UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

UNITED STATES OF AMERICA

v.

CHEUK FUNG RICHARD HO,

Defendant.

SEALED INDICTMENT

25 Cr. _____

25 CRIM 003

COUNT ONE
(Theft of Trade Secrets)

The Grand Jury charges:

Overview

1.   From approximately July 2019 to approximately August 2021, CHEUK FUNG

RICHARD HO, the defendant, was a research developer and quantitative trader at a global,

quantitative trading firm ("Firm-1"), which trades in equities and other securities in exchanges

located in the United States and abroad. Firm-1's proprietary source code ("Firm-1's Source

Code"), the development of which took years and cost Firm-1 more than one billion dollars, has

been the linchpin of Firm-1's success in these markets. During the period of HO's employment at

Firm-1, Firm-1 took substantial measures to protect the confidentiality of its Source Code. Among

other things, Firm-1 limited access to Firm-1's Source Code to only those individuals, like HO,

who needed access to it in connection with the duties of their employment. Employees with access

to Firm-1's Source Code were required to enter into agreements with Firm-1 in which they

acknowledged the importance of keeping Firm-1's Source Code secret and promised to protect the

confidentiality of that Source Code throughout their employment—and after their employment

concluded. Firm-1 also implemented numerous physical and network security protocols to prohibit unauthorized access to Firm-1's Source Code.

2.   In or about the spring of 2021, CHEUK FUNG RICHARD HO, the defendant, secretly started his own quantitative trading firm ("Firm-2"), which partnered with one of Firm-1's competitors ("Firm-3"). While still employed at Firm-1, and while using the nearly complete access to Firm-1's Source Code afforded to him as a result of that employment, HO stole valuable trade secrets from Firm-1 (the "Stolen Trade Secrets") for use in developing the source code for Firm-2 ("Firm-2's Source Code"). The Stolen Trade Secrets included, among other things, some of the very building blocks of Firm-1's Source Code, known as "Atoms," as well as some of its predictive formulas, known as "Alphas." By stealing these trade secrets, HO was able to quickly launch Firm-2 and begin trading successfully.

3.   Aware that he had misappropriated Firm-1's trade secrets—and knowing that this theft would injure Firm-1—CHEUK FUNG RICHARD HO, the defendant, repeatedly lied to Firm-1 about his plans after his employment with Firm-1 concluded. For example, when Firm-1 asked HO about his post-Firm-1 employment plans, HO omitted any mention of the fact that he had started Firm-2 and he mispresented his affiliation with Firm-3. And once Firm-1 learned that HO had started Firm-2, HO sought to destroy evidence. He directed his employees to delete their internal communications, and further directed them to delete the source code history for Firm-2's Source Code, a direction that HO's employees did not follow.

4.   One of Firm-2's employees ("Engineer-1"), who had previously worked at Firm-1, began to see indications in Firm-2's Source Code that CHEUK FUNG RICHARD HO, the defendant, had misappropriated portions of Firm-1's Source Code. For example, Engineer-1 saw code in Firm-2's Source Code that resembled certain portions of Firm-1's Source Code in name

2

and function—but HO denied misappropriating Firm-1's Source Code. In approximately June 2023, Engineer-1 became increasingly concerned that HO had in fact misappropriated portions of Firm-1's Source Code. Another employee, Engineer-2, shared with Engineer-1 a code directory (the "Directory") that HO had previously shared with Engineer-2, but refused to share with Engineer-1. The Directory contained an index (the "Index"). When Engineer-1 reviewed the Index, Engineer-1 saw that it contained the names of numerous unique Firm-1 Atoms—the very backbone of Firm-1's Source Code and trade secrets. Upon this discovery, Engineer-1, Engineer-2, and a third engineer ("Engineer-3") abruptly quit their employment at Firm-2.

The Quantitative Trading Industry and Firm-1 Background

5.   Quantitative trading is a type of trading carried out in financial markets, through exchanges such as the Chicago Mercantile Exchange ("CME") and the Intercontinental Exchange ("ICE"). Typically, quantitative trading involves the extremely rapid execution of a high volume of trades in which the decisions to make those trades are determined by sophisticated computer programs.

6.   Various firms, including Firm-1, Firm-2, and Firm-3, engage in quantitative trading. Because this trading is electronic, quantitative trading firms principally compete on the basis of the quality of their research and technology. Because research and technology are at the cornerstone of the success of any quantitative trading firm, it is standard in this industry for firms to employ robust measures to protect the confidentiality of its research and technology. In addition, it is also standard in the quantitative trading industry for firms to require employees to sign restrictive employment agreements that, among other things, prevent an employee from competing with a former employer for a certain period of time, and to require employees to protect the confidentiality of an employer's research and technology.

7.   Firm-1 was founded in approximately 2009.   After spending approximately millions of dollars on research and development, Firm-1 began trading in 2010, and after investing additional millions of dollars in research and development, became profitable in approximately 2012. Firm-1 has continued to invest over a billion dollars into its Source Code, which was developed nearly entirely in-house.

8.   With respect to Firm-1's Source Code, Firm-1 has a library of Atoms, which are the building blocks and foundation of Firm-1's Source Code. Each of these Atoms are given a name, which is often unique.   Individual Atoms have specific functions, ranging from computational functions to price-predicting computations. Atoms, in turn, are used to build Alphas, which are Firm-1's predictive formulas that make price predictions based on real-time market data. Firm-1 builds trading strategies based on various combinations of Alphas to analyze market data and make automated trading decisions.

9.   The quality of Firm-1's Source Code is the foundation of Firm-1's competitive advantage in the exchanges in which it trades, and its economic value depends on it remaining secret. To protect the secrecy of its Source Code, Firm-1 has implemented numerous measures to protect its Source Code from disclosure to a competitor or the public, including a variety of physical and network security measures to prevent unauthorized access to Firm-1's trading platform. Firm-1 also requires its employees to sign employment agreements that, among other things, require employees to acknowledge the value of Firm-1's proprietary information, agree to safeguard it, and agree not to copy or remove confidential or proprietary information upon termination or resignation.   Firm-1 also conducts regular trainings for employees on the importance of protecting its trade secrets. For example:

a.   For those employees who do have access to Firm-1's Source Code, Firm-1 employs a variety of physical and network security measures to prevent unauthorized access. For instance, Firm-1 employees who are authorized to access Firm-1's Source Code are provided with unique login credentials with strict password and multi-factor authentication requirements.

b.   Physical access to Firm-1's offices is limited and staffed with around-the-clock security. Firm-1's offices have multiple security checkpoints that require use of electronic access cards, and visitors are restricted from entering areas where researchers or programmers are working on trading strategies and code.

c.   As a condition of employment, Firm-1 requires its employees to sign employment agreements that, among other things, require employees to acknowledge the value of Firm-1's proprietary information, agree to safeguard it, and agree not to copy or remove confidential or proprietary information upon termination or resignation. For certain employees, Firm-1 can elect to enforce a non-competition covenant, whereby the employee is barred from seeking employment for a similar role at a company that is competitive with Firm-1. Employees are also required to assign intellectual property rights developed during the course of their employment at Firm-1 to Firm-1. In addition, employees are obligated to report outside business affiliations while employed at Firm-1, and they are required to agree to not solicit Firm-1 employees for employment outside Firm-1 for a certain period of time.

d.   During the employee onboarding process, Firm-1 emphasizes the value of its proprietary trading technology and the need for employees to safeguard its confidentiality. Firm-1 also enforces numerous policies that require employees to safeguard confidential information and agree not to disclose, misuse, or misappropriate it. Employees are also required

to attend regular trainings and orientations reminding them of their obligations to safeguard Firm-1's technology, and they are required to confirm that they understand these obligations.

e.   Employees are prohibited from saving Firm-1 documents or computer code on personal electronic devices or storing hard copy materials at their homes.

f.   Upon resignation or termination, departing employees receive written confirmation about their continuing obligations to protect Firm-1's proprietary information.

HO Joins Firm-1 and Gains Access to Firm-1's Source Code

10.   In approximately 2019, CHEUK FUNG RICHARD HO, the defendant, interviewed for a position at Firm-1. In connection with his interview process at Firm-1, HO stated in an email, in substance and in part, that the quantitative trading industry "is particularly sensitive to personnel movements and trade secrets." In approximately April 2019, Firm-1 offered HO a position as a quantitative researcher and developer, which HO accepted. HO was assigned to a team working on certain trading strategies. As a quantitative researcher and developer, HO had nearly complete access to Firm-1's Source Code.

11.   As a condition of his employment with Firm-1, CHEUK FUNG RICHARD HO, the defendant, acknowledged and signed an employment contract that, among other things, included a "Non-Compete, Non-Solicitation, Confidentiality, and Intellectual Property Agreement" (the "Non-Compete Agreement"). The Non-Compete Agreement included the following terms, among others:

a.   The Non-Compete Agreement defined "Confidential Information" to include, among other things, information that Firm-1 "deems to be proprietary" or "that is not generally disclosed" or "generally known" to the public, such as, among other things, "trading

6

strategies," "research," "computer programs," "methods," "processes," "proprietary trading systems and models," "algorithms," and "trade secrets."

        b.   HO "expressly acknowledge[d] the vital importance of Confidential Information in the business of [Firm-1] and agree[d] that all Confidential Information provided to [HO] and developed by [HO] is the sole and exclusive property of [Firm-1], is provided to and held by [HO] in trust; [Firm-1] makes reasonable efforts to keep it confidential; and it has value to [Firm-1]." HO further agreed to "not use Confidential information for [HO's] personal benefit" or "the benefit of third parties" or to "compete" with Firm-1, and HO acknowledged that these obligations "will continue at least for so long as any item of Confidential Information remains confidential" to Firm-1, "including after the termination of [HO's] relationship with [Firm-1]" and that "such restrictions may require [HO] to limit [HO's] activities for employers other than [Firm-1] . . . or in connection with other business endeavors following the termination of [HO's] relationship with [Firm-1] for any reason."

        c.   HO agreed to use the "care needed to protect the Confidential Information entrusted to [HO] appropriate to the sensitive nature of that Confidential Information" and to "not copy or remove Confidential Information from [Firm-1's] offices, except as is necessary in connection with [HO's] employment or engagement with" Firm-1.

        d.   HO agreed to "not disclose Confidential Information to others, except to members and employees of [Firm-1] . . .who have a need to know such information and who are bound by similar confidentiality agreements" with Firm-1.

        e.   Upon resignation, HO agreed to "return all originals and copies of Confidential Information[.]"

f.   HO agreed that any intellectual property that HO developed during the course of his employment at Firm-1 belonged to Firm-1.

g.   HO agreed that, during his period of employment with Firm-1, he would not "engage, directly or indirectly" in any competitive activity with any business that competes with Firm-1. HO also agreed that, if Firm-1 elected to enforce its non-compete provision (for up to a 12-month period), that HO would not work for a company that was competitive with Firm-1, in exchange for Firm-1 continuing to pay HO's salary. HO further agreed not to solicit, for a period of 18 months, any employee of Firm-1 to leave Firm-1 and work for HO.

h.   HO agreed that he would "promptly notify [Firm-1] at any time that [HO] contemplate[s] terminating or decide[s] to terminate employment with [Firm-1] or contemplate[s] entering or enter[s] into competition with [Firm-1] (whether or not such action would constitute a violation of [the Non-Compete Agreement], as [Firm-1] may decide at such time to limit, suspend, or terminate [HO's] employment and/or access to [Firm-1's] Confidential Information[.]"

12.   As part of his employment at Firm-1, CHEUK FUNG RICHARD HO, the defendant, was debriefed on his obligations under his employment contract described herein and attended trainings concerning Firm-1's policies regarding the protection of its confidential information.

HO Secretly Starts Firm-2 and Steals Firm-1's Trade Secrets

13.   In or about the winter and spring of 2021, while still employed at Firm-1, CHEUK FUNG RICHARD HO, the defendant, secretly started Firm-2. Among other things, HO recruited engineers, Engineer-1, Engineer-2, and Engineer-3, to join him at Firm-2. Engineer-1, who had worked at Firm-1 until approximately March 2021, began working at Firm-2 in approximately May 2021.

14.   CHEUK FUNG RICHARD HO, the defendant, incorporated Firm-2 in Delaware in approximately May 2021.

15.   CHEUK FUNG RICHARD HO, the defendant, sent Firm-1 a notice of resignation on or about July 6, 2021. Firm-1 provided HO with continued access to Firm-1's Source Code for approximately two additional days to allow HO to close out certain projects that were pending.

16.   In approximately June 2021, before he had resigned from Firm-1, CHEUK FUNG RICHARD HO, the defendant, told Engineer-2 to work with HO out of HO's apartment in Chicago to start developing Firm-2's Source Code. Engineer-2 travelled to Chicago on or about July 5, 2021, and began working from HO's apartment on or about July 6, 2021. On or before July 8, 2021—while HO maintained access to Firm-1's Source Code—HO remotely accessed Firm-1's systems in Engineer-2's presence and launched a feature that, among things, visualizes market data (the "Firm-1 Visualizer"). In trainings about protecting proprietary information, Firm-1 used the Firm-1 Visualizer as a specific example of confidential information at Firm-1. HO told Engineer-2, in substance and in part, that HO wanted to create something like the Firm-1 Visualizer for Firm-2.

17.   In approximately the late summer and fall of 2021, CHEUK FUNG RICHARD HO, the defendant, opened Firm-2's office in Manhattan. HO travelled to Manhattan frequently, and Engineer-1, Engineer-2, and Engineer-3 worked from the Manhattan office. In approximately the spring of 2022, Firm-2 began trading, initially in Chinese markets, and eventually in CME and ICE, two exchanges on which Firm-1 also trades. Firm-2's trading strategy was similar to the trading strategy that HO's team at Firm-1 employed. Firm-2 was revenue positive towards the end of 2022.

18.   To develop Firm-2's Source Code, CHEUK FUNG RICHARD HO, the defendant, copied, without authorization, numerous components of Firm-1's Source Code (*i.e.*, the Stolen Trade Secrets). The Stolen Trade Secrets consist of portions of Firm-1's Source Code (including Firm-1's Atoms and Alphas), which were predominately written in the C++ and Java programming languages, and which Ho translated into the C++ and Python coding languages while preserving the structure, logic, trading insights, and functionality of Firm-1's Source Code. The Stolen Trade Secrets were then deployed on behalf of Firm-2. HO's theft of the Stolen Trade Secrets is further evidenced by numerous instances in which HO copied customized and esoteric features of Firm-1's Code—including coding "comments." For example, one Alpha in Firm-1's Source Code contains the comment, "remove old data if it results in predications that are too far off." HO misappropriated this Alpha from Firm-1's Source Code and used it in Firm-2's Source Code, which included a substantively identical comment, "remove data that causes far-away predictions."

19.   In addition, HO maintained the Index, which contained the unique names and parameters of numerous Firm-1 Atoms, the building blocks of Firm-1's Source Code and trade secrets. HO shared the Directory that included the Index with Engineer-2 during Engineer-2's July 2021 coding visit to Chicago—but refused to share that Directory with Engineer-1, who had worked at Firm-1.

HO's Lies to Firm-1 and Engineer-1 and Seeks to Destroy Evidence

20.   CHEUK FUNG RICHARD HO, the defendant, repeatedly lied to Firm-1 about his employment plans following his exit from Firm-1. After Firm-1 elected to enforce the Non-Compete Agreement with HO, HO was required as part of his employment contract to notify Firm-1 of his employment plans. When making this disclosure in or about July 2022, however, HO did not tell Firm-1 that HO had already started his own quantitative trading firm and he misrepresented

his affiliation with Firm-3. When, in approximately early 2023, Firm-1 learned that HO had started

Firm-2, HO lied to Firm-1 again. Among other lies, HO stated falsely that Firm-2 was not engaged

in trading and that he had built Firm-2's Source Code without using anything that HO had learned

from Firm-1.

21.   At various points in or about approximately 2022 and 2023, Engineer-1, who had

previously worked at Firm-1, became concerned that CHEUK FUNG RICHARD HO, the

defendant, had stolen trade secrets from Firm-1. For example, Engineer-1 saw a name of a piece

of code that resembled code at Firm-1 in both name and function. After confronting HO, HO,

among other things, changed the name of the code and implemented a different version of the code

that was publicly available. On another occasion, Engineer-1 noticed the name of an Atom that

Engineer-1 had himself written at Firm-1. After confronting HO, HO claimed that he took notes

of ideas of Firm-1 and was good at remembering names.

22.   In approximately the spring of 2023, after Firm-1 confronted CHEUK FUNG

RICHARD HO, the defendant, about his founding of Firm-2, HO directed his employees to change

the retention settings for Firm-2's internal messages so that they automatically deleted after a

certain period of time. HO also instructed one of his employees to delete private text messages.

In addition, HO requested that his employees delete the source code history for Firm-2's Source

Code, which would have shown, among other things, changes that had been made to Firm-2's

Source Code against prior versions of that Source Code, and when those changes had been made.

23.   In approximately June 2023, Engineer-2 shared with Engineer-1 the Directory,

which CHEUK FUNG RICHARD HO, the defendant, had previously refused to share with

Engineer-1. Upon reviewing the Index that was contained in the Directory, Engineer-1 noticed

11

the names of numerous Firm-1 Atoms. Upon this discovery, Engineer-1, Engineer-2, and Engineer-3 quit their employment at Firm-2.

STATUTORY ALLEGATIONS

24.   From at least in or about 2019 through in or about January 2025, in the Southern District of New York and elsewhere, CHEUK FUNG RICHARD HO, the defendant, with the intent to convert a trade secret, that is related to a product and service used in and intended for use in interstate and foreign commerce, to the economic benefit of anyone other than the owner thereof, and intending and knowing that the offense would injure any owner of that trade secret, knowingly (i) did steal, and without authorization did appropriate, take, carry away, and conceal, and by fraud, artifice and deception obtain such information; (ii) without authorization did copy, duplicate, sketch, draw, photograph, download, upload, alter, destroy, photocopy, replicate, transmit, deliver, send, mail, communicate, and convey such information; (iii) did receive, buy, and possess such information, knowing the same to have been stolen and appropriated, obtained, and converted without authorization; and (iv) attempted to do the foregoing, to wit, HO stole and converted confidential proprietary computer source code belonging to Firm-1, which were Firm-1's trade secrets, in order to benefit his own quantitative trading firm that was competing with Firm-1.

(Title 18, United States Code, 1832(a)(1), (a)(2), (a)(3), (a)(4), and 2.)

FORFEITURE ALLEGATION

25.   As the result of committing the offense alleged in Count One of this Indictment, CHEUK FUNG RICHARD HO, the defendant, shall forfeit to the United States, pursuant to Title 18, United States Code, Sections 1834 and 2323(b), any and all articles made or trafficked as part of the commission of said offense; any and all property constituting or derived from any proceeds obtained directly or indirectly as a result of the commission of said offense; and any and all

property used, or intended to be used, in any manner or part to commit or facilitate the commission

of said offense, including but not limited to a sum of money in United States currency representing

the amount of proceeds traceable to the commission of said offense.

Substitute Assets Provision

26.   If any of the above-described forfeitable property, as a result of any act or omission

of the defendant:

    a)   cannot be located upon the exercise of due diligence;

    b)   has been transferred or sold to, or deposited with, a third person;

    c)   has been placed beyond the jurisdiction of the Court;

    d)   has been substantially diminished in value; or

    e)   has been commingled with other property which cannot be subdivided

        without difficulty;

it is the intent of the United States, pursuant to Title 21, United States Code, Section 853(p) and

Title 28, United States Code, Section 2461(c), to seek forfeiture of any other property of the

defendant up to the value of the above forfeitable property.

(Title 18, United States Code, Section 2323;
Title 18, United States Code, Section 1834;
Title 21, United States Code, Section 853; and
Title 28, United States Code, Section 2461.)

Foreperson   1/6/25

Edward Y. Kim
EDWARD Y. KIM
Acting United States Attorney

13