

## SFC resolves concerns over Citigroup's algorithmic trading system

14 May 2014

The Securities and Futures Commission (SFC) has reprimanded Citigroup Global Markets Asia Limited (Citigroup) for its failure to ensure that certain securities orders executed through its algorithmic trading system between April 2009 and May 2010 would not cause undue price impact to the market in resolving the SFC's concerns over Citigroup's algorithmic trading system (Note 1).

The SFC's investigations into Citigroup's use of algorithmic trading system to execute client orders on four occasions found that Citigroup's execution in those cases resulted in a material increase or decrease in the price of the relevant stocks within a very short period of time, before the stock prices returned quickly to their original levels.

In reaching this resolution, the SFC took into account that:

- Citigroup co-operated with the SFC in resolving the SFC's concerns;
- Citigroup agreed to engage an independent reviewer to conduct a forward-looking review of its algorithmic trading system to ensure compliance with the new regulation on electronic trading which came into force on 1 January 2014 (Note 2);
- Citigroup has an otherwise clean disciplinary record in relation to its algorithmic trading; and
- the price impacts on the market occurred in 2009 and 2010 in relation to trades conducted through Citigroup's algorithmic trading system, which had been replaced.

The SFC would have imposed a heavy fine if Citigroup's failures occurred after 1 January 2014, when the SFC's revised standards on electronic trading came into effect.

End

Notes:

1. Citigroup is licensed under the Securities and Futures Ordinance to carry on business in Type 1 (dealing in securities), Type 2 (dealing in futures contracts), Type 4 (advising on securities), Type 5 (advising on futures contracts), Type 6 (advising on corporate finance) and Type 7 (providing automated trading services) regulated activities.
2. The regulatory requirements for electronic trading are set out in Schedules 6 and 7 and paragraph 18 of the Code of Conduct for Persons Licensed by or Registered with the Securities and Futures Commission, and Part IV of the Fund Manager Code of Conduct.
3. A copy of the [Statement of Disciplinary Action](#) in relation to the matter is available on the SFC website.

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## STATEMENT OF DISCIPLINARY ACTION

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### The Disciplinary Action

1. The Securities and Futures Commission (SFC) has publicly reprimanded Citigroup Global Markets Asia Limited (Citigroup) pursuant to section 194 of the Securities and Futures Ordinance (SFO).
2. The disciplinary action is taken according to an agreement pursuant to section 201 of the SFO dated 9 May 2014 in relation to Citigroup's failure to ensure the execution of securities orders on four occasions between April 2009 and May 2010 would not cause undue price impact on the market.
3. Citigroup is licensed under the SFO to carry on business in Type 1 (dealing in securities), Type 2 (dealing in futures contracts), Type 4 (advising on securities), Type 5 (advising on futures contracts), Type 6 (advising on corporate finance), and Type 7 (providing automated trading services) regulated activities.

### Summary of facts

#### *Citigroup's algorithmic trading in stocks traded on the HKEx*

##### Belle International Holdings Limited (stock code: 1880)

4. On 8 April 2009, the price of Belle International shares increased from \$4.69 to \$8.00 in the first 5 minutes of trading when Citigroup was executing an order to buy 756,000 shares using its algorithmic trading system.
5. At about 10:04 am, when the last traded price of Belle International shares was about \$5.00, there were no orders in the ask order queue until \$9.98. Citigroup placed bid orders at 10 to 20 spreads above the nominal price to the market. The successively higher bid orders eventually took about one minute to find an offer at \$8.00. In other words, the Belle International shares were caused to move 286 spreads in a matter of 65 seconds. After reaching the \$8.00 level, the price of Belle International shares traded quickly back to \$5.10 in about 2 minutes.
6. After the incident, on 18 November 2009, Citigroup submitted to the SFC that they added a function to their algorithm trading system to check the spread between the current bid price and current ask price in order to prevent the bid orders going beyond the historical spread of the relevant stock from the current price.

##### Dah Chong Hong Holdings Limited (stock code: 828)

7. On 26 January 2010, the price of Dah Chong Hong shares increased from \$3.37 to \$5.00 during the last 15 minutes of trading when Citigroup was executing 2 orders to buy 1,425,000 shares by way of its value weighted average price (VWAP) trading strategy.

8. The market moved from \$3.37 to \$4.10 (73 spreads higher) during the first 14 minutes of execution and Citigroup's bid orders were mostly one or two spreads around the nominal price and the last traded price.
9. In the last minute of execution, Citigroup placed about 9 bid orders ranging from 8 to 18 spreads more than the nominal price and the last traded price. The bid orders took the market from \$4.10 to \$5.00, moved up by 90 spreads in about 10 seconds.
10. The spread checking function Citigroup said to have put in place did not work on this occasion. Citigroup explained that its spread checking function had not been implemented by the relevant trading desk.

#### China BlueChemical Limited (stock code: 3983)

11. On 7 April 2010, the price of China BlueChemical shares increased from \$5.40 to \$6.77 in the first 3 minutes of trading when Citigroup was executing 3 client orders to buy a total of 3,228,000 shares using its algorithm trading system.
12. In the first 87 seconds of trading, Citigroup's bid orders were apparently within 4 spreads from the nominal price and the last traded price. The market moved up 52 spreads from \$5.44 to \$5.96. The market moved further up by 81 spreads (from \$5.96 to \$6.77) in the next 79 seconds when Citigroup placed bid orders as high as 20 spreads away from the nominal price and 40 spreads away from the last traded price.
13. Among other things, Citigroup submitted that the spread checking function of its algorithm trading system did not override its "venue constraint limit", i.e. the spread check failed to prevent orders priced at nominal price plus 20 spreads from being placed to the market.

#### CIMC Enric Holdings Limited (stock code: 3899)

14. On 18 May 2010, the price of CIMC Enric shares fell to \$2.03 from the previous close of \$4.50 in the first 44 seconds of trading when Citigroup was executing an order to sell 70,000 shares. Citigroup placed 48 successively lower ask orders each at 5 spreads apart to the market when there were no bid orders in the market.
15. Citigroup explained that the incident arose because there was no opening price for the stock. Instead of using the previous closing price, its algorithm had wrongly captured the last traded prices as zero. As a result, its spread checking function was not activated.

#### **Conclusion**

16. In coming to the decision to resolve the SFC's concerns over Citigroup's algorithmic trading system, the SFC took into account:
  - Citigroup co-operated with the SFC in resolving the SFC's concerns;
  - Citigroup agreed to engage an independent reviewer to conduct a forward-looking review of its algorithmic trading system to ensure compliance with the new regulation on electronic trading which came into force on 1 January 2014;

- Citigroup has no disciplinary history in relation to its algorithmic trading;  
and
- the price impacts on the market occurred in 2009 and 2010 in relation to trades conducted through Citigroup's algorithmic trading system, which had been replaced.