UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

SECURITIES AND EXCHANGE COMMISSION,

          Plaintiff,

    v.

RIPPLE LABS INC., BRADLEY
GARLINGHOUSE, and CHRISTIAN A.
LARSEN,

          Defendants.

Case No. 20-CV-10832 (AT) (SN)

**DEFENDANTS' REPLY MEMORANDUM OF LAW IN SUPPORT OF THEIR
MOTION TO EXCLUDE THE TESTIMONY OF ███████ PH.D.**

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INTRODUCTION

The SEC's Opposition to Defendants' Motion To Exclude the Testimony of ███████ ███, ECF No. 593 ("Opposition" or ("Opp."), effectively asks the Court to abdicate its gatekeeping responsibilities. The SEC barely addresses Defendants' arguments that prove ████ event study was methodologically unsound and why all of his opinions derived from that event study must be excluded. Instead, the SEC offers evasive platitudes: event study methodology is well-established, *see* Opp. at 6-7; the serious errors Defendants identify merely go to "weight," *id.* at 5, 13; and excluding █████ opinions is unnecessary because, among other things, the Court can decide "at trial[]" whether ████ may offer certain opinions, *id.* at 13-14.

Daubert requires trial courts to "exclude unreliable expert testimony and junk science from the courtroom," even when the testimony of the expert is relevant. *Chen-Oster v. Goldman, Sachs & Co.*, 325 F.R.D. 55, 69 (S.D.N.Y. 2018) (Torres, J.); *see id.* ("A wolf in sheep's clothing is still a wolf."). While a lay jury may weigh an expert opinion that is reliable, the court must first find the opinion "rests on a reliable foundation." *Amorgianos v. Nat'l R.R. Passenger Corp.*, 303 F.3d 256, 265 (2d Cir. 2002).

Defendants established that █████ event study methodology is so deeply flawed that any opinion based on that methodology must be excluded. *First*, an event study cannot reliably identify any statistically significant correlations between public disclosures and asset prices in an *inefficient market*. Nothing in the Opposition saves ████ from the consequences of applying event study methodology to the market for XRP, which he admits is *inefficient*. *Second*, exclusion is required when an expert ignores significant facts and data that undermine his opinion. █████ relied on data involving actions by *third parties* reported on Ripple's website and ignored data involving more than 80% of Ripple's actions, because it did not support his (and the SEC's) preferred conclusion. *Third*, ████ claims that his event study proved that Ripple's actions *caused* XRP price increases,

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even though he admits that "[c]ausation is not a question which is generally subject to proof as a matter of economics." ECF No. 598-7 ("███ Tr.") 242:9-12. *Finally*, an expert's opinion must be stricken when it is untethered to any reliable methodology. ███ invented a methodology specially for this litigation to quantify by how much "Ripple actions" inflated the price of XRP. *See* ECF No. 598-14 ("███ Suppl. Rep.") ¶¶ 9, 16 (fig. 3). But ███ novel methodology is unsupported by any academic literature. Even more troubling, it is based on the results of 20 different regression models that contradict one another as to which specific days Ripple's actions supposedly "inflated" the price of XRP.

The SEC argues the Court should nevertheless allow the jury to consider ███ opinions, insisting it was *Defendants'* burden to run "their own event study," Opp. at 7, or "offer[] . . . models" to demonstrate how including different data would "change the results or improve ███ analysis," *id*. at 11 n.7. But that is not the law. It is the SEC's burden to prove that ███ methodology is reliable. *See United States v. Williams*, 506 F.3d 151, 160 (2d Cir. 2007). The SEC has not done so, and cannot do so, and ███ opinions therefore must be excluded.

ARGUMENT

I.   ███ Event Study Is Unreliable Because The Market For XRP Is Inefficient

Statistical tools (like event studies) can be reliably employed only in specific circumstances. Here, ███ uses an event study that may yield reliable correlations in efficient markets but does not in inefficient markets. As ███ admitted, the market for XRP is not efficient.[1] Defendants presented case law and academic papers that uniformly conclude that an event study cannot reliably identify any statistically significant correlations between public disclosures and

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[1] *See* ECF No. 598-15 ("███ Rep.") ¶ 35 ("Academic researchers have found that the digital token markets, including the XRP market, are generally less informationally efficient than the stock market, though there is evidence that efficiency is increasing over time."); ███ Tr. 93:18-94:3 (admitting that "the XRP digital token market was likely not semi-strong efficient").

asset prices in an inefficient market. *See* ECF No. 546 (Mot. to Exclude ████████ ("Mot.") at 3-6.

The SEC (at 6-9) offers three arguments in response. *First*, it argues (at 7) that "[n]either Marais nor Fischel [Defendants' experts] performed their own event study of Ripple news and XRP's price." But Defendants argue that *no expert* can properly use an event study to find reliable correlations between public disclosures and asset prices in an inefficient market. Defendants' experts explained why ████ event study methodology is unsupportable and flawed, and why these errors undermine his opinions. Mot. at 5 n.6, 6 n.7, 13-14. The SEC's argument that the Court should disregard ████ errors because Defendants' experts did not replicate them is nonsensical and wrong as a matter of law. *See Scott v. Chipotle Mexican Grill, Inc.*, 315 F.R.D. 33, 51 (S.D.N.Y. 2016) ("a rebuttal witness . . . [i]s under no obligation to create models or methods of his own").

Second, the SEC claims (at 6-7) that ████ conducted a "standard event study." Defendants do not claim that ████ used a non-standard or untested methodology in his Opening Report (that is the error in his Supplemental Report, discussed below); they argue that he improperly applied a "standard" event study to an inefficient market, where it does not yield reliable results. *See* Mot. at 3-6. Moreover, the academic studies that ████ claims approve of his methodology do no such thing.[2]

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[2] The SEC argues that the paper by Mohammad Hashemi Joo, Yuka Nishikawa, and Krishnan Dandapani, *Announcement effects in the cryptocurrency market*, 52 Applied Econ. 4794 (2020), endorses ████ methodology. Not so. It demonstrates that the digital asset markets are inefficient. *See id.* at 4807 (arbitrage opportunities in cryptocurrency markets are "not possible in a market where the current prices reflect all publicly available information"). This paper did not— as ████ does—attempt to correlate specific events to particular changes in asset prices.

Third, the SEC cites various sources (at 7-9) that it claims establish that an event study is not used only in efficient markets. The SEC cites only cases in which event studies were used to prove that markets are efficient[3] and cases that applied event studies to securities traded over national exchanges—quintessential efficient markets.[4] The SEC also relies on an article that does not discuss market efficiency at all and two Supreme Court cases that observe that market efficiency is a matter of degree.[5] None of these sources supports the SEC's argument that an expert may reliably conduct an event study in an inefficient market. Nor could they—no such literature exists. "The theoretical basis for event study analysis is the semi-strong version of the Efficient Markets Hypothesis." Alan J. Cox & Jonathan Portes, *Mergers in Regulated Industries: The Uses and Abuses of Event Studies*, 14 J. Regulatory Econ. 281, 282 (1998) (Ex. H to the Second Decl. of Kylie C. Kim); *see also* Mot. at 4-6 (collecting academic support).

In contrast, Defendants cited (Mot. at 3-6) cases in which courts, including the Second Circuit, recognize that the use of event studies in inefficient markets cannot reliably identify correlations between specific events and asset prices. In *7 West 57th Street Realty Co. v. Citigroup, Inc.*, for example, the Second Circuit described why the district court could not infer that an event *caused* a decrease in the price of certain bonds: the "opacity and illiquidity" meant that the court could not rely on traditional "economic tools" like "event studies." 771 F. App'x 498, 503-04 (2d Cir. 2019). The SEC tries (at 8) to label this statement as *dicta*, but that is incorrect: the Second Circuit's holding held that the district court correctly dismissed the plaintiff's RICO claim for

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[3] *See Carpenters Pension Tr. Fund of St. Louis v. Barclays PLC*, 310 F.R.D. 69, 80 (S.D.N.Y. 2015).

[4] *See In re Pfizer Inc. Sec. Litig.*, 819 F.3d 642, 648 (2d Cir. 2016); *In re Vivendi, S.A. Sec. Litig.*, 838 F.3d 223, 253 (2d Cir. 2016).

[5] *See* A. Craig MacKinlay, *Event Studies in Economics and Finance*, 35 J. Econ. Literature 13 (1997); *Haliburton Co. v. Erica P. John Fund, Inc.*, 573 U.S. 258 (2014); *Basic, Inc. v. Levinson*, 485 U.S. 224 (1988).

failure to allege proximate causation, because the inability to use event studies in an inefficient market meant there was no way the plaintiff could prove the necessary causal link. The SEC's suggestion (at 8) that Defendants' other cases are "inapposite" because they are fraud-on-the-market reliance or class-certification cases ignores that market efficiency was a central issue in those cases. They hold that an efficient market is a prerequisite to establishing that a specific event is reliably correlated with asset price movement—reasoning that is hardly "inapposite."[6]

The SEC also argues (at 7) that "event studies are not predicated on semi-strong market efficiency" (capitalization omitted). But, as the SEC argued *to this Court* in another case, "a necessary part of any proper event study is making a determination that the [asset] at issue trades in an efficient market . . . . An efficiency determination is a prerequisite to conducting the event study." Pl.'s Memo. of Law in Supp. of its Consolidated Mot. To Exclude the Test. of Defs.' Expert Witnesses at 55, *SEC v. Rio Tinto PLC*, No. 1:17-cv-07994-AT-DCF, ECF No. 227 (S.D.N.Y. Apr. 12, 2021).

The SEC argues (at 9) that ▆▆▆▆ remedied these problems by performing so-called "robustness" checks that involved longer event windows. But the SEC cites no authority suggesting that using a longer event window (of three or seven days) remedies the problem that,

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[6] The reason courts require proof of an efficient market as a precondition to establishing fraud-on-the-market reliance is because only "an informationally efficient market rapidly and efficiently translates public information into the security's price." *FindWhat Inv. Grp. v. FindWhat.com*, 658 F.3d 1282, 1310-11 (11th Cir. 2011); *accord Ark. Teachers Ret. Sys. v. Goldman Sachs Grp., Inc.*, 879 F.3d 474, 483-84 (2d Cir. 2018) (noting that, if "shares did not trade in an efficient market," that "'sever[s] the link' between the misrepresentation and the market price," and "the presumption [of investor reliance] collapse[s]"); *see also In re Genesisintermedia, Inc. Sec. Litig.*, 2007 WL 1953475, at *13 n.12 (C.D. Cal. June 28, 2007) (if reliance is presumed "in the absence of an efficient market, virtually every purchaser of securities would be entitled to a presumption of reliance"). Without proof that the market for XRP "rapidly and efficiently translates" public information into XRP's price, ▆▆▆▆ could not reliably opine that "Ripple actions" are correlated with XRP price changes. *See FindWhat*, 658 F.3d at 1310.

in an inefficient market, it is unknown whether, or how quickly, an asset price incorporates information. In fact, the authorities cited by the SEC suggest that using longer event windows introduces *greater* unreliability. *See In re Sec. Cap. Assurance, Ltd. Sec. Litig.*, 729 F. Supp. 2d 569, 600 n.5 (S.D.N.Y. 2010) ("long event windows may include noise and information from other events, making it difficult to isolate the impact of the relevant event").

II. ███ Improperly Excluded Relevant Data That Undermined His Opinion

As Defendants explained in their opening brief (Mot. at 6-10), ███ claims he elected to use the event study methodology to determine whether "Ripple actions" had an effect on XRP's price. But ███ *ignored* 80% of the relevant "Ripple actions" he identified because they "just [did]n't seem like the sort of thing that would move prices." ███ Tr. 85:24-86:19, 128:20-129:15. ███ also *included* actions by *third parties* that he claims affected XRP.

The SEC argues (at 10-11) that ███ exercised reasonable discretion in selecting his data. But the SEC cites no cases where a court has ever admitted expert testimony when the expert ignored a supermajority of relevant data because the expert found it insufficiently "interesting." *See* ███ Tr. 130:23-131:10. Nor do the SEC's cases support admitting opinion testimony where the expert provides no rationale to exclude data other than it supports a litigant's position.

███ also ignored any information his regression models generated that identified a significant correlation between "Ripple news" and *negative* XRP price returns. His opinion that there is a statistically significant correlation between Ripple news and *positive* XRP price returns is therefore both unsurprising and unreliable: ███ excluded news that he did not think would affect XRP prices, news that he expected to be negative, and days where news was actually correlated with negative price XRP returns. He disregarded this data because, as the SEC admits (at 12), it would have "compromised the ability of ███ event study to show the relationship between Ripple news and XRP's price"—*i.e.*, undermined the result the SEC wanted.

No case law supports the exclusion of data that undermines an expert's preferred conclusion, and rightly so. To the contrary, the law is clear that an expert who "ignore[s] a large amount of information that calls many aspects of [a party's] . . . theory into question" and "discusse[s] only the evidence that [he] believe[s] would advance [that party's] position . . . cannot be said to reflect 'the same level of intellectual rigor that characterizes the practice of an expert in the relevant field'" and should be excluded. *In re Rezulin Prods. Liab. Litig.*, 369 F. Supp. 2d 398, 425-26 (S.D.N.Y. 2005).[7]

As to █████ improper inclusion of third-party actions, the SEC's response (at 11-12) is to blame Defendants for "provid[ing] no assurances that Ripple was uninvolved in the decisions of these third parties to begin using XRP." But *Daubert* does not require Defendants to "provide assurances" about anything; the SEC must prove that its expert testimony is reliable. The SEC's speculation that Ripple *might* have been involved does not establish reliability or provide a basis to avoid exclusion. *See Amorgianos*, 303 F.3d at 270 (exclusion is appropriate where there is a "significant 'analytical gap' between [an] expert['s] opinions and the studies on which [he] relied in reaching [his] conclusions").

III.   █████ Cannot Reliably Offer An Opinion On Causation

Defendants also demonstrated (Mot. at 11 & n.11) that █████ opinion that "XRP prices react to news about Ripple's actions," █████ Rep. ¶ 12, expressed in its various iterations, is an improper opinion about *causation* that must be excluded. As █████ himself admits, "[c]ausation is not a question which is generally subject to proof as a matter of economics." █████ Tr. 242:5-12.

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[7] Indeed, in another currently litigated, digital asset enforcement case, the SEC moved to exclude the testimony of an expert whose event study ignored "77% of the announcements" (a *smaller* fraction than █████ ignored). Pl.'s Mem. of Law in Supp. of its Daubert Mot. To Exclude the Ops. and Test. of Boris Richard at 15, *SEC v. LBRY, Inc.*, No. 21-cv-00260-PB, ECF No. 83-1 (D.N.H. July 18, 2022).

The SEC offers three unpersuasive responses. *First*, it argues (at 13) that event studies can prove causation. In doing so, the SEC disregards not only ▉▉ testimony, but fails to grasp the distinction between correlation and causation. The SEC cites cases addressing the relevance of event studies in efficient markets, in which a statistically significant *correlation* between events and asset prices may be *prima facie* evidence *supporting an inference* of causation. As explained above, the XRP market was inefficient, so no such inference exists. *Second*, the SEC argues (at 13) that ▉▉ never offers an opinion about causation. That is demonstrably false. *See, e.g.*, ▉▉ Rep. ¶ 75 ("From an economic perspective, one explanation is that news of the event *causes* the XRP price response." (emphasis added)); ▉▉ Tr. 250:6-251:5 ("I'm comfortable in offering the opinion that in my opinion, the evidence indicates that the news is *causing* the price." (emphasis added)).[8] *Third*, the SEC then admits (at 13) that ▉▉ made "statements regarding causation," but observes that "most" (*i.e.*, not all) of those statements "were made during his depositions." The SEC then suggests (at 13) the Court should defer ruling on the admissibility of ▉▉ opinions until he offers that testimony "at trial."

Daubert motions seek the exclusion of an expert's *opinions*, not the exclusion of a Rule 26(a)(2)(B) *report*. In any event, ▉▉ also offered causal opinions in his report. *See supra* note 8 & accompanying text. Most importantly, the SEC's argument improperly suggests (with no explanation and no supporting authority) that the time to address an unreliable expert opinion is at trial. That is not and should not be the law.

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[8] *See also, e.g.*, ▉▉ Rep. ¶ 12 ("XRP prices **react to** certain news . . . about Ripple's actions."); *id.* ¶ 65 ("[T]here is statistically significant evidence that the price of XRP **reacts to** news of Ripple's actions."); *id.* ¶ 76 ("If the XRP market looks to Ripple Labs to create value, then . . . certain corporate developments would **impact** XRP prices."); *see also id.* ¶¶ 9, 10; ▉▉ Suppl. Rep. ¶ 7 ("XRP prices **reacted to** certain news and public statements related to Ripple") (emphasis added in all cases); *see also id.* ¶¶ 17, 19. Both "react to" and "impact" are synonyms for "cause." *Compare, e.g.*, React, *American Heritage Dictionary* 1463 (5th ed. 2011) ("To act in response to"), *with* Impact, *id.* at 880 ("The effect . . . of one . . . thing on another").

██████ opinions must be excluded because he "equat[es]" the "simple statistical correlation" his event study identifies "to a causal relation" between Ripple actions and XRP price increases. *See Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997). In doing so, he "fail[s] to exercise the degree of care that a statistician would use in his scientific work, outside of the context of litigation." *Id.*; *see also* Mot. at 11-12 (listing cases that excluded an expert for attempting to draw causation conclusions from correlations).

IV.   ██████ Calculation Of The Price Impact Caused By Ripple's Actions Is Unreliable

The methodology ██████ uses in his supplemental report to calculate the but-for price of XRP is rank "junk science" masquerading as "expert" testimony. *Amorgianos*, 303 F.3d at 267; *see* Mot. at 12-15. ██████ claims he devised a novel methodology to quantify the price impact of approximately 20 days on which Ripple actions inflated XRP's price. But all ██████ did was to substitute the "abnormal" *positive* XRP returns correlated with an ever-changing combination of 20 different Ripple events with the lower price returns predicted by his various models on those days.[9] *See* ██████ Suppl. Rep. ¶ 12. ██████ then disingenuously reached the opinion that, "but for" approximately 20 "Ripple news" days, the market price of XRP would rarely have exceeded $0.02. *Id.* ¶ 9. This is a meaningless arithmetic exercise in which ██████ replaced large XRP price returns with smaller ones and concluded this was the amount by which Ripple's actions inflated the price of XRP. The Opposition provides no basis to find that this methodology has any foundation in law, scientific practice, or common sense.

The SEC suggests (at 14) that ██████ employed a "standard method of constructing counterfactual prices in securities fraud cases," citing two articles. Neither article supports ██████ methodology. In the first, the authors estimated the impact of a misrepresentation on a stock's

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[9] ██████ 20 models identified different sets of "newsworthy" days and predicted different XRP price returns.

price over time. The authors estimated the amount of price inflation correlated to the misrepresentation, and added that fixed dollar amount of inflation to prices on subsequent days. *See* Allen Ferrell & Atanu Saha, *The Loss Causation Requirement for Rule 10b-5 Causes of Action: The Implication of Dura Pharmaceuticals, Inc. v. Broudo*, 63 Bus. Law. 163, 185 (2007). In contrast, ██████ adjusted the inflation amount on a daily basis, based on the actual returns on days that did not involve Ripple news.[10] The second article similarly used *actual* price inflation for modeling damages, which is not what ████ did.[11]

████████ wholly unsupported methodology yields arbitrary results: it would equally support an opinion that Wednesdays (rather than Ripple news days) caused most of XRP's price increase. Mot. at 14-15. The SEC offers no defense to this argument, other than to speculate (at 14) that two of the days (some of) ██████ models found significant were Wednesdays, which *might* undermine Defendants' criticism. But that speculation underscores why ██████ methodology is unreliable: arbitrary data can be applied to his model and still yield the same result. Any opinion based on such a methodology cannot be presented to a jury.

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[10] An example is illustrative: if Ferrell found the actual price of stock X on a Monday (an event day) was $100, but should have been $70, he concludes the inflation was $30. On Tuesday (a non-event day), if the price of stock X moves to $200, Ferrell again subtracts the same *constant* $30 of inflation—yielding a conclusion that, but for the inflation, the stock price would have been $170. ██████ on the other hand, would say that, if on Monday the price of XRP was $100 but should have been $70, on Tuesday when the price of XRP doubled, the but-for price is $140. ██████ final "inflation" in this example would be $60 compared to Ferrell's $30, even though both analyses use the same underlying prices and returns.

[11] David Tabak and Chudozie Okongwu calculated the effect of a corrective disclosure on the price of a stock at some time in the *past* instead of the future. *See* David Tabak & Chudozie Okongwu, *Inflation Methodologies in Securities Fraud Cases: Theory and Practice* at 2 (NERA Working Paper July 2002). The paper discusses three methods of backcasting: constant dollar inflation (subtracting the same dollar amount of inflation from every prior price), constant percentage (subtracting the same percentage inflation from every prior price), and constant true value (used only in hypotheticals). *Id.* at 2, 8-10. All three are distinct from ██████ methodology.

Defendants proved (Mot. at 14) that ██████ supplemental report uses data generated by regression models that produce wildly inconsistent results. Specifically: ██████ 20 models do not agree as to which approximately 20 days Ripple's actions inflated XRP's price, and do not agree— as to any Ripple action—whether that action caused an increase or decrease. It is entirely irrational to form an opinion on cumulative price impact based on a methodology that does not identify the *specific days* a price impact occurred or whether the impact increased or decreased the price.

Without offering any support, the SEC suggests (at 15) that ██████ use of 20 mutually contradictory models was a more "conservative" approach than using just one reliable model— ironic and irrelevant. Models that "produce directionally inconsistent results a substantial portion of the time . . . indicate a lack of reliability," especially where, as here, an expert does not and cannot explain why these models would not yield similar results. *In re LIBOR-Based Fin. Instruments Antitrust Litig.*, 299 F. Supp. 3d 430, 476-78 (S.D.N.Y. 2018).

CONCLUSION

For the reasons above, the Court should exclude ██████ opinions derived directly or indirectly from his flawed event study, in their entirety.

Date: August 30, 2022

Respectfully submitted,

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