UNITED STATES OF AMERICA
Before the
SECURITIES AND EXCHANGE COMMISSION

SECURITIES EXCHANGE ACT OF 1934
Release No. 72673 / July 25, 2014

ADMINISTRATIVE PROCEEDING
File No. 3-15985

In the Matter of **LavaFlow, Inc.** **Respondent.**	ORDER INSTITUTING ADMINISTRATIVE AND CEASE-AND-DESIST PROCEEDINGS, PURSUANT TO SECTIONS 15(b) AND 21C OF THE SECURITIES EXCHANGE ACT OF 1934, MAKING FINDINGS, AND IMPOSING REMEDIAL SANCTIONS AND A CEASE-AND-DESIST ORDER

I.

The Securities and Exchange Commission ("Commission") deems it appropriate and in the public interest that public administrative and cease-and-desist proceedings be, and hereby are, instituted pursuant to Sections 15(b) and 21C of the Securities Exchange Act of 1934 ("Exchange Act") against LavaFlow, Inc. ("LavaFlow" or "Respondent").

II.

In anticipation of the institution of these proceedings, Respondent has submitted an Offer of Settlement (the "Offer") which the Commission has determined to accept. Solely for the purpose of these proceedings and any other proceedings brought by or on behalf of the Commission, or to which the Commission is a party, and without admitting or denying the findings herein, except as to the Commission's jurisdiction over it and the subject matter of these proceedings, which are admitted, Respondent consents to the entry of this Order Instituting Administrative and Cease-and-Desist Proceedings, Pursuant to Sections 15(b) and 21C of the Securities Exchange Act of 1934, Making Findings, and Imposing Remedial Sanctions and a Cease-and-Desist Order ("Order"), as set forth below.

III.

On the basis of this Order and Respondent's Offer, the Commission finds[1] that:

Summary

1.   This proceeding concerns the LavaFlow ECN, an alternative trading system ("ATS") operated by LavaFlow, a registered broker-dealer. ATSs are an important component of the national market system, as an estimated 12% of the U.S. equity trading volume occurs on ATSs.[2] Similar to a registered exchange, an ATS provides a marketplace for buyers and sellers of securities, although ATSs, unlike exchanges, do not perform regulatory functions.[3] A subset of ATSs known as electronic communications networks ("ECN"), including the LavaFlow ECN, generally display the top of their order book (e.g., best bid, best offer) in the national market system.[4] Other ATSs, colloquially known as "dark pools," generally do not display their best bids and offers.

2.   Commission rules provide safeguards for ATS subscribers. In particular, Rule 301(b)(10) of Regulation ATS requires that an ATS establish safeguards and procedures to protect subscribers' confidential trading information and adopt and implement adequate oversight procedures to ensure that the safeguards and procedures for protecting subscribers' confidential trading information are followed. 17 C.F.R. § 242.301(b)(10). In adopting Rule 301(b)(10), the Commission recognized "the sensitive nature of the trading information subscribers send to alternative trading systems" and stated its intention that Rule 301(b)(10) "prevent the disclosure or the use of information about a customer's trading orders."[5]

3.   Although a broker-dealer that operates an ATS may conduct operations that are separate from its operation of the ATS, the existence of such operations outside of the ATS presents a risk that ATS subscriber information could be accessed and misused. For this reason,

---

[1] The findings herein are made pursuant to Respondent's Offer of Settlement and are not binding on any other person or entity in this or any other proceeding.

[2] U.S. Securities and Exchange Commission Division of Economic and Risk Analysis, Alternative Trading Systems: Description of ATS Trading in National Market System Stocks (Oct. 2013), available at http://www.sec.gov/marketstructure/research/ats_data_paper_october_2013.pdf.

[3] An ATS is "any organization, association, person, group of persons, or system: (1) [t]hat constitutes, maintains, or provides a market place or facilities for bringing together purchasers and sellers of securities or for otherwise performing with respect to securities the functions commonly performed by a stock exchange within the meaning of Exchange Act Rule 3b-16; and (2) [t]hat does not: (i) [s]et rules governing the conduct of subscribers other than the conduct of subscribers' trading on such [ATS]; or (ii) [d]iscipline subscribers other than by exclusion from trading." Regulation ATS, Rule 300(a).

[4] See Rule 600(b)(23) of Regulation NMS, 17 CFR § 242.600(b)(23) (definition of electronic communications network).

[5] See Regulation of Exchanges and Alternative Trading Systems, Exchange Act Release No. 40760 (Dec. 8, 1998), 63 Fed. Reg. 70844, 70879 (Dec. 22, 1998) ("Adopting Release").

the Commission highlighted the importance that ATSs "separate the alternative trading system functions from other broker-dealer functions" when the Commission adopted Regulation ATS. Adopting Release, 63 Fed. Reg. at 70879.

4.   LavaFlow violated Rule 301(b)(10) from at least March 2008 through March 2011 by failing to establish adequate safeguards and procedures to protect the LavaFlow ECN subscribers' confidential trading information. Specifically, LavaFlow allowed a technology application named "ColorBook" to have knowledge of the non-displayed orders of the ECN's subscribers who believed they were submitting their orders to the LavaFlow ECN directly and were not using the smart order routing services of ColorBook to do so ("direct subscriber non-displayed order flow") and to use this information when routing orders of ColorBook customers who were also the ECN's subscribers. For most of the relevant period, ColorBook was owned and operated by LavaFlow's affiliate, Lava Trading, Inc. ("Lava Trading"). ColorBook performed a wide variety of functions, both for the LavaFlow ECN and other businesses outside the ATS, including a smart order routing business that was provided to registered broker-dealer customers.

5.   In March 2008, ColorBook began to apply its knowledge of direct subscriber non-displayed order flow when determining how to route orders for smart order routing customers, who were also LavaFlow ECN subscribers. Although ColorBook customers could not themselves see or access the direct subscriber non-displayed order flow, the practice implicated Rule 301(b)(10) because the smart order router was outside the LavaFlow ECN and had access to, and retained, information about the direct subscriber non-displayed order flow. In light of ColorBook's dual functions with respect to the ECN and the smart order routing business, LavaFlow was required to establish adequate safeguards and procedures to protect the direct subscriber non-displayed order flow from being accessed by the affiliated smart order router business. LavaFlow did adopt certain safeguards and procedures, but these measures were inadequate because they were not designed to ensure, and memorialize, that LavaFlow made sufficient disclosures to, or obtained consent from, all ECN subscribers concerning ColorBook having access to and using the direct subscriber non-displayed order flow. ColorBook's ability to have access to and use of the direct subscriber non-displayed order flow was discontinued in March 2011. From March 2008 through March 2011, ColorBook executed over 400 million shares for smart order router customers who were also ECN subscribers as a result of ColorBook's access to direct subscriber non-displayed order flow resting at the LavaFlow ECN.

6.   LavaFlow did not file amendments to its Form ATS regarding material changes in the LavaFlow ECN's operations regarding ColorBook's use of the LavaFlow ECN's direct subscriber non-displayed order flow. Rule 301(b)(2) of Regulation ATS requires that an ATS file an amendment on Form ATS at least 20 days prior to implementing a material change to the operation of the ATS, 30 days after the end of a quarter when information contained in an initial operation report filed on Form ATS becomes inaccurate, and promptly upon discovering that an initial operation report filed on Form ATS or an amendment on Form ATS was inaccurate when filed. 17 C.F.R. § 242.301(b)(2).

7.   In addition, Lava Trading operated as an unregistered broker-dealer from August 2008 through February 2009. Lava Trading filed a Form BDW to withdraw its registration as a broker-dealer, which became effective on August 8, 2008. Despite withdrawing its registration and

stating in its Form BDW filing that it ceased business on May 30, 2008, Lava Trading continued to operate in the same fashion as it had when it was registered, including effecting transactions in securities in the accounts of others and charging customers on a transaction basis. From the time Lava Trading withdrew its registration through February 2009, LavaFlow willfully aided and abetted and caused Lava Trading's operation as an unregistered broker-dealer in violation of Section 15(a) of the Exchange Act.

Respondent

8.   **LavaFlow**, a Florida corporation wholly-owned by Citigroup Financial Products, Inc. which is in turn wholly-owned by Citigroup Global Markets, Inc. (collectively "Citigroup"), registered with the Commission as a broker-dealer in March 2002 (SEC File No. 8-65299) and maintains its principal place of business in New York, New York. The LavaFlow ECN serves as an automated matching system for NMS stocks[6] where subscribers (e.g., registered broker-dealers) enter orders into the LavaFlow ECN order book for execution and display. As of December 31, 2013, the LavaFlow ECN was the largest ECN and the largest ATS as measured by dollar volume executed with over $361 billion in total dollar volume of executions for the fourth quarter of 2013.

Other Relevant Entity

9.   **Lava Trading** was incorporated in Delaware in March 1999 with its principal place of business in New York, New York. Lava Trading was registered as a broker-dealer (SEC File No. 8-66782) from June 29, 2005 until its Form BDW became effective on August 8, 2008. Beginning in October 2008, Lava Trading's customers were notified that Lava Trading was being combined with LavaFlow, with LavaFlow being the surviving broker-dealer. Lava Trading continued to operate as a broker-dealer through February 2009. Citigroup owned Lava Trading, including through other Citigroup subsidiaries during different periods of time.

Facts

The Smart Order Routing Business

10.   Lava Trading was founded in 1999 as a technology services company. Lava Trading's flagship product was ColorBook, which was software that provided smart order routing services to over 100 registered broker-dealers that principally used ColorBook to route their customers' orders to execution venues. Until February 2009, Lava Trading charged its customers on a transaction basis for all orders that were executed due to ColorBook's smart order routing functions.

---

[6] A "NMS stock" is defined as "any NMS security other than an option." A "NMS security" is defined as "any security or class of securities for which transaction reports are collected, processed, and made available pursuant to an effective transaction reporting plan, or an effective national market system plan for reporting transactions in listed options." See Regulation NMS, Rules 600(b)(46) and 600(b)(47), Exchange Act Release No. 51808 (Jun. 9, 2005), 70 Fed. Reg. 37496 (Jun. 29, 2005).

11.   An "order router" is an application that generally allows an end user to submit an order to an execution venue. A "smart order router" applies preprogrammed analytics that carry out an execution strategy for order flow provided to the smart order router. Analytics programmed into the smart order router continually make adjustments, including re-routing orders in light of updated data feeds, to carry out their strategies and/or avoid unfavorable price movements until its customers' orders are canceled or executed.

12.   A key component of ColorBook was the broad spectrum of market data ColorBook gathered. ColorBook gathered market data, including displayed and non-displayed orders, from a variety of sources to form a consolidated picture of liquidity available in the market. Information about displayed orders came from publicly-available market data sources. Information about non-displayed orders came from a variety of sources. One such source was a memory function in ColorBook that allowed it to retain a record of orders that had been submitted through ColorBook that were not displayed or visible in the market.

13.   Another source of non-displayed orders came from smart order routing customers. For example, many such customers would submit through ColorBook non-displayed orders that the customers destined for one or more particular venues; in such instances, ColorBook acted as an order router to direct the order to the venue specified by the customer. In other instances, a customer would submit an order that ColorBook would determine how and where to route. In both instances, ColorBook would know that a particular order rested at a particular venue, and until ColorBook received a message that the order was canceled or executed, ColorBook could use that information to determine how to route a subsequent order so long as the customer submitting the subsequent order was entitled to trade on that venue. Because the order had a non-displayed component, ColorBook had unique knowledge of that order compared to others in the market, and ColorBook could provide a benefit to smart order routing customers by taking into account such information in determining where and how to route orders.

14.   In another example, sometimes ColorBook's analytics would determine that a portion of an order should not be immediately routed to a market center. In such instances, information concerning that portion of the order that was not immediately routed rested within ColorBook and was not publicly-displayed. ColorBook could use this information when determining where and how to route subsequent orders from smart order routing customers.

15.   In both of these examples, ColorBook considered its historical knowledge of non-displayed resting orders to make future routing decisions.

ColorBook's Services for the LavaFlow ECN

16.   In January 2006, an affiliate of Lava Trading acquired from a third party the ECN that subsequently became known as the LavaFlow ECN. At the time of the acquisition, Lava Trading personnel believed they could leverage ColorBook to improve the ECN by using ColorBook to handle important ECN functions, such as Regulation NMS compliance. Lava Trading and LavaFlow shared technology personnel, sales personnel, administrative personnel, and marketing materials. Lava Trading and LavaFlow also shared the same website as the online

means for prospective customers to learn about Lava Trading's smart order routing services and the LavaFlow ECN.

17. ColorBook's services to the LavaFlow ECN were distinct from ColorBook's services to customers of the smart order routing business. Although they shared some personnel, the ECN and the smart order routing business were separate businesses with distinct operations and under distinct regulatory requirements.

18. In October 2006, Lava Trading and LavaFlow entered into service and cost allocation agreements. Through these agreements, the ColorBook software performed significant parts of the operations of the LavaFlow ECN. For example, ColorBook was the means by which the LavaFlow ECN checked for compliance with many of its regulatory obligations, including those under Regulation NMS and Regulation SHO.

19. ColorBook also provided the LavaFlow ECN with the architecture to monitor the ECN system's health and functionality, including monitoring ECN latencies, response time to orders, and system slowness alerts. ColorBook was also the means to provide financial information exchange (also known as "FIX") connectivity for the LavaFlow ECN subscribers to directly connect to the ECN.

20. ColorBook was also an important component of the LavaFlow ECN's contingency planning. In the event that the ECN completely shut down, LavaFlow's contingency plan called for ColorBook, which was owned by Lava Trading until at least February 2009, to process emergency trades for the ECN. This was notwithstanding that Lava Trading was an unregistered entity from August 2008 through February 2009.

LavaFlow Allowed ColorBook to Access Direct Subscriber Non-Displayed Order Flow When Smart Routing Orders of Other ECN Subscribers

21. LavaFlow initially did not allow ColorBook to access and use its knowledge of the ECN direct subscriber non-displayed order flow when determining how to smart route subsequent orders.

22. However, from March 2008 until March 2011, LavaFlow allowed ColorBook to access and use its knowledge of the LavaFlow ECN direct subscriber non-displayed order flow when making smart order routing decisions for those smart order routing customers who also were subscribers of the LavaFlow ECN.

23. The direct subscriber non-displayed orders submitted to the LavaFlow ECN mostly consisted of "hidden orders," "reserve orders," and "pegged orders." Hidden orders are an order type in which all or a portion of the order is not displayed to other market participants. Reserve orders are those orders in which portions of the order are only gradually displayed in accordance with customer instructions as the portions are executed. A pegged order is a limit order, the price of which is automatically adjusted to follow the price movement of a reference price (e.g., best bid, best offer). Some or all of a pegged order might be non-displayed.

24.   When a customer of the smart order routing business submitted an order, ColorBook would consult all data available to it. For a ColorBook customer's order to interact with the ECN non-displayed order flow, the ColorBook customer had to be a subscriber of the ECN. If an order placed by such a customer could match a non-displayed order resting on the LavaFlow ECN, then ColorBook would route the customer's order to the LavaFlow ECN with the expectation that the two orders would match. This feature was marketed as a benefit to ECN subscribers that would enhance execution rates and price improvement for non-displayed resting orders sent to the LavaFlow ECN.

25.   Thus, ColorBook was able to use its knowledge of the non-displayed orders resting at the LavaFlow ECN, including the direct subscriber non-displayed order flow to which it should not have had access, when making routing decisions for smart order routing customers entitled to trade at that venue.

26.   LavaFlow had in place certain safeguards, such as physical barriers and restrictions on employee access to prevent the unauthorized access to the LavaFlow ECN subscribers' confidential information. For instance, there is no evidence that information about the ECN's non-displayed order flow was displayed, or otherwise communicated to, customers of the smart order routing business or other third parties. However, LavaFlow did not obtain meaningful consent from its ECN subscribers to allow ColorBook to have access to direct subscriber non-displayed order flow or to use that knowledge when making routing decisions for smart order routing customers who were also ECN customers. Marketing materials, which were shown to at least some ECN subscribers, contained language that some ECN non-displayed resting orders would be "exposed" to ColorBook. Based on these materials, some ECN subscribers might have understood that LavaFlow was granting access to, and ColorBook was retaining information about, ECN subscribers' non-displayed order flow. LavaFlow did not have procedures in place to ensure that all ECN subscribers reviewed and understood these materials, which were used for marketing purposes, not compliance. As a result, these materials were not a fulsome or adequate means of ensuring that the LavaFlow ECN subscribers consented to, or were notified of, ColorBook's use of the confidential trading information, and were not a sufficient safeguard or procedure to protect subscribers' confidential trading information.

27.   Some of the LavaFlow ECN subscribers believed that non-displayed orders that they submitted directly to the LavaFlow ECN would rest solely on the ECN, and not be known by the smart order router. The subscribers' understanding as to how the ECN would handle their orders was important, because the subscribers are entitled to expect no unauthorized disclosure of their confidential trading information to any entity outside the ATS.

28.   LavaFlow also failed to disclose on its Form ATS, in accordance with Rule 301(b)(2) of Regulation ATS, that LavaFlow was providing ColorBook with access to direct subscriber non-displayed order flow so that ColorBook could use this knowledge when making routing decisions for customers of the smart order routing business who were also ECN subscribers. LavaFlow was required to file an amendment on Form ATS to reflect this material change to the operation of the ATS at least 20 days before the implementation of such change.

Lava Trading Operated as an Unregistered Broker-Dealer

29.   Beginning in June 2005, Lava Trading operated as a registered broker-dealer, providing services to its smart order router customers, LavaFlow, and other registered broker-dealers.

30.   On June 8, 2008, Lava Trading filed Form BDW to withdraw its registration as a broker-dealer, and that withdrawal was made effective August 8, 2008.

31.   In its notice to withdraw its registration, Lava Trading stated that it ceased business on May 30, 2008. However, Lava Trading did not do so and continued to provide broker-dealer services. Lava Trading, through ColorBook, continued to operate nearly every aspect of the LavaFlow ECN's functionality after May 30, 2008. Lava Trading used ColorBook to route orders through the LavaFlow ECN to other venues, and effected transactions via ColorBook in approximately 200 million shares per day on behalf of over 100 registered broker-dealer subscribers. Lava Trading, through ColorBook, also continued to provide the smart order routing services described in paragraphs 10-15. After August 2008, when Lava Trading's withdrawal was made effective, Lava Trading continued to state that it was a registered broker-dealer on a shared website that was the online presence for both Lava Trading and LavaFlow. The website provided the means for prospective customers to learn about Lava Trading's smart order routing business, among other things.

32.   LavaFlow provided substantial assistance to Lava Trading when Lava Trading continued to provide broker-dealer services after August 2008. LavaFlow provided the operational support, including technology and sales personnel, for Lava Trading to continue to provide broker-dealer services. LavaFlow maintained and was responsible for the contents on the website it shared with Lava Trading that continued to state that Lava Trading was a registered broker-dealer. LavaFlow also issued invoices on LavaFlow letterhead to Lava Trading's customers. The invoices sent by LavaFlow billed the customers on a transaction basis for services performed by Lava Trading, and these were the same services Lava Trading performed when it was a registered broker-dealer.

33.   In February 2009, Lava Trading entered into an agreement with LavaFlow whereby LavaFlow would receive all income associated with contractual arrangements that previously existed between Lava Trading and its customers. From August 2008 through February 2009, Lava Trading received transaction-based compensation for broker-dealer services, including approximately $1.8 million for orders handled by the smart order router.

Violations

34.   Rule 301(b)(10) of Regulation ATS requires an ATS to establish adequate safeguards and procedures to protect subscribers' confidential trading information and to implement adequate oversight procedures to ensure that these safeguards and procedures are

followed. As a result of the conduct described above, LavaFlow willfully[7] violated Rule 301(b)(10) because it allowed the ColorBook smart order router to have access to the direct subscriber non-displayed order flow and use such knowledge when making routing decisions.

35. As a result of the conduct described above, LavaFlow also willfully violated Rule 301(b)(2) of Regulation ATS, which requires an ATS to amend its Form ATS before implementing a material change to its operation. LavaFlow did not disclose on its Form ATS that it was allowing the ColorBook smart order router to have access to the direct subscriber non-displayed order flow and use such knowledge when making routing decisions.

36. As a result of the conduct described above, LavaFlow willfully aided and abetted and caused Lava Trading's violation of Section 15(a) of the Exchange Act. Section 15(a) makes it unlawful for any broker or dealer who makes use of the mails or any means or instrumentality of interstate commerce to effect any transaction in, or to induce or attempt to induce the purchase or sale of, any security unless such broker or dealer is registered with the Commission. Lava Trading continued to provide broker-dealer services after the withdrawal of its registration had become effective. LavaFlow aided and abetted and caused Lava Trading's unregistered broker-dealer violation by providing operational support, maintaining a website that described Lava Trading's smart order routing services and stated Lava Trading was a registered broker-dealer, and by issuing invoices on LavaFlow letterhead in connection with Lava Trading's broker-dealer services.

IV.

In view of the foregoing, the Commission deems it appropriate and in the public interest to impose the sanctions agreed to in Respondent's Offer.

Accordingly, pursuant to Sections 15(b)(4) and 21C of the Exchange Act it is hereby ORDERED that:

A. LavaFlow shall cease and desist from committing or causing any violation and any future violation of Rules 301(b)(10) and 301(b)(2) of Regulation ATS;

B. LavaFlow shall cease and desist from committing or causing any violation and any future violation of Section 15(a) of the Exchange Act;

C. LavaFlow is censured;

D. LavaFlow shall, within 10 days of the entry of this Order, pay disgorgement of $1,800,000, along with prejudgment interest of $350,000, and a civil penalty of $2,850,000 to the Securities and Exchange Commission for transmittal to the U.S. Treasury. If timely payment is not

---

[7] A willful violation of the securities laws means merely "'that the person charged with the duty knows what he is doing.'" Wonsover v. SEC, 205 F.3d 408, 414 (D.C. Cir. 2000) (quoting Hughes v. SEC, 174 F.2d 969, 977 (D.C. Cir. 1949)). There is no requirement that the actor "'also be aware that he is violating one of the Rules or Acts.'" Id. (quoting Gearhart & Otis, Inc. v. SEC, 348 F.2d 798, 803 (D.C. Cir. 1965)).

made, additional interest shall accrue pursuant to SEC Rule of Practice 600 and 31 U.S.C. § 3717. Payment must be made in one of the following ways:

(1) Respondent may transmit payment electronically to the Commission, which will provide detailed ACH transfer/Fedwire instructions upon request;

(2) Respondent may make direct payment from a bank account via Pay.gov through the SEC website at http://www.sec.gov/about/offices/ofm.htm; or

(3) Respondent may pay by certified check, bank cashier's check, or United States postal money order, made payable to the Securities and Exchange Commission and hand-delivered or mailed to:

> Enterprise Services Center
> Accounts Receivable Branch
> HQ Bldg., Room 181, AMZ-341
> 6500 South MacArthur Boulevard
> Oklahoma City, OK 73169

Payments by check or money order must be accompanied by a cover letter identifying LavaFlow, Inc. as a Respondent in these proceedings, and the file number of these proceedings; a copy of the cover letter and check or money order must be sent to Daniel M. Hawke, Division of Enforcement, Securities and Exchange Commission, One Penn Center, 1617 JFK Boulevard, Suite 520, Philadelphia, PA 19103.

By the Commission.

Jill M. Peterson
Assistant Secretary