

United States Court of Appeals For the First Circuit

Nos. 18-2232, 18-2233, 19-1910, 19-1911

United States,

Appellee,

v.

SCHULTZ CHAN, a/k/a JASON CHAN; SONGJIANG WANG,

Defendants, Appellants.

APPEALS FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

[Hon. Indira Talwani, U.S. District Judge]

Before

Thompson, Barron,
Circuit Judges.*

Peter Charles Horstmann, with whom Elliot Weinstein was on brief, for appellants.

Carol Head, Assistant United States Attorney, with whom Andrew E. Lelling, United States Attorney, Jordi DeLlano, Assistant United States Attorney, and Kriss Basil, Assistant United States Attorney, were on brief, for appellee.

* Judge Torruella heard oral argument in this matter and participated in the *semble*, but he did not participate in the issuance of the panel's opinion in this case. The remaining two panelists therefore issued the opinion pursuant to 28 U.S.C. § 46(d).

November 20, 2020

THOMPSON, Circuit Judge. Two biostatisticians employed by two publicly traded biopharmaceutical companies were convicted of securities fraud and conspiracy to commit securities fraud after they bought and sold shares in each other's employing companies. When processing their stock transactions, both were in possession of confidential raw data from clinical trials of drug treatments from the other's company. On appeal, they make several claims of trial and sentencing error, including challenges to: (1) the denial of their motions for judgments of acquittal on each count of conviction, (2) the denial of a motion to compel production of a letter, (3) the calculation method for the adjusted base offense level for one of the defendants, and (4) the restitution order. For the reasons discussed below, we affirm across the board.

BACKGROUND

When, as here, defendants challenge the sufficiency of the evidence to support their convictions, we provide our summary of the facts in the light most favorable to the jury's verdict. United States v. Charriez-Rolón, 923 F.3d 45, 47 (1st Cir. 2019). We use this section to paint the big picture of what happened in this case; we'll save some of the nitty-gritty detail for the discussion section below, as needed, to complete the picture as we tackle each issue on appeal.

Akebia & Defendant Chan

Akebia Therapeutics, Inc. (Akebia) is a publicly traded biopharmaceutical company focused on the development of treatments for kidney disease. Schultz Chan, one of the defendants, is a biostatistician who has spent his career working on clinical trials in biotech companies. In the summer of 2015, Akebia hired Chan to be its first in-house statistician; his role as Akebia's Director of Biostatistics started on August 17, 2015. This was an important time for the company; it was in the midst of closing out an important clinical trial of a treatment for dialysis patients with chronic kidney disease (known as the "11 study"). The results of the "11 study" would not only affect the target patient population but also those who had invested in Akebia by holding shares of its publicly traded stock.¹

Three days before Chan started working at Akebia, one of its in-house attorneys sent an email to all Akebia's employees imposing a blackout period on them, effective immediately. A

¹ According to Akebia's Chief Medical Officer, there are three phases of clinical trials involving humans when a new treatment is developed. A phase 1 trial typically involves healthy volunteers to determine the general safety of the treatment. A phase 2 trial involves one- to two-hundred patients who are sick with the illness the new medicine is designed to treat. When a phase 2 trial achieves good results, then phase 3 is designed with oversight from the Food and Drug Administration to test the treatment with hundreds or thousands of patients with the target illness. The "11 study" was a phase 2 trial of a treatment which came to be known as Vadadustat.

"blackout period" is when a company prohibits its employees -- or a group of its employees -- from buying or selling its stock because those employees may be, or are, in possession of important information that has not yet been released to the public. This information is referred to as "material, non-public information" (MNPI) to those in the industry. Blackout periods are often imposed around the quarterly release of financial information or the release of clinical trial data because it prevents insiders from using company information which could impact stock pricing.

Chan was part of the team responsible for analyzing the data from the clinical trial and delivering some key results to Akebia's executives, such as whether the treatment has been working and whether there are any red flags about the safety of the treatment. Data from the completed "11 study" was ready for analysis in the first days of Chan's employment. Akebia's executives needed the analyzed results from the "11 study" as soon as possible so they could decide how and when to release the results to the public and, most importantly, to Akebia's existing and potential investors.

On August 19, 2015, Chan and others on his team received good news; the preliminary data from the "11 study" showed almost zero "sudden adverse effects" from the treatment tested such as

deaths, strokes, deep vein thrombosis, or heart attacks.² This was important news because a report released the month before had highlighted the results from a study of the same treatment tested on non-dialysis patients with chronic kidney disease (the phase 2 "7 study") in which three patients who had received the treatment died. That report had posited that these "safety issues" had the effect of "weigh[ing] down" Akebia's stock price. Akebia announced the full results from the "11 study" to the general public on September 8, 2015.

Merrimack & Defendant Wang

Merrimack Pharmaceuticals, Inc. (Merrimack) is a publicly traded biopharmaceutical company dedicated to the development of diagnostics and treatments for cancer. In 2013 and 2014, Merrimack tested a treatment it had developed to prolong the survival of those with metastatic pancreatic cancer who were also undergoing chemotherapy. The development of this treatment (known as MM-398) had progressed to a phase 3 trial (see supra note 1), referred to as the NAPOLI-1 study. The NAPOLI-1 study's design included specific benchmarks; for instance, they needed approximately 405 patients to enroll in the trial and the study's data would close out upon the 305th patient death. Merrimack used press releases to communicate information about these benchmarks.

² One patient had suffered a heart attack.

For example, a press release issued on August 28, 2013, announced Merrimack had reached its patient enrollment goal of 405 patients in the NAPOLI-1 study. Merrimack also announced the results from the completed NAPOLI-1 study through a press release issued on May 1, 2014, after the 305th patient had passed away in February and the team had analyzed the results.

Merrimack initially thought the 305th patient death would occur in the fall of 2013. Anticipating this milestone, in-house counsel imposed a stock trading blackout period during the summer of 2013 on those who worked closely with the study. The blackout period was lifted in November because the study had not yet reached the 305th patient death, and employees were admonished not to trade in Merrimack stock if they were in possession of MNPI about the NAPOLI-1 study. A blackout period was again imposed on April 21, 2014, when the final data from the NAPOLI-1 study was available to a select few employees for analysis. As previously stated (but to close the chronology of events), Merrimack issued a press release with the final results from the NAPOLI-1 study on May 1, 2014.

Enter Songjiang Wang, the other defendant in this case. He joined Merrimack in 2011 and, during the NAPOLI-1 study, he led the statistical programming group at Merrimack. Wang's role for the NAPOLI-1 study was to write the computer program to execute the data analysis plan. To accomplish this task, Wang used a

statistical analysis plan (SAP) which Merrimack developed as part of the FDA approval process. Wang had access to the NAPOLI-1 study data from the summer of 2013 through the duration of the study; this preliminary data would have been used to test the computer program he was writing in preparation to execute the ultimate data analysis once the study was over and the dataset was final. Wang was also part of the team who analyzed the final dataset in April 2014.

Where Friendship and Banking Activity and Stock Trading Meet

And now, the defendants, Akebia, and Merrimack converge. The defendants met for the first time around 2008 when Chan, then a senior director of biostatistics at FoldRx, hired Wang as a part-time statistical programming consultant. Chan and Wang stayed in touch through subsequent job changes and moves around the country. In 2012 and 2013, Chan borrowed money from Wang to renovate real property Chan owned in Massachusetts and Connecticut. Rather than immediately spend some of the borrowed money on the property renovations, however, Chan invested it in stocks, including shares of Merrimack (where Wang worked). When Chan applied for a position at Akebia, Wang served as a reference for him. After Chan started working at Akebia, the men texted regularly and met frequently for lunch.

Chan and Wang were active investors in the stock market, favoring shares in biopharmaceutical companies. A deep dive by

the government into their financial records revealed their trading activities as well as timing of withdrawals of cash from their bank accounts, and transfers of money between their own bank accounts and brokerage accounts. For example, between August 2013 and March 2015, Chan purchased Merrimack shares on at least thirty-seven different occasions, with his biggest purchase on April 21, 2014, when he placed an order to purchase 32,522 shares as opposed to the 2,000-10,000 shares he usually bought at one time.

From November 11, 2013 through February 26, 2014, Wang withdrew between \$4,000 and \$7,000 in cash eight times. Between December 3, 2013 and February 27, 2014, Chan made seven deposits of \$6,800 to \$12,000 in cash or checks to his bank account and purchased shares of Merrimack on at least four days during this time period. He sold all of his Merrimack shares on March 2, 2015. A few weeks later, Chan transferred approximately \$98K from one of his brokerage accounts to a regular bank account, then wrote a \$84K check which he gave to Wang, who deposited it into his own bank account on March 26, 2015.

In addition, Chan bought shares of Akebia's stock during the first week of his employment there in August 2015 and during a blackout period imposed by the company on its employees. Wang also bought shares of Akebia's stock sixteen times between August 28, 2015 and September 4, 2015. (These dates will be important when we get to our discussion below.)

FINRA's Interest Is Piqued and the Feds Close In

The Financial Industry Regulatory Authority (FINRA) is "a non-governmental organization that regulates professionals and firms in the securities industry," United States v. Bray, 853 F.3d 18, 23 (1st Cir. 2017), and helps the SEC (Securities and Exchange Commission) enforce federal securities laws. FINRA got in touch with both Akebia and Merrimack soon after each company announced the results from the clinical trials identified above to conduct a routine review and to ask who knew about the trial results before they were publicly announced, as well as to find out if any of these individuals knew any of the company's stockholders.

A couple of weeks after Merrimack's May 1, 2014 announcement of the results from the phase 3 clinical trial of MM-398, Merrimack's General Counsel sent an email to several Merrimack employees, including Wang, asking for information pursuant to an inquiry from FINRA about who was aware of the MM-398 phase 3 results before Merrimack announced the results publicly. Wang replied within an hour, stating he was aware of the data from the NAPOLI-1 study on April 19, 2014. Three months later, Merrimack's General Counsel sent another email to several Merrimack employees, Wang included, asking each of them -- again, at FINRA's behest -- to review a list of names and disclose which individuals on that list each of the employees knew. Wang did not reply until the General Counsel followed up two weeks later. Wang then replied he

had "reviewed the list of individuals in [the] email attachment and couldn't recognize anyone on the list that [he] kn[e]w." The list included "Chan, Schultz" and "Wang, Linda" (Chan's wife, no relation to the defendant Wang).

Meanwhile, over at Akebia: Two months after Akebia's September 2015 announcement of the results of its "11 study," the legal department sent an email to all Akebia employees, vendors, and consultants who had had access to the "11 study" data prior to the September 8 public announcement, asking them to complete a form, per a request from FINRA, disclosing whether they knew any of the people on a list attached to the request. Chan responded within an hour, declaring he didn't know anyone on the attached list. The list included an entry for "Wang, Songjiang." Within half an hour of responding to this request, Chan sent a text message to Wang asking if he would be in his office that day. Wang replied: "No, work from home today. Find some time next week."

The feds first approached and interviewed Chan in June 2016. Chan admitted he had bought Akebia stock after receiving the "11 study" data in August 2015. Chan also told the agents who interviewed him that the \$84,143.98 check he had given to Wang was to repay him for the loaned money for the property renovations in Connecticut. The feds likewise interviewed Wang in June 2016. Wang initially denied loaning money to Chan, but then stated he had loaned money to Chan for a real estate transaction in Texas

which Chan had repaid in cash. According to the FBI special agent who arrested Wang in February 2017, while in transport post-arrest Wang said: "If I was smart, I wouldn't have done this."

Indictment and Trial

The defendants were ultimately indicted and tried on four counts of securities-related violations:

1. The defendants conspired to commit securities fraud, which violated 18 U.S.C. § 371 (Count One);
2. The defendants committed securities fraud in and around April 2014 culminating in Chan's purchase and sale of Merrimack shares after receiving MNPI from Wang, which violated 15 U.S.C. §§ 78j(b), 78ff(a), as well as 17 C.F.R. § 240.10b-5 (Count Two);
3. The defendants committed securities fraud in and between August 2015 and September 2015 resulting in Wang's purchase and sale of Akebia shares after receiving MNPI from Chan, which violated the same laws as Count Two (Count Three); and
4. Chan committed securities fraud in and around August 2015 when he purchased and sold shares of Akebia stock after he came into possession of MNPI from Akebia (Count Four).

In the pretrial proceedings, the defendants asked the district court to force the government to turn over an investigative referral letter FINRA sent to the SEC. A magistrate judge denied the motion to compel production, concluding it was irrelevant because "the government ha[d] already produced all of the corresponding exhibits and attachments on which the FINRA investigative referral letter [was] based, and the letter itself therefore [was] not likely to contain any new information the defendants [did] not already have."

The defendants were tried by a jury over ten days in June and July 2018. Several colleagues and executives from Akebia and Merrimack who worked with Chan or Wang testified.

Chan also took the stand (Wang opted not to, as was his right); during his testimony he offered various assertions relevant to the issues presented for our review on appeal. He denied giving MNPI to Wang or receiving any from him. Chan testified he had been investing in the stock market for fifteen years and developed a daily morning routine of reading through news online about biotech and pharmaceutical companies, checking stock prices while he drank his morning coffee. He stated he used publicly available information about biotech companies, found on company websites, in reports filed with the SEC, and in medical journal articles, to learn about the drugs under development and to help him decide where and whether to invest. With respect to Wang, Chan testified he borrowed money in several installments for renovations to property in Boston and Connecticut -- approximately \$80,000 in total -- but he ended up using much of the borrowed money to purchase shares in Merrimack stock instead. Chan claimed he paid the loan back, with interest, by check.

With respect to Akebia and Merrimack stock, Chan admitted he purchased Akebia stock three times in August 2015,

using limit orders³ on August 19 and 21, but he denied having had MNPI at the time he made these stock purchases. Chan also admitted to placing a limit order on Merrimack stock which went through on April 21, 2014. Chan testified that the flurry of text messages to Wang in the days and weeks after Chan started working at Akebia was simply to coordinate a time to have lunch and so Chan could thank him for serving as a reference for his job application at Akebia.

Before the jury began its deliberations, the defendants properly moved twice for judgments of acquittal, which the district court eventually denied in writing after entertaining memoranda and oral argument from the parties. The jury found Wang and Chan guilty of conspiracy to commit securities fraud and all counts of securities fraud with which they were charged. The district court imposed a 36-month sentence of incarceration on Chan (more on the court's sentencing calculus in a moment) and ordered him to pay \$153,428.72 in restitution to Akebia. As for Wang, the district court ordered him to serve six months in prison and pay \$17,047.64 in restitution to Akebia.

³ A "limit order" is an order to buy shares within specific parameters, such as below a certain price per share, or a specific number of shares, or shares up to a specified price. See Bray, 853 F.3d at 23 n.2.

DISCUSSION

The defendants claim four separate errors on appeal, three of which pertain to both and one of which pertains only to Chan:

- Denying their motions for judgments of acquittal of each count of conviction;
- Denying their motion to compel production of a letter from FINRA⁴

⁴ The defendants also assert the district court erred by not granting a posttrial motion to compel production of the grand jury testimony and exhibits which they had asked for during the sentencing phase of their case because they wanted "greater clarity as to what evidence and facts were presented to the Grand Jury as to the time frame of the MM-398 study and Wang's possession of MNPI." In particular, the defendants were still after the FINRA "reports, referrals and records." The Government filed an opposition to the motion, but it was never resolved; the district court did not enter an order ruling on the motion.

As part of their appellate arguments before us, the defendants state, in a conclusory manner without any developed argument, that they showed a particularized need for the "grand jury minutes . . . related to the MM-398 timeline" because, after trial and before sentencing, the defendants wanted to "clarify the prejudicial variance for count 1" and the "interest of justice far outweighs any need for continuing grand jury secrecy in this case." Setting aside the lack of developed argument on this point for a moment, without a ruling from the district court this claim of "error" is not ripe for our review. Shea v. United States, 976 F.3d 63, 82 (1st Cir. 2020) ("[W]e generally do not rule on questions -- whether of fact or of law -- until a district court has done so, a practice that enhances the quality of our decisions both by allowing us to consider the district court's analysis and by allowing the parties to hone their arguments before presenting them to us." (quoting Moore v. United States, 871 F.3d 72, 79 (1st Cir. 2017))). And in any event, the arguments before us are perfunctory and undeveloped, so the issue is waived. See Rodríguez v. Municipality of San Juan, 659 F.3d 168, 175 (1st Cir. 2011) ("It should go without saying that we deem waived claims not made or claims adverted to in a cursory fashion, unaccompanied by developed argument."); Holloway v. United States, 845 F.3d 487, 491 n.4 (1st Cir. 2017) (stating an argument was waived when party failed to provide any legal citations to support its argument).

- Calculating Chan's adjusted base offense level using the market value of the stocks after the public information about the clinical trials had been released to the public; and
- Awarding restitution to Akebia.

We will take each issue in turn.

A. The Securities Exchange Act

Before we tackle the motions for judgments of acquittal as to the conspiracy and securities fraud convictions, let's go over a quick primer on this area of the law.

"The unlawful trading in securities based on material, nonpublic information, or illegal insider trading, is a well-established violation of Section 10(b) of the Securities Exchange Act . . . and the [SEC's] Rule 10b-5." Bray, 853 F.3d at 24 (citing Salman v. United States, 137 S. Ct. 420, 423 (2016)). "Section 10(b) of the Securities Exchange Act of 1934 and the Securities and Exchange Commission's Rule 10b-5 prohibit undisclosed trading on inside corporate information by individuals who are under a duty of trust and confidence that prohibits them from secretly using such information for their personal advantage." Salman, 137 S. Ct. at 423 (citing 15 U.S.C. § 78j(b) (prohibiting the use, "in connection with the purchase or sale of any security," of "any manipulative or deceptive device or contrivance in contravention of such rules as the [SEC] may prescribe") and 17 C.F.R. § 240.10b-5 (forbidding the use, "in connection with the sale or purchase of any security," of "any

device, scheme or artifice to defraud," or any "act, practice, or course of business which operates . . . as a fraud or deceit")). "The purpose of the Exchange Act and complementary SEC regulations is 'to insure honest securities markets and thereby promote investor confidence.'" United States v. McLellan, 959 F.3d 442, 457 (1st Cir. 2020) (quoting Chadbourne & Parke LLP v. Troice, 571 U.S. 377, 390 (2014)).

[T]he Supreme Court has recognized two theories of insider trading liability: the "classical theory" and the "misappropriation theory." The classical theory generally only imposes liability when a trader or tipper is an insider of the traded-in corporation. The classical insider-trader thus breaches a fiduciary duty owed to the corporation's shareholders. The misappropriation theory, however, creates liability when a tipper or trader misappropriates confidential information from his source of the information. The misappropriator thus breaches a fiduciary duty owed to the source.

S.E.C. v. Rocklage, 470 F.3d 1, 5 (1st Cir. 2006).

B. Motions for Judgments of Acquittal

According to the defendants, they were entitled to judgments of acquittal on all of the charges in the indictment: The conspiracy to commit securities fraud count because the evidence the government presented at trial varied prejudicially from the allegations in the indictment and the substantive securities fraud counts because there was not enough evidence at trial from which the jury could have found they were guilty beyond

a reasonable doubt. Because the defendants made the same arguments before the district court (therefore preserving this legal issue for our review), our task is to consider afresh their arguments about why they say they are entitled to judgments of acquittal. See Charriez-Rolón, 923 F.3d at 51. That is, we give no deference to the district court's assessment of the same arguments when it evaluated the defendants' motions for judgments of acquittal. Id.

Conspiracy Conviction

Count One of the operative indictment at trial (the second superseding indictment or SSI) charged the defendants with an illegal conspiracy "[b]eginning no later than November 2013 and continuing through at least September 2015" to commit securities fraud.

The defendants don't attack the conspiracy conviction in a conventional "there isn't enough evidence to support my conviction" manner. Instead, they frame their challenge as an impermissible variance from the allegations in the SSI. Broadly speaking, they accuse the government of proving a conspiracy of which they had no notice, i.e., a conspiracy that started earlier than that alleged in the SSI, as well as of proving separate conspiracies rather than the single conspiracy alleged in the SSI. Not surprisingly, the government disagrees with all of the defendants' arguments, as we discuss below.

"A variance occurs when the crime charged remains unaltered, but the evidence adduced at trial proves different facts than those alleged in the indictment." See United States v. Dellosantos, 649 F.3d 109, 116 (1st Cir. 2011) (quoting United States v. Mangual-Santiago, 562 F.3d 411, 421 (1st Cir. 2009)). "A variance alone, however, does not necessitate disturbing a conviction; rather, 'a variance is grounds for reversal only if it is prejudicial'" Id. (alteration omitted) (quoting Mangual-Santiago, 562 F.3d at 421). "Put differently, 'so long as the statutory violation remains the same as that alleged in the indictment, the jury can convict even if the facts are somewhat different than charged -- so long as the difference does not cause unfair prejudice.'" Id. (alteration omitted) (quoting United States v. Wihbey, 75 F.3d 761, 774 (1st Cir. 1996)). We have previously identified at least three ways in which a variance may cause unfair prejudice (also often referred to as affecting a defendant's substantial rights):

First, a defendant may receive inadequate notice of the charge against him and thus be taken by surprise at trial. Second, a defendant may be twice subject to prosecution for the same offense. Third, a defendant may be prejudiced by "evidentiary spillover": the "transference of guilt" to a defendant involved in one conspiracy from evidence incriminating defendants in another conspiracy in which the particular defendant was not involved.

Id. at 125 (quoting Wihbey, 75 F.3d at 774).

For its part, the district court concluded there was a variance from the indictment because the SSI alleged Wang possessed MNPI from three separate clinical trials at Merrimack before the company released the results of each of these trials to the public, but the government only introduced evidence related to the NAPOLI-1 study ending in 2014 described above. The district court decided (and the government agrees) this variance was not prejudicial to the defendants because the testimony at trial was consistent with the SSI allegation that the conspiracy began in November 2013 and this start date alleged in the indictment put the defendants on notice for purposes of preparing to defend against the charged offenses.

Upon de novo review, we agree with the district court. Here's why:

There is no dispute the government only focused its presentation of the evidence on one of the three Merrimack clinical trials referenced in the SSI. The evidence admitted at trial focused on the milestone dates related to the NAPOLI-1 study and the government did not make any attempt to prove Wang perpetrated securities fraud using MNPI from the other two clinical trials Merrimack was running around the same time and mentioned in the SSI.⁵ Herein lies the variance. See id. at 116 (defining a

⁵ In the SSI, the government alleged Wang had access to the data from two separate clinical trials testing cancer treatments

variance as "crime charged remains unaltered, but the evidence adduced at trial proves different facts than those alleged in the indictment" (quoting Mangual-Santiago, 562 F.3d at 421)). Moreover, as the government points out, the evidence with respect to the part of the conspiracy involving Merrimack proved a narrower conspiracy than that alleged in the SSI because the government did not opt to focus its evidentiary presentation on two of the clinical studies referred to in the SSI. The proof of a narrower conspiracy than that alleged in an indictment does not create a prejudicial variance. See United States v. Mubayyid, 658 F.3d 35, 54 (1st Cir. 2011).

The defendants argue the district court erred by concluding they were not prejudiced by the variance, contending the prejudice arises in part from the lack of notice in the SSI that they would specifically be defending against Wang's alleged misuse of the MNPI from the NAPOLI-1 study starting with what Wang had in his possession in November 2013. They also assert the

unrelated to MM-398 (the treatment tested in the NAPOLI-1 study), the results of which were announced publicly during the alleged scope of the conspiracy: (1) a phase 2 trial -- Merrimack announced the results to the public in November 2013, and (2) a phase 1 trial -- Merrimack announced the results to the public in December 2013. One of Merrimack's Vice Presidents testified at trial that Merrimack released good results from a phase 2 trial for "MM-121" on November 26, 2013, as well as favorable results from a phase 1 trial for "MM-302" on December 13, 2013. Other than this testimony and the two relevant press releases, these two treatments did not factor in to the government's evidentiary presentation to prove the charges against the defendants.

prejudicial variance allowed "otherwise inadmissible evidence of [their] banking transactions to prejudice the jury's consideration of all offenses." But we perceive no prejudice to the defendants because they clearly had adequate notice of the conspiracy with which they were charged: In more than one section, the SSI alleged a conspiracy began in November 2013 and did not limit this timeframe to one or more of the three clinical trials the SSI included in its general allegations. See Dellosantos, 649 F.3d at 125 (stating defendants may be unfairly prejudiced by variance if taken by surprise at trial due to inadequate notice of the charge against them). For this reason, too, the defendants were not deprived of the ability to challenge the admission of banking transactions that precede what they consider to be the proper start date for any misconduct in regard to the NAPOLI-1 study.

We also note that, even if we agreed with the defendants regarding the variance to the conspiracy for the securities fraud offense related to Merrimack, they have not alleged any variance from the allegations regarding the scheme as to the purchase of shares of Akebia's stock. Therefore, the conspiracy conviction would remain in place.

The defendants also argue judgments of acquittal are warranted because the SSI alleged a single conspiracy to commit securities fraud for both companies but the evidence at trial varied by supporting two separate and distinct conspiracies. We

examine a defendant's claim of variance from the specifically charged conspiracy in terms of evidentiary sufficiency. See id. at 116; United States v. Niemi, 579 F.3d 123, 127 (1st Cir. 2009) ("Whether evidence shows one or many conspiracies is a question of fact for the jury and is reviewed only for sufficiency of the evidence."). "Three factors guide our assessment of whether the evidence was sufficient to prove that a set of criminal activities constituted a single conspiracy: '(1) the existence of a common goal, (2) overlap among the activities' participants, and (3) interdependence among the participants.'" United States v. Ortiz-Islas, 829 F.3d 19, 24 (1st Cir. 2016) (alteration omitted) (quoting United States v. Paz-Alvarez, 799 F.3d 12, 30 (1st Cir. 2015)). A single conspiracy "does not require the participants to . . . [have] participate[d] in each aspect of the conspiracy." Id. at 24-25 (emphasis omitted) (quoting Dellosantos, 649 F.3d at 118).

For its part, the district court concluded these three factors were met by the evidence and there was sufficient evidence to support a single conspiracy with multiple crimes. We agree. The evidence of the defendants' common goal to profit from their employers included their individual investments in the stock of each other's employers soon after each was in possession of critical data (MNPI) about clinical trials and their specified knowledge and skills to know how the results of the trials would

affect the stock prices of each defendant's employer. This evidence points to the common goal of using confidential information from each's employer to make strategic transactions of shares of stock but using each other to execute the actual stock orders to avoid company policy violations. See id. at 25; Mangual-Santiago, 562 F.3d at 421. The overlap of the defendants' activities is demonstrated through this same evidence: Each was needed to achieve the goal of profiting from their investments in shares of both Akebia and Merrimack stock. The defendants' activities were interdependent on one another because "the activities of one aspect of the scheme [we]re necessary [and] advantageous to the success of another aspect of the scheme." Mangual-Santiago, 562 F.3d at 422 (quoting United States v. Portela, 167 F.3d 687, 695 (1st Cir. 1999)). We hold, therefore, there was sufficient evidence to prove a single conspiracy.

The defendants also argue that this purported variance resulted in spillover prejudice on the counts related to Merrimack which stemmed from the evidence presented regarding the Akebia-related charges and this prejudice -- they say -- affected their rights to a fair trial. Specifically, the defendants contend Wang's bank withdrawals and the \$84K check paid by Chan to Wang would not have been admitted had there been a separate Akebia trial

(which begs the question since no one asked for one).⁶ The government, in response to the defendants' arguments about spillover prejudice, states there was no transference of guilt to one defendant from evidence incriminating the other because there is ample evidence to support the convictions against each defendant based on their individual actions and statements in connection with the single conspiracy that was charged.

The concern we have expressed in the past about prejudice stemming from "evidentiary spillover" or guilt transference from one defendant to another can be found in cases with multiple defendants and multiple conspiracies in which one defendant allegedly may not be involved at all in one of the conspiracies, but may suffer from the evidence in support of the other defendants in those other conspiracies. See Dellosantos, 649 F.3d at 125 (vacating the defendants' convictions on the basis of a prejudicial variance resulting from both evidentiary spillover and lack of adequate notice). Here, there could be no evidentiary spillover

⁶ The defendants imply the evidence about Wang's cash withdrawals, which began in November 2013, would not have been admissible if the counts in the indictment had been severed and tried separately because the probative value would have been outweighed by the prejudicial effect. There is no indication, however, that the defendants attempted to sever the counts or have each defendant tried separately. The district court said as much when it addressed the same argument in its decision denying their motions for judgments of acquittal. As such, any musings about what might have happened if the charges or defendants had been tried separately are speculation and carry no weight with us.

because there was evidence to support the two (and only two) defendants' involvement in the offenses perpetrated in furtherance of the single charged conspiracy.

Each of the arguments the defendants made to challenge their convictions for conspiracy fails.⁷ We therefore affirm the district court's decision to deny the defendants' motions for judgments of acquittal on Count One.

Securities Fraud Convictions

Now that we've explained our affirmance of the defendants' conspiracy convictions, we move on to discuss their evidentiary sufficiency challenge to their §§ 78j(b) and 78ff(a)

⁷ The defendants also state a couple of claims in a summary fashion, without any attempt to develop the arguments. For example, they say the district court failed to instruct the jury on the specific start and end date of the conspiracy and this created further prejudice from the claimed variance. The defendants did not raise this concern with the district court and do not tell us either how they were prejudiced by this supposed error or where our case law says this matters. The argument is therefore waived. See Rodríguez, 659 F.3d at 175.

The defendants also assert, for the first time in their brief, that a constructive amendment to the SSI occurred at trial because the government presented evidence of a conspiracy with respect to the results from the NAPOLI-1 study beginning in November 2013. A constructive amendment differs in focus from a prejudicial variance, see United States v. Valdés-Ayala, 900 F.3d 20, 36-37 (1st Cir. 2018), and while the defendants define the concept and mention it a couple of times, they do not provide any argument or case law about how the evidence the government presented at trial constituted a constructive amendment from the SSI (as opposed to their arguments with respect to the variance). Merely stating this issue without any developed argument is insufficient to warrant our exploration of the claim here. See Holloway, 845 F.3d at 491 n.4.

securities fraud convictions. To complete our review, we "consider[] all the evidence, direct and circumstantial, in the light most favorable to the prosecution, draw[] all reasonable inferences consistent with the verdict, and avoid[] credibility judgments, to determine whether a rational jury could have found the defendant[s] guilty beyond a reasonable doubt." United States v. Negrón-Sostre, 790 F.3d 295, 307 (1st Cir. 2015) (quoting United States v. Agosto-Vega, 617 F.3d 541, 548 (1st Cir. 2010)). As a reminder, both defendants were convicted of securities fraud for Chan's trades in Merrimack stock and Wang's trades in Akebia stock. Chan was also convicted of securities fraud for his own trades in Akebia's stock.

The defendants generally focus their arguments about these three counts on the absence of enough evidence presented at trial to prove they possessed MNPI about the relevant clinical trials at their respective companies close in time to the records of communication between them and their securities-trading activities. Indeed, this is where the timeline of events and specific dates we summarized many pages ago really comes into play: The defendants insist too much time passed between

- the dates associated with the evidence about possession of MNPI at the time of the trades in Akebia's and Merrimack's securities,
- the dates they allegedly had access to MNPI,
- the dates of communication between them, and
- the dates of their trading activities

for a jury to conclude they were guilty beyond a reasonable doubt of securities fraud.

As we mentioned at the beginning of this discussion, there are two theories of insider trading, classical and misappropriation, both of which are at play with the defendants' convictions here. "Under the 'traditional' or 'classical theory' of insider trading liability, § 10(b) and Rule 10b-5 are violated when a corporate insider trades in the securities of his corporation on the basis of material, nonpublic information." United States v. McPhail, 831 F.3d 1, 10 n.4 (1st Cir. 2016) (quoting United States v. O'Hagan, 521 U.S. 642, 651-52 (1997)). Under a misappropriation theory of securities fraud, the government has to prove the defendants committed "fraud 'in connection with' a securities transaction, . . . [by] misappropriat[ing] confidential information for securities trading purposes, in breach of a duty owed to the source of the information." United States v. Larrabee, 240 F.3d 18, 21 (1st Cir. 2001) (quoting O'Hagan, 521 U.S. at 652-53). "[I]ndividuals entrusted with confidential information about a corporation cannot 'secretly use such information for their personal advantage,' even when they do not owe any direct fiduciary duty to that corporation or its shareholders." Bray, 853 F.3d at 25 (quoting Salman, 137 S. Ct. at 423).

When evaluating whether a tipper derived a personal benefit from his or her tip, we "focus on objective criteria, i.e., whether the insider receives a direct or indirect personal benefit from the disclosure, such as a pecuniary gain or a reputational benefit that will translate into future earnings." However, a personal benefit can "often" be inferred where "a relationship between the [tipper] and the recipient . . . suggests a quid pro quo from the latter, or an intention to benefit the particular recipient."

Id. at 26 (alterations in original) (citation omitted) (quoting Dirks v. S.E.C., 463 U.S. 646, 663-64 (1983)).

Chan's Merrimack Trades Using MNPI from Wang

Here's what the evidence at trial, considered in the light most favorable to the prosecution, tells us about the defendants' activities leading up to Chan's trades in shares of Merrimack stock. Bruce Belanger, a biostatistician and head of Biometry at Merrimack, worked with Wang from 2011-2016 and was his manager. Belanger testified Wang received raw data from the NAPOLI-1 study every month from the fall of 2013 through April 2014 even though the biometrics team would only officially analyze the data when it was final at the end of the study. According to Belanger, Wang would have used this monthly data drop to develop the ultimate statistical computer program; a program their team would use to process the final results from the study. Belanger was not aware of any other data sets Wang might have used to test

the program Wang was developing for the analysis of the final results.

The government's investigation into Chan's trading activity revealed Chan traded frequently in shares of Merrimack stock from August 2013 through April 2014. Chan's largest purchase of shares, however, occurred on April 21, 2014, two days after the biometrics team (which included Wang) received the last of the raw data, analyzed it, and celebrated the good results with champagne. Chan also placed an order to buy shares on April 28, 2014, again before the good results of the study went public on May 1.

The government's investigation also revealed Wang withdrew chunks of cash from one of his bank accounts, in \$4,000 to \$7,000 increments, eight times between November 2013 and March 2014. Between December 2013 and March 2014, Chan made cash and check deposits into one of his bank accounts in \$10,000 to \$19,800 increments. In this same time period, Chan bought shares of Merrimack stock twenty times using a few different brokerage accounts.

This summary of the evidence is enough to drive our analysis about whether there was enough to support the defendants' convictions on this count of securities fraud. As the parties know well, we have previously listed and applied six factors to guide our examination of whether there was sufficient evidence to support a conviction for securities fraud under the

misappropriation theory: "(1) access to information; (2) relationship between the tipper and the tippee; (3) timing of contact between the tipper and the tippee; (4) timing of the trades; (5) pattern of the trades; and (6) attempts to conceal either the trades or the relationship between the tipper and the tippee." Larrabee, 240 F.3d at 21-22.

During oral argument, the defendants stated each Larrabee factor identified above should be given "equal consideration" and each factor is weaker in their case than when considered against the facts in Larrabee. In Larrabee, the evidence at trial showed the defendant called his stockbroker and instructed a purchase of shares one minute after receiving an email from an individual with MNPI at the company in whose stock the defendant was investing. Id. at 20. We held there was sufficient evidence to support Larrabee's conviction. Id. at 24-25. Chan and Wang assert the reasonable doubt as to their culpability lays in the days which passed between their supposed receipt of the MNPI, the communication between them, and the purchase of shares of either the Akebia or Merrimack stock. In their view, our holding in Larrabee should preclude affirming their convictions for securities fraud related to Chan's trades in Merrimack stock because the evidence admitted at trial was "too far attenuated" from the timing of the activities in Larrabee. The defendants urge us to declare the facts in Larrabee to be the "absolute

limit[]" of the applicability of circumstantial evidence to the time between obtaining MNPI and the alleged use of it to trade in securities. We decline to do so.

When we examine the evidence in this case, we find each of the six Larrabee factors is in fact met, especially given the uphill climb the defendants have when moving for a judgment of acquittal because we examine the evidence in the light most favorable to the prosecution. See Negrón-Sostre, 790 F.3d at 307.

First, Wang clearly had access to MNPI for the NAPOLI-1 study; his response to the initial FINRA request reflected he had MNPI on April 19, 2014. In addition, Belanger testified Wang would have used raw monthly data while Wang developed the analysis program. The final statistical analysis plan (SAP) for the NAPOLI-1 study, admitted as an exhibit at trial, is clear that access to the data would be "strictly controlled by the Merrimack biometrics team"; limited to "authorized personnel for specified data review." And since Wang was a member of the biometrics team, the jury could have reasonably concluded he was one of the authorized individuals for data review, especially in combination with his manager's testimony. The raw data did not hide whether any given patient was receiving the treatment being tested in the NAPOLI-1 study; it is therefore reasonable to infer Wang could have used the monthly raw data drop to run some preliminary analysis to gauge how the treatment fared on the study's subjects in addition to

testing the statistical analysis program he was responsible for developing. Regardless of what Wang did or did not do with the monthly data from November 2013 until April 2014, there is no dispute he was in possession of the final raw data on April 19, 2014 (as Wang himself provided this date to Merrimack's general counsel in an email),⁸ and the results of the NAPOLI-1 study were not disclosed to the public until May 1, 2014.⁹

⁸ Remember, Chan bought Merrimack stock on April 21 and 28, 2014.

⁹ We pause for a quick aside to address a discussion that came up not stochastically during oral argument. While the defendants in their papers do not develop any argument about whether the data Wang received was material, non-public information, there was extensive discussion at oral argument about whether the data Wang received actually contained any information that could have given anyone an edge in deciding whether and when to trade in Merrimack stock.

Information is material "if there is 'a substantial likelihood that a reasonable shareholder would consider it important in deciding how to vote.'" S.E.C. v. Hupp, 392 F.3d 12, 21 (1st Cir. 2004) (quoting TSC Indus., Inc. v. Northway, Inc., 426 U.S. 438, 449 (1976)). Materiality is a fact-specific inquiry, asking whether the information at issue "would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available." Id. at 21 (quoting Basic Inc. v. Levinson, 485 U.S. 224, 231-32 (1988)). The final data from the NAPOLI-1 study was material because the execution of the SAP revealed results that Wang and the members of the biometrics team celebrated with champagne the day they analyzed the data to get the results. Moreover, these results had a positive impact on Merrimack stock. A representative from FINRA testified at trial that the day after the NAPOLI-1 study results were announced to the public, the stock price jumped up 59 percent and the volume of trading activity jumped 2,841 percent. Therefore, we (and the jury) can reasonably infer that knowledge of the good results from this study were important to investors' trading decisions and "significantly altered" the information available about Merrimack stock. Id.

We move on to Larrabee factors 2-5 and examine the defendants' relationship, the timing of their communication, and the timing and pattern of trading activities together. 240 F.3d at 21-22. Wang and Chan had a well-established relationship: The evidence clearly shows that they knew each other for years as friends and colleagues working in similar professional positions in the same industry. They communicated frequently, walking or eating together at lunch time. Chan frequently traded in Merrimack shares at a time Wang had valuable information about one of the clinical trials at the company, placing his largest order for shares (32,522 shares as opposed to the usual 2,000-10,000 shares) two days after Wang processed the data of the NAPOLI-1 study and got good results -- more than a week before those results went public.

To be sure, the timeframe of all the defendants' relevant activities is indeed much wider than in Larrabee, where the defendant called his stockbroker one minute after receiving an email with MNPI. Id. at 20. But the timing of their communication and the timing and pattern of their stock trades are only three of the factors we consider. We move on to the sixth factor.

Testimony from one of the FBI agents who initially interviewed Wang provides support for Wang's "attempts to conceal either the trades or the relationship between the tipper and the tippee." Id. at 22. In one of Wang's interviews with the FBI, he

was vague about whether he knew Chan worked at Akebia and he initially denied giving any loans to Chan before admitting he had loaned \$10,000 to Chan for a real estate transaction in Texas. Wang also told the FBI Chan had paid him back in cash but Chan both told the FBI and testified at trial that he had paid Wang back with a check, and the check Chan gave Wang for \$84K was admitted as an exhibit at trial.

Moreover, a few months after Merrimack released the NAPOLI-1 study results to the public, Wang denied recognizing Chan's name on the list of Merrimack shareholders he was asked to review as part of the FINRA inquiry. Wang did not respond to the initial inquiry from Merrimack's general counsel until Merrimack's general counsel followed up with him a couple of weeks later. Chan appeared on the list as "Chan, Schultz." When a special agent from the FBI interviewed Wang in June 2016, Wang stated he did not know Chan's official first name. Chan's colleagues apparently knew him as Jason; the emails entered as exhibits at trial and the testimony from Chan's former colleagues indicate as much. But, the check Chan gave to Wang for \$84K had "Schultz Chan" as the account holder, so it strains credulity (a reasonable jury could have found) to suggest Wang never knew Chan's official first name.

To borrow an image we used in Larrabee, there are dozens of pieces to the puzzle of whether the evidence presented in this case will, "[w]hen assembled, . . . create a picture that supports

the inference" the defendants committed securities fraud. Id. at 24. While we are missing a few pieces, such as the words on a screen or a transcript of a phone call where Wang told Chan to purchase shares in Merrimack, the evidence indicating Wang had MNPI about the NAPOLI-1 study from November 2013 through April 2014 and Chan's frequent purchases of shares of Merrimack stock during this same time period, coupled with the evidence of bank activity -- the withdrawals and deposits and transfers -- fit neatly together, particularly when that puzzle is being assembled on a table with explicit instructions to construe the evidence in the light most favorable to the prosecution. As we have mentioned already, Chan placed his largest order of Merrimack shares two days after Wang received the final data for the NAPOLI-1 study for analysis. Even though the puzzle is missing a few pieces, the big picture allowed a reasonable jury to conclude each defendant was guilty beyond a reasonable doubt of securities fraud, as charged in Count Two.

Wang's Akebia Trades Using MNPI from Chan

We trudge ahead to the next count of conviction for securities fraud. Here's what we know from the evidence at trial about Chan's possession of MNPI related to the "11 study" and Wang's subsequent trades in shares of Akebia's stock: In Chan's first week in his new job at Akebia, there were a flurry of emails between Akebia's clinical research group members and a couple of

outside consultants because the final data from the "11 study" was ready for analysis and needed to be analyzed quickly so they could provide some preliminary or "top-line" results to Akebia's executives. On August 17, 2015, Chan's first day, his manager sent him information about the treatment tested in the "11 study" and the next day his manager started including him on the group emails discussing the final "11 study" data.

On August 19, Chan told some co-workers he would be working on the data at home that evening because Akebia did not yet have the software he wanted for some of the statistical analysis and he could use his own computer to complete these calculations. That evening, Philippe Carriere, one of the members of the clinical research group, sent an email to the others with good news -- the data did not reveal a concerning number of adverse health events for patients, meaning unexpected negative side effects. On August 21 and August 24, the clinical research group exchanged additional emails and attachments with data analysis from the "11 study."

The evidence at trial also showed Chan and Wang exchanged a series of text messages between August 24 and August 28 (content unknown) and Wang purchased shares in Akebia's stock sixteen times between August 28 and September 4. On September 8, Akebia issued a press release, announcing positive results from the "11 study."

On November 6, 2015, Akebia's in-house attorneys asked Akebia's employees to examine a list of names sent by FINRA and to complete a form indicating if and how they knew any of the individuals on the list. Chan replied to the email with a completed form indicating he knew no one on the list. Wang's name was on the list, but as "Wang, Songjiang" instead of "Wang, Sam" which is how Chan knew him. Records of the defendants' text messages show an exchange of text messages that same day, in which Chan asked Wang whether he was working in his office that day.

Overall, there is sufficient evidence here too to paint a complete picture using each of the six Larrabee factors. While Chan denies he had MNPI before August 21, there is ample evidence he had access to MNPI about the "11 study" from the day he began his employment at Akebia when his new work team was in the throes of needing to turn around results from the study quickly. Chan and Wang's relationship and routine communications we've already canvassed above. In addition, the government presented evidence of frequent text messages in the days leading up to Wang's series of purchases of shares of Akebia stock. The trading activity began within 10 days of Chan's receipt of MNPI and ended before the results from the "11 study" were announced publicly on September 8. The activities related to Wang's purchase of Akebia shares are much closer in time to one another than with the count related to the trading activity of Merrimack stock. Similar to Wang's denial

of recognition of Chan's names on the FINRA list Wang was asked to review in 2014, Chan denied recognizing Wang's name on the list FINRA sent to Akebia in November 2015.

Viewing all the evidence in the light most favorable to the government, a reasonable jury could certainly conclude the defendants engaged in securities fraud when Wang bought the shares of Akebia stock in August and September 2015. We affirm the defendants' convictions in Count Three and move on to the last count of conviction.

Chan's Own Akebia Trades

We don't need to tell you much more about the evidence presented at trial to paint the picture of Chan's trading activity in shares of Akebia's stock. Most of the events described in the preceding section are relevant to this count, which was only charged against Chan.

In addition to the events explained above, on August 19, 2015, less than two hours after Carriere's email telling the clinical research group the "11 study" had not yielded any concerning patient safety results, Chan bought shares of Akebia stock. Chan also bought shares of Akebia stock on August 21. When Chan testified at trial, he denied having MNPI when he made the purchases of Akebia stock, claiming he first received MNPI on August 21, after placing the orders for shares of Akebia stock.

After reviewing the testimony and documents admitted at trial, there is more than enough evidence to allow a reasonable jury to conclude Chan traded in Akebia stock using MNPI to which he had access from the day he started working at Akebia.¹⁰ See McPhail, 831 F.3d at 10 n.4 (defining inside trading under the classical theory). We therefore affirm his conviction for securities fraud related to his own trading activity in Akebia stock.

Now that we have affirmed the district court's denial of the defendants' motions for judgments of acquittal on each count of conviction, we turn to the remaining issues: The denial of their motion to compel a letter FINRA sent to the SEC, Chan's adjusted base offense level for sentencing, and an award of restitution given to Akebia.

C. FINRA Referral Letter

Long before the trial started, the defendants filed a motion to compel the government to turn over a referral letter FINRA sent to the SEC about purchases of Akebia stock before the

¹⁰ The defendants also mention (Fed. R. Crim. P.) Rule 33 two times in their brief -- once in their statement of the issues and once when they provide the standard of review for Rule 33 motions for new trial. Their motion at the end of the trial indeed included a motion for new trial and the district court denied their motion. The defendants have not attempted to develop any argument specific to their denied motion for new trial, so, to the extent they were trying to challenge that denial, we deem the issue waived. See Valdés-Ayala, 900 F.3d at 33 n.14.

results of the "11 study" became public. The defendants asserted they were entitled to this letter pursuant to Federal Rule of Criminal Procedure 16 and Brady v. Maryland, 373 U.S. 83 (1963). The government opposed the motion, asserting the defendants were not entitled to the letter because the government had already provided them with all of the documents attached to the letter and the text of the letter itself did not provide any additional or exculpatory information but simply "summarized FINRA's findings and its suspicions concerning trading by the defendants and others -- or evidence concerning trading by other individuals FINRA investigated who were not targets of the government's investigation and have no connection to the charged conspiracy." At a hearing on the motion, the defendants explained their suspicion that the letter "drove the investigation in a direction that perhaps it shouldn't have, or it may have driven the prosecution itself based on what we believe is false information."

The district court denied the motion, finding the government had provided the supporting documentation to the FINRA referral letter in question to the defendants already. The district court concluded the actual letter was both immaterial to the preparation of their defense and irrelevant because the SEC and U.S. Attorney's Office had independently investigated the concerns raised by FINRA. Moreover, the district court reasoned that even if the defendants were correct with their theory FINRA

passed incorrect information on to the SEC, the only relevant issue after the grand jury indicted the defendants was whether the government could prove the charges beyond a reasonable doubt.

Before us, the defendants imply that the way in which the FBI conducted its investigation into the defendants' activities reveals the FBI relied on FINRA material withheld from the defendants but provided to the grand jury, so the FINRA document or documents constitute "Brady material" to which the defendants were entitled. The government, for its part, maintains its position that the defendants are not entitled to the FINRA letter because the government provided the defendants with all of the documentary attachments to the letter and the letter itself did not provide any additional or exculpatory information.

We usually review the denial of a motion to compel discovery for abuse of discretion. United States v. Flete-Garcia, 925 F.3d 17, 33 (1st Cir. 2019). But here the defendants have simply stated the issue along with some conjecture about what the FBI, the grand jury, and FINRA may have relied upon during their investigations. The defendants have not provided any argument about how the district court abused its discretion when it denied the defendants' pre-trial motion to compel. As we've stated already, we generally consider undeveloped arguments to be waived. Valdés-Ayala, 900 F.3d at 33 n.14; Rodríguez, 659 F.3d at 175. As a result, the defendants have not given us any reason to conclude

the district court abused its discretion when it denied their motion to compel.

We move on to Chan's claim of error related to his sentence.

D. Sentencing

Adjusted Base Offense Level

The district court calculated a guidelines sentencing range (GSR) of 63-78 months' incarceration but sentenced Chan to a below-guidelines term of 36 months' imprisonment.¹¹ Chan did not object to the base offense level of 8 the district court assigned but did challenge the way in which the district court calculated his gain from the offenses. On appeal, Chan renews his objection to the district court's adjustment of his base offense level on the basis that it used the wrong method to calculate his financial gain from his trades in Akebia and Merrimack stock.¹² We review

¹¹ During Chan's sentencing hearing, the district court commented the GSR had been largely driven by the loss calculation, which, as will be soon described, is actually a calculation of the financial gain to the defendant. See U.S.S.G. § 2B1.4(b). The district court briefly discussed its belief that Chan had not committed his crimes out of antisocial or greedy actions but had tried to help friends and family, without the actual gain to himself that the final calculation implied. The court concluded that, in this case, the dollar sum calculated was, in its totality, a "poor measure."

¹² To construe this issue on appeal as a challenge to the district court's calculation is generous considering Chan's "argument" on this issue in his brief is simply a whole cloth cut-and-paste from the sentencing memorandum he filed in the district court prior to sentencing.

preserved challenges to the loss calculation during the sentencing phase de novo. United States v. Mayendía-Blanco, 905 F.3d 26, 34 (1st Cir. 2018).

U.S.S.G. § 2B1.4 applies to insider trading offenses. Paragraph (a) prescribes a base offense level of 8. Paragraph (b) identifies the "[s]pecific [o]ffense [c]haracteristics" used to potentially adjust the base offense level floor:

- (1) If the gain resulting from the offense exceeded \$6,500, increase by the number of levels from the table in § 2B1.1 . . . corresponding to that amount.
- (2) If the offense involved an organized scheme to engage in insider trading and the offense level determined above is less than level 14, increase to level 14.

Section 2B1.4(b). As the background to the statutory section explains, the "gain, i.e., the total increase in value realized through trading in securities by the defendant and persons acting in concert with the defendant or to whom the defendant provided inside information, is employed instead of the victims' losses." Section 2B1.4(b) cmt. background. The table in § 2B1.1(b)(1) instructs the district court to increase the offense by 14 if the loss is more than \$550,000 and by 16 if the loss is more than \$1,500,000.

Chan urged the district court to calculate the gain to him from trading in Akebia's and Merrimack's shares either at the point in time he sold them or the shares' values at the time of

the sentencing hearing. Instead, the district court determined "the gain [to Chan] resulting from the offense" by using the value of the stocks the day after the results from the clinical studies became public, in part because this calculation would reflect the loss to the stakeholders from the sale of their shares to the defendants.¹³ In this way, the district court tried to capture the value of the MNPI to which the defendants had the advantage of knowing and using; that is, the change in the value of the stock between the date of the defendants' purchases of shares and the date when everyone had the same information about the clinical studies' results. The district court did not include the value of shares purchased before the evidence at trial clearly showed the defendants had possession of MNPI.¹⁴ The district court's final gain calculation was \$1,542,051.79. Even though this dollar figure meant the district court should have added 16 to the offense level pursuant to § 2B1.1(b)(1), it chose to add 14.

¹³ During the sentencing hearing, the district court also found paragraph (b)(2) in the specific offense characteristics of § 2B1.4 applied to Chan, instructing an automatic increase "to level 14" "[i]f the offense involved an organized scheme to engage in insider trading and the offense level determined above is less than level 14." Chan would not concede this paragraph applied and the district court calculated the loss, or in this case, the gain to Chan resulting from his offense.

¹⁴ The district court also excluded Wang's own purchases of Merrimack stock, which was neither a point of focus during the trial or included as one of the charges.

While our circuit has not yet examined the proper method of calculating the gain to determine the value realized by the inside trader, three of our sister circuits have weighed in. The Second Circuit said the gain is "reasonably determined by reference to the market price once the inside information has been revealed, not the profit (or loss) realized by the tippee, whose hold decisions may be informed by various factors." United States v. Riley, 638 F. App'x 56, 65 (2d Cir. 2016). And in United States v. Nacchio, the Tenth Circuit took a deep dive into considering how the loss calculation for an insider trading conviction should be determined.¹⁵ 573 F.3d 1062 (10th Cir. 2009). The court agreed with that defendant's proposed approach to adopt, in part, the method courts employ in determining damages and disgorgement in civil insider trading enforcement cases. Id. at 1078. As the Tenth Circuit quoted, "[i]n [a civil] insider trading case, the proper amount of disgorgement is generally the difference between the value of the shares when the insider sold them while in possession of the material, nonpublic information, and their market value 'a reasonable time after public dissemination of the

¹⁵ The Tenth Circuit used the 2000 version of the Guidelines but noted §§ 2F1.1 and 2F1.2 had been consolidated with §§ 2B1.1 and 2B1.4, and § 2B1.4 "contain[ed] the same language as former § 2F1.2 regarding gain . . . relevant to [its] analysis." Nacchio, 573 F.3d at 1066 n.5; see also United States v. Burdi, 414 F.3d 216, 218 n.2 (1st Cir. 2005) (acknowledging § 2F1.1's deletion and consolidation with § 2B1.1).

inside information.'" Id. at 1078 (second alteration in original) (quoting S.E.C. v. Happ, 392 F.3d 12, 31 (1st Cir. 2004)). This is precisely the approach used by the district court in this case.

Chan argues that we should instead adopt the Eighth Circuit's approach, which understands gains to be "the total profit actually made from a defendant's illegal securities transactions." United States v. Mooney, 425 F.3d 1093, 1100 (8th Cir. 2005) (en banc). The Second Circuit rejected this very approach in Nacchio, 573 F.3d at 1072, and we do the same today. While Chan argues that the district court's approach fails to distinguish between "bargain seekers" like himself and "profit seekers" and results in sentencing based on an "arbitrary value determined by the sentencing court," Chan's proposed approach and that of the Eighth Circuit would mean that sentences would reflect market fluctuations unrelated to the offense of insider trading, such that co-conspirators could receive differing sentences even when they committed the same crime. See id. at 1086 (finding that it "contravenes important objectives of federal sentencing" to allow the extent of punishment to be imposed "on the throw of the dice -- the ups and downs of the stock market" (quoting Mooney, 425 F.3d at 1108 n.12 (Bright, J., dissenting))).

Nor does the text of the official commentary to U.S.S.G. § 2B1.4 convince us that the district court's approach was wrong. The Eighth Circuit relied on the plain meaning of that text in

endorsing a gains calculation based on the profit received through sale, explaining that "realized," both in common parlance and in the tax context, see Cottage Savings Ass'n v. Comm'r, 499 U.S. 554, 559 (1991) (holding that "to realize a gain or loss in the value of property, the taxpayer must engage in a 'sale or other disposition of [the] property,'" (alteration in original) (quoting Treas. Reg. § 1001(a))), refers to conversion into actual money. Id. at 1100. But, we find the relevant provision of the tax code, which states that "[t]he amount realized from the sale or other disposition of property shall be the sum of any money received" Treas. Reg. § 1001(a), to be distinguishable from the "total increase in value realized through trading in securities," U.S.S.G. § 2B1.4, cmt. background. The tax code explicitly calculates "amount realized" from the sale, whereas there is no reference to stock sales in the Guidelines -- "trading in securities" refers only to the offense itself. Moreover, we find "value realized" to be distinguishable from "amount realized." Compare Amount Realized, Black's Law Dictionary (11th ed. 2019) ("The amount received by a taxpayer for the sale or exchange of an asset"), with Value, Black's Law Dictionary (11th ed. 2019) ("1. The significance, desirability, or utility of something 2. The monetary worth or price of something") (emphasis added)).

Because we do not read the Guidelines commentary to preclude the district court's approach and we agree that "the civil disgorgement remedy provides an appropriate guidepost for sentencing in insider trading cases," Nacchio, 573 F.3d at 1086, we find no error in the district court's approach. Therefore, we affirm Chan's sentence.

Restitution

During the sentencing phase of this case, the government asked the district court to order \$312,899.22 in restitution to Akebia pursuant to the Mandatory Victims Restitution Act (MVRA), 18 U.S.C. § 3663A.¹⁶ The request was primarily to reimburse the expenses Akebia incurred throughout the government's investigation and prosecution of the defendants for representation by the law firm Ropes & Gray LLP, but also included fees from a couple of contract attorney firms. The district court ultimately ordered the defendants to pay \$170,476.36 in restitution to Akebia, with Wang on the hook for 10% of the award, or \$17,047.64, and Chan responsible for 90%, or \$153,428.72.

According to the defendants, this amount is excessive because, as we understand their argument, Akebia has included

¹⁶ This was in fact a revised request after the district court concluded the details of Akebia's first request for restitution improperly included some categories of expenses and asked the government to resubmit the request for restitution on Akebia's behalf.

categories of tasks and expenses that should have been deemed outside the permissible scope of the MVRA.¹⁷ The government responds that the restitution order was neither excessive nor unreasonable because the district court reviewed each item of Akebia's request before determining Akebia was entitled to approximately half of the total amount requested.

We examine restitution orders for abuse of discretion, reviewing the relevant factual findings for clear error. United States v. Naphaeng, 906 F.3d 173, 179 (1st Cir. 2018) (citing United States v. Chiaradio, 684 F.3d 265, 283 (1st Cir. 2012)).

The MVRA provides victims of crimes with reimbursement for various types of losses and expenses. Relevant to the defendants' convictions, this statute says the district court must award restitution to a victim of an offense against property, including offenses committed by fraud, § 3663A(c)(1)(A)(ii), for "necessary child care, transportation, and other expenses incurred

¹⁷ The defendants invite us to review each item in Akebia's request for restitution but we decline to do so given our deferential standard of review. We also note that, similar to the section of the defendants' brief challenging the district court's calculation for determining the appropriate adjustment to the base offense level in the preceding section of this opinion, the defendants have simply pasted paragraphs cut from their objections and responses to the restitution requests filed with the district court and used this material as their appellate argument. As a result, it is difficult to determine precisely how, in the defendants' minds, the district court erred with the determination of the award because their prose is written in response to the government and Akebia's submissions to the district court during the restitution proceedings.

during participation in the investigation or prosecution of the offense or attendance at proceedings related to the offense," § 3663A(b)(4).

Our court has said that "expenses qualifying for restitution are not unlimited, . . . [but] will pass muster if they would not have been incurred in the absence of the offense, were not too attenuated in fact or time from the crime, . . . and were reasonably foreseeable." United States v. Janosko, 642 F.3d 40, 42 (1st Cir. 2011) (internal quotation marks and citations omitted). The Supreme Court's recent decision in Lagos v. United States, though addressing the context of a victim undertaking its own private investigation and so not directly relevant here, also sharpened the focus on the word "necessary" in § 3663A(b)(4). 138 S. Ct. 1684, 1687-88, 1690 (2018); see also In re Akebia Therapeutics, Inc., No. 19-1929, ___ F.3d ___ (our opinion, also issued today, with a deeper examination of Janosko and Lagos, denying Akebia's challenge to the restitution order).

The district court understood the defendants' objection to Akebia's request for restitution to be centered on their assertion that the expenses Akebia claimed for reimbursement were neither necessary nor reasonable. The district court concluded that its evaluation of the expenses submitted for reimbursement needed to focus on whether the expenses were necessary as well as

foreseeable. It concluded attorney's fees would be awarded only when they were necessary expenses.

Ultimately, our task is to consider "whether the district court has made 'a reasonable determination of appropriate restitution by resolving uncertainties with a view towards achieving fairness to the victim,'" including "whether the restitution award has 'a rational basis in the record.'" United States v. González-Calderón, 920 F.3d 83, 85 (1st Cir. 2019) (first quoting United States v. Alphas, 785 F.3d 775, 787 (1st Cir. 2015), then quoting United States v. Salas-Fernández, 620 F.3d 45, 48 (1st Cir. 2010)). The defendants have not given us any reason to conclude the district court erred in any respect with its restitution order.¹⁸ After reviewing the district court's reasoning, we conclude there was no abuse of its broad discretion to determine which expenses in this case claimed were necessary, foreseeable, and just.

¹⁸ Akebia has also challenged the restitution order through a petition for writ of mandamus filed with this court, asking us to vacate the order and reconsider some of the categories of expenses the district court disallowed. See In re Akebia Therapeutics, Inc., No. 19-1929, ___ F.3d ___. Akebia's challenge to the restitution order is much more thorough and we address those arguments in a separate opinion, issued today, affirming the order.

CONCLUSION

To wrap this all up, we affirm Chan's and Wang's convictions, Chan's term of incarceration, and the order of restitution awarding Akebia \$170,476.36.