkt_ord_flg	stp_loss_flg	ioc_flg	algo_ind	client_flg
2013120467397497	S	4	TCS	EQ	50	50	202475	0	N	N	N	0	2
2013120467421294	B	4	TCS	EQ	0	250	201780	0	N	N	N	0	2
2013120467239765	B	4	TCS	EQ	0	125	202260	0	N	N	N	0	2
2013120467421130	B	4	TCS	EQ	0	1250	201165	0	N	N	N	0	2
2013120467420300	B	4	TCS	EQ	0	2500	200700	0	N	N	N	0	2
2013120467377994	S	4	TCS	EQ	25	25	202510	0	N	N	N	0	2
2013120467420774	B	4	TCS	EQ	0	1500	201300	0	N	N	N	0	2
2013120467420774	B	4	TCS	EQ	0	1500	201305	0	N	N	N	0	2
2013120467239765	B	4	TCS	EQ	0	125	202265	0	N	N	N	0	2
2013120467421294	B	4	TCS	EQ	0	250	201785	0	N	N	N	0	2
2013120466957235	S	4	TCS	EQ	0	50	202860	0	N	N	N	0	2
2013120466749970	S	4	TCS	EQ	0	55	202860	0	N	N	N	0	2
2013120466749969	S	4	TCS	EQ	0	45	202845	0	N	N	N	0	2
2013120467397497	S	4	TCS	EQ	50	50	202505	0	N	N	N	0	2
2013120467377994	S	4	TCS	EQ	25	25	202500	0	N	N	N	0	2
2013120467421294	B	4	TCS	EQ	0	250	201790	0	N	N	N	0	2
2013120467239765	B	4	TCS	EQ	0	125	202270	0	N	N	N	0	2
2013120467421294	B	4	TCS	EQ	0	250	201770	0	N	N	N	0	2
2013120467239765	B	4	TCS	EQ	0	125	202250	0	N	N	N	0	2
2013120467397497	S	4	TCS	EQ	50	50	202495	0	N	N	N	0	2
2013120467377994	S	4	TCS	EQ	25	25	202490	0	N	N	N	0	2
2013120467421294	B	4	TCS	EQ	0	250	201775	0	N	N	N	0	2
2013120467239765	B	4	TCS	EQ	0	125	202255	0	N	N	N	0	2
2013120467397497	S	4	TCS	EQ	50	50	202485	0	N	N	N	0	2

Identification of STTs

Authors used intraday inventory management as the primary classifier for STTs.

There are alternative approaches of classification (e.g., lifetime of orders, fleeting orders, strategic run).

It is not clear whether the classification of STTs by the authors is robust with other methods.


Intraday inventory management
C.2
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
-20,000
-25,000
09:04
09:27
09:49
10:21
10:30
10:48
10:59
11:14
11:52
12:04
13:25
13:54
15:00
15:11
15:31
15:48
15:53
16:24
16:56
17:29
Member 1
Member 2
Member 3
Note: Net inventory of firms, based on mock-up data.
Source:ESMA.

Order cancellation and modifications

Popular belief is that order cancellations/modifications create ‘demand illusion’ making markets less stable and less fair.

Orders placed deep down the limit order book almost amount to ‘cancellation’. How was this phenomenon handled?

Is there a need to distinguish between order modification and cancellation? While modifications carry ‘public’ information, cancellations need not.