PRECEDENTIAL

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

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Nos. 21-2227 & 21-2228

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UNITED STATES OF AMERICA,
Appellant in No. 21-2227

v.

YU XUE, a/k/a JOYCE

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UNITED STATES OF AMERICA,
Appellant in No. 21-2228

v.

TAO LI

_____

On Appeals from the United States District Court
for the Eastern District of Pennsylvania
(D.C. Nos. 2:16-cr-00022-001 & 2:16-cr-00022-002)
District Judge: Honorable Joel H. Slomsky

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Argued: June 8, 2022

Before: CHAGARES, Chief Judge, AMBRO and FUENTES, Circuit Judges

(Opinion filed: August 2, 2022)

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OPINION OF THE COURT

CHAGARES, Chief Judge.

Defendant Yu Xue was formerly a scientist at pharmaceutical company GlaxoSmithKline ("GSK"). While still employed at GSK, Xue formed a pharmaceutical company with defendant Tao Li and others and proceeded to steal a number of GSK documents containing trade secrets. Xue and Li each pled guilty to a single count of conspiracy to steal trade secrets, in violation of 18 U.S.C. § 1832(a)(5). The Government, at sentencing, requested that the District Court apply an enhancement under the United States Sentencing Guidelines (the "Guidelines" or "U.S.S.G.") based on the "loss" attributable to the defendants' conduct. While it is undisputed that GSK did not suffer an actual monetary loss as a result of the trade secret theft, under the commentary to U.S.S.G. § 2B1.1, the definition of "loss" also includes losses that the defendants intended. The District Court, however, declined to apply an enhancement based on the intended loss amount, finding that the Government failed to establish the defendants purposely sought to inflict a pecuniary harm on the victim, GSK.

The Government appeals and challenges the District Court's decision not to apply the enhancement. Because we conclude that the District Court did not err in interpreting the Guidelines or in its factual findings, we will affirm.

I.

Until Xue's arrest in 2016, she was a scientist employed by GSK at its research facility in Upper Merion, Pennsylvania. GSK is a global pharmaceutical company that researches and develops vaccines, medicines, and consumer healthcare products. While Xue was still a GSK employee, she formed a pharmaceutical company in China called Renopharma with Li and others. Xue stole approximately 200 GSK documents, some of which contained trade secrets, and sent them to her co-conspirators for the benefit of Renopharma. The stolen documents concerned pharmaceutical products under development, research data, and development and manufacturing processes. At the time of the defendants' arrests, Renopharma had neither made a profit nor developed or sold any products using GSK's information.

The defendants were charged in a superseding indictment alleging that they engaged in a scheme to steal trade secrets from GSK. Pursuant to plea agreements with the Government, both Xue and Li pled guilty to a single count of conspiracy to steal trade secrets, in violation of 18 U.S.C. § 1832(a)(5). The plea agreements specifically provided that there was "no agreement between the parties as to fraud loss under the Sentencing Guidelines" and that "the Court will determine the fraud loss . . . prior to imposing a sentence." Appendix ("App.") 102, 198.

After accepting the defendants' guilty pleas, the District Court held a three-day evidentiary hearing to determine the "loss" amount attributable to the defendants' conduct under the

Guidelines. We set forth a summary below of the evidence introduced at the hearing.[1]

The Government's appeal focuses on three categories of stolen information related to HER3 monoclonal antibodies, GSK development platforms, and specific GSK products under development. While at GSK, Xue researched a monoclonal antibody known as HER3, which was intended to treat certain forms of cancer.[2] Some documents created by Renopharma also discussed HER3 products. According to the Government, one of those documents showed that the defendants deleted references to GSK and replaced them with references to Renopharma. The defendants maintain, however, that they never intended to develop a HER3 product.

The next type of stolen information concerned three GSK platforms. A platform is a set of standardized procedures

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[1] The Government called five witnesses: (1) FBI Special Agent Andrew Haugen; (2) Dr. Joseph Tarnowski, Senior Vice President of GSK; (3) Dr. Joseph Villafranca, a scientific expert; (4) Dr. Chester Meyers, a second scientific expert; and (5) Dana Trexler, an economic expert. The defendants called two witnesses: (1) Dr. Jeffrey Field, a scientific expert; and (2) Dr. David Blackburn, an economic expert. The court also received a number of documents as exhibits during the evidentiary hearing, including documents stolen from GSK, emails and documents prepared by the defendants, and expert reports on the amount of loss and nature of the trade secrets.

[2] Monoclonal antibodies are proteins that are made in a laboratory and used to treat "a variety of serious diseases, including cancer, asthma, autoimmune disorders, and Alzheimer's disease." Gov't Br. 8–9.

used by GSK to develop monoclonal antibodies and other products. GSK invested substantial time and money in developing the platforms. According to the Government, the platforms could help Renopharma develop and manufacture its own monoclonal antibodies and reduce the cost of doing so. And Renopharma could benefit from the platforms even if it did not seek to develop the same products as GSK.

Lastly, the stolen documents contained information on approximately twelve GSK products under development. This included Investigational New Drug Applications, which are non-public documents submitted to the United States Food and Drug Administration in order to initiate clinical trials and that contain detailed information on product design and testing.

The parties press widely different views regarding the importance and nature of the information taken from GSK. The Government asserts that Renopharma pursued various strategies involving GSK's information, such as marketing products and soliciting investments using the information.

The defendants' scientific expert, however, testified that he did not see evidence of Renopharma using the GSK information to research or develop any competing products. The defendants further point to Renopharma's annual report and Li's post-arrest statement as evidence that Renopharma was developing products different from GSK's targets. Regarding the nature of the stolen information, the defendants' scientific expert testified that much of it was publicly available through well-known scientific textbooks or GSK's patent applications.

The parties also disputed the value of the stolen information for purposes of calculating the intended loss. The Government's economic expert witness asserted that the intended loss amount exceeded $1 billion. The defendants, conversely, argued that it should be $0.

On September 22, 2020, the District Court issued an opinion finding that the Government failed to establish that the defendants purposely sought to inflict a loss on the victim, GSK. It therefore found the intended loss amount to be $0 and declined to apply an enhancement under § 2B1.1 of the Guidelines. The court found in the alternative that even if the Government had established that the defendants intended to harm GSK, the defendants had sufficiently rebutted the Government's proposed valuation.

The District Court subsequently determined that Xue's Guidelines range, without the enhancement, was 12 to 18 months of imprisonment. Xue was ultimately given a sentence of 8 months of imprisonment. With respect to Li, the court determined that the Guidelines range was 10 to 16 months, and it imposed a sentence of time served, or 59 days of imprisonment.[3] The Government timely appealed the District Court's sentencing determinations.

[3] The Government's intended loss calculation, if adopted by the District Court, would have resulted in a Guidelines range of life imprisonment for each of the defendants. The Government ultimately requested the court to impose the maximum sentences permitted under the defendants' plea agreements, which were terms of imprisonment of ten years for Xue and seven years for Li.

II.

The District Court had jurisdiction under 18 U.S.C. § 3231, and we have appellate jurisdiction under 28 U.S.C. § 1291 and 18 U.S.C. § 3742(b). We exercise plenary review over a district court's interpretation of the Sentencing Guidelines and review its factual determinations for clear error. United States v. Kirschner, 995 F.3d 327, 333 (3d Cir. 2021).

III.

The Government argues that the District Court, in declining to apply a sentencing enhancement based on the intended loss amount, committed a procedural error by failing to calculate the value of the stolen trade secrets. The Government further contends that the District Court failed to consider properly the nature of offenses involving the theft of trade secrets and their treatment under the Guidelines. We first set forth below the legal principles relevant to applying the Guidelines enhancement at issue and then consider the defendants' arguments in light of those principles.

A.

For offenses involving fraud or theft, § 2B1.1 of the advisory Guidelines provides for an offense level enhancement based on the value of the "loss" attributable to the defendant's conduct. The defendant's base offense level, which is used to calculate a recommended range of imprisonment, increases as the loss resulting from the offense increases. See U.S.S.G. § 2B1.1(b)(1). The maximum increase is a 30-level enhancement for conduct resulting in a loss exceeding $550 million. Id. The Government bears the burden of establishing

the amount of loss under § 2B1.1 by a preponderance of the evidence. United States v. Free, 839 F.3d 308, 319 (3d Cir. 2016); accord United States v. Diallo, 710 F.3d 147, 151 (3d Cir. 2013). But the Guidelines do not mandate that a district court find a loss amount of greater than $0. Free, 839 F.3d at 323 ("We agree with the proposition that the government is not entitled to a punitive loss calculation, even in cases involving fraud, absent evidence of actual or intended pecuniary loss.").

The Guidelines' commentary details how a district court should calculate the amount of loss. U.S.S.G. § 2B1.1 cmt. n.3. The general rule defines "loss" as "the greater of actual loss or intended loss." Id. at cmt. n.3(A).[4] There is no dispute that GSK's actual loss here was $0. The District Court was therefore required to calculate the intended loss, which the application note defines, in the pertinent part, as "the pecuniary harm that the defendant purposely sought to inflict . . . ." Id. at cmt. n.3(A)(ii). The commentary makes clear that "pecuniary

[4] Principles of administrative law inform "[t]he extent to which the guidelines' commentary controls our interpretation of the guidelines." United States v. Nasir, 17 F.4th 459, 469 (3d Cir. 2021) (en banc). Discussing these principles in light of Kisor v. Wilkie, —— U.S. ——, 139 S. Ct. 2400 (2019), we noted commentary that "expanded and did not merely interpret" the Guidelines may not be entitled to deference. Nasir, 17 F.4th at 470–71. We have previously suggested that the commentary to U.S.S.G. § 2B1.1 defining intended loss might sweep more broadly than the Guideline itself but declined to address the issue. See Kirschner, 995 F.3d at 333. Because neither the Government nor the defendants argue that the commentary to U.S.S.G. § 2B1.1 defining intended loss should not apply, we will similarly not address the issue.

harm" includes only "harm that is monetary or that otherwise is readily measurable in money," and not "non-economic harm." Id. at cmt. n.3(A)(iii). In calculating the amount of loss, a district court "need only make a reasonable estimate of the loss," and on appeal, we must give its analysis "appropriate deference." Id. at cmt. n.3(C) (citing 18 U.S.C. §§ 3742(e), (f)). The commentary sets forth six factors that the court, "as appropriate and practicable under the circumstances," should use in calculating the intended loss amount. Id. Two of those factors are relevant here: the fair market value of the information taken and the cost of developing the information. Id. at cmt. n.3(C)(i)–(ii).

We recently reaffirmed that a district court is required to "conduct a 'deeper analysis' before inferring that a defendant intended to cause a particular loss" for purposes of § 2B1.1. Kirschner, 995 F.3d at 337; see also Diallo, 710 F.3d at 151–52. This requirement applies to "any loss methodology the government elects to adopt." Kirschner, 995 F.3d at 337. Our decision in United States v. Kirschner illustrates this deeper analysis. The district court in Kirschner calculated the amount of the loss from the defendant's intended sales of counterfeit coins. Id. at 331–32. The vast majority of the intended loss amount was based on the fair market value of six types of rare coins. Id. The Government's intended-loss calculation, adopted by the district court, multiplied the estimated fair market value of these rare coins by the historical markdown at which the defendant sold other more common counterfeit coins. Id. We vacated the sentence because the district court "never found that [the defendant] intended to sell the coins as counterfeits for the prices the government claimed." Id. at 335. In reaffirming that a district court must perform a "deeper analysis," we noted that the Government

had not presented evidence that the defendant was aware of the value of the rare coins or would actually be able to sell them in a manner similar to his past sales of much more common coins. Id. at 336 ("And again, the principal question is not whether [the defendant] could have sold the high-value counterfeits at the prices claimed by the government. The question is whether he intended to.").

B.

The District Court interpreted the Guidelines' "definition of intended loss [to] include[] the mens rea requirement that the defendant 'purposefully sought to inflict' pecuniary harm on the victim." App. 972 (quoting U.S.S.G. § 2B1.1 cmt. n.3(A)(ii)). Because the government failed to make this showing, and instead, "attempted to prove only the development cost of the stolen information and its fair market value," the District Court declined to apply an enhancement under § 2B1.1. App. 942.

The Government suggests that the District Court was required "to calculate the loss, based on either development costs or [the defendants'] intended gain." App. 29.[5] By failing to do so, the Government asserts that the court committed a procedural error. We disagree and conclude that it properly

[5] The defendants briefly claim that the Government "waived" any argument that it satisfied the "purposely sought to inflict pecuniary harm standard." Def's Br. 39 (quotation marks omitted). This "waiver" argument amounts to a bare conclusion, and we therefore will consider the Government's argument on appeal.

interpreted the Guidelines' commentary defining intended loss.

The plain language of the commentary to § 2B1.1 limits the definition of intended loss to "the pecuniary harm that the defendant purposely sought to inflict." U.S.S.G. § 2B1.1 cmt. n.3(A)(ii). The District Court's task was therefore to determine whether the defendants purposely sought to inflict a loss on the victim in the amount claimed by the government. Kirschner, 995 F.3d at 336–37 (noting that a district court fails to perform a "deeper analysis" if "it adopts an intended-loss methodology without demonstrating that the defendant's 'purpose' was to inflict the losses the government claims he intended to inflict"); see also United States v. Yeaman, 194 F.3d 442, 460 (3d Cir. 1999) ("Intended loss refers to the defendant's subjective expectation, not to the risk of loss to which he may have exposed his victims."). By arguing that the District Court erred in failing to value the trade secrets, the Government presupposes that the defendants intended to inflict losses on GSK equal to the cost of developing the trade secrets or their fair market value. The District Court found that the Government failed to establish that the defendants had the purpose to inflict a pecuniary loss on GSK, and accordingly, we hold that the court did not err in declining to value the trade secrets.

Although the defendant in Kirschner challenged the valuation methodology used to calculate the amount of loss, we explained that in conducting a "deeper analysis," a district court must also find that the defendant had the required mental state to apply an enhancement based on intended loss. See 995 F.3d at 337 ("[A] district court must conduct a 'deeper analysis' to make sure the defendant purposely sought to inflict

each component of the losses the government claims he intended to inflict."). The record must support a finding that the defendant's purpose was to inflict a pecuniary loss on the victim to apply this enhancement. Id. at 337–38. And as we explained in Kirschner, direct evidence of the defendant's mental state is not required; a district court "is free to make reasonable inferences about the defendant's mental state from the available facts." Id. at 337.

Only one other Court of Appeals' decision has addressed the application of U.S.S.G. § 2B1.1 and the analysis for intended loss in the theft of trade secrets context: United States v. Yihao Pu, 814 F.3d 818 (7th Cir. 2016). The defendant in Pu worked at two high-frequency trading firms and stole files from those firms' proprietary trading algorithms. Id. at 821–22. After the defendant pled guilty to offenses involving the theft of trade secrets, the District Court found that the defendant's intended loss amount was the cost to develop the high frequency trading algorithms. Id. at 822–23. The Court of Appeals for the Seventh Circuit disagreed. While recognizing that the Guidelines' commentary permits a district court to estimate intended loss in a trade secret case by considering the cost of development, the court noted that this alone does not establish that the cost of development is the correct loss figure absent evidence of the defendant's intent to cause such a loss. See id. at 826. It identified the core issue as "whether the record supports a finding that it was more likely than not that [the defendant] intended to cause a loss to the victims that equaled the cost of development." Id. Because there was no evidence that the defendant intended to inflict a loss on the victim equal to the cost to develop the stolen trade secrets, the court vacated the defendant's sentence. Id. at 826–27.

We agree with the framework set forth by the Court of Appeals for the Seventh Circuit in Pu.[6] The commentary to § 2B1.1 defining intended loss directs a district court to estimate loss based on considerations such as the cost of developing the trade secrets and the fair market value of the information. U.S.S.G. § 2B1.1 cmt. n.3(C). But absent evidence of a defendant's purpose to inflict a pecuniary loss equal to the stolen information's cost of development or its fair market value, a district court cannot find that intended loss equals these amounts.

We conclude that the District Court did not err by declining to value the stolen trade secrets where the Government failed to establish that the defendants had the required mental state for the enhancement based on intended loss.

C.

The Government next raises a variety of challenges to the District Court's intended-loss analysis, arguing that it incorrectly considered the nature of offenses involving the theft of trade secrets and their treatment under the Guidelines.

The Government first asserts that trade secrets have "independent economic value" that, when stolen, deprive the owner of its exclusive ability to control the information, diminish the comparative value of its investment, and

[6] The Government attempts to distinguish Pu on the ground that the defendant's conduct in that case was factually dissimilar to that of Xue and Li. But the Government offers no persuasive reason as to why the legal framework in Pu is incorrect.

demonstrate to others that it is unable to protect trade secrets. Gov't Br. 32–33. While the fact that the object of the theft is a trade secret may factor into the analysis, we disagree that the District Court erred by failing to account for the trade secrets' "independent economic value." What counts under the Guidelines' commentary is loss in the form of pecuniary harm. See U.S.S.G. § 2B1.1 cmt. n.3(a)(iii) (defining "pecuniary harm"); see also Free, 839 F.3d at 321. Harms such as loss of exclusive control of trade secrets or publicity regarding a company's inability to protect trade secrets, without more, do not constitute "pecuniary harm." And contrary to the Government's assertion that the "theft of a trade secret by a would-be competitor necessarily exposes the victim to market losses such as lost profits, lost royalties, or diminished share price," Gov't Br. 34, a potential for pecuniary harm standing alone likewise does not establish an intended loss, see Diallo, 710 F.3d at 153 (noting that a district court errs when it equates "potential loss and intended loss without deeper analysis" (cleaned up)).

The Government relatedly argues that if there is no finding of loss in this case, then an enhancement based on intended loss would never apply in offenses involving the theft of trade secrets.[7] The Government's contention is better understood as a disagreement with the District Court over the proper inferences to be drawn from the record. While the

[7] At oral argument, the defendants disputed this point and suggested hypothetical cases that might raise the inference that an individual who steals trade secrets also intends to inflict a pecuniary harm on the victim, such as publishing the trade secrets on the internet for others to copy or using the secrets to compete directly against the victim.

Government maintains that the defendants intended to develop drugs based on the GSK information or to use the information to solicit investment, as discussed below, the District Court did not clearly err in finding that the record failed to support such an inference.

The Government next argues that proof of the defendants' intent to gain from the theft of trade secrets establishes that the defendants intended to inflict a pecuniary harm on GSK. Gov't Br. 34.[8] The District Court, however, considered evidence of how the defendants used, and intended to use, the stolen information and found that the record did not support an inference of an intent to inflict a pecuniary harm on GSK. This finding was not clearly erroneous.

While the defendants took information for the benefit of their pharmaceutical company, the District Court found that the defendants did not in fact use the trade secrets to compete with GSK. It found that the defendants did not use the information to solicit investment, develop competing products, or develop the same products that GSK was developing. The District Court, for example, found that the "financial statements" used for soliciting investment in Renopharma were mere puffery and not credible evidence of a realistic expectation of gain. App. 981–82. It further noted that an email sent by Li to solicit

[8] The commentary to § 2B1.1, relatedly, provides that "[t]he court shall use the gain that resulted from the offense as an alternative measure of loss only if there is a loss but it reasonably cannot be determined." U.S.S.G. § 2B1.1 cmt. n.3(B). But we do not see how this provision could apply here absent evidence that the defendants experienced any gains resulting from their Renopharma scheme.

investment in Renopharma "did not show that it was more likely than not that [the] Defendants were shopping a GSK-developed product, rather than their own, independent creation, or simply engaging in puffery to solicit investment, which appears to have been Renopharma's modus operandi." App. 983. We see no clear error in the District Court declining to infer intended loss from evidence of the defendants' intended gain.[9]

The Government finally argues that the defendants admitted during their plea allocutions that they acted with the required mental state for applying the enhancement based on the intended loss. Both Xue and Li pled guilty to a single count of conspiracy to steal trade secrets, in violation of 18 U.S.C. § 1832(a)(5). This statute, in the relevant part, prohibits an individual who, "with intent to convert a trade secret . . . to the economic benefit of anyone other than the owner thereof, and intending or knowing that the offense will, injure any owner of

[9] To the extent the District Court suggested that in the context of theft of trade secrets a defendant's intended gain can never further an inference of intended loss, we disagree with this suggestion. An inference of intent, for purposes of the intended loss analysis, may be based on the defendant's conduct and purpose in committing the offense. See Kirschner, 995 F.3d at 337 ("In conducting [the deeper] analysis, the court is free to make reasonable inferences about the defendant's mental state from the available facts."); cf. United States v. Feldman, 338 F.3d 212, 223 (3d Cir. 2003) (identifying that a district court "must look at what [the defendant] sought to gain from committing the crime" as part of the intended loss analysis). This disagreement, however, does not alter the result herein.

that secret, knowingly . . . conspires" to steal trade secrets. 18 U.S.C. § 1832(a)(5) (emphasis added).

The Government's argument fails to account for important differences between the elements of the offense and the required mental state for purposes of the analysis for intended loss. A defendant who intends or knows that his or her conduct will injure the owner of the trade secret does not necessarily intend to inflict pecuniary harm on that secret's owner. Cf. Pu, 814 F.3d at 828 ("The statute of conviction, 18 U.S.C. § 1832, does not explicitly require an economic loss to the victim."). The Government itself identifies examples of potential non-pecuniary injuries that result from the theft of trade secrets, such as loss of the exclusive use of the information and the possible public disclosure that a company cannot protect the information. A second element of the offense, "inten[ding] to convert a trade secret . . . to the economic benefit of anyone other than the owner thereof," 18 U.S.C. § 1832(a), likewise does not establish an intent to inflict pecuniary harm on GSK. The District Court, as explained above, did not credit the Government's theories that Renopharma was developing competing products or soliciting investment based on the GSK information. We conclude that the District Court did not clearly err in finding that the defendants' plea allocutions failed to establish the required intent for purposes of the intended loss analysis.

IV.

For the foregoing reasons, we will affirm the judgments of the District Court.