

Exhibit 36

**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.

20 Civ. 10832 (AT)

SUPPLEMENTAL REPORT OF DANIEL R. FISCHER

May 13, 2022

I. INTRODUCTION, ASSIGNMENT, AND SUMMARY OF CONCLUSIONS

1. On October 4, 2021, the SEC submitted the Expert Report of [REDACTED] Ph.D. (“[REDACTED] Report”). On November 12, 2021, I submitted a rebuttal report responding to the analysis in the [REDACTED] Report.¹ In that report, I concluded that the analysis in the [REDACTED] Report is fundamentally flawed for multiple reasons and provides no support for the SEC’s claim that XRP is a security:²

- (i) First, the findings of Dr. [REDACTED] event study methodology do not demonstrate that XRP holders profit solely or primarily from the efforts of Ripple.
- (ii) Second, Dr. [REDACTED] misinterprets his own findings by failing to recognize that many of the announcements that he finds to be statistically significant are confounded.
- (iii) Third, Dr. [REDACTED] fails to appreciate the significance of his own admission that XRP did not trade in an efficient market.
- (iv) Fourth, Dr. [REDACTED] fails to provide any explanation as to why his event study methodology would shed any light on whether XRP holders are engaged in a “common enterprise” with Ripple.

2. On February 28, 2022, the SEC submitted the Supplemental Expert Report of [REDACTED] Ph.D. (“[REDACTED] Supplemental Report”). In that report, Dr. [REDACTED] purports to “quantify

¹ Expert Rebuttal Report of Daniel R. Fischel, November 12, 2021 (“Fischel Rebuttal Report”). For a description of my qualifications, prior cases in which I provided expert testimony, and my compensation in this matter, see Fischel Rebuttal Report, Sections I and III and Appendix A. For background information and a description of the SEC claims, see Fischel Rebuttal Report, Section II. Capitalized terms that are not otherwise defined herein are defined in the Fischel Rebuttal Report.

² Fischel Rebuttal Report, ¶ 14.

the economic significance of [] XRP price reactions”³ on 100 event days⁴ and reaches two conclusions:

- (i) “But-for the news and public statements related to Ripple to which XRP prices reacted in a statistically significant way, the USD price per XRP token would have rarely exceeded \$0.02.”⁵
- (ii) “Purchasing XRP before the release of the news and public statements related to Ripple on the 100 Event Days would have resulted in greater investment returns than purchasing at other times.”⁶

A. Dr. [] Analysis of the Alleged “But-For” Price of XRP

3. Dr. [] claims that “[he] can interpret statistically significant abnormal returns following the Event Days as attributable to those public statements” because “[t]he [] Report establishes that XRP prices react to certain news and public statements related to Ripple.”⁷ Therefore, he argues that “the best estimate of the but-for, counterfactual XRP price is found by replacing the actual returns in those instances with the expected returns.”⁸ (Emphasis omitted).

4. Specifically, for each of his 20 regression models, Dr. [] constructs a counterfactual price series using the following methodology:⁹

³ [] Supplemental Report, ¶ 7.

⁴ See [] Supplemental Report, ¶ 8. Note that the Dr. [] originally analyzed 105 event days in the “Select Categories” analysis in his opening report—however, in the [] Supplemental Report, Dr. [] excludes “5 instances of Digital Asset Trading Platform Listings which [he] could not definitively attribute to the efforts of Ripple Labs based on the set of news [he] analyzed.” *Id.*

⁵ [] Supplemental Report, ¶ 9 (p. 2). See also, *id.*, ¶¶ 10-19.

⁶ [] Supplemental Report, ¶ 9 (p. 3). See also, *id.*, ¶¶ 20-24.

⁷ [] Supplemental Report, ¶ 10.

⁸ [] Supplemental Report, ¶ 10.

⁹ See [] Supplemental Report, ¶ 12. Dr. [] assesses the statistical significance of the event days’ (cumulative) abnormal returns based on the 5% one-sided level.

- For event days where the one-day abnormal return is statistically significant and positive, Dr. [REDACTED] replaces the actual return with the expected return predicted by the model.
- For event days where the two-day cumulative abnormal return is statistically significant and positive (and the one-day return is not statistically significant and negative), Dr. [REDACTED] replaces the actual returns for those two days with the expected returns predicted by the model.
- For event days where the three-day cumulative abnormal return is statistically significant and positive (and neither the one-day nor two-day returns are statistically significantly and negative), Dr. [REDACTED] replaces the actual returns for those three days with the expected returns predicted by the model.
- For event days where none of the above are true, Dr. [REDACTED] does not adjust the actual return.

5. Based on this analysis, Dr. [REDACTED] finds that the “maximum 95th percentile counterfactual price is just \$0.0242, meaning that XRP prices would have only rarely exceeded about two cents but-for the news or public statements related to Ripple Labs.”¹⁰

B. Dr. [REDACTED] Analysis of Investment Returns Around Event Days

6. Dr. [REDACTED] conducts an analysis to (supposedly) “answer the following questions: what would the average return be if an investor bought at closing prices before each of the 100 Event Days, and how would that compare to the average return if she did not?”¹¹ Specifically, he compares the average 1-, 3-, 7-, and 28-day returns for three categories of hypothetical investors: (1) those who invest in XRP on an event day (i.e., purchase XRP at the closing price

¹⁰ [REDACTED] Supplemental Report, ¶ 16.

¹¹ [REDACTED] Supplemental Report, ¶ 20.

the day before the event); (2) those who invest in XRP on a non-event day; and (3) those who invest in XRP on non-event days and have no event days in the holding period.¹²

7. Among other things, Dr. [REDACTED] analysis finds that “an investor investing on the Event Day (i.e., purchasing at the closing price of the day before) would earn an average 28-day return of 63.1% compared to an average return of 21.3% earned when investing on any other days” and that “[e]xcluding those 28 day holding periods which include Event Days, the average return falls to just 7.5%.”¹³ Therefore, he concludes that an “investor who timed investments in XRP around these Ripple Events would have earned substantially greater returns than an investor who did not.”¹⁴

C. Assignment and Summary of Conclusions

8. I have been asked by counsel for Ripple to review, evaluate, and respond to the analysis and conclusions in the [REDACTED] Supplemental Report from an economics perspective. Based on my review of the economic evidence, I conclude as follows.¹⁵

9. The analysis in the [REDACTED] Supplemental Report is predicated on Dr. [REDACTED] false and misleading claim that “[t]he [REDACTED] Report demonstrates that XRP prices reacted to certain news and public statements related to Ripple.”¹⁶ As discussed in the Fischel Rebuttal Report, the analysis in the [REDACTED] Report cannot and does not establish that XRP prices reacted solely or

¹² See [REDACTED] Supplemental Report, ¶ 21. See also, *id.*, Figures 6 and 7 (pp. 10-11).

¹³ [REDACTED] Supplemental Report, ¶ 22.

¹⁴ [REDACTED] Supplemental Report, ¶ 24.

¹⁵ A list the materials we have relied upon in connection with the preparation of this report is attached as Appendix C.

¹⁶ [REDACTED] Supplemental Report, ¶ 7. See also, *id.*, ¶ 10.

primarily to information about Ripple’s efforts.¹⁷ Therefore, there is no economic basis for Dr. [REDACTED] to “quantify the economic significance of those XRP price reactions,”¹⁸ when he has not and cannot established that those XRP price reactions are primarily or solely related to information about Ripple’s efforts.

10. In summary, the [REDACTED] Supplemental Report does not address any of the fundamental flaws that were discussed in the Fischel Rebuttal Report, and thus his new analysis suffers from the exact same fundamental flaws. In other words:

- (i) The findings of Dr. [REDACTED] analysis do not demonstrate that XRP holders profit solely or primarily from the efforts of Ripple.
- (ii) Dr. [REDACTED] once again misinterprets his own findings by failing to recognize that many of the announcements that he finds to be statistically significant are confounded.
- (iii) Dr. [REDACTED] once again fails to appreciate the significance of his own admission that XRP did not trade in an efficient market.
- (iv) Dr. [REDACTED] once again fails to provide any explanation as to why the findings of his analysis would shed any light on whether XRP holders are engaged in a “common enterprise” with Ripple.

¹⁷ See e.g., Fischel Rebuttal Report, ¶¶ 17-20.

¹⁸ [REDACTED] Supplemental Report, ¶ 7.

II. THE ANALYSIS IN THE [REDACTED] SUPPLEMENTAL REPORT IS FUNDAMENTALLY FLAWED AND PROVIDES NO SUPPORT FOR THE SEC’S CLAIM THAT XRP IS A SECURITY

A. The Findings of Dr. [REDACTED] Analysis Do Not Demonstrate That XRP Holders Profit Solely or Primarily from the Efforts of Ripple

11. Although Dr. [REDACTED] has testified that he is not offering an opinion on whether XRP holders profit solely or primarily from the efforts of Ripple and that his event study methodology cannot answer such questions,¹⁹ the analysis in the [REDACTED] Supplemental Report attempts (at least in part) to respond to my opinion that the findings of Dr. [REDACTED] event study methodology do not demonstrate that XRP holders profit solely or primarily from the efforts of Ripple.²⁰ However, the findings of Dr. [REDACTED] new analysis still do not demonstrate that XRP holders profit solely or primarily from the efforts of Ripple.

12. To begin with, Dr. [REDACTED] finding that removing significant, positive abnormal returns on event days results in an estimate of the alleged “but-for” price of XRP being lower than the actual price of XRP is a tautology that does not establish that XRP holders profit solely

¹⁹ See e.g., Deposition Transcript of [REDACTED] February 18, 2022 (“[REDACTED] Dep. Tr.”) at 228:25-229:8 and 231:3-232:3.

²⁰ See e.g., [REDACTED] Supplemental Report, ¶ 13 and note 20 (citing to Fischel Rebuttal Report, ¶ 20). See also, *id.*, note 10 (citing to Fischel Rebuttal Report, ¶ 18). For example, Dr. [REDACTED] claims that his analysis of the alleged “but-for” price of XRP is “precisely the analysis which Prof. Fischel endorses” because “Prof. Fischel questions the extent to which XRP holders profited from the events studied in the [REDACTED] Report, *even assuming the abnormal returns related to those events are the results of Ripple’s efforts.*” (Emphasis added.) [REDACTED] Supplemental Report, note 10. However, this is a clear misreading of the Fischel Rebuttal Report because the paragraph that Dr. [REDACTED] cites actually states: “Even if one were to assume that the event days analyzed in Dr. [REDACTED] ‘Select Categories’ test were solely or primarily related to the efforts of Ripple—which, as I discuss in Section IV.B *infra*, they are not—the findings of his event study methodology do not demonstrate that XRP holders profit solely or primarily from the efforts of Ripple.” (Emphasis added.) Fischel Rebuttal Report, ¶ 18.

or primarily from the efforts of Ripple. That is to say, by definition, removing positive abnormal returns²¹ on any days (i.e., event days or non-event days) will always result in a lower “but-for” price estimate. As discussed in the Fischel Rebuttal Report, 76.3% to 89.5% of days with significantly positive XRP returns had no news about Ripple’s efforts analyzed by Dr. [REDACTED]²² However, Dr. [REDACTED] did not attempt to analyze the impact of removing positive significant abnormal returns on non-event days, nor did he compare the impact of removing positive significant abnormal returns on event days vs. non-event days.

13. Dr. [REDACTED] also claims that that “investor who timed investments in XRP around these Ripple Events would have earned substantially greater returns than an investor who did not.”²³ Specifically, he claims that “an investor investing on the Event Day (i.e., purchasing at the closing price of the day before) would earn an average 28-day return of 63.1% compared to an average return of 21.3% earned when investing on any other days” and that “[e]xcluding those 28 day holding periods which include Event Days, the average return falls to just 7.5%.”²⁴ However, Dr. [REDACTED] analysis of investment returns around event days is misleading and does not demonstrate that XRP holders profit solely or primarily from the efforts of Ripple for multiple reasons.

- First, in this analysis, Dr. [REDACTED] not only fails to do anything to account for the impact of confounding information or the fact that the XRP market was not efficient, he also inexplicably fails to control for any other market factors that

²¹ As discussed in the Fischel Rebuttal Report, Dr. [REDACTED] event study methodology is designed to identify event days with significantly positive XRP returns. See Fischel Rebuttal Report, ¶ 12(iii).

²² See Fischel Rebuttal Report, ¶ 20 and Exhibit 1.

²³ [REDACTED] Supplemental Report, ¶ 24.

²⁴ [REDACTED] Supplemental Report, ¶ 22.

affect XRP prices—in direct contrast to his event study methodology and analysis of the alleged “but-for” price of XRP.

- Second, as discussed below, Dr. [REDACTED] event days are confounded by, among other things, other announcements that Dr. [REDACTED] identified. On average, Dr. [REDACTED] 100 event days have two additional announcements falling within +/- 3 days from the event day, four announcements falling within +/- 7 days from the event date, and five announcements falling within +/- 10 days from the event day. See Exhibit 3. Longer periods, such as the 28-day holding period that Dr. [REDACTED] uses in his analysis, are even more likely to include confounding announcements.
- Third, Dr. [REDACTED] event days only generate higher returns on average through 2017, a period during which the XRP market was particularly inefficient.²⁵ Therefore, any inference drawn from price reactions during that period are particularly unreliable. After 2017, an individual investing on an event day (i.e., purchasing at the closing price of the day before) would earn an average 28-day return of 1.5% compared to an average 28-day return of 1.3% earned when investing on any other days or an average 28-day return of 9.9% when there is no event day in the investment period. See Exhibit 4.
- Finally, Dr. [REDACTED] averages are driven entirely by a small number of days with extraordinarily high returns. If one excludes the top 10 event days, the average 28 day return for an investor investing on the event day (i.e., purchasing at the closing price of the day before) falls from 63.1% to 7.4%, which is similar to the 7.5% average 28-day return for an investor with no event day in the investment period. See Exhibit 4.

²⁵ See e.g., [REDACTED] Report, Appendix F, Figure 1 (p. 3), showing statistically significant autocorrelation in XRP returns occurred throughout the period analyzed by Dr. [REDACTED] and particularly prior to 2018. Dr. [REDACTED] states that “during these periods [where autocorrelation is statistically significant], [he] can reject the hypothesis that XRP prices are even weak form efficient.” *Id.*, p. 2.

B. Dr. [REDACTED] Once Again Misinterprets His Own Findings by Failing to Recognize that Many of the Announcements that He Finds to be Statistically Significant are Confounded

14. As discussed in the Fischel Rebuttal Report, the announcements that Dr. [REDACTED] analyzed confound information about Ripple’s efforts with information about market conditions for XRP and may also be further confounded by other announcements that fall on or near the event day, which may not be related to Ripple’s efforts.²⁶ In his deposition, Dr. [REDACTED] acknowledged that the presence of confounding events could “potentially” undermine the reliability of his findings.²⁷ However, he also claimed that, given his “robustness checks” (i.e., he uses models that control for the returns of other digital tokens, he did not find any correlation between events and price movements three days before the announcement, and his results hold for 1-day and 7-day event windows), “it becomes so implausible to suggest that [] hypothetical confounding news could be driving [his] results.”²⁸

15. In fact, Dr. [REDACTED] “robustness checks” cannot address the fact that the announcements that Dr. [REDACTED] analyzed themselves contain confounding information about market conditions for XRP, such as information related to the expected supply and demand for XRP and information about the decisions and expectations of market participants other than Ripple, none of which is solely or primarily related to Ripple’s efforts or under Ripple’s direct or indirect control.²⁹ Likewise, given the fact that the XRP market is not semi-strong efficient (i.e., it takes XRP prices longer to fully reflect new information without bias), as discussed below,

²⁶ See Fischel Rebuttal Report, Section IV.B.

²⁷ [REDACTED] Dep. Tr. at 193:16-20.

²⁸ [REDACTED] Dep. Tr. at 195:2-197:20.

²⁹ See Fischel Rebuttal Report, ¶ 21.

Dr. [REDACTED] “robustness checks” also cannot address the potential impact of confounding announcements that fall on or near the event day.

16. As discussed in the Fischel Report, Dr. [REDACTED] himself identifies a number of potentially confounding announcements on or near his event days.³⁰ On average, Dr. [REDACTED] 100 event days have two additional announcements falling within 3 days of the event day, four announcements falling within 7 days of the event date, and five announcements falling within 10 days of the event day. See Exhibit 3. This exhibit also shows that potentially confounding announcements fall on or near the specific event days that Dr. [REDACTED] finds to be statistically significant. For example, there are 14 event days that are statistically significant in at least 95% of Dr. [REDACTED] models (i.e., statistically significant in 19 or more models), and these event days have, on average, two additional announcements falling within 3 days of the event day, three additional announcements falling within 7 days of the event date, and five additional announcements falling within 10 days of the event day. See Exhibit 3.

17. In other words, Dr. [REDACTED] assertion that “[he] can interpret statistically significant abnormal returns following the Event Days as attributable to those public statements”³¹ is false and misleading because he ignores the fact that some or all of his estimated significant abnormal returns may be attributed to: (1) confounding information about market conditions for XRP disclosed in the announcements that Dr. [REDACTED] analyzed, and (2) confounding information disclosed in other announcements that fall on or near the event day.

³⁰ See Fischel Rebuttal Report, ¶ 25 and Exhibit 2.

³¹ [REDACTED] Supplemental Report, ¶ 10.

C. Dr. [REDACTED] Once Again Fails to Appreciate the Significance of His Own Admission that XRP Did Not Trade in an Efficient Market

18. In his analysis of the “but-for” price of XRP, Dr. [REDACTED] attempts to use the same event study methodology from the [REDACTED] Report to quantify the alleged impact of the event days that he finds to be significant—that is to say, his counterfactual XRP price series are constructed based on the output of his event study methodology. In doing so, Dr. [REDACTED] once again fails to appreciate the significance of his own admission that XRP did not trade in an efficient market.³²

19. In his deposition, Dr. [REDACTED] claimed that semi-strong market efficiency is only necessary to draw certain inferences from an event study, such as drawing an inference from an absence of price movement, but he claimed that the types of inferences that he draws from his event study methodology do not require semi-strong market efficiency.³³ This claim is fundamentally incorrect with regards to the analysis in the [REDACTED] Report (wherein Dr. [REDACTED] uses his event study methodology to “test whether XRP returns are associated with news about Ripple”³⁴) and even more so with regards to the analysis in the [REDACTED] Supplemental Report (wherein Dr. [REDACTED] uses his event study methodology to estimate counterfactual XRP prices).

20. As discussed in the Fischel Rebuttal Report, when an event study is used to measure the impact of certain events on market prices, it is explicitly assumed that the market is semi-strong or informationally efficient, i.e., that market prices adjust to new information quickly and without bias.³⁵ It is an undisputed fact that the XRP market was not efficient during

³² The significance of the lack of market efficiency with regards to Dr. [REDACTED] event study methodology was discussed in detail in Section IV.C of the Fischel Rebuttal Report.

³³ See e.g., [REDACTED] Dep. Tr. at 94:12-96:8.

³⁴ [REDACTED] Report, ¶ 28.

³⁵ Fischel Rebuttal Report, ¶ 27.

the relevant period.³⁶ As a result, it is not appropriate to use an event study methodology to quantify the impact of events on XRP prices—which is exactly what Dr. ██████ attempts to do in constructing his counterfactual XRP price series.

21. In other words, because XRP prices during the relevant period did not adjust to new information quickly and without bias, Dr. ██████ estimates of the “but-for” price of XRP are unreliable, biased estimates. For example, if price reactions to certain announcements overshoot during the first three days before ultimately correcting, Dr. ██████ counterfactual XRP price series would be adjusted to exclude the overshooting (i.e., he would replace the actual returns for those three days with the expected returns predicted by his models) but would not be adjusted to exclude the eventual price correction—resulting in a downward biased estimate.

22. Moreover, Dr. ██████ assertion in his deposition that the inferences that he draws from his event study methodology do not require semi-strong market efficiency is particularly incorrect with regards to the analysis in the ██████ Supplemental Report because he is attempting to use his event study methodology to quantify the magnitude of price reactions in addition to the materiality of price reactions. In fact, Dr. ██████ analysis of the alleged “but-for” price of XRP is analogous to a common application of event studies to quantify damages in securities fraud litigation³⁷—an application which is predicated on the assumption that the subject security trades in a semi-strong efficient market.

³⁶ Dr. ██████ agrees that XRP did not trade in efficient market during the relevant period. See e.g., ██████ Report, ¶ 35; see also, ██████ Dep. Tr. at 93:22-94:3.

³⁷ See e.g., Kevin L. Gold, Eric Korman, and Ahmer Nabi, “Federal Securities Acts and Areas of Expert Analysis,” Chapter 27 in Litigation Services Handbook: The Role of the Financial Expert (Roman L. Weil, Daniel G. Lentz, and Elizabeth A. Evans eds., 6th ed. John Wiley & Sons, 2017), p. 12: “For the out-of-pocket measure of damages used in most cases filed

23. In his deposition, Dr. [REDACTED] claimed that it was unnecessary for him to “assign causality to a particular event” or to “assign causation to one or the other [event]” and instead claimed that “[i]t’s enough that prices moved around that announcement.”³⁸ However, the analysis in the [REDACTED] Supplemental Report attempts to do exactly that—both in his analysis of the alleged “but-for” price of XRP, where he concludes that “approximately two dozen events are, in fact, economically significant,”³⁹ and in his analysis of investment returns around event days, where he concludes that his results “demonstrates the economic significance of the Ripple Events in the history of XRP prices.”⁴⁰ There is no economic basis for Dr. [REDACTED] to assess the supposed “economic significance” of these event days with statistically significant XRP price reactions when he has not and cannot established that those price reactions are primarily or solely related to information about Ripple’s efforts.

under § 10(b) of the Securities Exchange Act of 1934, experts estimate the but-for price: the value of the security absent (i.e., but-for) the fraud. ... Many of these approaches use the event study method. ... to measure the security’s price decline associated with curative disclosures.”

See also, David I. Tabak and Frederick C. Dunbar, “Materiality and Magnitude: Event Studies in the Courtroom,” Chapter 19 in Litigation Services Handbook: The Role of the Financial Expert (Roman L. Weil, Michael J. Wagner, and Peter B. Frank Elizabeth A. Evans eds., 3rd ed. John Wiley & Sons, 2001), p. 3: “Event studies can also measure the size of a stock price movement as the basis for a damages calculation. For example, in cases of securities fraud, experts commonly measure changes in the alleged inflation in a stock price by the movement in that stock price in the wake of a corrective disclosure, after controlling for market, industry, and other company-specific influences. This results from the disclosure’s removing the inflation, and an event study measures the change in inflation in the stock at the time of the disclosure. Often, courts find that this is the best estimate of the inflation per share if the defendant had a duty to disclose the same information that the corrective disclosure revealed. As a result, an event study is a common method that serves as the basis for quantifying damages in securities fraud cases.”

³⁸ [REDACTED] Dep. Tr. at 205:9-207:2.

³⁹ [REDACTED] Supplemental Report, ¶ 15.

⁴⁰ [REDACTED] Supplemental Report, ¶ 24.

24. Dr. [REDACTED] acknowledged in his deposition that his event study methodology can only demonstrate that there is some correlation between his event days and statistically significant XRP returns but cannot prove causation.⁴¹ However, Dr. [REDACTED] also argued that “[t]he question of what kind of inference you can draw from a statistical result depends on your economic understanding of the [] facts of the matter and maybe some other robustness checks that you may run to rule out alternative explanations” and then opined that his findings support “an inference of [] likely causation.”⁴² Dr. [REDACTED] has not explained how or why his “economic understanding” of the facts of this litigation support an inference of “likely” causation. Additionally, Dr. [REDACTED] “robustness checks” cannot address the fact that many of the announcements that he finds to be statistically significant are confounded (as discussed above) and, likewise, cannot address the fact that the XRP market is not semi-strong efficient (i.e., it takes XRP prices longer to fully reflect new information without bias).

25. In his deposition, Dr. [REDACTED] also claimed that, even though the XRP market is not semi-strong efficient, his application of the event study methodology in the [REDACTED] Report is appropriate because the academic literature he cited similarly applied the event study methodology in cryptocurrency markets, many of which are also not semi-strong efficient.⁴³ In fact, none of the articles that Dr. [REDACTED] cited use event studies to test whether or not digital tokens are securities (or whether returns are “associated” with the announcements of a specific entity),

⁴¹ See e.g., [REDACTED] Dep. Tr. at 242:9-15 and 242:24-25.

⁴² [REDACTED] Dep. Tr. at 242:16-24.

⁴³ See e.g., [REDACTED] Dep. Tr. at 93:14-17, 94:16-18, 95:24-96:4.

nor do they attempt to construct but-for counterfactual prices based on the results of their event studies.⁴⁴ For example:

- Feng et al. (2018) does not actually use an event study methodology, but they do perform a regression that includes dummy variables for positive and negative Bitcoin events.⁴⁵ However, unlike the event study methodology, the dependent variable in their regression is not returns but instead an “order-size based measure to detect informed trading.”⁴⁶ Based on this regression, they “find evidence of informed trading in the Bitcoin market prior to both positive and negative large events.”⁴⁷
- Joo et al. (2020) “attempt to explore reactions of the cryptocurrency market to positive and negative events utilizing event study methodology” and uses their results to “identify the possible profit-making opportunities based on the speed of information flow.”⁴⁸ They state that the objective of their article is “to provide evidence of potential positive trading opportunities in the market.”⁴⁹ In other

⁴⁴ As discussed in the Fischel Rebuttal Report, there are two primary reasons to use an event study: 1) to test the null hypothesis that a market is semi-strong efficient (i.e., to test whether market prices efficiently incorporate publicly available information); and 2) under the hypothesis of a semi-strong efficiency, to measure the impact of certain events on market prices. See Fischel Rebuttal Report, ¶ 32.

⁴⁵ Wenjun Feng, Yiming Wang, and Zhengjun Zhang, “Informed Trading in the Bitcoin Market,” *Finance Research Letters* Vol. 26, 2018, pp. 63-70 at p. 65.

⁴⁶ Weng et al. (2018), p. 64. “First, we propose a novel indicator to detect and assess informed trades ahead of cryptocurrency events, based on the buy-sell trade size imbalances.” *Id.*

⁴⁷ Weng et al. (2018), p. 64. “Applying a novel indicator that we design for the cryptocurrency market, we find evidence of informed trading in the Bitcoin market ahead of cryptocurrency-related negative Bitcoin market events, and ahead of large positive events. ... The evidence of informed trading in the Bitcoin market suggests that people who get information before it’s widely available, profit on their private information, at the cost of other market participants’ losses.” *Id.*, p. 68.

⁴⁸ Mohammad Hashemi Joo, Yuka Nishikawa, and Krishnan Dandapani, “Announcement effects in the cryptocurrency market,” *Applied Economics* Vol. 52, No. 44, 2020, pp. 4794-4808 at p. 4796.

⁴⁹ Joo et al. (2020), p. 4796.

words, they use an event study to demonstrate how the lack of semi-strong efficiency in digital token markets can result in positive trading opportunities.

- Gerritsen et al. (2021) uses an event study to examine Bitcoin abnormal returns to bullish, neutral, and bearish predictions of crypto experts published by various sources such as business news outlets (e.g., Bloomberg and CNBC) and Bitcoin-specific news agencies and forums to which bitcoin.org refers (e.g., CoinDesk, CoinTelegraph, etc.).⁵⁰ They find that neutral and bearish predictions are associated with statistically significant negative abnormal returns, but bullish predictions do not result in statistically significant abnormal returns, and conclude that “crypto experts are an important contributor to price discovery on the Bitcoin market and that especially their nonpositive predictions improve the market’s efficiency.”⁵¹
- Schaub (2021) uses an event study to examine the returns of Bitcoin, Ether and three stablecoins (Tether, BinanceCoin, and USDCoin) to the January 4, 2021 announcement by the Office of the Comptroller of the Currency (OCC) that federally chartered banks and thrifts were now allowed to utilize stablecoins as payment instruments.⁵² His event study does not use any regression models to predict cryptocurrency returns and instead examines actual daily and cumulative returns during the event window.⁵³

⁵⁰ Dirk F. Gerritsen, Rick A.C. Lugtigheid, and Thomas Walther, “Can Bitcoin Investors Profit from Predictions by Crypto Experts?” *Finance Research Letters*, 2021 (forthcoming) at p. 2.

⁵¹ Gerritsen et al. (2021), p. 6.

⁵² Mark Schaub, “On the OCC Announcement Allowing US Banks to Use Stablecoins and the Immediate Impact on Cryptocurrency Valuations,” *The Economics and Finance Letters* Vol. 8, 2021, pp. 154-158 at p. 154.

⁵³ See Schaub (2021), pp. 155-157.

D. Dr. [REDACTED] Once Again Fails to Provide Any Explanation as to Why the Findings of His Analysis Would Shed Any Light on Whether XRP Holders are Engaged in a “Common Enterprise” with Ripple

26. As discussed in the Fischel Rebuttal Report, Dr. [REDACTED] has not explained the relationship between his findings and the SEC’s claim that XRP is a security under the *Howey Test*, and the event study methodology used by Dr. [REDACTED] cannot and does not establish whether XRP holders are engaged in a “common enterprise” with Ripple, much less whether those holders were led to expect profits or returns generated solely or primarily from the entrepreneurial or managerial efforts of Ripple.⁵⁴ In his deposition, Dr. [REDACTED] agreed that “[a]n event study is not going to answer a legal question,” although he also claimed (without providing any further explanation) that “[i]t may provide information which might be useful to the finder of fact who’s ultimately going to settle the legal question.”⁵⁵ He also testified that he is not offering an opinion on whether XRP holders profit solely or primarily from the efforts of Ripple.⁵⁶

27. Dr. [REDACTED] has not addressed these issues in the [REDACTED] Supplemental Report and, for all of the reasons discussed above, his analysis cannot and does not establish whether XRP holders are engaged in a “common enterprise” to share profits or returns generated solely or primarily by the entrepreneurial or managerial efforts of Ripple.

⁵⁴ Fischel Rebuttal Report, ¶ 31.

⁵⁵ [REDACTED] Dep. Tr. at 68:13-18.

⁵⁶ See e.g., [REDACTED] Dep. Tr. at 228:25-229:8, 231:3-232:3.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on May 13, 2022.

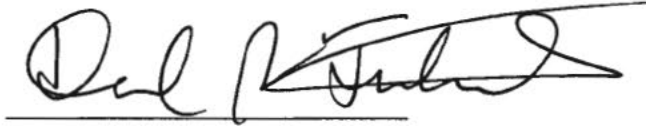
A handwritten signature in black ink, appearing to read "Paul R. [unclear]", is written over a single horizontal line.

Exhibit 3**Number of Other Announcements Identified by Dr. [REDACTED] On or Near Event Days**

	[A]: # of Other Announcements Identified by Dr. [REDACTED] On or Near the Event Day			[B]: # of Models Where Dr. [REDACTED] Finds the Event Day to Be Statistically Significant
	+/- 3 Days	+/- 7 Days	+/- 10 Days	
Average:				
All Event Days	2	4	5	4
Event Days that are Significant in 1 or More Models	1	3	5	13
Event Days that are Significant in 10 or More Models	2	4	6	18
Event Days that are Significant in 19 or More Models	2	3	5	20

By Event Day:

1	05/05/2014	-	-	-	2
2	06/12/2014	1	2	2	-
3	07/21/2014	1	2	4	-
4	07/29/2014	1	2	3	-
5	09/24/2014	1	1	1	-
6	10/27/2014	1	5	6	-
7	11/04/2014	2	3	4	-
8	12/03/2014	1	2	4	-
9	04/29/2015	3	5	6	-
10	05/18/2015	1	4	4	-
11	06/09/2015	-	4	7	-
12	10/06/2015	-	1	1	5
13	10/13/2015	-	2	2	-
14	12/16/2015	1	4	4	-
15	01/29/2016	2	6	8	12
16	02/29/2016	-	2	2	-
17	04/19/2016	-	3	4	-
18	05/26/2016	1	2	2	-
19	06/13/2016	2	3	4	20
20	06/22/2016	1	4	6	16
21	07/18/2016	2	3	3	-
22	08/19/2016	4	5	6	-
23	09/15/2016	1	2	4	20
24	09/23/2016	2	4	7	20
25	09/28/2016	2	5	7	16
26	10/09/2016	2	4	6	12
27	10/20/2016	2	4	4	-
28	12/12/2016	1	3	3	-
29	01/09/2017	3	4	5	-
30	01/10/2017	4	4	5	20
31	02/15/2017	2	2	4	-
32	02/28/2017	1	3	4	-
33	03/02/2017	1	4	4	20
34	03/07/2017	1	3	4	18
35	03/17/2017	1	1	3	4
36	03/30/2017	1	1	2	20
37	03/31/2017	1	1	1	20

Exhibit 3**Number of Other Announcements Identified by Dr. [REDACTED] On or Near Event Days**

	[A]: # of Other Announcements Identified by Dr. [REDACTED] On or Near the Event Day			[B]: # of Models Where Dr. [REDACTED] Finds the Event Day to Be Statistically Significant
	+/- 3 Days	+/- 7 Days	+/- 10 Days	
Average:				
All Event Days	2	4	5	4
Event Days that are Significant in 1 or More Models	1	3	5	13
Event Days that are Significant in 10 or More Models	2	4	6	18
Event Days that are Significant in 19 or More Models	2	3	5	20

By Event Day:

38	04/26/2017	-	-	2	3
39	05/16/2017	1	2	3	10
40	05/18/2017	1	2	3	-
41	06/29/2017	-	-	-	-
42	07/10/2017	1	2	3	-
43	09/11/2017	-	1	1	-
44	10/10/2017	1	5	7	-
45	10/13/2017	3	7	7	-
46	11/16/2017	2	4	4	-
47	11/22/2017	1	4	5	-
48	12/05/2017	3	5	5	-
49	12/08/2017	3	4	6	19
50	12/12/2017	-	7	10	20
51	12/19/2017	5	8	12	13
52	01/11/2018	4	9	13	-
53	01/16/2018	2	8	10	-
54	01/24/2018	1	7	9	-
55	02/07/2018	1	4	9	1
56	02/08/2018	1	4	9	18
57	02/13/2018	3	5	8	-
58	02/14/2018	3	8	8	-
59	02/21/2018	2	4	8	-
60	03/01/2018	2	6	9	-
61	03/06/2018	4	6	6	-
62	03/24/2018	2	5	5	-
63	04/11/2018	1	2	2	3
64	04/12/2018	1	2	2	2
65	04/26/2018	4	4	6	-
66	05/07/2018	2	4	6	-
67	05/14/2018	1	3	6	-
68	05/26/2018	2	3	8	-
69	06/27/2018	2	2	3	-
70	08/16/2018	2	3	3	20
71	09/05/2018	2	4	5	8
72	09/13/2018	1	4	6	-
73	09/19/2018	-	1	4	20
74	09/28/2018	5	9	11	-

Exhibit 3**Number of Other Announcements Identified by Dr. [REDACTED] On or Near Event Days**

		[A]: # of Other Announcements Identified by Dr. [REDACTED] On or Near the Event Day			[B]: # of Models Where Dr. [REDACTED] Finds the Event Day to Be Statistically Significant
		+/- 3 Days	+/- 7 Days	+/- 10 Days	
Average:					
All Event Days		2	4	5	4
Event Days that are Significant in 1 or More Models		1	3	5	13
Event Days that are Significant in 10 or More Models		2	4	6	18
Event Days that are Significant in 19 or More Models		2	3	5	20
By Event Day:					
75	10/01/2018	8	9	10	-
76	11/14/2018	3	5	5	-
77	12/13/2018	1	2	2	-
78	01/08/2019	1	1	2	-
79	02/05/2019	2	5	5	-
80	03/12/2019	-	1	1	-
81	06/17/2019	-	1	1	2
82	09/27/2019	2	4	5	-
83	09/30/2019	2	5	8	-
84	10/02/2019	2	7	8	-
85	10/09/2019	3	7	9	-
86	10/14/2019	1	7	10	14
87	11/06/2019	3	3	3	4
88	12/10/2019	2	2	3	-
89	12/20/2019	-	-	3	-
90	01/21/2020	1	1	2	-
91	02/04/2020	-	1	3	20
92	02/12/2020	1	2	3	19
93	02/25/2020	1	2	3	-
94	02/26/2020	1	2	3	-
95	03/19/2020	1	2	3	4
96	04/27/2020	3	4	7	20
97	06/15/2020	3	6	6	-
98	10/06/2020	3	5	8	-
99	10/08/2020	3	7	8	-
100	10/28/2020	-	4	5	-

[A]: Same analysis as presented in Exhibit 2 of the Fischel Rebuttal Report.

[B]: Reports the number of Dr. [REDACTED] models where the event day was significant under the one-sided parametric test (the baseline test in the [REDACTED] Report). Based on Dr. [REDACTED] backup production.

Exhibit 4**Expansion of Dr. [REDACTED] Analysis of Investment Returns Around Event Days****[A]: Return on Investment by Holding Period**

	1 Day	3 Day	7 Day	28 Day	
<u>Average Return - Invest on Event Day:</u>					
Full Period*	3.0%	11.5%	13.2%	63.1%	
Through 2017	5.4%	19.2%	23.5%	122.2%	
After 2017	0.5%	3.4%	2.6%	1.5%	
Top 10 Event Days**	27.3%	102.4%	122.6%	563.8%	
Excl. Top 10 Event Days**	0.3%	1.4%	1.1%	7.4%	
<u>Average Return - Do Not Invest on Event Day:</u>					
Full Period*	0.3%	1.0%	3.5%	21.3%	
Through 2017	0.6%	1.8%	5.8%	34.3%	
After 2017	(0.0%)	(0.1%)	(0.0%)	1.3%	
<u>Average Return - No Event Day in Investment Period:</u>					
Full Period*	0.3%	0.8%	2.6%	7.5%	
Through 2017	0.6%	1.5%	4.2%	6.2%	
After 2017	(0.0%)	(0.2%)	(0.1%)	9.9%	
<u>Investment Return by Event Day:</u>					
1	05/05/2014	3.8%	26.4%	14.5%	(18.6%)
2	06/12/2014	(8.4%)	(9.1%)	(3.9%)	(12.3%)
3	07/21/2014	(0.4%)	14.1%	11.9%	(3.8%)
4	07/29/2014	(1.5%)	(15.7%)	(19.6%)	(19.2%)
5	09/24/2014	1.2%	0.1%	0.7%	12.6%
6	10/27/2014	7.5%	5.0%	2.6%	89.1%
7	11/04/2014	(0.1%)	1.4%	1.9%	161.1%
8	12/03/2014	(0.2%)	4.7%	14.5%	83.9%
9	04/29/2015	3.1%	5.1%	3.7%	(11.0%)
10	05/18/2015	(9.2%)	4.9%	7.6%	28.7%
11	06/09/2015	(0.1%)	0.5%	7.2%	23.4%
12	10/06/2015	6.4%	0.5%	5.0%	3.0%
13	10/13/2015	2.2%	2.6%	(4.1%)	(12.4%)
14	12/16/2015	1.1%	(4.4%)	(7.3%)	(12.4%)
15	01/29/2016	9.9%	2.8%	11.9%	28.9%
16	02/29/2016	0.4%	1.8%	(0.4%)	1.8%
17	04/19/2016	1.9%	6.4%	4.2%	(13.8%)
18	05/26/2016	(1.5%)	(1.3%)	0.9%	12.8%
19	06/13/2016	(0.5%)	17.7%	16.4%	14.0%
20	06/22/2016	5.2%	4.2%	9.7%	3.8%
21	07/18/2016	(0.9%)	(2.2%)	(3.9%)	(8.3%)
22	08/19/2016	(0.0%)	(1.1%)	(0.7%)	35.6%
23	09/15/2016	39.3%	17.7%	14.6%	33.4%
24	09/23/2016	5.4%	14.8%	30.3%	32.9%

Exhibit 4**Expansion of Dr. [REDACTED] Analysis of Investment Returns Around Event Days****[A]: Return on Investment by Holding Period**

		1 Day	3 Day	7 Day	28 Day
25	09/28/2016	10.0%	7.3%	(4.6%)	8.0%
26	10/09/2016	3.2%	12.6%	11.4%	12.6%
27	10/20/2016	5.4%	4.0%	2.4%	(9.1%)
28	12/12/2016	0.5%	(0.6%)	(2.5%)	(7.6%)
29	01/09/2017	(1.1%)	2.9%	7.9%	3.4%
30	01/10/2017	8.6%	4.2%	10.1%	4.6%
31	02/15/2017	(2.1%)	(5.5%)	(7.1%)	1.6%
32	02/28/2017	(1.3%)	6.8%	8.0%	71.1%
33	03/02/2017	10.8%	16.5%	20.4%	86.8%
34	03/07/2017	7.9%	7.3%	5.4%	445.2%
35	03/17/2017	(4.3%)	8.1%	65.5%	437.7%
36	03/30/2017	31.5%	116.7%	251.9%	224.8%
37	03/31/2017	57.3%	360.5%	145.9%	162.2%
38	04/26/2017	1.4%	37.5%	66.6%	899.7%
39	05/16/2017	29.3%	34.8%	17.5%	(6.2%)
40	05/18/2017	(7.4%)	(10.8%)	(24.9%)	(29.4%)
41	06/29/2017	(5.4%)	(9.2%)	(8.6%)	(38.0%)
42	07/10/2017	(12.9%)	(12.0%)	(36.5%)	(22.7%)
43	09/11/2017	0.7%	(5.7%)	(16.2%)	31.4%
44	10/10/2017	3.5%	(1.4%)	1.7%	(18.2%)
45	10/13/2017	4.9%	6.3%	(13.4%)	(12.4%)
46	11/16/2017	6.6%	7.3%	12.2%	121.2%
47	11/22/2017	2.4%	4.8%	28.2%	239.2%
48	12/05/2017	(3.0%)	(12.1%)	(0.7%)	842.4%
49	12/08/2017	13.2%	6.5%	287.9%	1,336.3%
50	12/12/2017	48.4%	243.4%	209.3%	877.4%
51	12/19/2017	1.7%	52.9%	43.9%	115.8%
52	01/11/2018	(1.0%)	2.5%	(33.5%)	(63.3%)
53	01/16/2018	(29.8%)	(4.8%)	(19.0%)	(35.7%)
54	01/24/2018	1.5%	(9.0%)	(14.9%)	(18.7%)
55	02/07/2018	(6.8%)	22.9%	32.7%	18.9%
56	02/08/2018	11.2%	47.8%	57.5%	20.3%
57	02/13/2018	(4.6%)	6.5%	5.6%	(25.8%)
58	02/14/2018	10.7%	10.7%	5.8%	(23.3%)
59	02/21/2018	(6.4%)	(8.4%)	(13.1%)	(34.9%)
60	03/01/2018	2.6%	0.4%	(3.7%)	(36.1%)
61	03/06/2018	(3.8%)	(13.9%)	(16.5%)	(47.8%)
62	03/24/2018	(0.3%)	(6.8%)	(20.8%)	43.7%
63	04/11/2018	9.7%	29.7%	33.5%	65.5%
64	04/12/2018	16.5%	17.2%	31.4%	48.7%
65	04/26/2018	6.5%	7.9%	7.3%	(25.1%)
66	05/07/2018	(4.5%)	(8.0%)	(14.4%)	(23.0%)
67	05/14/2018	(0.6%)	(4.2%)	(6.1%)	(21.1%)

Exhibit 4**Expansion of Dr. [REDACTED] Analysis of Investment Returns Around Event Days**

		[A]: Return on Investment by Holding Period			
		1 Day	3 Day	7 Day	28 Day
68	05/26/2018	0.3%	(9.6%)	2.0%	(20.3%)
69	06/27/2018	3.2%	(0.6%)	6.4%	0.4%
70	08/16/2018	3.7%	16.0%	13.4%	(4.2%)
71	09/05/2018	(14.5%)	(12.1%)	(20.5%)	57.0%
72	09/13/2018	3.9%	4.4%	20.7%	71.2%
73	09/19/2018	1.3%	74.4%	63.7%	46.1%
74	09/28/2018	(0.4%)	7.4%	(2.7%)	(15.4%)
75	10/01/2018	(0.9%)	(9.2%)	(17.1%)	(20.5%)
76	11/14/2018	(7.0%)	(7.5%)	(14.8%)	(40.9%)
77	12/13/2018	(2.4%)	(7.0%)	14.5%	20.7%
78	01/08/2019	0.3%	(8.7%)	(8.4%)	(17.6%)
79	02/05/2019	(0.3%)	(2.9%)	0.8%	1.6%
80	03/12/2019	(0.3%)	0.6%	2.0%	15.1%
81	06/17/2019	4.8%	2.2%	9.5%	(28.3%)
82	09/27/2019	0.1%	(1.0%)	1.7%	14.2%
83	09/30/2019	6.0%	5.0%	6.8%	23.5%
84	10/02/2019	1.6%	1.7%	11.6%	21.0%
85	10/09/2019	1.1%	(2.7%)	3.7%	8.2%
86	10/14/2019	6.7%	2.4%	5.9%	0.9%
87	11/06/2019	2.9%	(8.1%)	(9.6%)	(27.0%)
88	12/10/2019	(0.5%)	(2.5%)	(8.1%)	(1.8%)
89	12/20/2019	2.4%	3.2%	(0.2%)	19.8%
90	01/21/2020	1.7%	(3.1%)	(0.9%)	22.8%
91	02/04/2020	4.8%	10.8%	7.7%	(6.2%)
92	02/12/2020	8.7%	19.5%	6.4%	(24.2%)
93	02/25/2020	(6.4%)	(12.4%)	(11.8%)	(41.8%)
94	02/26/2020	(8.9%)	(6.7%)	(7.5%)	(36.0%)
95	03/19/2020	15.3%	10.6%	12.9%	26.7%
96	04/27/2020	0.6%	15.5%	11.5%	(0.7%)
97	06/15/2020	0.8%	0.9%	(3.1%)	4.6%
98	10/06/2020	(2.2%)	0.3%	2.2%	(6.1%)
99	10/08/2020	1.2%	2.3%	0.4%	(4.3%)
100	10/28/2020	(2.8%)	(5.4%)	(5.3%)	173.7%

[A]: Calculated based on XRP daily returns data from Dr. [REDACTED] backup production.

* Returns reported in Figures 6 and 7 in the [REDACTED] Supplemental Report (pp. 10-11).

** For each holding period, the event days with the 10 highest returns are denoted by blue shaded boxes.

APPENDIX C
Materials Relied Upon

Legal Documents & Expert Reports

Securities and Exchange Commission v. Ripple Labs, et al., First Amended Complaint, February 18, 2021

Expert Report of [REDACTED] Ph.D., October 4, 2021

Expert Rebuttal Report of Daniel R. Fischel, November 12, 2021

Deposition Transcript of [REDACTED] February 18, 2022

Supplemental Expert Report of [REDACTED] Ph.D., February 28, 2022

Academic Literature & Textbooks

David I. Tabak and Frederick C. Dunbar, “Materiality and Magnitude: Event Studies in the Courtroom,” Chapter 19 in Litigation Services Handbook: The Role of the Financial Expert (Roman L. Weil, Michael J. Wagner, and Peter B. Frank Elizabeth A. Evans eds., 3rd ed. John Wiley & Sons, 2001)

Kevin L. Gold, Eric Korman, and Ahmer Nabi, “Federal Securities Acts and Areas of Expert Analysis,” Chapter 27 in Litigation Services Handbook: The Role of the Financial Expert (Roman L. Weil, Daniel G. Lentz, and Elizabeth A. Evans eds., 6th ed. John Wiley & Sons, 2017)

Wenjun Feng, Yiming Wang, and Zhengjun Zhang, “Informed Trading in the Bitcoin Market,” *Finance Research Letters* Vol. 26, 2018, 63-70

Mohammad Hashemi Joo, Yuka Nishikawa, and Krishnan Dandapani, “Announcement effects in the cryptocurrency market,” *Applied Economics* Vol. 52, No. 44, 2020, 4794-4808

Dirk F. Gerritsen, Rick A.C. Lugtigheid, and Thomas Walther, “Can Bitcoin Investors Profit from Predictions by Crypto Experts?” *Finance Research Letters*, 2021 (forthcoming)

Mark Schaub, “On the OCC Announcement Allowing US Banks to Use Stablecoins and the Immediate Impact on Cryptocurrency Valuations,” *The Economics and Finance Letters* Vol. 8, 2021, 154-158

All other documents cited in Appendix B of the Fischel Rebuttal Report.

Exhibit 37

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

SECURITIES AND EXCHANGE)
COMMISSION,)
)
Plaintiff,)
)
vs.) Case No.
) 20-Civ-10832 (AT) (SN)
RIPPLE LABS, INC., BRADLEY)
GARLINGHOUSE, and CHRISTIAN)
A. LARSEN,)
)
Defendants.)
_____)

HIGHLY CONFIDENTIAL
VIDEO-RECORDED DEPOSITION OF
M. LAURENTIUS MARAIS
New York, New York
Tuesday, December 21, 2021

Reported Stenographically By:
PATRICIA A. BIDONDE
Registered Professional Reporter
Realtime Certified Reporter
JOB No. 211220PBI

December 21, 2021
9:17 a.m.

HIGHLY CONFIDENTIAL

Video-Recorded Deposition of M.
LAURENTIUS MARAIS, held at the offices
of Debevoise & Plimpton, 919 Third
Avenue, New York, New York, before
Patricia A. Bidonde, Stenographer,
Registered Professional Reporter,
Realtime Certified Reporter, Certified
eDepoze Court Reporter, Notary Public of
the States of New York, New Jersey, and
Connecticut.

A P P E A R A N C E S

UNITED STATES SECURITIES AND EXCHANGE

COMMISSION

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CHRISTIAN BIDONDE, Videographer

- - -

E R R A T A

EXAMINATION	PAGE	LINE
BY MR. SYLVESTER	9	21

E X H I B I T S

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1 IT IS HEREBY STIPULATED AND
2 AGREED, by and between the attorneys for
3 the respective parties, that all
4 objections, except as to the form of the
5 questions, shall be reserved to the time
6 of the trial.

7 IT IS FURTHER STIPULATED AND
8 AGREED that the within examination may
9 be signed and sworn to before any Notary
10 Public with the same force and effect as
11 if signed and sworn to before the court.

12 IT IS FURTHER STIPULATED AND
13 AGREED that the filing of the original
14 transcript of the examination is waived.
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2 P R O C E E D I N G S

3 - - -

4 THE VIDEOGRAPHER: This is the
5 video-recorded deposition of M. Laurentius
6 Marais, in the matter of Securities and
7 Exchange Commission versus Ripple Labs, Inc.,
8 Bradley Garlinghouse, and Christian A.
9 Larsen, Case Number 20 Civ. 10832 (AT) (SN).

10 This deposition is being held at
11 the offices of Debevoise & Plimpton, 919
12 Third Avenue, New York, New York. Today's
13 date is December 21, 2021. The time on the
14 video monitor is 9:16 a.m.

15 My name is Christian Bidonde, I am
16 the Legal Video Specialist with Gradillas
17 Court Reporters, located at 400 North Brand
18 Boulevard, Suite 950, Glendale, California.

19 Would counsel and all present
20 please voice identify themselves.

21 MR. SYLVESTER: My name is Mark
22 Sylvester. I am for the plaintiff, the SEC.
23 I'm here with my colleague Eugene Canjels.

24 MR. FIGEL: Reid Figel from Kellogg
25 Hansen with Gavan Gideon representing Ripple

1 Labs.

2 MR. SYLVESTER: Justin Ward from
3 Paul, Weiss, Rifkind, Wharton & Garrison on
4 behalf of Christian Larsen and joined by my
5 colleague Emily Glavin.

6 MR. LOPEZ: Jorge Bonilla Lopez
7 from Cleary Gottlieb on behalf of defendant
8 Bradley Garlinghouse.

9 MR. SYLVESTER: There may be other
10 of our colleagues. Sometimes we just put the
11 names on the record so that we don't have to
12 work through everyone if that's agreeable.
13 Okay.

14 THE VIDEOGRAPHER: Would the
15 certified stenographer please swear in the
16 deponent.

17 M. L A U R E N T I U S M A R A I S, called
18 as a witness, having been duly sworn by
19 a Notary Public, was examined and
20 testified as follows:

21 EXAMINATION BY

22 MR. SYLVESTER:

23 Q. Could you please state your name
24 for the record.

25 A. M. Laurentius Marais. The spelling

1 is L-a-u-r-e-n-t-i-u-s. Marais is M-a-r-a-i-s.

2 Q. And, again, I'm Mark Sylvester.

3 I'm here with the plaintiff in this case, the SEC,
4 with my colleague Eugene in the room. Other of my
5 SEC colleagues are joining us remotely.

6 You've had your deposition taken
7 before. Is that right, Mr. Marais?

8 A. Yes.

9 Q. Is there anything that would
10 prevent you from testifying fully and truthfully
11 here today?

12 A. Nothing that I'm aware of.

13 Q. Were you retained to provide expert
14 services in this case?

15 A. Yes.

16 Q. Who retained you?

17 A. I understand that my retention is
18 on behalf of Ripple Labs.

19 Q. Did any other defendant in this
20 case retain you?

21 A. I can't absolutely rule it out, but
22 I've had no contact with any other defendant.
23 And, to the best of my knowledge, my retention is
24 by Ripple Labs.

25 Q. Okay. On occasion today, when I

1 use the word "Ripple," I'll be referring to Ripple
2 Labs, the defendant in this case. Okay?

3 A. I'll try to keep that in mind.

4 Q. Are you familiar with the term XRP?

5 A. Yes.

6 Q. What is XRP?

7 A. XRP is a kind of cryptocurrency.

8 Q. Are you familiar with the term
9 "digital asset"?

10 A. I've come across the term. I'm not
11 sure I can define it for you in a comprehensive
12 way.

13 Q. To the best of your knowledge, is
14 XRP a digital asset?

15 A. In my layperson's interpretation of
16 that term -- in other words, not as an expert term
17 of art -- I would consider it a digital asset.

18 (Exhibit LM-1, Rebuttal Expert
19 Report of M. Laurentius Marais, marked for
20 identification, as of this date.)

21 Q. Dr. Marais, I'm going to hand you
22 what's been marked -- premarked LM-1.

23 Dr. Marais, is exhibit LM-1 the
24 expert rebuttal report that you submitted in this
25 case?

1 A. It appears to be, yes.

2 Q. Does your signature appear on page
3 17 of LM-1?

4 A. It does. I see it there.

5 Q. Okay. In LM-1, you are offering
6 opinions on the opinions offered by Dr. Albert
7 [REDACTED] in his expert report in this case. Is that
8 right?

9 A. That's fair.

10 Q. Is Attachment A to LM-1 your CV?

11 A. Yes.

12 Q. Looking at your CV now, do you see
13 any inaccuracies?

14 A. (Document review.)

15 MR. FIGEL: Objection to form.

16 A. I don't see any. And I was -- I'm
17 not aware of any.

18 Q. Does the education section of your
19 CV accurately list the degrees you earned?

20 A. Yes.

21 Q. Have you had any formal education
22 after 1985 that is not listed here?

23 A. Other than traffic school, no.

24 Q. Your CV lists your membership in a
25 number of associations. Is that right?

1 A. Yes.

2 Q. Do any of the associations of which
3 you're a member have any relationship with any
4 defendant in this case?

5 A. None that I'm aware of, but these
6 associations are so broad in their range of
7 activity and interest that I can't rule it out.

8 They are membership associations,
9 and it's entirely possible that people with an
10 interest in this litigation in some manner are
11 members of these organizations. So I suppose that
12 would be a kind of association, which I'm not
13 aware of but can't rule out.

14 Q. Have you ever held any professional
15 licenses?

16 A. No.

17 Q. Have you ever been the subject of
18 any disciplinary action related to your
19 professional activities?

20 A. None that ever came to my
21 attention.

22 Q. Dr. Marais, you've served as an
23 expert witness prior to this case. Is that right?

24 A. I have.

25 Q. When was the very first occasion

1 you were retained as an expert witness?

2 MR. FIGEL: Objection.

3 You can answer.

4 A. I'm not able to answer that without
5 delving into dusty archive at this point. It
6 would have been in the -- roughly, though -- in
7 the mid-1990s when I was retained as a designated
8 expert. I did some expert work as a confidential
9 consultant on other occasions prior to that.

10 Q. When you say a "designated expert,"
11 do you mean a testifying expert witness?

12 A. I mean -- that's really what I
13 mean, somebody who provided live testimony.

14 Q. So between the mid-'90s and now,
15 approximately how many times have you been
16 retained as an expert witness to testify?

17 A. That's a number I've never
18 calculated and don't have any need in the ordinary
19 course of business to keep a record of.

20 So at best, I can give you my
21 impressionistic estimate, which is at least 200
22 times and possibly -- possibly, depending on how
23 one counts, 400 times.

24 I say "depending on how one counts"
25 because I have been retained on numerous occasions

1 when the retention did not lead to any actual
2 work. But I was asked if I was available to do
3 something.

4 So does that mean I was retained to
5 provide expert testimony? Who knows. I'm not
6 sure I could even distinguish those occasions.

7 The easiest part of that is how
8 many times have I actually provided expert
9 testimony. And that's somewhere in the 1 to 200
10 range.

11 Q. On those occasions when you
12 provided expert testimony, did you also prepare an
13 expert report?

14 MR. FIGEL: Objection.

15 A. Sometimes yes and sometimes no.

16 Q. Would you say in those 100 to 200
17 occasions, the majority of the time you prepared
18 an expert report?

19 A. Yes. That -- I think
20 that -- that's pretty secure impressionistic
21 estimate without having a tally.

22 Q. You're currently an executive vice
23 president at Compass Lexecon?

24 A. Yes, that is correct.

25 Q. What work do you do in that role?

1 A. I provide consulting services in
2 the areas of my own expertise to clients who
3 approach me or who approach Compass Lexecon
4 insiders, other than me, who identify me as a
5 suitable candidate for providing certain -- for
6 providing the kind -- the kinds of services that
7 I -- that fall within my areas of expertise.

8 Q. What are your areas of expertise?

9 A. Generally, applied mathematics,
10 applied statistics including econometrics. And I
11 have some expertise in the area that, at the
12 University of Chicago, used to be called
13 managerial accounting, which is a kind of applied
14 mathematics for managers for the analysis of
15 processes inside firms.

16 Q. Approximately how much of your
17 professional time at Compass Lexecon is spent in
18 connection with duties as a retained expert
19 witness?

20 MR. FIGEL: Objection.

21 A. Approximately 100 percent.

22 Q. Has that been true throughout the
23 time that you've been an executive vice president
24 at Compass Lexecon?

25 MR. FIGEL: Same objection.

1 A. Yes. I should probably clarify my
2 previous answer by saying, since expert analysis
3 is the one thing that I do in my work -- that's
4 why I give you, say, the answer is approximately
5 100 percent -- if you meant -- when you said
6 "retained expert" in that previous question, if
7 you meant retained expert in the sense of an
8 expert involved in litigation, that's not
9 100 percent.

10 But -- so my answer was accurate as
11 stated. I'm just expanding on it a little bit.

12 Q. Sure. If I use the term "expert
13 witness" for purposes of this deposition, I'll
14 mean a retained testifying expert. Is that fair?

15 A. I will try and keep that in mind.
16 That's how I understood -- that's what I
17 understood you to be referring to
18 pre- -- actually, that's not what I understood you
19 to be referring to previously.

20 So the answer would be
21 approximate -- my revised answer, in light of what
22 you've just explained, would be approximately
23 90 percent.

24 Q. Prior to Compass Lexecon, you
25 worked for William E. Wecker Associates. Is that

1 right?

2 A. Yes.

3 Q. What sort of work did you do in
4 that role?

5 A. Exactly the same sort of work that
6 I have just described in connection with Compass
7 Lexecon.

8 Q. And approximately how much of your
9 professional time at William E. Wecker was spent
10 as an expert witness?

11 MR. FIGEL: Objection. Withdrawn
12 with your definition.

13 A. The -- over the entire time I was
14 with Wecker Associates, probably 60 or 65 percent
15 of my time.

16 Q. Okay. And prior to William
17 E. Wecker Associates, you were a consulting
18 professor at Stanford University School of Law.
19 Is that right?

20 A. Yes.

21 Q. And did you serve as a retained
22 expert witness at all during your time at
23 Stanford?

24 A. Yes. And I should clarify my
25 previous answer, because the premise of your

1 question was mistaken, actually.

2 You said prior to my time at
3 William E. Wecker Associates. Actually, that
4 happened during my time at William E. Wecker
5 Associates. My appointment at Stanford was not a
6 full-time position. It was something that I did
7 even while I was working at William E. Wecker
8 Associates.

9 Q. Understood. Thank you for that
10 clarification.

11 Prior to joining William E. Wecker
12 Associates in 1992, you had a variety of roles at
13 the University of Chicago graduate school of
14 business. Is that right?

15 A. Correct.

16 Q. And during the time that you were
17 at the University of Chicago, did you ever serve
18 as an expert witness?

19 A. No.

20 Q. Do you advertise your services as
21 an expert witness?

22 A. I do not. I know that there is a
23 profile of me on the Compass Lexecon website.
24 There may be -- may still be a profile on the
25 William E. Wecker Associates website. I did not

1 personally post those profiles. So I think it's
2 fair to say I do not advertise myself as an expert
3 witness.

4 Q. Do you know what kinds of
5 information those profiles you just described
6 contain?

7 A. I have looked at them from time to
8 time. So I think I know that they very briefly
9 describe something about my background. And they
10 have a photograph -- a now somewhat outdated
11 photograph. And that they offer a link to contact
12 the organization or to get a copy of my CV.

13 Q. Is it your understanding that the
14 purpose of those profiles is to advertise your
15 services as an expert witness?

16 MR. FIGEL: Objection.

17 A. That's not how I would characterize
18 them, no.

19 Q. Have you ever been retained as an
20 expert witness by a plaintiff?

21 A. Yes.

22 Q. Prior to this case, have you ever
23 been retained as an expert witness by a defendant?

24 A. Yes.

25 Q. In all of your prior engagements as

1 an expert witness, approximately what percentage
2 of those cases were you retained by the plaintiff?

3 A. I can only give you an
4 impressionistic estimate of that. I would say
5 that it is a low percentage, probably in single
6 digits.

7 If not -- if we took the trouble to
8 research it, if it were not in single digits, I
9 would be amazed if it were much above 10 percent.

10 Q. Prior to this case, have you ever
11 been retained in a case where a governmental
12 entity was a party?

13 A. I'm pausing to think about that.
14 Yes.

15 Q. How many times?

16 A. At least half a dozen times. But I
17 suspect the true -- the accurate answer is
18 substantially more than half a dozen. It's just
19 that half a dozen occasions come easily to mind.

20 But you've -- you -- the level of
21 specificity of what you're asking me now is such
22 that, to even give you a reasonably accurate
23 answer for even the past five years, I would have
24 to consult my list of testimony attached to my
25 report.

1 Q. In any of the cases that you can
2 recall, were you retained as an expert witness by
3 the government?

4 A. Only one case comes to mind. I
5 can't -- I'm not certain. As you know, I've been
6 doing this for 30 years. So I'm not being coy
7 here.

8 Only one case comes to mind. I
9 can't absolutely rule out that there weren't other
10 examples, but one case comes to mind.

11 Q. Which is the case in which you were
12 retained by a governmental entity which you can
13 recall today?

14 A. Even though it was a really long
15 time ago, I am not sure that I was ever actually
16 disclosed in that case. And so I would need to
17 look into that, I believe, as a -- out of respect
18 to that client, to learn whether it's okay to
19 disclose that.

20 Q. Looking at Attachment B to LM-1,
21 which is your expert report, is it fair to say
22 that you were not retained by any governmental
23 entity listed in any of these 45 cases?

24 A. I'm looking at the list briefly
25 just to remind myself. I think the answer is

1 going to be yes, but just to be sure, I'm taking a
2 look at it.

3 (Document review.)

4 The one questionable case -- the
5 one question mark for me, out of the 45, is
6 Item 19 where I was retained by the California
7 Insurance Guarantee Association, which I
8 understand to be a, at least some kind of
9 quasi-governmental entity. It is -- has some
10 affiliation with or connection to the state
11 government of California.

12 Q. Has your expert opinion ever been
13 excluded in any case?

14 MR. FIGEL: Objection.

15 A. It has.

16 Q. How many times has that happened?

17 A. There are two occasions I can think
18 of that -- where my opinion was -- was excluded to
19 the extent that I was not permitted to testify at
20 all.

21 Q. Which cases were those?

22 A. One of the those is in the State of
23 Washington. It is called Ngethpharat. I know
24 you're going to ask me for spelling on that.
25 N-g-e-t-h-p-h-a-r-a-t versus State Farm. It's

1 closely associated with a case called Jama,
2 J-a-m-a, versus State Farm. I believe that was
3 in -- that is in federal court in the State of
4 Washington.

5 The other instance that I'm aware
6 of is from seven or so years ago in a case called
7 Walden v. Chrysler in state court in Georgia.

8 Q. In the State Farm case in
9 Washington federal court, for what reason was your
10 expert opinion excluded?

11 MR. FIGEL: Objection.

12 A. I understand that the reasons were
13 two-fold. One was that in a determination of
14 damages, the Court was persuaded that the opinion
15 I was providing on the definition -- the proper
16 definition of damages, of economic damages, was
17 not -- was actually a legal opinion and,
18 therefore, outside my area of expertise.

19 The rest of my opinion pertained to
20 whether certain calculations were -- involved
21 multiplication or division and why that
22 distinction was material to issues in the case.

23 And I understand that the Court
24 held that it did not need to be instructed on the
25 definition between -- the difference between

1 multiplication and division.

2 Q. How about the Walden case. Why was
3 your opinion excluded in the Walden case?

4 A. In the Walden case, my -- I had the
5 assignment of examining the federal NASS
6 database -- that's the -- that's all caps N-A-S-S,
7 the National Accident Sampling System, in order to
8 determine whether certain events had or had not
9 been recorded in that database.

10 The Court determined that the
11 accidents that I was looking at in the NASS
12 database were not substantially similar to the
13 accident that gave rise to the litigation. I
14 believe that was the -- the Court's primary ground
15 for excluding my testimony, that there was a
16 requirement in that jurisdiction for substantial
17 similarity.

18 Q. To the best of your knowledge, is
19 your expert report that you submitted in the State
20 Farm case publicly available?

21 A. I have no idea.

22 Q. Same answer for the Walden case?

23 MR. FIGEL: Objection.

24 A. Correct.

25 Q. Are you familiar with the term

1 "event study"?

2 A. Yes.

3 Q. Have you conducted event studies as
4 part of your expert witness work in the past?

5 A. Yes.

6 Q. Was an event study any part of any
7 of your excluded expert opinions?

8 A. No.

9 Q. Approximately how many times have
10 you conducted an event study in connection with
11 your expert witness work?

12 A. We are now talking about an era
13 from the late 1990s into the early 2000s. So it's
14 particularly hard for me to be precise. But my
15 best estimate sitting here is half a dozen
16 occasions.

17 Q. So the total number of event
18 studies that you've conducted in connection with
19 your expert witness work or your best
20 approximation is approximately six?

21 MR. FIGEL: Objection.

22 A. Yes.

23 Q. Is it fair to say that you're
24 familiar with the requirement that expert
25 witnesses set forth the basis and reasons for

1 their opinions in their expert reports?

2 A. I certainly do not have a lawyer's
3 expert knowledge of the procedural rules that
4 govern those questions. But I have been
5 instructed over the years by lawyers on elements
6 that need to be in my reports, and I generally try
7 to put them there.

8 Q. Is it fair to say that it's your
9 practice to include a description of your
10 methodology in your expert reports?

11 MR. FIGEL: Objection.

12 A. As a very general characterization,
13 I think it's a fair characterization. What that
14 actually means in different instances depends on
15 the circumstances.

16 Q. When you describe your methodology
17 in your expert reports, do you include all steps
18 that you consider material to reach your opinion?

19 MR. FIGEL: Objection.

20 A. I do. Sometimes they're visible in
21 the body of the report. Sometimes they are
22 visible in the backup materials that I produce in
23 conjunction with a report which I deem to be part
24 of the report.

25 Q. Limiting this question only to

1 event studies that you've conducted as an expert
2 witness, are there any steps that you routinely
3 take as part of conducting an event study but do
4 not include in your expert report?

5 MR. FIGEL: Objection.

6 A. As I indicated in a previous
7 answer, it has been a long time since I last
8 actually conducted an event study as opposed to
9 replicating an event study, which is what I did in
10 the present case.

11 And so it would be, at best,
12 leading for me to try to vaguely characterize what
13 are my standard practices when I perform an event
14 study.

15 It may well be that if I were
16 called upon to resume performing event studies,
17 that I would look at reports from long ago and
18 look at literature, scholarly and professional
19 literature, that has appeared since then, and I
20 may -- my standard practices may, in future, not
21 be what they were 20 years ago.

22 So I -- that was a long-winded way
23 of saying I don't think I can give you a fair
24 answer or a fair catalog of what are my standard
25 practices, because I -- performing event studies

1 is not a standard practice of mine.

2 Q. Limiting ourselves to the time when
3 you were performing event studies in the past,
4 were there any steps that you routinely took then
5 as part of conducting those event studies but did
6 not include in your expert reports?

7 MR. FIGEL: Objection.

8 A. I would have to look at the expert
9 reports from that era to be able to answer that
10 question. I would doubt it, subject to the
11 qualification I stated a moment ago of providing
12 electronic backup along with the event study,
13 given -- interpreting my report as the -- as
14 including the electronic backup, I doubt that
15 there was any step that I took that I did not
16 document in my expert report.

17 But I can't speak to that with
18 specificity today. I simply don't have a clear
19 enough and fresh enough recollection of the work
20 that I did on event studies 20 years ago.

21 Q. How did you come to be retained as
22 an expert witness in this case?

23 A. I received either a telephone call
24 or an e-mail from counsel for Ripple asking me
25 whether I was available to discuss some issues

1 concerning this litigation.

2 Q. Which attorney contacted you?

3 A. Mr. Figel to my left.

4 Q. When did you receive this contact
5 from Mr. Figel?

6 A. Not very long before I delivered my
7 report. I would say -- I don't have a precise
8 recall of the date of that, but whatever the date
9 is on which I signed the report is -- I -- I would
10 say, again, impressionistically, it was no more
11 than three weeks after when Mr. Figel called me.

12 Q. Prior to your retention as an
13 expert witness in this case, did you know anything
14 about Ripple?

15 A. Yes.

16 Q. What did you know?

17 MR. FIGEL: Objection.

18 A. I knew that Ripple was, in some
19 way, entirely, vaguely defined in my own mind,
20 associated with XRP, with the cryptocurrency
21 called XRP. And when I say "associated with,"
22 what I mean by that is just when I looked up
23 articles on XRP, I would tend to find the name
24 Ripple showing up somewhere in the article.

25 Q. Did you look up articles about XRP

1 prior to your retention as an expert witness in
2 this case?

3 A. Yes.

4 Q. Why?

5 A. As part of learning how to acquire
6 and use XRP.

7 Q. Why were you interested in learning
8 how to acquire and use XRP?

9 A. I retained some supporting services
10 for family members in another country where the
11 vendor of those services had a preference for
12 being paid in XRP.

13 Q. What vendor is that?

14 A. An IT consultant and a general
15 personal assistant in -- as well as providing IT
16 consulting services.

17 Q. Is this an individual or a company?

18 A. An individual.

19 Q. Did that person tell you why they
20 preferred to receive payment in XRP?

21 A. Partly yes, partly no.

22 Q. Can you explain your answer?

23 A. Since the person was in another
24 country, being paid in cryptocurrency avoided the
25 complications of wire transfers and currency

1 conversions from one -- from US dollars to a
2 different currency. I understood why that was a
3 convenience. That's the partly yes part.

4 Why specifically XRP as opposed to
5 something -- some other kind of cryptocurrency, I
6 do not know. That's the partly no part of my
7 answer.

8 Q. Setting aside your interaction with
9 this person, prior to your retention in this case,
10 did you know anything else about XRP?

11 MR. FIGEL: Objection.

12 A. No.

13 Q. Do you own XRP?

14 A. Yes.

15 Q. How did you acquire it?

16 A. On a cryptocurrency exchange.

17 Q. How much XRP do you own?

18 A. At present I think about \$5 worth.

19 Q. Why did you purchase it?

20 A. I purchased it in the course of
21 making payments to the vendor I described in a
22 previous answer. So I have a small remaining
23 balance of XRP from that transaction.

24 Q. Other than your payments to the
25 vendor that we've discussed, are there any other

1 occasions -- strike that.

2 Other than for purposes of paying
3 the vendor we just discussed, are there any other
4 reasons why you've purchased XRP?

5 MR. FIGEL: Objection to form.

6 A. Yes.

7 Q. What are those reasons?

8 A. Curiosity about how cryptocurrency
9 purchases and transactions work. In other words,
10 before the -- having been made aware of XRP by my
11 interaction -- by my early conversations with the
12 person who I knew might later be interested in
13 pursuing the conversation, I went ahead and
14 purchased some XRP and set up an account on an
15 exchange just to gain some experience at how
16 transactions like that can be conducted and what
17 unexpected holdups might occur.

18 Q. Other than XRP, have you purchased
19 any other digital assets?

20 A. No.

21 Q. Sitting here today, do you have any
22 plans to acquire more XRP in the future?

23 A. I have no specific plan as I sit
24 here. It may be that I may need to make such
25 plans in order to continue paying my vendor in the

1 other country that I talked about.

2 Q. Prior to your retention as an
3 expert witness in this case, did you know anything
4 about the SEC's case against Ripple?

5 A. Yes.

6 Q. What did you know?

7 A. Essentially only that there was a
8 case and that it -- I -- I had some inkling of
9 what the case was about, but certainly no detailed
10 knowledge.

11 Q. Prior to your retention in this
12 case, had you ever met Brad Garlinghouse?

13 A. Not knowingly.

14 Q. Prior to your retention in this
15 case, had you ever met Chris Larsen?

16 A. Not knowingly.

17 Q. Prior to your retention in this
18 case, had you ever knowingly met anyone who worked
19 at Ripple?

20 A. No.

21 Q. Prior to your retention in this
22 case, had you ever knowingly met any of the
23 lawyers representing defendants in this case?

24 A. No.

25 Q. Prior to retention, had you ever

1 been retained by Debevoise & Plimpton?

2 A. Not that I recall. I should
3 qualify that answer by saying that I have from
4 time to time been involved in complex cases with
5 multiple counsel for different parties, and
6 sometimes there are joint defense arrangements.

7 And so even though my direct
8 contact may be with law firm A, I can't always
9 know that law firm B and law firm C are involved.
10 But with that qualification, I have no
11 recollection, as I sit here, of ever being
12 retained by Debevoise & Plimpton.

13 Q. Prior to your retention here, had
14 you ever been retained by Kellogg Hansen?

15 A. Yes.

16 Q. How many times?

17 A. Once.

18 Q. When?

19 A. Approximately three months ago.

20 Q. Prior to your retention, to your
21 knowledge, had Compass Lexecon ever been retained
22 by Debevoise & Plimpton?

23 A. It would not surprise me, but I
24 have no specific knowledge of it.

25 Q. Prior to your retention, and

1 setting aside the retention we just talked about
2 three months ago, to your knowledge, had Compass
3 Lexecon ever been retained by Kellogg Hansen?

4 A. Yes.

5 Q. How many times?

6 A. I have no idea. I have no way of
7 knowing. It's not within my area of
8 responsibility to know such things.

9 Q. Are you charging defendants a fee
10 for your expert services in this case?

11 A. Broadly, yes, in the sense that I
12 am here as an employee of Compass Lexecon. And
13 Compass Lexecon does charge for my time.

14 Q. How much does Compass Lexecon
15 charge for your time?

16 A. I think the number is stated in my
17 expert report in this case. It is \$1,040 per
18 hour.

19 Q. Is this your standard hourly fee
20 for expert services?

21 A. Yes.

22 Q. How long has \$1,040 per hour been
23 your standard fee for expert services?

24 A. Since approximately January 1 of
25 2021.

1 Q. What was it before then?

2 A. \$1,000 per hour.

3 Q. How much have -- strike that.

4 How much has Compass Lexecon billed
5 for your services in this case so far?

6 A. I do not know the answer to that.
7 Obviously somebody does. I'm not suggesting that
8 it's not a knowable thing, but it's not a thing
9 that I happen to know.

10 Q. Approximately how many hours have
11 you worked on this case so far?

12 A. That will have to be one of my now
13 famous impressionistic estimates. I would
14 estimate that at somewhere in the range of 30 to
15 45 hours.

16 Q. Have you received any compensation
17 in connection with this case in XRP?

18 A. No.

19 Q. Do you have any plans to receive
20 XRP as compensation in connection with this case?

21 A. I'm hoping not.

22 Q. To your knowledge, is Compass
23 Lexecon planning to receive any payment in XRP in
24 connection with your services provided in this
25 case?

1 A. I'm not aware of it, but I can't
2 rule it out. I'm -- but as I say, I'm not aware
3 of it.

4 Q. Do you --

5 A. It hadn't occurred -- in fact,
6 before you asked, it hadn't occurred to me as a
7 possibility.

8 Q. In your position at Compass
9 Lexecon, is your compensation tied to the amount
10 that you bill to clients?

11 MR. FIGEL: Objection.

12 A. Yes.

13 Q. How so?

14 A. My compensation is tied to what --
15 to the hourly billings of Compass Lexecon for time
16 that I devote to client engagements.

17 Q. Is your compensation at Compass
18 Lexecon also tied to the total amount that Compass
19 Lexecon bills to clients?

20 A. Yes.

21 Q. How so?

22 A. There is an -- I get some so-called
23 attribution, a portion of billings, hourly
24 billings for staff working under my direction.

25 Q. Did others assist you with

1 providing your expert services in this case?

2 A. Yes.

3 Q. Who?

4 A. Principally Dr. Dzmitry Asinski.

5 That is D-z-m-i-t-r-y. Asinski is A-s-i-n-s-k-i.

6 Q. What is Dr. Asinski's role at

7 Compass Lexecon?

8 A. He is a senior vice president or

9 something -- he has a -- a three-word title,

10 something like senior vice president. Maybe --

11 Q. How did Dr. -- sorry. Were you --

12 A. Maybe some hyphens in there.

13 Q. How did Dr. Asinski assist you with

14 your -- providing your expert services in this

15 case?

16 A. When computers needed to be

17 programmed, when data needed to be reformatted in

18 order to become accessible to the kind of software

19 that we used, when analyses had to be performed

20 and audited, all of that was done under my

21 direction but done, actually implemented by -- on

22 my behalf by Dr. Asinski, assisted as needed by

23 additional staff.

24 Q. Other than Dr. Asinski, is there

25 anyone else that assisted in -- assisted with

1 providing your expert services in this case?

2 MR. FIGEL: Objection.

3 A. Yes.

4 Q. Who?

5 A. Narsid Golic. N-a-r-s-i-d
6 G-o-l-i-c.

7 Q. And how did Narsid Golic assist you
8 with providing your expert services in this case?

9 A. Narsid Golic is a -- is junior
10 relative to Dr. Asinski but assisted Dr. Asinski
11 with the practical implementation of the work that
12 I had directed -- that I had directed be done.

13 Q. When you say "assisted with the
14 practical implementation," what does that mean?

15 A. Program computers.

16 Q. Other than the two individuals we
17 just discussed, is there anyone else at Compass
18 Lexecon that assisted you with providing your
19 expert services in this case?

20 MR. FIGEL: Objection.

21 A. No one else comes to mind, but I
22 can't absolutely rule out that Dr. Asinski or
23 Mr. Golic at some point may not -- may have
24 brought in additional help. But it's my
25 understanding and it's my belief, as I sit here,

1 that virtually all of the work that I did not do
2 myself was done by them.

3 Q. How much, if anything, have
4 Dr. Asinski and Mr. Golic billed defendants in
5 this case?

6 A. That was a little too muffled. I
7 think you asked how much they billed?

8 Q. That's right.

9 A. I don't know the answer to that.
10 As I indicated previously, I'm certainly not
11 suggesting and -- it's unknowable. I just don't
12 happen to know it.

13 Q. Those billing records would be with
14 Compass Lexecon. Is that right?

15 A. Correct.

16 Q. Do you know what their billing
17 rates are?

18 A. Only within ranges.

19 Q. What's the range for Dr. Asinski?

20 A. I believe his range, his billing
21 rate is somewhere within the 800s.

22 Q. How about Mr. Golic?

23 A. Five to 600 is what I believe
24 the -- where his range sits.

25 Q. Do you know approximately how many

1 hours each of them have billed to this matter?

2 A. I do not.

3 Q. Did you do anything to prepare for
4 your deposition today?

5 A. Yes.

6 Q. What did you do?

7 A. I reread my own report. I actually
8 first reread Dr. [REDACTED] report. Then I reread my
9 own report. I glanced at the complaint in this
10 matter, the first amended complaint.

11 I looked briefly at the materials
12 that I cite as materials considered. I looked
13 briefly at the electronic disclosure -- disclosure
14 package that Mr. -- that Dr. Asinski produced
15 under my direction and at my request in support of
16 and in conjunction with my report in this matter.
17 I met with counsel.

18 Those are the things that occur to
19 me. If something else occurs to me that I should
20 have mentioned and I'm -- it's simply not coming
21 to mind right now. But if I -- if I have a flash
22 of insight or recollection, I will certainly
23 volunteer it if it happens in the course of this
24 depo.

25 Q. Thank you, Doctor. How many times

1 did you meet with counsel in preparation for your
2 deposition?

3 A. Once.

4 Q. Who did you meet with?

5 A. Mr. Figel and his colleague,
6 Mr. Gideon. Mr. Gideon has so many names. I'm
7 hoping I'm getting his last name.

8 MR. GIDEON: You got it.

9 Q. Anyone else?

10 A. No.

11 Q. Other than counsel, did anyone
12 assist you with preparation for your deposition
13 today?

14 A. Yes.

15 Q. Who?

16 A. Dr. Asinski.

17 Q. How did he assist you with
18 preparation?

19 A. He reminded me where to look for
20 copies of my backup materials. He reminded me how
21 we had performed certain calculations at my
22 request. He reminded me at my request. I think
23 that's about it.

24 Q. Going back to your meeting with
25 counsel, how long did you meet with counsel?

1 A. Three and a half -- I think it was
2 three and a half hours, thereabouts.

3 MR. FIGEL: Mr. Sylvester, I don't
4 mean to interrupt your questioning. But
5 there is a point that I think Dr. Marais may
6 have overlooked that I just would like to
7 refresh his recollection about so the record
8 is clear.

9 MR. SYLVESTER: Absolutely. Go
10 ahead.

11 MR. FIGEL: Can I just -- literally
12 five seconds.

13 MR. SYLVESTER: Feel free.

14 (Witness confers with counsel.)

15 BY MR. SYLVESTER:

16 Q. Any answers that you'd like to
17 clarify, Dr. Marais?

18 A. A flash of recollection has
19 occurred to me. There was a Zoom screen in the
20 meeting yesterday. And I could not tell you with
21 precision who was on that screen. They were
22 mostly represented by black rectangles with small
23 names.

24 But I do understand that other
25 couns- -- that counsel for other defendants in

1 this case were on. That's what occurs to me to
2 add.

3 Q. Focusing just on yesterday's Zoom
4 call with counsel, were there any others that
5 weren't counsel on that call?

6 A. Yes.

7 Q. Who?

8 A. Dr. Asinski was on that call via
9 Zoom. I think I saw Mr. Golic's name. And beyond
10 that, I can't think of -- I cannot think, as I sit
11 here, of anyone else I recognized as not counsel.

12 Q. Have you written any publications
13 pertaining to event studies?

14 A. Yes.

15 Q. How many?

16 A. A relative handful, maybe as many
17 as five or six.

18 Q. When was the most recent of such
19 publications?

20 A. The best way for me to answer that
21 is to turn to my CV.

22 Q. Please do.

23 A. (Document review.)

24 2005.

25 Q. Which article are you referring to,

1 Dr. Marais?

2 A. It's the fifth from the end on page
3 3 of my CV. It's called "Event study methods:
4 detecting and measuring the security price effects
5 of disclosures and interventions (with Katherine
6 Schipper)."

7 Q. The paper you just described, that
8 paper explains how event studies can be used in
9 litigation. Is that right?

10 A. Yes.

11 Q. Is that topic, how event studies
12 can be used in litigation, also the topics of your
13 other five or so papers that you've written
14 regarding event studies?

15 MR. FIGEL: Objection.

16 A. I'm sorry, somehow the middle part
17 of that question just dropped out. Would you --
18 would you repeat it, please.

19 Q. I'll ask a better question.

20 Setting aside the paper that we
21 just discussed, what was the topic of the other
22 papers that you wrote that pertain to event
23 studies?

24 A. I would say various.

25 Q. Were any of the other papers that

1 you wrote pertaining to event studies also about
2 the topic of how event studies are used in
3 litigation?

4 MR. FIGEL: Objection.

5 A. Yes. In a certain sense. And
6 let -- I'll -- assuming you were about to ask me
7 what sense is that.

8 Q. Please go ahead.

9 A. The event study article with
10 Katherine Schipper that I described appeared in
11 several editions of this publication. And I
12 revised it on each of those occasions.

13 So even though not visible on my
14 CV, since I list only the most current version of
15 it, there were more versions having -- and they
16 all had to do with the use of event studies in
17 litigation.

18 But other writings of mine on event
19 studies did not have to do with litigation.

20 Q. Have you taught any classes that
21 cover the topic of event studies?

22 A. Yes, I would say so.

23 Q. When was the most recent such
24 class?

25 A. Probably 199- -- around 1998.

1 Q. Am I recalling your testimony
2 correctly that the last time you performed an
3 event study as an expert witness was in the early
4 2000s?

5 MR. FIGEL: Objection.

6 A. Yes.

7 Q. Prior to your retention in this
8 case, have you submitted an expert rebuttal report
9 commenting on an event study conducted by another
10 expert witness?

11 A. That is possible although I don't
12 remember it specifically. And if it happened, it
13 would have been in that era.

14 Q. And by "that era," do you mean the
15 late 1990s to the early 2000s?

16 A. Yes, I do. I can't absolutely rule
17 out that it hasn't happened in the interim as
18 well. I'm fairly sure I have not created an event
19 study and sponsored it as part of an expert report
20 since the early 2000s.

21 But I can't absolutely rule out
22 that I haven't responded to an event study. It
23 was not very recent because, if it had happened
24 very recently, I would remember it.

25 Q. So is it fair to say that, of the

1 cases that appear on your Attachment B, none of
2 these cases involved event studies?

3 MR. FIGEL: Objection.

4 A. I think the answer is going to be
5 yes, but I'm going to look very quickly.

6 (Document review.)

7 The reason I took the time is that
8 I do recall that there have been occasions when I
9 recognized something I was doing as a direct
10 analogue of an event study, even though it was not
11 in the conventional securities litigation format.
12 And I was trying to remind myself of when that
13 might have occurred.

14 It is fair to say that I have
15 not -- in the list of engagements that I just
16 looked at, there is nothing that I would call a
17 conventional event study in the context of a
18 securities litigation.

19 There are instances in work that I
20 performed in some of those cases where I did
21 recognize and may even have mentioned in a report
22 that this is the analogue of an event study as
23 applied in the securities litigation format.

24 Q. Which cases fall into that latter
25 analogous category, I'll call it?

1 MR. FIGEL: Objection.

2 A. The one that is easiest to recall
3 is one in which I -- is one that is so recent that
4 it is not on that list. It is a critical case,
5 United States versus Tyson Rhame, et al. Tyson is
6 T-y-s-o-n. Rhame is R-h-a-m-e.

7 Q. Are there any other retentions as
8 an expert witness or -- strike that.

9 Are there any other occasions on
10 which you've offered deposition or trial testimony
11 in the last four years that are not listed in
12 Attachment B?

13 A. I know that there is at least one
14 more.

15 (Document review.)

16 I was -- yes, so there was Rhame,
17 and there was -- I've also been deposed since I
18 created this list.

19 Q. You're referencing a case other
20 than Rhame. Is that right?

21 A. Correct.

22 Q. What's that case?

23 A. It is entitled, I think, Greenway
24 of West Palm Beach versus Kia Motors of America,
25 Kia being K-i-a.

1 Q. Going back to the Rhame case, at a
2 very high level, what was the expert opinion that
3 you offered in that case?

4 A. At a very high level, that the
5 government's calculation of the so-called actual
6 loss amount in that case was unfounded.

7 Q. How would you define the term
8 "event study"?

9 A. In much the same way as the
10 definition stated in -- I think I gave some -- a
11 terse definition in my report. And Dr. [REDACTED] also
12 defines an event study and refers to literature
13 that defines event studies such as Craig
14 MacKinlay's article and Binder's review article.
15 So I would give you a perfectly conventional
16 definition.

17 Now, I've -- now that I described
18 how -- described the manner in which I would
19 define it, if you want the actual definition, I
20 could give you that too.

21 Q. Let me ask it -- this question: Is
22 it fair to say that event studies are used to
23 provide answer to two questions: Did an
24 announcement cause a price reaction, and what was
25 the price reaction to the announcement alone?

1 MR. FIGEL: Objection.

2 A. I think what you're asking me about
3 from a statistician's perspective is statistical
4 significance and point estimate of an announcement
5 effect.

6 And your question does seem to
7 focus on litigation -- the way you say that seems
8 to focus on litigation applications as opposed to
9 how event studies are really and widely and mostly
10 used in academic research.

11 So with that qualification, I -- I
12 agree that those are key kinds of questions that
13 are addressed using event studies.

14 Those are not the only questions
15 that can be addressed by event studies, and I'm
16 sure they are not the only questions that have
17 been addressed, even in litig- -- even in
18 litigation settings alone. But I'll grant you
19 that those are two things that one could approach
20 via an event study.

21 Q. Are those two questions the
22 questions that are typically addressed by event
23 studies in litigation?

24 MR. FIGEL: Objection.

25 A. Being a statistician and not a

1 diviner, I would need data on -- I would need to
2 go out and collect instances of event studies used
3 in litigation and then code them up in a
4 systematic way.

5 It wouldn't -- so the fair answer
6 to your question is I -- I couldn't possibly say.
7 But I can be a little bit more helpful and say it
8 would not surprise me to discover that those are
9 the most frequently asked questions.

10 Q. Limiting event studies to their use
11 in litigation, how does an event study answer the
12 question of whether an announcement caused a price
13 reaction?

14 MR. FIGEL: Objection.

15 A. So that I understand what you're
16 asking me, you're asking about the actual process
17 of using an event study. Is that right? You
18 would like me to describe the steps of the method?

19 In other words, your -- your
20 question is a little bit ambiguous. Possible
21 answer might be, they do it very well or they
22 don't do it very well. But I think you're not
23 asking -- you ask how -- how do they do it.

24 Q. Let me ask a better question.
25 Would you agree with the statement: The

1 statistical significance of the event parameter
2 shows that we can conclude with 95 percent
3 confidence that the value of a specific security
4 being examined declined or increased as a result
5 of the information event?

6 MR. FIGEL: Objection.

7 A. Would I agree or -- your question
8 is would I agree or disagree with that statement?

9 Q. That's right.

10 A. I couldn't possibly agree or
11 disagree with that statement without knowing the
12 context, what had -- the calculations that had
13 been performed, whether they'd been performed
14 correctly.

15 When you're -- you seem -- with due
16 respect, sir, you seem to be reading the
17 conclusion of an elaborate calculation and -- that
18 you have not specified and then asking me whether
19 I agree with the conclusion. Sorry. I'm unable
20 to say without more information.

21 Q. In your experience, is a 95 percent
22 confidence level sufficient for an expert to opine
23 that a given news event caused a price impact?

24 MR. FIGEL: Objection.

25 A. I will answer that -- I think the

1 only fair way to answer that is in two parts, one
2 of which is yes and the other of which is no. And
3 I will have to make that a fair and informative
4 answer, which was certainly my intention. I will
5 have to explain the yes and the no.

6 Q. Please do.

7 A. The confidence level at which
8 statistical inferences of all kinds are performed,
9 the confidence level, and in particular an event
10 study type of analysis, that is a choice. It --
11 the data does not -- neither the question nor the
12 data dictates that 95 percent be the confidence
13 level.

14 It is a choice that the researcher
15 makes, how certain do I want to be that I -- that
16 the conclusions that I arrive at do correspond to
17 a real -- a real effect, an empirical effect.

18 And one can prespecify a confidence
19 level of 99 percent or of 95 percent or of
20 90 percent. It's a choice. So it's not the data
21 speaking. It's the researcher speaking.

22 I generally counsel against picking
23 any of those as a prespecified threshold. But if,
24 nevertheless, a researcher was going to go --
25 plunge ahead and follow that path, it is -- I

1 would agree with the proposition -- this is the
2 yes part of my answer -- I would agree with the
3 proposition that 95 percent is the overwhelmingly
4 predominant choice of a level of confidence for a
5 statistical analysis. It's not the only choice.
6 And there's no genuinely principled reason why
7 that has to be the level of confidence.

8 But in reality, across the entire
9 domain of applied statistics, including
10 econometrics and other areas of application, that
11 is the level of confidence that researchers pick.
12 So that -- so, yes, that's the yes part.

13 The no part is that event studies
14 are, by their nature, studies of observational
15 data. And one cannot infer causation solely from
16 observing an apparently statistically significant
17 finding.

18 So your question, which we've all
19 forgotten by now, involved whether 95 percent
20 confidence is sufficient to infer that one thing
21 had caused another thing. And in observational
22 data, you can never really get to causation merely
23 by observing a statistically significant outcome
24 from a calculation.

25 MR. SYLVESTER: We've been going

1 for about an hour 15. Can we take a quick
2 break? Is that all right?

3 THE WITNESS: Works for me.

4 THE VIDEOGRAPHER: The time is
5 10:29 a.m. This concludes Media 1. Off the
6 record.

7 (Recess taken from 10:29 a.m. to
8 10:50 a.m.)

9 THE VIDEOGRAPHER: The time now is
10 10:50 a.m. This begins Media 2. On the
11 record.

12 BY MR. SYLVESTER:

13 Q. Dr. Marais, other than the State
14 Farm and Walden cases that we discussed earlier,
15 has there been any occasion in which a portion of
16 any of your expert report has been excluded?

17 MR. FIGEL: Objection.

18 A. Yes.

19 Q. How many times has that happened?

20 A. There are two occasions I'm aware
21 of.

22 Q. What were those two cases?

23 A. One of them was a case called
24 Hernandez versus Crown Corporation. The other was
25 a case called Tuf Racing, T-u-f Racing, versus

1 Suzuki.

2 Q. Why was a portion of your expert
3 report excluded in the Hernandez case?

4 A. In one portion of my report, I
5 compared the rate of injuries of the subject type
6 of forklift truck to every -- to the rate of
7 injuries from the tools of the trade in every
8 other private sector occupation in the United
9 States.

10 And the Court held that that was a
11 form of comparative risk testimony and that, in
12 that jurisdiction, comparative risk was not
13 admissible as a defense against whatever it was
14 that was being alleged.

15 And so that was only a portion of
16 my work. I had -- it was a small portion of my
17 work. And that portion was excluded.

18 Q. What jurisdiction was the Hernandez
19 case?

20 A. I don't recall. It was somewhere
21 on the east coast.

22 Q. For what reason was a portion of
23 your expert report excluded in the Tuf Racing
24 case?

25 MR. FIGEL: Objection.

1 A. In Tuf Racing, I was responding to
2 an opposing expert on damages allegedly suffered
3 by the Tuf Racing enterprise.

4 Among my multiple opinions in that
5 case, I had opined that the -- that first
6 principles dictated that the proper target date
7 for discounting allegedly lost earnings to a
8 present value was the date on which the harm
9 occurred, the breach.

10 And so the present value should be
11 calculated as of the breach date and then carried
12 forward maybe at a pretrial or posttrial interest
13 rate from that date, but that that was the target
14 date.

15 The Court held that in Cook County,
16 Illinois, it was not first principles that
17 mattered, it was legal precedence and that that
18 was -- the choice of target date was not a topic
19 for expert testimony.

20 I was allowed, however, to testify
21 on every other aspect of my work, and we -- the
22 side that retained me prevailed in that case
23 based, in part, on my testimony.

24 Q. Do you recall testifying earlier
25 today that you've performed approximately six

1 event studies in connection with prior expert
2 witness retentions?

3 A. I did. I also recall qualifying
4 that answer because all of that was a very long
5 time ago.

6 Q. Which of those six cases can you
7 recall sitting here today?

8 A. I recall a case in which I was
9 retained by a pension fund for firemen and a
10 pension fund for nurses.

11 It was a securities litigation, and
12 the union pension funds were suing somebody in
13 connection with inadequate disclosure or something
14 of the kind. And I recall my work as involving an
15 event study.

16 Q. Do you remember the somebody who
17 was being sued in that case?

18 A. I do not.

19 Q. Do you remember which -- what the
20 name was of the pension fund you referenced?

21 A. No, it's -- as I've testified, it's
22 20 years ago. I don't recall.

23 Q. Do you remember what court that was
24 in?

25 A. I have a vague sense that it was in

1 California, that the case was venued in
2 California. But whether it was in state court or
3 federal court, I don't recall.

4 Q. What other cases, if any, can you
5 recall, sitting here today, where you provided an
6 expert report that contained an event study?

7 MR. FIGEL: Objection.

8 A. The name Time Warner comes to mind
9 as a defendant in one such case. I can't be sure
10 that's not the widows and the -- not widows, the
11 nurses and firemen case.

12 But I -- I vaguely recall that
13 there was such a -- such a case -- such an
14 instance. Those are the two that I remember, even
15 though only partially and vaguely.

16 Q. So just for the record, those are
17 the only two cases in which you performed an event
18 study in connection with your expert witness work
19 that you can recall sitting here today?

20 MR. FIGEL: Objection.

21 A. That I -- that I think I recall
22 involving an event study, yes.

23 Q. Do you recall what jurisdiction the
24 Time Warner case was in?

25 A. No. I'm -- as I indicated in a

1 previous answer, I'm not even sure that is not the
2 same case as the one that I referred to. But
3 other than that, I don't remember.

4 Q. Have you ever made any profits or
5 losses from trading XRP?

6 A. In -- yes, although only
7 incidentally.

8 Q. Can you explain what you mean by
9 "only incidentally."

10 A. I purchased some XRP to pay my
11 vendor in the matter I referred to earlier. I
12 held those XRP for some time, for a few weeks. By
13 the time I was making the payments, the value of
14 XRP had dropped.

15 And so in that sense I, incidental
16 to a transaction, I suffered a tiny loss by
17 holding XRP for some period of time.

18 Q. Other than the loss that you just
19 described, were there any other occasions where
20 you either made a profit or suffered a loss on XRP
21 trading?

22 MR. FIGEL: Objection.

23 A. No. I -- I should revise that
24 answer. I've testified already that I have a
25 balance that's probably about \$5 in XRP. So I may

1 be making a profit or a loss as we sit here. But
2 it's not on a large scale.

3 Q. Is it fair to say that on some
4 occasions, event studies establish that prices
5 react to news?

6 A. That's broadly what event studies
7 are used for. So on some occasions, that does
8 seem to be the case, yes.

9 Q. In performing an event study, an
10 expert has to undertake a number of steps. Is
11 that fair?

12 MR. FIGEL: Objection.

13 A. An expert would have to do some
14 work, and work can often be divided up into steps.

15 Q. In conducting an event study, the
16 expert must identify the announcement or
17 announcements whose potential effect on the
18 security price is in question. Is that right?

19 A. Hard to disagree with that the
20 expert has to do something like that.

21 Q. At some point in conducting an
22 event study, the expert will have to determine
23 which trading days he's examining. Is that right?

24 MR. FIGEL: Objection.

25 A. Explicitly or implicitly, yes.

1 Q. And at some point, the expert would
2 have to determine which days within the period he
3 observes an abnormal price reaction for the
4 security at issue. Correct?

5 MR. FIGEL: Objection.

6 A. Event studies typically involve
7 something along those lines.

8 Q. When performing an event study,
9 would an expert typically start with identifying
10 all significant price changes and then check to
11 see if any of these changes could be linked to the
12 news events, or does the expert start with the
13 news events and see if there were significant
14 price changes on the news event days?

15 MR. FIGEL: Objection.

16 A. Event studies are performed in
17 multiple different ways. I've already indicated
18 in my testimony earlier today, there are things
19 that don't even look like conventional event
20 studies that can be considered event studies. So
21 the best answer I can give you is: It depends.

22 There is an event study at issue in
23 this case, as I think we all know, in which
24 Dr. [REDACTED] performed a distinctly nonstandard kind
25 of analysis that -- for which he doesn't provide a

1 specific citation, and that may be because no
2 citation exists.

3 So I mention that to point out that
4 it is an event study of a kind. And it has
5 features that are pretty much unique to it, in my
6 experience. Although I can't rule out that there
7 might not be some precedence for it.

8 So it would be misleading to
9 generalize that an event study always has feature
10 X and never has feature Y. Because Dr. [REDACTED]
11 surprises us with a nonstandard kind of event
12 study formulation, which I would not have -- you
13 might have asked me about yesterday and I would
14 have said that I had never seen such a thing.
15 Well, not yesterday, but the day before Mr. Figel
16 called me.

17 Q. On the occasions on which you've
18 conducted event studies, have you typically
19 investigated abnormal price reactions on all
20 no-news days before and after the news event days
21 in question?

22 MR. FIGEL: Objection.

23 A. I would have to go back both to the
24 event studies that I performed in litigation more
25 than 20 years ago and the event studies with which

1 I was involved in as an academic researcher before
2 I became a private consultant to -- and refresh my
3 recollection of what I did on those occasions --
4 I'm -- to really give you an accurate answer to
5 that question.

6 But I'm sorry, what -- maybe I
7 misheard, I -- could we just go back. Could you
8 restate the question so I'm sure I'm answering the
9 right thing.

10 Q. Sure. On the occasions on which
11 you've conducted event studies, have you typically
12 investigated abnormal price reactions on all
13 no-news days -- strike that.

14 Yeah. Okay. On the occasions on
15 which you've conducted event studies in the past,
16 have you typically investigated abnormal price
17 reactions on all no-news days in addition to
18 investigating price reactions on the news event
19 days within the period you're examining?

20 MR. FIGEL: Objection.

21 A. I don't think I can -- I'm able --
22 for the reasons that I've testified about, I don't
23 think I'm able to characterize what I have
24 typically done at this point without refreshing my
25 recollection on -- I'm fairly sure that there were

1 occasions where I did something that seems to
2 resemble what you're asking about, and on other
3 occasions, I did nothing that resembles what
4 you're asking me about.

5 But to apply the characterization
6 of "typically," I'm not able to do that at
7 this -- at a 20-year distance in time.

8 Q. Can you recall an occasion where,
9 as part of conducting an event study, you
10 investigated abnormal price reactions on days on
11 which there was not a news event in question?

12 A. Not as I sit here today for the
13 simple reason that I've testified about,
14 repeatedly, of the 20-year remove.

15 I -- as a -- as a -- I will add
16 that as a -- as an academic, I performed many more
17 event studies than I ever did once I left
18 academia. And so it was one of my research areas.

19 So I applied a wide range of
20 methodologies and -- to a wide range of questions
21 in a wide range of ways, none of which I can
22 testify about as fresh recollections, sitting here
23 today.

24 Q. And just for the record, when I
25 asked that last question about event studies, were

1 you answering for all event studies you've ever
2 conducted, or event studies limited to your work
3 as an expert witness?

4 A. When I understood your question to
5 be about work as an expert witness, I answered
6 about those event studies. And when you did not
7 qualify the event studies you were asking me
8 about, I was asking about event studies throughout
9 my life.

10 Q. Thank you. Is it fair to say that,
11 if you had investigated abnormal price reactions
12 that occurred on days other than news event days,
13 and you prepared an expert report in connection
14 with the event study, you would have documented
15 those investigative steps in your invest- -- in
16 your expert report?

17 MR. FIGEL: Objection.

18 A. If those investigative steps,
19 whatever they may have been, fitting somewhere
20 under the -- in the category you're asking about,
21 if they had been a material part of the basis of
22 my opinions, I would have described them as such.

23 And if they had been -- not been a
24 material part of the basis of opinions, expert
25 opinions I was rendering, I may not necessarily

1 have, although I may still have referred to them
2 in passing.

3 Q. Can you recall any of your previous
4 expert reports in which you did document any steps
5 you took to investigate abnormal price reactions
6 that occurred on days other than news event days?

7 MR. FIGEL: Objection.

8 A. If we -- I cannot recall such an
9 instance for the reason that I have testified
10 about repeatedly.

11 Although, if you -- if we drop the
12 word "price" and just refer to reactions, I can
13 recall an instance.

14 Q. Can you tell me what steps you took
15 in the instance you just referenced?

16 MR. FIGEL: Objection.

17 A. I am thinking of an analysis, not
18 of price, but in effect, of trading volume and in
19 a matter with a set of news days and announcement
20 days and a number of extremely prominent changes
21 in trading volume.

22 And the step that I took -- I took
23 multiple steps, not all of which I remember, but
24 one step that I took is to make a time series
25 graph showing trading volumes overlaid on a set of

1 timelines showing announcement dates and onset
2 dates of various key events and key announcements,
3 key disclosures in the case, whose -- so I created
4 such a -- such a picture and then wrote text
5 surrounding it, describing what the graphical
6 illustration showed and what it did not show and
7 what conclusion I drew from it.

8 Q. What case is it that you are
9 discussing in connection with which you performed
10 the work you just discussed?

11 A. It is the United States versus
12 Rhame matter.

13 Q. So this is a rather recent
14 engagement. Is that right?

15 A. Yes.

16 Q. What question were you
17 investigating in the Rhame matter?

18 A. Whether there was evidence in one
19 kind of volume data versus a different kind of
20 volume data of -- that would support the -- the
21 hypothesis of a causal link from the announcement
22 or the disclosure or the event -- there were some
23 of each of those in the case -- with changes in
24 volume, in trading volumes.

25 Q. Did you find such a link?

1 A. I found what appeared to be the
2 absence of such a link.

3 Q. Was part of the basis for your
4 finding of an absence of such a link your
5 identification of abnormal reactions in trading
6 volume on days other than the news event days in
7 question in that case?

8 A. I'd say so, yes. I think that
9 fairly describes what I did.

10 Q. Is your reasoning -- strike that.
11 Have you disclosed your expert
12 report in that case?

13 A. I have -- I submitted a report in
14 that case. I am not -- if that -- yeah. It was
15 disclosed to the government in that case. I don't
16 know what other sense of disclosure you might have
17 in mind.

18 Q. Is there any other
19 expert's -- strike that.

20 Is there any other event study that
21 you performed, in connection with your expert work
22 or otherwise, in which you have reached a
23 conclusion that there was no link between the
24 event or events in question and an effect on price
25 or volume on the basis of abnormal movements in

1 price or volume on non-news event days?

2 MR. FIGEL: Objection.

3 A. Could I hear the question read
4 back.

5 MR. SYLVESTER: I'm going to ask
6 the court reporter to read that one back,
7 please.

8 (Record read by the certified
9 stenographer as follows:

10 "QUESTION: Is there any other
11 event study that you performed, in connection
12 with your expert work or otherwise, in which
13 you have reached a conclusion that there was
14 no link between the event or events in
15 question and an effect on price or volume on
16 the basis of abnormal movements in price or
17 volume on non-news event days?")

18 A. The question begins with a
19 premise -- or begins "is there any other event
20 study." It's not clear to me what other events --
21 when you say "other," other than what?

22 The Rhame analysis was not, per se,
23 an event study, as I testified earlier and
24 explained earlier. It -- one could recognize an
25 analogue in there, but it wasn't really an event

1 study. So when you say "any other," do you mean
2 any other than Rhame?

3 BY MR. SYLVESTER:

4 Q. If we amend my question to include
5 any expert work you've performed, can you answer
6 the question amended to any expert work you
7 performed?

8 A. Okay. Let me make sure I've got
9 the question straight then.

10 Q. Sure.

11 A. In any expert work, where by
12 "expert" we mean potentially testifying expert,
13 not just that I was an expert as an academic on a
14 certain topic, so test- -- in any work as a
15 retained testifying expert.

16 Q. Let's expand it to any work you've
17 performed as a statistician examining the impact
18 of a news event on something like price or volume.

19 A. Okay. So I'm a statistician for
20 this hype- -- this setup. Any work I have
21 performed that relates to identifying the effect
22 of an event on price or volume, that's the
23 situation.

24 And in such a situation, have I
25 ever reached the conclusion that there was no

1 impact by investigating ab- -- statistically
2 significant abnormal somethings not coinciding
3 with a news event or with the event that is the
4 subject. Was -- have I got that -- was that
5 right?

6 Q. Yes.

7 A. Okay. I don't recall such an
8 instance, and I don't even think that fairly
9 describes my work in this case. So sitting here,
10 I can't recall any such instance.

11 Q. Does that describe your work in
12 Rhame?

13 MR. FIGEL: Objection.

14 A. I think -- understanding that it
15 was not an event study in the normal sense of that
16 term, yes, I think that fairly -- that's -- it's
17 not how I did or would describe my work in Rhame.
18 But you -- obviously, you get to ask
19 the -- formulate the question. I've -- I think I
20 can agree that that sounds a lot like what I did
21 in Rhame.

22 Q. In the papers that you've written
23 about event studies, Dr. Marais, have you ever
24 mentioned that the investigation of abnormal price
25 reactions on non-news event days is a step that

1 someone performing an event study should take?

2 MR. FIGEL: Objection.

3 A. If I did it, there would have been
4 a context for it that I don't recall sitting here
5 today. I will frankly admit, I have not reread my
6 papers on event studies in many years, at least,
7 multiple years.

8 So I -- I am -- you know, it's
9 either there or not. And I don't recall -- I
10 can't testify to that with any definite
11 recollection sitting here today.

12 Q. Is it fair to say that when you
13 wrote your papers regarding event studies, that
14 you included within those papers the procedures
15 that you considered necessary to perform a proper
16 event study?

17 A. Certainly the procedures that I
18 considered necessary to perform a proper event
19 study for the purposes for which those event --
20 the event studies I was writing about were being
21 conducted.

22 Q. You've also written at least one
23 paper that addresses the topic, in general terms,
24 of how event studies can be used in litigation.
25 Is that right?

1 A. Yes.

2 Q. And in those -- strike that.

3 In that paper, you describe the
4 procedures that one undertakes to use an event
5 study in litigation. Is that right?

6 A. That, as a general, high-level
7 characterization, that's fair enough.

8 Q. And when describing in that paper
9 the procedures that one undertakes to use an event
10 study in litigation, did you include within that
11 description all steps that you would consider
12 necessary to undertake a proper event study for
13 the purposes of litigation?

14 A. The purposes of litigation is a
15 pretty broad category. I described how event
16 studies are -- how single-firm event studies are
17 typically employed in securities litigation, but
18 your phrase "for purposes of litigation" is
19 pretty -- it covers a lot of ground.

20 So I wouldn't want to -- I
21 certainly wouldn't want to say that I included in
22 that writing a -- any -- every way an event study
23 could meaningfully and validly be used for
24 purposes of litigation.

25 Depending -- how an event study is

1 used depends on exactly what is at issue. And I
2 was writing about a particular context, which I
3 believe I set forth in -- when I was writing about
4 single-firm event studies in securities cases, for
5 measuring the effect, say, of a -- for quantifying
6 the effect of a particular disclosure.

7 For -- I mention that because that
8 is an example that distinguishes the event studies
9 that I was writing about in litigation, for
10 example, from the event study that -- and this is
11 just as an example -- distinguishes it from the
12 event study that Dr. [REDACTED] performed in this case
13 in which he nowhere quantifies the effect on price
14 of any event. He doesn't report such a thing.

15 That just goes to the point -- just
16 to be clear on what I'm answering, that goes to my
17 point that different event studies are conducted
18 in different ways for answering different
19 questions.

20 Q. Let me pose a hypothetical. Let's
21 say you've conducted an event study and you
22 observe an abnormal price reaction on each of the
23 news days in question. And let's further say that
24 you also observe abnormal price reactions on days
25 on which there was no news event in question.

1 Does the existence of abnormal
2 price reactions on the no-news days change your
3 opinion about the observed price reactions on the
4 news days?

5 MR. FIGEL: Objection.

6 A. That would depend on what opinion I
7 was expressing.

8 Q. Let's say you were asked to
9 determine whether there was any effect of the
10 news -- whether there was any
11 statistically-significant relationship between the
12 no-news days and price movement -- sorry. Strike
13 that.

14 Let's say you were asked to
15 determine whether there was a price effect caused
16 by the news event.

17 MR. FIGEL: Objection.

18 A. The -- okay. So that sounds very
19 much like a standard litigation format event study
20 which, as I've testified, is a little different
21 from what Dr. [REDACTED] did in the present case, which
22 I understand is what all of this is about.

23 That's a question that can be
24 answered, narrowly formulated as it -- as you have
25 formulated it, by computing a cumulative abnormal

1 return and a T statistic for a cumulative abnormal
2 return over the -- for the event days. And one
3 could stop there.

4 Q. When you say "one could stop
5 there," does that mean that you would not need to
6 take the step of investigating abnormal price
7 reactions on no-news days?

8 MR. FIGEL: Objection.

9 A. The -- one could answer, if given
10 the narrow assignment that your question asks me
11 to assume as part of a hypothetical, if that were
12 the narrow assignment, you could answer it without
13 reference to test to the statistical significance
14 of abnormal returns on days other than the news
15 days.

16 And that typically is what
17 litigation-style event studies look like, the ones
18 that I have encountered, in any case.

19 Q. Dr. Marais, did you conduct an
20 event study in this case?

21 A. I would say no. There is a, kind
22 of, an event study in this case that is at the
23 core of my work in this case. But it's not my
24 event study, it's somebody else's event study.
25 It's Dr. [REDACTED] event study.

1 Q. If you had been asked to conduct an
2 event study that assessed claims of any link
3 between Ripple news and XRP prices, would you have
4 been able to do so?

5 MR. FIGEL: Objection.

6 A. I can't think of a reason why I
7 would not have been able to do so. I never was
8 asked that assignment. And as you know, it's
9 unwise to give off-the-cuff answers to questions
10 like -- to large assignment questions like that
11 while sitting at the deposition table.

12 But I can't -- I would have needed
13 to know more than is in your question, obviously,
14 to determine ultimately if I could do that. But I
15 can't think of a reason why I would not be able to
16 do it.

17 Q. Have you -- strike that.

18 Do you have any expertise with
19 regard to digital assets?

20 A. "Digital assets" is a fuzzy
21 concept. It doesn't have bright line boundaries.
22 I am not, for example, a skilled trader with a
23 track record of earning large profits in digital
24 assets. So I have no -- I don't have that kind of
25 expertise.

1 But there are many -- what I'm
2 trying to say is, there are many aspects to
3 digital assets, and one aspect of digital assets
4 is scholars in financial economics studying
5 digital assets. And they, as I'm sure you know,
6 they use statistical and, more specifically,
7 econometric methods.

8 And so to the extent that they use
9 methods that were inside my area of expertise,
10 that is the kind of expertise that I have. It's a
11 generalized expertise, but it does relate in
12 particular to certain studies of digital assets.

13 But with that qualification and
14 background, no, I would not -- I have never and I
15 would not describe myself as an expert in the area
16 of digital assets. All that I have just said is
17 that I have -- there are no bright lines that
18 divide digital assets from my areas. And in those
19 frontier regions, I do have expertise.

20 Q. Have you authored any publications
21 pertaining to digital assets?

22 A. No, I have not.

23 Q. Have you taught any courses that
24 cover the topic of digital assets?

25 A. No.

1 Q. Have you taken any courses that
2 have covered the topic of digital assets?

3 A. I have not done that.

4 Q. Prior to this case, have you been
5 retained as an expert in any case involving
6 digital assets in any way?

7 A. No, I have not.

8 Q. Other than your work in this case,
9 have you ever conducted an event study involving
10 digital assets?

11 A. Even including my work in this
12 case, I have never conducted an event study.

13 Q. Are you offering any opinion on the
14 suitability of event study methodology to evaluate
15 the effects of disclosures on digital asset
16 prices?

17 MR. FIGEL: Objection.

18 A. I am offering no expert opinion in
19 this matter on that specific area. I have
20 questions. I have come to understand that it's
21 no -- there's no slam dunk simple answer.

22 But that -- that is an -- that
23 doesn't rise to the level of an expert opinion
24 that I'm offering in this case. And I express no
25 such opinion in my report.

1 Q. Are you offering any opinion in
2 this case on the informational efficiency of the
3 XRP market?

4 A. Actually, no.

5 Q. Are you offering any opinion in
6 this case on the informational efficiency of the
7 market for any digital asset?

8 A. Again, no, I am not.

9 Q. Turning to Attachment C of LM-1,
10 your expert report. Is Attachment C to your
11 report a list of materials you considered in
12 preparing your report?

13 A. Yes.

14 Q. Did you personally review each of
15 the materials listed at Numbers 1 through 5 of
16 Attachment C?

17 A. Yes.

18 Q. Did defense counsel supply you with
19 the items listed in Attachment C?

20 MR. FIGEL: Start by answering yes
21 or no.

22 A. Some yes, some no.

23 Q. Which of the items listed on
24 Attachment C did defense counsel supply you with?

25 MR. FIGEL: Just identify by number

1 on your Exhibit C, please.

2 A. 1, 3, and 5.

3 Q. You reviewed the Gerritsen paper
4 listed at Number 3. Is that right?

5 A. Yes.

6 Q. What, if anything, did you learn
7 from reading the Gerritsen paper?

8 A. That there's no precedent in it for
9 the kind of analysis that -- for the specific kind
10 of analysis that Dr. [REDACTED] performed in the course
11 of his purported event study in this matter.
12 There are precedents for portions of it, but not
13 for the core method.

14 MR. FIGEL: Mr. Sylvester, I
15 just -- I mean, maybe to avoid you asking
16 questions, can I just clarify whether he
17 meant to say Number 3 as opposed to Number 2
18 with respect to the information that was
19 provided by counsel?

20 MR. SYLVESTER: Oh, sure. That's
21 fine.

22 Q. Do you recall, Dr. Marais, if it
23 was, in fact, Number 2 that was provided by
24 counsel and not Number 3?

25 A. I recall clearly that what I meant

1 to say when asked that question was 1, 2, and 5.

2 And if I said 1, 3, and 5, I misspoke.

3 Q. Going back to your reading of the
4 Gerritsen paper, is it your testimony that the
5 Gerritsen paper provides some precedent for
6 Dr. [REDACTED] work in this case?

7 A. Yes.

8 Q. What precedent does the Gerritsen
9 paper provide for Dr. [REDACTED] work in this case?

10 A. To be crisp about that, I'd
11 probably have to look at a copy of the Gerritsen
12 paper, which I did not commit to memory. So I
13 don't have a verbatim recall.

14 The measurement of profiting from
15 predictions requires I -- some benchmark modeling
16 for how profits were measured. And it may be -- I
17 believe that one or -- one or the other of these
18 articles -- it may be the Gerritsen article -- did
19 use the most basic form of index model, the
20 constant mean return model from -- that Dr. [REDACTED]
21 also used.

22 It did not, however, use in any
23 way, shape, or form the hypergeometric
24 distribution analysis that Dr. [REDACTED] also relies
25 on. In fact, that -- the analysis that Dr. [REDACTED]

1 relies on for his ultimate conclusions.

2 Q. How did your reading of the
3 Gerritsen paper inform your opinions here, if it
4 did?

5 A. Only as background. I'm not -- I'm
6 not relying on anything in Gerritsen as a basis
7 for any opinion that I express in my report.

8 Q. What, if anything, did you learn
9 from reading the Joo, J-o-o, et al., paper listed
10 in Number 4?

11 A. I found a description of it in the
12 generalized rank test that to which Dr. [REDACTED]
13 refers. I also found in it some degree of
14 precedent for using index models, using an index
15 model.

16 And I don't recall if Joo, et al.,
17 may, in fact, be the source where I found a
18 precedent for the constant mean return model,
19 which is Dr. [REDACTED] Model 1. But in particular,
20 Dr. [REDACTED] cites Joo in at least one -- I think he
21 cites -- has multiple citations to Joo.

22 But one topic for which he cites
23 Joo is the generalized rank test that he applies.
24 And so I was interested in the nature of that
25 particular generalized rank test.

1 (Exhibit LM-10, Applied Economics
2 article by Mohammad Hashemi Joo, marked for
3 identification, as of this date.)

4 Q. I'm going to hand you, Dr. Marais,
5 what's been marked as LM-10. Once you've had a
6 chance to look at it, my question is just: Is
7 LM-10 a copy of the Joo article that you cite in
8 your report?

9 A. (Document review.)

10 Yes.

11 Q. And this article in LM-10 appeared
12 in Applied Economics. Is that right?

13 A. Yes.

14 Q. Do you have any views on the
15 reputation of Applied Economics in the economics
16 community?

17 A. I do not.

18 Q. Do you know if the Joo article was
19 peer reviewed?

20 A. I assume so but I don't know that
21 to be a fact.

22 Q. In part, the Joo paper discusses
23 event studies conducted with the respect
24 of -- strike that.

25 In part, Joo's paper describes

1 event studies conducted with respect to the effect
2 of certain announcements on the price of three
3 digital assets. Is that right?

4 A. I have to remind myself if there
5 are really three digital assets.

6 Q. If it's helpful, I'm looking at
7 page -4796 under the subhead "Data and methodology
8 sample."

9 A. Got it.

10 (Document review.)

11 I'm also looking at Table 2 on page
12 -4800 where some results are -- some summary
13 statistics are reported for the same three
14 cryptocurrencies and also the tables around major
15 events that I see on pages -4802, and all of which
16 refer to Bitcoin, Ripple, and Ethereum.

17 So I think by now I've satisfied
18 myself that the answer to your question is yes.

19 Q. Do you understand the reference in
20 the JOO article to Ripple to be a reference to
21 XRP?

22 A. That's how I read it when I saw it.

23 Q. What was the basis for your
24 understanding that Joo's reference to Ripple was a
25 reference to XRP when you read the article?

1 A. Initially and primar- -- and
2 primarily, it was that by the time I saw this
3 article, I was familiar with seeing references to
4 Ripple and XRP occurring together.

5 As I testified earlier today, I do
6 not have a fresh recall as I sit here of whether
7 the article actually confirmed that expressly.
8 But I don't recall learning anything from it that
9 changed my understanding.

10 Q. Did you first read the Joo article
11 after your retention in this case?

12 A. Yes.

13 Q. In reading this Joo article, did
14 you have any critique of the author's design of
15 the event studies described?

16 MR. FIGEL: Objection.

17 A. The test statistics that these
18 authors used are part of the design of their event
19 study. And I have some -- I do have some
20 questions about that. But because I didn't need
21 to go to delve into the background of this article
22 and read yet other articles, I never fully
23 resolved those questions.

24 For the purposes of my assignment
25 in this case and for the opinions that I actually

1 express in my report, I didn't need to -- to delve
2 behind the questions. So criticism, potential
3 criticism, depending on the questions that
4 occurred to me.

5 Q. Did you review the portion of the
6 Joo paper regarding selection of major events,
7 starting on page -4797?

8 A. Only in a cursory way.

9 Q. Do you recall having any critique
10 of the Joo paper's authors' design of their
11 selection of major events for their event study?

12 MR. FIGEL: Objection.

13 A. I don't recall focusing enough on
14 the section -- their section on the selection of
15 their events, since that isn't what Dr. [REDACTED] cited
16 this article for, to develop a basis for
17 endorsement or criticism.

18 Q. Have you finished all of the work
19 you were assigned to do in this case?

20 A. Yes, in the sense that I have no
21 pending projects or outstanding assignments, so
22 that it's fair to say I have no plans to do
23 additional work as I sit here today.

24 If I am asked to do anything
25 additional, I would certainly entertain such a

1 request if it came to me.

2 Q. Have you come to learn any
3 information since you signed the report at LM-1
4 that in any way affects the opinions set forth in
5 your report?

6 A. No. None that I can think of at
7 least.

8 Q. Who wrote the text of your report
9 at LM-1?

10 A. It was a collaborative writing
11 effort in which Dr. Asinski provided portions of
12 the -- of a draft text which I then, in most
13 cases, thoroughly and extensively rewrote so that
14 the collaboration ended with a document that is
15 entirely my own.

16 Q. Do you recall any portions of your
17 report that you did not, as you describe it,
18 thoroughly and extensively rewrite?

19 A. No.

20 Q. Is there anyone else who assisted
21 with the drafting of your report other than
22 Dr. Asinski?

23 A. I've already mentioned Mr. Narsid
24 Golic, who performed various tasks in support of
25 Dr. Asinski. I can't know -- I don't know whether

1 Mr. Golic had a role in creating material
2 delivered to me by Dr. Asinski. But except for
3 that, I can't think of anybody.

4 Q. Is there any portion of your report
5 where you wrote the first draft?

6 A. I can't answer that from memory,
7 but I would be happy to page through the report
8 and tell you if I recognize such a section.

9 Q. Sure. Why don't you go ahead.

10 A. (Document review.)
11 Much of the boilerplate on
12 introduction and background, I certainly wrote the
13 first draft. And I didn't write it for this
14 engagement. I've used similar language elsewhere.
15 It seems to me Section 2 is mostly my writing, as
16 a first draft, I mean. All of it is entirely my
17 writing but I drafted that.

18 Paragraph 11, I wrote the first
19 draft. Paragraph 13 looks to me like something
20 that I drafted. Paragraph 17 looks to me like
21 something that I drafted. Paragraph 20 and 21
22 were likely my work as in creating the initial
23 draft.

24 I am -- I created the first draft
25 of tables, like Tables 2 and 3, but certainly the

1 insertion of the bulk of the numbers into those
2 tables, that was done -- I didn't do that from the
3 source computer outputs that we used for those.

4 Paragraph 25 looks like something I
5 drafted. Paragraph 30 looks like something I
6 wrote the first draft of.

7 So I -- while Dr. Asinski and
8 others assisting me had a substantial role, it
9 looks like I -- and helped with comments -- it
10 looks like to me as if the -- much of the
11 substance of this document I drafted.

12 Q. You mentioned that you likely
13 prepared the first draft of Tables 2 and 3 and
14 others input the numbers. Is that right?

15 A. With a few numbers but that the
16 bulk of the numbers, I testified, were not
17 inserted by me.

18 Q. Right. Are you nevertheless
19 familiar with the numbers that appear in Tables 2
20 and 3?

21 A. Yes, I am.

22 Q. Other than Dr. Asinski and possibly
23 Mr. Golic, was there anyone else who assisted with
24 the drafting of your report?

25 A. No.

1 Q. Did counsel provide comments on
2 your report?

3 A. Yes.

4 Q. Which counsel?

5 A. Mr. Figel and possibly, for all I
6 know, anybody working with him.

7 Q. Did counsel draft any part of your
8 report?

9 MR. FIGEL: You can answer yes or
10 no.

11 A. No.

12 Q. Did you incorporate counsel's
13 comments into the final version of your report?

14 A. Where counsel's comments seemed to
15 me to be useful and/or to suggest useful ideas or
16 changes, I made improvements to the language
17 prompted by counsel's comments, and where they did
18 not, I did not.

19 Q. Item 5 of Attachment C to your
20 report is [REDACTED] electronic backup. Is that right?

21 A. Yes.

22 Q. Did you personally review the [REDACTED]
23 electronic backup?

24 A. I reviewed at least portions of it.
25 I had access to the whole of it, but I won't say

1 that I personally scrutinized every part of it.

2 Q. In your review of the portions of
3 Dr. [REDACTED] electronic backup that you reviewed, did
4 you find any errors?

5 A. None that I can recall. I'm fairly
6 sure I would remember since all of this is quite
7 recent. I did not find errors.

8 Q. Did you instruct others to review
9 Dr. [REDACTED] electronic backup?

10 A. Yes.

11 Q. What instructions, if any, did you
12 provide them as to their review?

13 A. To explore the backup material in
14 order to report back to me its nature, to
15 replicate the calculations performed by Dr. [REDACTED]
16 and verify that when using the inputs, the input
17 data provided by him, that the calculations
18 described by him actually produced the outputs
19 reported by him.

20 So that would be a routine process
21 of replication, of auditing the work, to confirm
22 that the inputs -- to confirm at least by checking
23 a number of individual input data items that the
24 inputs actually did appear to come from the, I
25 think, coin-based source, whatever the name of the

1 source is that Dr. [REDACTED] reports, and that we could
2 see the same numbers looking at those sources; and
3 then to report back to me that -- whether or not
4 we were able replicate and thereby fully
5 understand what it is that Dr. [REDACTED] had done.

6 Q. Were you able to replicate
7 Dr. [REDACTED] calculations?

8 A. Yes.

9 Q. From the review that you just
10 described, did anyone on your team discover any
11 errors in Dr. [REDACTED] backup files?

12 MR. FIGEL: Objection.

13 A. I recall none.

14 Q. Are you aware that defense counsel
15 in this case produced a set of files entitled
16 "Marais Backup" to the SEC?

17 A. Yes.

18 Q. Did you prepare the materials
19 contained within Marais Backup?

20 A. Yes, at least in the sense that the
21 files were created under my direction by the
22 Compass Lexecon staff whose names I have already
23 testified about.

24 Q. What do the Marais Backup files
25 contain?

1 A. They contain computer code used to
2 produce the results reported in my own report
3 that -- that is two flavors of computer code.

4 They contain input files which are
5 very largely derived and may, in fact, come
6 straight from Dr. [REDACTED] own production in this
7 case.

8 They contain intermediate files
9 that were produced as -- in the course of
10 executing the computer code produced in that
11 backup, they contain output files. Some of those
12 outputs, if I remember correctly, are in
13 relatively unfriendly computer output-like format.

14 Other outputs are in the form of
15 Excel spreadsheets, which were the basis of
16 exhibits to my report.

17 So I think that fairly fully
18 describes what is in those backup materials. And
19 they -- in the form I believe they were delivered,
20 they -- the components are labeled. They're in
21 file folders. And those folders are labeled to
22 make it fairly easy to understand the relation of
23 the computer files we produced to the description
24 that I've just given.

25 Q. Did you do anything to check the

1 accuracy of the materials contained within your
2 backup files?

3 MR. FIGEL: Objection.

4 A. I routinely -- I followed my
5 routine practice of asking about whether the
6 materials in the backup files tied to the exhibits
7 where there was -- in my report and whether we had
8 reason to think that the calculations that we had
9 performed were performed accurately.

10 And in part, we verified -- I had
11 that verified by confirming that we were able to
12 produce -- to reconcile to numbers reported by
13 Dr. [REDACTED] or appearing in Dr. [REDACTED] backup
14 materials, even though the chain of computer steps
15 that we were using were not identical to the set
16 of steps used by Dr. [REDACTED] So yes.

17 Q. You said in part that you followed
18 your routine practice of asking about whether the
19 materials in the backup files tied to the exhibits
20 in your report.

21 Who did you ask?

22 A. Dr. Asinski.

23 Q. Okay.

24 THE WITNESS: I would like to take
25 a break at some point soon. It doesn't have

1 to be at this exact moment.

2 MR. FIGEL: Now is fine by me.

3 Let's go off the record.

4 THE VIDEOGRAPHER: The time is
5 12:02 p.m. This concludes Media 2. Off the
6 record.

7 (Lunch recess taken from 12:02 p.m.
8 to 12:58 p.m.)

9 - - -

10 A F T E R N O O N S E S S I O N

11 - - -

12 (Time noted: 12:58 p.m.)

13 - - -

14 THE VIDEOGRAPHER: The time now is
15 12:58 p.m. This begins Media 3. On the
16 record.

17 M. L A U R E N T I U S M A R A I S,
18 resumed and testified further as
19 follows:

20 CONTINUED EXAMINATION

21 BY MR. SYLVESTER:

22 Q. Dr. Marais, earlier today you
23 testified that, prior to your retention as an
24 expert witness in this case, you had been retained
25 about three months ago by Kellogg Hansen. Is that

1 right?

2 A. Yes.

3 Q. Did that retention have anything to
4 do with this case?

5 A. No.

6 Q. Earlier today I believe you
7 testified that Dr. [REDACTED] study as expressed in his
8 expert report is a nonstandard analysis. Is that
9 right?

10 A. Yes.

11 Q. And I believe that you also
12 testified that you could not rule out that there
13 was precedent for that nonstandard analysis. Is
14 that right?

15 A. Correct.

16 Q. Did you look for any such
17 precedent?

18 A. Yes.

19 Q. What did you find, if anything?

20 A. Nothing.

21 Q. I believe you testified earlier
22 that the Joo and Gerritsen papers might provide
23 some precedent for some portions of Dr. [REDACTED]
24 study. Is that right?

25 A. Yes.

1 Q. And what precedent do either of
2 those two papers provide for Dr. [REDACTED] study?

3 A. The use of some kind of index
4 model, even if it is the -- the no index model
5 that Dr. [REDACTED] calls the constant mean returns
6 model. But at least the use of some kind of index
7 model for estimating a normal return on a
8 cryptocurrency in some test period.

9 Q. Is there any other precedent that
10 either of those two papers provide for Dr. [REDACTED]
11 study?

12 A. Not in a methodological sense.
13 They both have superficial characteristics but --
14 that don't go to the method that resembled
15 Dr. [REDACTED] They both -- they both have to do with
16 cryptocurrencies of a -- for instance.

17 But that's what I call superficial.
18 That doesn't -- that's not enough to make them
19 precedent, a methodological precedent.

20 Q. When were you retained in the Rhame
21 case we discussed earlier?

22 A. In the -- at some point in the
23 first half of 2020, maybe around the end of the
24 first quarter of 2020.

25 Q. And when was it that your expert

1 report was provided to the other side in Rhame?

2 A. In either late October or early
3 November of 2021.

4 Q. Who retained you in the Rhame
5 matter?

6 A. I was retained through counsel,
7 counsel being Alston & Bird, on behalf of
8 defendant Tyson Rhame.

9 Q. In your professional career, and
10 setting aside Rhame, was there any occasion in
11 which you endeavored to assess whether there was a
12 link between a news event and a reaction in volume
13 and you concluded there was no such link, based in
14 whole or in part, on your observation of abnormal
15 reactions in volume on days with no-news events?

16 MR. FIGEL: Objection.

17 A. I testified at some length this
18 morning about the passage of time since I
19 performed event studies as a routine part of my
20 consulting practice. And I testified that,
21 because really 20 or more years have passed, I
22 can't today testify with fresh recollection or
23 specificity about the content of those event
24 studies.

25 So I can only say I don't -- I do

1 not recall the nature of everything that I did
2 when I last did this kind of -- most recently did
3 work that seems to be covered by your question.

4 Q. So fair to say, other than Rhame,
5 sitting here today, you cannot think of any other
6 occasion that would be responsive to my previous
7 question?

8 MR. FIGEL: Objection.

9 A. I can think of many occasions that
10 could be covered by your previous question, but
11 none where my -- none that I would have thought to
12 describe in that way.

13 But your question is broad enough
14 that there are matters that I would describe
15 differently if asked to describe what they were
16 about, but upon reflection might well recognize as
17 fitting into the category you are asking me about.

18 Q. Can you describe, setting aside
19 Rhame, another occasion in which you endeavored to
20 assess whether there was a link between a news
21 event and a reaction in volume and you concluded
22 there was no such link, based in whole or in part,
23 on your observation of abnormal reactions in
24 volume on days with no-news events?

25 MR. FIGEL: Objection.

1 A. I've already testified that I
2 can't -- that concerning my work on event studies
3 per se, it's too long ago. I don't -- I don't
4 have that recollection.

5 I've also given you -- I've also
6 pointed out that your characterization is broad
7 enough to cover situations that wouldn't -- that
8 might not have been labeled event studies per se.

9 And because they were not labeled
10 event studies per se, I would need to remind
11 myself, however briefly, of the nature of what the
12 work was.

13 And so with that in mind, I've
14 picked up my report, and I've turned to Attachment
15 B. And I would like to run my finger down these
16 matters and just think about what they involved
17 and whether they fit under the heading of what you
18 were asking me about.

19 Q. Please go ahead.

20 A. (Document review.)

21 The -- Item 14 on my -- on the list
22 is called Cotromano v United Technologies and
23 Adinolfe versus United Technologies. That seems
24 to me to be an example of the second kind of case
25 that I mentioned.

1 I -- I identified two categories.
2 One was work that I had done on event studies,
3 which is now too long ago for me to recall clearly
4 what it was.

5 Cotromano is also some time ago.
6 But my recollection of Cotromano is that it falls
7 into the second category, where there is something
8 that one can recognize as a kind of event study,
9 even though not called that in the context.

10 And that fits the rest of the
11 characterization that you provided. And I -- as
12 it's now coming back to mind, I think that's not
13 the only one.

14 I think Pinares versus United
15 Technologies in Item 17 had something of that same
16 character.

17 (Document review.)

18 The -- there are aspects of the
19 opiate litigation identified in Item 22 that fit
20 that character. The same would hold in 23, also
21 26, also 34, also 38, also 40, also 44.

22 And, of course, this list begins in
23 January of 2017 because it's meant to cover only a
24 full four-year period. And so were we looking at
25 older versions of this list, there might well be

1 others that are even better candidates than what
2 I've identified for you on this list.

3 Q. In any of the cases that you just
4 identified, was it your assignment to evaluate the
5 link between a news event and the price of a
6 security?

7 MR. FIGEL: Objection.

8 A. No.

9 Q. In any of the cases that you just
10 identified, was it your assignment to evaluate the
11 link between a news event and the volume of a
12 securities trading?

13 MR. FIGEL: Objection.

14 A. Certainly the volume of something,
15 but not the volume of securities necessarily.

16 Q. Was your assignment for any of the
17 cases you just identified substantially identical
18 for any of them?

19 MR. FIGEL: Objection.

20 A. Identical to what?

21 Q. That's a fair point. I'll give you
22 an example so you know what I mean.

23 Assignments 34 and 44 both appear
24 to involve the client JUUL Labs. Were you
25 retained by JUUL Labs?

1 A. Yes.

2 Q. Was your assignment in 34 and 44
3 substantially identical?

4 MR. FIGEL: Objection.

5 A. (Document review.)

6 There was certainly an overlap
7 between 30 -- 33, 34, and 44. To the best of my
8 recollection, sitting here, though, the
9 differences were so substantial that I would not
10 call the assignments substantially identical.

11 Q. Let's start with 14. What opinion
12 did you offer in the Cotromano case?

13 A. The opinion that I offered in
14 Cotromano had to do with the statistics
15 surrounding a putative -- a putative cancer
16 cluster in an area of Florida -- in a subdivision
17 of Florida that was near a -- somewhat near a
18 Pratt & Whitney jet engine production and research
19 facility.

20 My opinion was about the
21 investigation that had been performed by the State
22 of Florida and the federal EPA on the causation,
23 or lack thereof, of the pediatric brain cancers
24 that had been observed in the acreage subdivision
25 and the presence of the plant.

1 Q. Did you provide any opinion related
2 to causation that you just described?

3 A. Yes.

4 Q. What was your opinion?

5 A. That it had -- that it had not been
6 established and that despite a -- and a fairly
7 intensive investigation, no link had ever been --
8 no actual link had ever been documented.

9 Q. What is it about the work that you
10 performed in the Cotromano case that you believe
11 may be responsive to my question as to whether in
12 your professional career there was any occasion in
13 which you endeavored to assess whether there was a
14 link between a news event and a reaction in volume
15 and you concluded there was no such link, based in
16 whole or in part, on your observation of abnormal
17 returns in volume on days with no-news events?

18 MR. FIGEL: Objection.

19 A. My -- I -- my answer to that
20 question was that this case involved such a thing.
21 As it turns out, the opinions I ultimately
22 expressed did not involve my work on that
23 question.

24 But that question did arise in that
25 case in the form of the disclosure of the

1 investigation itself, various disclosures
2 concerning the discovery of the cluster, various
3 disclosures concerning the outcome of the
4 investigation by the various state and federal
5 authorities, and the prices of housing. And I --
6 there may even have been a volume question in
7 terms of turnover.

8 So there were news releases
9 concerning this event in the vicinity of the area.
10 And there were questions about the price of
11 housing.

12 Q. Did your expert work address those
13 questions regarding price of housing?

14 A. I did initially, yes.

15 Q. And -- but you didn't ultimately
16 end up offering an opinion about any questions
17 related to price of housing. Is that right?

18 A. That is correct.

19 Q. Okay. Limiting your answers only
20 to work that you did that was ultimately presented
21 in an expert report, and setting aside Cotromano,
22 which we just discussed, which of Items 17, 22,
23 23, 26, 34, 38, 40, and 44 do you view as
24 responsive to my question as to whether there was
25 any occasion in which you endeavored to assess

1 whether there was a link between a news event and
2 a reaction in volume and you concluded there was
3 no such link, based in whole or in part, on your
4 observation of abnormal returns in volume on days
5 with no-news events?

6 MR. FIGEL: Objection.

7 A. (Document review.)

8 In work that was -- that I
9 ultimately did include in what I produced, there
10 is -- there's some question on my mind as to
11 whether the declaration of an epidemic of opioid
12 abuse is a news event or not.

13 It's -- it is a news event. It is
14 also a very substantive event. But it is at least
15 news that the administration, the national
16 administration has declared it to be an epidemic.
17 There was an element of that in Item 22.

18 Q. What opinion did you provide in
19 connection with Item 22?

20 A. That none of the events on the
21 timeline of that case, including the disclosure
22 and announcement of -- that the problems
23 associated with opioids are now viewed as an
24 epidemic and a crisis, a national emergency,
25 public health emergency, appear to be related in a

1 documentable way to the trajectory of sales of
2 Johnson & Johnson products or of opioids
3 generally.

4 Q. What abnormal reactions did you
5 observe in connection with your work in Item 22
6 that impacted your opinion in that case?

7 MR. FIGEL: Objection.

8 A. Movements in the trajectory that
9 were statistically large increases or changes,
10 turning points that did not appear to coincide
11 with events on the timeline to which changes had
12 been attributed or linked in purported causal
13 claims by various experts in the matter.

14 Q. When you used the word "trajectory"
15 in your previous response, trajectory of what?

16 A. Sales.

17 Q. Sales of Johnson & Johnson
18 products?

19 A. Yes. So volumes, in other words.

20 Q. Is there any other item among the
21 items you identified, and setting aside Cotromano
22 and the case we just discussed, in which you
23 offered an opinion in an expert report that you
24 believed to be responsive to my question as to
25 whether there was any occasion in which you

1 endeavored to assess whether there was a link
2 between a news event and a reaction in volume and
3 you concluded there was no such link, based in
4 whole or in part, on your observation of abnormal
5 reactions in volume on days with no news-events?

6 MR. FIGEL: Objection.

7 A. Setting aside the character and
8 similar analyses with different details to the one
9 that I have just described, there are -- in the
10 JUUL matter, one or more JUUL matters,
11 JUUL-related matters, there is a similar -- I -- I
12 take it back.

13 The -- I suppose youth usage can be
14 described as volume. So it's not a price effect.
15 But there is a volume effect, and there are
16 disclosures along -- arranged along a timeline,
17 and there are marked changes in volume.

18 And there is a question of whether
19 the marked changes in volume are -- can be related
20 in a statistically reliable way to disclosures.

21 Now, again, as in the opioid
22 matter, there is a question in my mind about
23 whether the disclosure is just a disclosure, a
24 news event or, whether, as a news event, it is
25 describing some underlying real event that may be

1 the driver of any consequence.

2 I suppose there is always a real
3 event that is described in news unless it's fake
4 news.

5 But the analysis that I have
6 performed of -- of youth usage in relation to
7 timeline markers are of that character where there
8 are marked statistical changes, statistically
9 large changes in youth usage that do not coincide
10 with the disclosed events that are held to be or
11 hypothesized to be possibly causal.

12 Q. And was the existence of those
13 marked statistical changes that you just described
14 influential on your opinion that you presented in
15 the JUUL matter?

16 A. Yes.

17 MR. FIGEL: Objection.

18 Sorry.

19 Q. In what way?

20 A. The fact that they were held to be,
21 by some opinions in the case, causally related but
22 were, in fact, not -- did not coincide in a
23 rationally recognizable way with the changes that
24 they are supposed to have caused was part of my
25 support for the opinion that the causation -- that

1 certain causation claims had simply not been
2 established on a statistically reliable basis.

3 Q. I've asked a series of questions
4 relating to reactions in volume. I'll ask for
5 your patience. I'm going to ask the same question
6 with price to make sure we covered the whole
7 ground here.

8 In your professional career, was
9 there any occasion in which you endeavored to
10 assess whether there was a link between a news
11 event and a reaction in price and you concluded
12 there was no such link, based in whole or in part,
13 on your observation of abnormal reactions in price
14 on days with no-news events?

15 MR. FIGEL: Objection.

16 A. If I heard the preamble correctly,
17 you asked in my professional career, which goes
18 back to about 1982 at the University of Chicago.

19 I've already testified at some
20 length about the fact -- I hope understandable
21 fact -- that I simply cannot testify about the
22 content of event study related or event study
23 analogous work that I did 20 years ago, and
24 certainly 40 years ago is not any easier.

25 So I would have to say

1 almost -- almost certainly yes, there have been
2 such occasions, but I cannot recall sitting --
3 that sitting here today. I can't identify a
4 specific instance for you today.

5 It is most likely that that
6 occurred while I was still doing academic
7 research.

8 Q. When was that?

9 A. That was a period that spanned
10 approximately 40 years ago to 30 years ago.

11 Q. Why is it most likely that it
12 occurred when you were doing your academic
13 research?

14 A. Because I was looking at many more
15 event study-type analyses then and at a much
16 greater variety of -- in the main, much more
17 interesting questions than the ones that arise in
18 narrow litigation assignments.

19 Q. In this case, you are offering
20 solely an expert rebuttal opinion. Is that right?

21 A. It is right to the extent that I am
22 responding in a focused way to the report of
23 Dr. [REDACTED] in this case. That said, if Dr. [REDACTED]
24 were, God forbid, to vanish off the face of the
25 earth and somebody else presented opinions that

1 overlap with the [REDACTED] issues that I address, my
2 opinions would be pertinent, more broadly because
3 I address issues. I don't address the person,
4 Dr. -- Dr. [REDACTED]

5 Q. As it stands today, does your
6 rebuttal opinion pertain solely to opinions set
7 forth in Dr. [REDACTED] expert report?

8 A. Yes. I think that is a fair
9 characterization.

10 Q. Are all of the opinions --

11 A. It -- sorry. Can I just add?

12 Q. Please.

13 A. It refers to the -- to what
14 those -- what the Dr. [REDACTED] findings do and not --
15 and do not convey and imply about what I
16 understand are issues in this case. And in that
17 sense, my opinions go beyond Dr. [REDACTED] because
18 Dr. [REDACTED] is not very explicit on that point.

19 But it is certainly the case
20 that -- and I view my work as rebuttal to
21 Dr. [REDACTED] It just happens that in discussing what
22 Dr. [REDACTED] conclusions mean and what their
23 significance is, I end up going a little bit
24 beyond what Dr. [REDACTED] himself says.

25 Q. Can you identify for me the

1 occasions on which you go a little bit beyond what
2 Dr. [REDACTED] says?

3 A. I'm not sure I will get all of them
4 from memory, but I can give you an illustration.

5 Q. Please.

6 A. (Document review.)

7 I'm looking, for instance, at
8 paragraph 5 of my report. And I'm going to skip
9 the first part of -- it's a single-sentence
10 paragraph, which is remarkable in itself.

11 I will skip over the first half of
12 it and say that I was asked to address:

13 "Whether, based on my expertise,
14 his opinions support the contention that, in
15 economic substance, movements in XRP prices
16 solely or predominantly reflect responses to
17 disclosures about Ripple's actions."

18 Now, I don't know that I can -- it
19 may be that I can, but I'm not sure that I can
20 find in Dr. [REDACTED] report a claim or an opinion
21 that movements in XRP prices solely or
22 predominantly reflect responses to disclosures
23 about Ripple's actions.

24 So in that sense, my addressing
25 that question does go beyond what Dr. [REDACTED] seems

1 to assert directly in his own conclusions and go
2 to exactly what I just explained as what do these
3 conclusions say or not about what an issue -- a
4 question that I understand to be important in this
5 case.

6 Q. Do you believe from your reading of
7 Dr. [REDACTED] report that he's contending:

8 "In economic substance, movements
9 in XRP prices solely or predominantly reflect
10 responses to disclosures about Ripple's
11 actions"?

12 A. I think he does not, to the best of
13 my recollection. Without actually paging through
14 it, I think -- I doubt that I can find a place
15 where Dr. [REDACTED] states a proposition that I would
16 say amounts to this.

17 But I would say that Dr. [REDACTED] is
18 careless about not alerting the reader of his
19 report to the rather extreme limitations of what
20 his findings really show.

21 And in that sense, he rather
22 invites a reader of his report to fill in the
23 missing piece that gets you to these words in
24 paragraph 5. And he does nothing to -- to -- he
25 doesn't put in any railing or fencing to keep the

1 reader of his report away from drawing that
2 inference.

3 That's what I mean in paragraph 7,
4 what the words in paragraph 7 of my report.

5 Q. Which words are you referring to,
6 Dr. Marais?

7 A. Where I say, I quote -- in
8 paragraph 6, I quote him in his expansive
9 conclusion:

10 "Statistically significant evidence
11 XRP prices react to news about Ripple's
12 actions ... the results hold for nearly all
13 statistical models ... taken together, this
14 indicates" -- bottom line conclusion -- "XRP
15 prices react to the news of actions by Ripple
16 Labs."

17 Now, for somebody who has in mind
18 what I understand to be the question in this
19 case -- Do XRP purchasers purchase XRP looking for
20 value from Ripple Labs? -- that statement doesn't
21 contain any user warnings about the limitations of
22 Dr. [REDACTED] work. And that's why I say this
23 language -- your question to me was what language
24 am I referring to in my own paragraph. And the
25 language I'm -- I was referring to is where I say:

1 "This language invites a reader of
2 the [REDACTED] report to conclude that Dr. [REDACTED] has
3 identified statistical evidence showing that
4 XRP price movements are driven largely -- and
5 causally" -- which he certainly has not
6 done -- "by actions taken by Ripple."

7 Q. So is it fair to say that your view
8 is not that Dr. [REDACTED] contends that, in economic
9 substance, movements in XRP prices solely or
10 predominantly reflect responses to disclosures
11 about Ripple actions, but that a reader could draw
12 that inference from reading his report?

13 MR. FIGEL: Objection.

14 A. I think that is so close to fair
15 that it's almost not possible to see the daylight
16 between it and fairness, but I do see some
17 daylight there.

18 I would not testify that Dr. [REDACTED]
19 does not test- -- contend that. I have testified
20 that he does not ex- -- I can't point to express
21 language in Dr. [REDACTED] But Dr. [REDACTED] is a little
22 unclear in his restatements of his assignments.

23 The assignments can be read as
24 being fairly broad. And Dr. [REDACTED] conclusion is
25 so strongly positive on discovering what he says

1 he was asked to look for, as quoted here, that
2 it's almost a contention. That's why I say there
3 is little daylight between what I actually am
4 testifying to and your characterization of it.

5 Of course, if Dr. [REDACTED] were here
6 and simply disavowed these opinions, I would say,
7 "Sorry, I stand corrected. You are not saying
8 anything causal and you are not saying that."

9 But since I have only his report to
10 work with, this is where I end up.

11 Q. Is it possible that XRP prices
12 could react to the news of actions by Ripple Labs
13 and also, at the same time, that XRP prices do not
14 solely or predominantly reflect responses to
15 disclosures about Ripple's actions?

16 MR. FIGEL: Objection.

17 A. I think that that is not only
18 possible, but as far as I can tell, that is -- I
19 can't say the -- I will disavow any causal
20 conclusion, because I'm not sure -- I don't see
21 any simple -- any sufficient basis for genuine
22 causal conclusions.

23 So I'll stick with "associate"
24 rather than "caused by." With that qualification,
25 I think what you've -- the possibility you've

1 asked me about is the pos- -- is where we are.

2 Dr. [REDACTED] does document that
3 a -- what I will characterize as a sliver of the
4 large abnormal returns on XRP do coincide
5 with -- different from causation -- do coincide
6 with Ripple news events. Most of the large price
7 movements that he identifies do not coincide with
8 Ripple news events.

9 So the nature of the coincidence
10 that he finds is a statistically significant
11 association. It is an association with a sliver
12 of the large price movements in XRP, and I
13 would -- that -- that's my basis for saying yes,
14 with my caveat. I do -- I think that it's not
15 only possible, I think that's what the evidence
16 that I'm aware of shows.

17 Q. Do you think that the evidence that
18 you just described that Dr. [REDACTED] identified in his
19 report is sufficient to support the sentence:
20 "This evidence indicates that XRP prices react to
21 the news of actions by Ripple Labs"?

22 MR. FIGEL: Objection.

23 A. Properly understood, the problem --
24 and I'm happy -- I realize I've been giving rather
25 long answers. I'll stop there.

1 Properly -- properly understood,
2 yes, and I'm -- if you would like, I would be
3 happy to explain what I mean by that.

4 Q. I think -- let's return to this
5 line of questioning.

6 Other than Dr. [REDACTED] report, have
7 you read any other expert reports in this case?

8 A. I have -- "read" is perhaps too
9 strong. I have reviewed -- I've reviewed one
10 report, one other report.

11 Q. Which one?

12 A. The report of Dr. or Professor
13 Allen Ferrell.

14 Q. You characterized your review as
15 "'read' is too strong." Why is that?

16 A. I paged through it, paused on the
17 most rivetingly interesting pages, which are the
18 ones that have statistics on them, long enough to
19 understand what is being done there and read
20 with -- and perused, reviewed with very little
21 attention the substantial discussion in that
22 report of things that I think, if I remember
23 right, are called the Howey factors. The Howey
24 factor, H-o-w-i-e, I think. Or is it e-y? I'm
25 not sure.

1 MR. FIGEL: Mr. Sylvester and I
2 both know but we're not testifying. Can I
3 spare the court reporter?

4 MR. SYLVESTER: Go ahead.

5 MR. FIGEL: It's e-y.

6 Q. Okay. Other than Dr. Ferrell's
7 report, have you read any other expert reports in
8 this case?

9 A. Other than Dr. Ferrell's report and
10 Dr. [REDACTED] report?

11 Q. I stand corrected. Other than
12 those two.

13 A. No, I've read no other reports.

14 Q. Okay. Are you offering any
15 opinions in this case about the contents of any
16 expert reports other than Dr. [REDACTED] expert report?

17 A. Not as I sit here today. I've
18 already indicated that if asked -- I've already
19 testified that I have no pending projects or
20 requests. I've also testified that if asked, I
21 would consider a request within reason.

22 Q. Do you know Dr. [REDACTED]

23 A. I thought about that when I read
24 that he was at the [REDACTED]. But we
25 did not overlap, I believe, at [REDACTED]

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So the -- so I didn't remember him,
and then I looked at his CV, and I still did not
remember him.

Q. Other than any information that you
obtained from Dr. ██████████ CV, do you know anything
about him?

A. No.

Q. Did you review the portions of
Dr. ██████████ report that sets forth his
qualifications?

A. Yes. So I suppose I should have
said yes, do I know anything else? Anything that
it says in his report about him that is not also
in his CV, I learned from that source.

Q. Is it your view that Dr. ██████████ is
qualified to offer the opinions he offered in his
expert report?

MR. FIGEL: Objection.

A. Based on his description of his
background and what his CV says about him, I have
no basis to question Dr. ██████████ technical
qualifications.

Q. Do you know Dr. Ferrell?

A. No.

1 Q. Do you know anything about
2 Dr. Ferrell?

3 A. Yes.

4 Q. What do you know?

5 A. The things that I learned from his
6 CV and from his description of his qualifications
7 in his -- in the report that I looked at briefly.

8 Q. Are you aware that defendants
9 submitted an expert report by Daniel Fischel?

10 A. Yes, I am.

11 Q. Did you read his report?

12 A. No.

13 Q. Did you communicate with him about
14 his report?

15 A. No.

16 Q. Did you communicate with him about
17 your report?

18 A. No.

19 Q. Have you communicated with
20 Mr. Fischel at all about the topic of this case?

21 A. No.

22 Q. You do know Mr. Fischel though?

23 A. Yes.

24 Q. You work together?

25 A. Yes.

1 Q. Do you work closely with him?

2 A. That would overstate it. I've
3 known Mr. Fischel for much longer than I've been
4 at Compass Lexecon. So I say that to explain that
5 I know Mr. Fischel, but I don't work closely with
6 him.

7 Q. Outside of Dr. [REDACTED] report, has
8 defense counsel provided you with any other event
9 study regarding XRP's price?

10 MR. FIGEL: Why don't you start by
11 answering yes or no.

12 A. No.

13 Q. Outside of Dr. [REDACTED] report and the
14 Joo paper that we discussed earlier, are you aware
15 of any other event study conducted regarding XRP's
16 price?

17 A. I have no specific knowledge of any
18 other event study.

19 Q. Okay. Turning to paragraph 4 of
20 your report. Fair to say that paragraph 4, among
21 other things, summarizes certain of Dr. [REDACTED]
22 conclusions?

23 A. (Document review.)

24 Yes.

25 Q. In addition to the conclusions that

1 you summarize in your paragraph 4, Dr. [REDACTED] also
2 reached certain conclusions regarding the
3 relationship between XRP returns and the returns
4 of other digital assets. Correct?

5 A. Yes.

6 Q. Are you offering any opinion in
7 this case regarding Dr. [REDACTED] conclusions
8 regarding the link between XRP prices and the
9 prices of other digital assets?

10 A. I am not unless there is some way
11 in which that topic is implicated in the topics
12 that I do address that I'm not recognizing at the
13 moment.

14 Q. I think we covered this earlier,
15 but for the record, the concluding part of
16 paragraph 5, the -- that, as I understand
17 it -- let me -- strike that.

18 Paragraph 5 describes your
19 assignment. Is that right?

20 A. Yes.

21 Q. Okay. And the concluding part of
22 paragraph 5 in which -- which ends:

23 "His opinions support the
24 contention that, in economic substance,
25 movements in XRP prices solely or

1 predominantly reflect responses to
2 disclosures about Ripple's actions."

3 That assignment was given to you by
4 counsel. Is that right?

5 A. As I say in that paragraph, the
6 whole paragraph is my assignment from counsel. It
7 begins: "Counsel for Ripple has asked me to
8 assess."

9 Q. Does Dr. [REDACTED] use the phrase
10 "economic substance" anywhere in his report?

11 A. I would have to use Acrobat tools
12 like the search function to tell that. I don't
13 have a verbatim recall.

14 Q. Do you recall whether Dr. [REDACTED] used
15 the words "solely or predominantly" in his report?

16 A. Again, I can't be certain of that,
17 but I have no reason to think that he did. I
18 believe that is the
19 characterize- -- characterization of my
20 assignment, not a characterization of -- not a
21 quote from Dr. [REDACTED]

22 And you did ask me earlier, as you
23 know, and I did testify earlier about this entire
24 half paragraph, and I did indicate at some length
25 its relation, in my mind, to what Dr. [REDACTED] does

1 conclude expressly.

2 Q. Taking a look at paragraph 30 of
3 your report.

4 A. I'm there.

5 Q. Do you summarize your opinions in
6 paragraph 30, starting with this phrase "in sum"?

7 A. Yes.

8 Q. Okay. You first write:

9 "It would be wrong to interpret
10 Dr. [REDACTED] event study as establishing that
11 XRP price movements are essentially a
12 function of Ripple's actions."

13 Do you see that?

14 A. Yes.

15 Q. Okay. Are you opining in this case
16 as to whether or not XRP price movements are
17 essentially a function of Ripple's actions?

18 A. I am opining that there is nothing
19 in Dr. [REDACTED] work that supports that conclusion
20 and, rather, that Dr. [REDACTED] work seems to refute
21 rather than support that conclusion.

22 Q. Have you performed any analysis to
23 determine whether or not XRP price movements are
24 essentially a function of Ripple's actions?

25 A. I have performed such an analysis

1 only in my review and assessment of Dr. [REDACTED] work
2 in this case. I have not undertaken that
3 assignment from scratch.

4 Q. You next write:

5 "Instead, the [REDACTED] event study
6 cannot prove a causal relationship between
7 Ripple's actions and XRP price movements."

8 Do you see that?

9 A. Yes.

10 Q. Are you -- setting aside your
11 critique of Dr. [REDACTED] report, are you offering any
12 other opinions in this case as to whether or not
13 there is a causal relationship between Ripple's
14 actions and XRP price movements?

15 MR. FIGEL: Objection.

16 A. So to be clear, we're setting aside
17 entirely Dr. [REDACTED] work and my response to
18 Dr. [REDACTED] work. Outside of my response to
19 Dr. [REDACTED] work, I am not offering any other
20 opinion independently of my review of Dr. [REDACTED] on
21 a causal relation of this kind.

22 Q. Other than your review of Dr. [REDACTED]
23 work, have you performed any analysis to determine
24 whether or not there's a causal relationship
25 between Ripple's actions and XRP price movements?

1 MR. FIGEL: Objection.

2 A. I have not. Doing such a thing was
3 not part -- has never been part of my assignment,
4 as I understood it, in this case.

5 Q. In the next sentence, Dr. Marais,
6 do you see the phrase "and, even if it could do
7 so"?

8 A. Yes.

9 Q. Does that phrase "even if it could
10 do so" reference, essentially, even if the [REDACTED]
11 event study could prove a causal relationship
12 between Ripple's actions and XRP price movements?

13 A. Yes.

14 Q. Okay. The sentence continues:

15 "The [REDACTED] event study documents at
16 best that any dependence of XRP price
17 movements on Ripple-related news accounts for
18 no more than a modest, far-from-preponderant
19 portion of XRP's unusual price movements
20 since 2014."

21 Do you see that?

22 A. Yes.

23 Q. When you say "XRP's unusual price
24 movements since 2014," what is it that you are
25 referring to?

1 A. "Unusual" is written with a capital
2 U, and that is because it's a defined term that I
3 define early on in my report.

4 I'm happy to recount the -- that
5 definition that I give earlier. But if you are
6 going to be taking me through that portion of my
7 report anyway, we might as well just go there and
8 not do it twice.

9 Q. Sure. Why not. Do you want to
10 point me to the paragraph that you're identifying,
11 Dr. Marais?

12 A. Yes. Page 6, Footnote 13, which
13 ties to the first full sentence on that page.

14 Q. In Footnote 13, you define your use
15 of the term "unusual"?

16 A. Yes. Actually, not only
17 Footnote 13, but paragraph 13 that -- near the
18 foot of the previous page.

19 Q. What is your definition for
20 "unusual" for the purposes of your report?

21 A. Well, I use, as I define the term
22 here, having noted that Dr. [REDACTED] has several
23 different ways of identifying what he calls
24 significantly positive trading days or event days,
25 any one of those, whichever one happens to be

1 pertinent at any given point in the discussion is
2 what I call capital U "Unusual" trading days.

3 Q. Are unusual trading days the days
4 on which Dr. [REDACTED] observed abnormal returns in
5 XRP?

6 MR. FIGEL: Objection.

7 A. No.

8 Q. Why not?

9 MR. FIGEL: Objection.

10 A. Because there is an abnormal return
11 in XRP every -- on every single trading day. In
12 fact, there are abnormal returns of various
13 flavors on every single trading day, and they are
14 not all unusual returns, that's why not.

15 Q. And can you, once again, just
16 define for me what an unusual return is for
17 purposes of your report?

18 A. Yes, it is a -- it is an abnormal
19 return of the kind that Dr. [REDACTED] labels as
20 significantly positive by either a parametric or a
21 nonparametric procedure applied in either a
22 two-sided or a one-sided way and with the, sort
23 of, small, local data mining exercise that he
24 performs at each trading day.

25 Q. Are unusual days days in which

1 there is a statistically significant abnormal XRP
2 return?

3 MR. FIGEL: Objection.

4 A. No, that is -- that's not -- that's
5 moving in the right direction but it's not --
6 doesn't quite get there yet.

7 Q. Is it fair to say that you take
8 issue with Dr. [REDACTED] calling specific trading days,
9 quote, "significantly positive"?

10 A. I -- "taking issue" is stronger.
11 This is just a small difference of opinion in what
12 is a fair -- a reasonably informative term to use.
13 I don't particularly take issue with him.

14 But statistically significantly
15 positive has a meaning from a textbook. And what
16 Dr. [REDACTED] actually does doesn't quite conform to
17 any standard textbook definition. That's why I
18 introduced the term "unusual" rather than using
19 a -- rather than misusing a term of art.

20 Q. Is there any component to your
21 definition of "unusual" that involves statistical
22 significance?

23 A. Yes.

24 Q. What is that component?

25 A. It is the -- what I call the small

1 local data mining exercise of picking a target
2 day, picking one of the four approaches -- the
3 parametric, nonparametric, one-sided, two-sided,
4 whatever, pick the approach. Then that approach
5 gives you a means of determining textbook-type
6 statistical significance.

7 But what you then do is you look
8 for the target -- the single target day with which
9 you began alone, and separately for the single
10 target day as well as the day following it, and
11 separately again for the target day, the day
12 following it, and day plus two following it.

13 You apply the more or less standard
14 textbook notion of statistical significance to all
15 three of those, and you pick the best of three, as
16 it were, if -- meaning, if any of them crosses the
17 threshold for statistical significance, now your
18 day -- your single target day with which you began
19 is, at least, a candidate for being labeled what
20 Dr. [REDACTED] calls significantly positive.

21 But now there's more. You now do
22 the same thing in the opposite direction. You
23 look at the target day, the target day plus the
24 next day, and finally, the target day plus the
25 next two days, and you look for a significantly

1 negative indication by the usual textbook version
2 of what that means.

3 In each of those three cases, you
4 look for the most significant of the three and
5 check to see that that most significantly negative
6 outcome does not actually reach significance.

7 And only if you have done all of
8 those steps do you finally -- and reach the
9 judgments, the conclusions that I have outlined
10 here -- only then do you call the day, label that
11 trading day with which you began, as significantly
12 positive.

13 So there are many pieces involved
14 there, many more than in a standard textbook
15 definition or procedure for determining
16 statistical significance.

17 That whole -- that's what I call
18 the small local data mining exercise. And if you
19 pass -- if a -- the day with which you began
20 passes that threshold, that's what I call
21 "unusual," an unusual day, as a defined term.

22 Q. Let's return to your paragraph 7.

23 Before I ask a question on 7, do
24 you agree that Dr. [REDACTED] procedure flags days with
25 large positive price reactions?

1 MR. FIGEL: Objection.

2 A. Broadly, yes. It's a screen
3 that -- of course, it has all of the texture in it
4 that -- or all of the details that I just
5 testified about.

6 So just saying "large positive,"
7 well, there will be some positive -- there may be
8 some large positive price react- -- price
9 movements, not reactions, but price movements,
10 that it may be that there are some that somebody
11 would think is large, but that don't get flagged
12 by this procedure.

13 But it's broadly a fair description
14 that it -- it sifts out larger from smaller upward
15 price movements, in the sense I testified about.

16 Q. We discussed briefly earlier the
17 start of paragraph 7 where you write that
18 Dr. [REDACTED]

19 "Language invites a reader of the
20 [REDACTED] report to conclude that Dr. [REDACTED] has
21 identified statistical evidence showing that
22 XRP price movements are driven largely and
23 causally by actions taken by Ripple."

24 Do you remember that conversation
25 earlier?

1 A. I can bring it back to mind.

2 Q. Other than the portion of Dr. [REDACTED]
3 report that you quote in paragraph 6 of your
4 report, is there other language in Dr. [REDACTED]
5 report that extends the invitation you describe
6 here?

7 MR. FIGEL: Objection.

8 A. There may be. I have not committed
9 Dr. [REDACTED] report to memory. If you want a more
10 definite answer to that, I would have to have you
11 provide me a copy of Dr. [REDACTED] report.

12 I could -- I could answer the
13 question fairly quickly with his report in hand
14 because I know where to look if -- for any
15 additional language of that kind, if there is any.

16 Q. Let's return to that a bit later.

17 Are you offering any opinion in
18 this case as to whether or not XRP prices are
19 driven largely by Ripple's actions?

20 A. I am of -- as to -- yes, I am
21 offering the opinion that nothing in Dr. [REDACTED]
22 work establishes that proposition and that
23 Dr. [REDACTED] work, rather than support that
24 proposition, tends, instead, to refute it.

25 Q. And what you just described, is

1 that the entirety of any opinion you're offering
2 with respect to whether XRP prices are driven
3 largely by Ripple's actions?

4 A. I hesitate to say yes because I say
5 a lot in my report, all of which goes to that
6 proposition. But -- so to say that that's the
7 entirety of what I have to say about that subject
8 is -- would not be accurate.

9 But I think, as a summary statement
10 of what I conclude from it all, I think it's fair.

11 Q. Returning back to paragraph 7, you
12 write in your second sentence:

13 "As I explained below, Dr. [REDACTED]
14 event study is not designed to investigate
15 this proposition and does not, in fact,
16 support such a conclusion."

17 Do you see that?

18 A. Yes.

19 Q. Is the "this proposition" in that
20 sentence that XRP price movements are driven
21 largely and causally by actions taken by Ripple?

22 A. Yes.

23 Q. Do you believe that Dr. [REDACTED]
24 assignment was to investigate whether XRP price
25 movements were driven largely and causally by

1 actions taken by Ripple?

2 A. I can't rule it out, but it's not
3 clearly -- it's not clearly enough stated for me
4 to rule it in either. Specifically, Dr. [REDACTED] --
5 Dr. [REDACTED] provides more than one statement of what
6 he was asked to do.

7 And one of them begins with, the
8 SEC asked him to perform statistical analyses.
9 Oh, good, well, now we know what it's about. So
10 that doesn't help us very much.

11 And then it goes on to say,
12 concerning the relationship, as I -- I'm
13 paraphrasing at this point, I would have to go
14 back to Dr. [REDACTED] report to get the wording
15 right -- the formulation of concern -- statistical
16 analyses concerning the relationship is broad
17 enough to include this proposition or not.

18 So I -- I will say this: Dr. [REDACTED]
19 does not expressly say that this proposition, or
20 words very like it, captures his assignment. But
21 I can't -- I'm left, after reading the [REDACTED]
22 report, not entirely clear on where the bright
23 lines were. And given the apparent breadth of his
24 conclusions, it seems like he may think that he
25 was asked to opine on causation, for example.

1 Q. And that -- strike that.

2 Is your basis for believing that
3 there's some possibility that Dr. [REDACTED] assignment
4 included investigating whether XRP price movements
5 are driven largely and causally by actions taken
6 by Ripple the breadth of Dr. [REDACTED] conclusions?

7 MR. FIGEL: Objection.

8 A. It's not a basis for believing this
9 to be the case. It's just a basis for being
10 unable to rule this out.

11 Again, if Dr. [REDACTED] were here and
12 were willing to stipulate that he's not trying to
13 say anything about causation and -- or about
14 substantial causation of XRP price movements,
15 if -- which I can't rule out, he may -- maybe he
16 would say that, and in that case, presumably, we
17 would be done.

18 Q. So is it fair to say that sitting
19 here today, you don't believe one way or the other
20 that Dr. [REDACTED] assignment was to investigate
21 whether XRP price movements are driven largely and
22 causally by actions taken by Ripple?

23 A. I don't --

24 MR. FIGEL: Objection.

25 THE WITNESS: I'm sorry.

1 A. I don't have an opinion or belief
2 about that one way or another, other than that
3 Dr. [REDACTED] does not entirely rule it out either in
4 his statement of his assignment or in his -- in
5 the manner in which he states his conclusions.

6 I don't need to have an opinion
7 about that to reach my opinion, which is simply
8 that his work does not support that conclusion.

9 Q. You don't need to understand the
10 scope of his assignment to reach your opinion?

11 MR. FIGEL: Objection.

12 A. I don't need to resolve whether
13 this language is or is not, in his mind, part of
14 his assignment to be able to say that regard- --
15 that either way, the work that he performed and
16 presents in his report does not support this
17 proposition.

18 That opinion stands if Dr. -- the
19 hypothetical Dr. [REDACTED] I've referred to a time or
20 two, the [REDACTED] avatar came into the room and said,
21 "But that's not what I was trying to prove," then
22 I would say in response, "Well, great. Then we
23 agree that that's not even what you were trying
24 to, but you certainly didn't prove it."

25 And if Dr. [REDACTED] avatar came in and

1 said that he was trying to prove it, I would say
2 the same, "Your work does not prove it."

3 That's why -- that is why it
4 doesn't matter, to my opinion, ultimately, what a
5 completely clear statement of his assignment was.

6 THE WITNESS: I'm noticing that
7 we've been going for about an hour and a
8 quarter --

9 MR. SYLVESTER: Would you like the
10 take a break?

11 THE WITNESS: Yes. It doesn't have
12 to be at this moment.

13 MR. SYLVESTER: Now's great. Let's
14 take a break.

15 THE WITNESS: Thank you,
16 Mr. -- you're Mr. Sylvester?

17 MR. SYLVESTER: I am.

18 THE WITNESS: Mr. Sylvester, thank
19 you.

20 MR. SYLVESTER: Sure.

21 THE VIDEOGRAPHER: The time is
22 2:13 p.m. This concludes Media 3. Off the
23 record.

24 (Recess taken from 2:13 p.m. to
25 2:36 p.m.)

1 THE VIDEOGRAPHER: The time now is
2 2:36 p.m. This begins Media 4. On the
3 record.

4 BY MR. SYLVESTER:

5 Q. Dr. Marais, turning back to
6 paragraph 5 of your report.

7 A. I am there.

8 Q. Okay. Thank you. I believe that
9 you testified earlier that the question of whether
10 movements in XRP prices solely or predominantly
11 reflect responses to disclosures about Ripple's
12 actions was a central issue in this case. Is that
13 right?

14 A. I qual- -- as qualified by my
15 saying "I understand."

16 Q. What is the basis for your
17 understanding?

18 MR. FIGEL: You can answer it but
19 don't reveal communications with counsel.

20 A. The basis of my understanding is my
21 nonexpert paraphrase of what I understand the
22 expressions "investors in" or "purchasers of XRP
23 look to Ripple to create value."

24 Now, even though that may not be a
25 direct quote from anybody, the "create value"

1 idea, that phrase, I think, comes straight from
2 Dr. [REDACTED] report. And I understand as a
3 layperson -- and, again, I need to be completely
4 clear, I'm confident that there is shelves full of
5 case law and legal understanding of this point,
6 and I'm not purporting to summarize any of that.
7 I'm just describing my layperson's understanding.

8 But looking to Ripple for creating
9 value as an investor in XRP, to me, does not
10 convey very occasionally looking to Ripple for a
11 sliver of the value creation or the sliver of the
12 value that might be created by my position in XRP.

13 But it strongly suggests to me
14 the -- - what I par- -- what I paraphrase in my
15 own statement that I gave you about what I -- my
16 understanding that that is a central issue in the
17 case.

18 So I do recall from the first
19 amended complaint in this case repeated references
20 by the SEC itself to -- to the economic substance
21 in -- and the actual phrase "in economic" -- "in
22 economic reality" I think actually is the phrase,
23 "economic reality dictates" or "in economic
24 reality."

25 Now, putting together, as an

1 educated layperson, the idea of economic -- in
2 economic reality investors in XRP look to Ripple
3 for value creation, without any qualification that
4 says for some infinitesimal portion of that value
5 creation or some sliver, that, to me, suggests
6 this, what I've characterized here as the
7 contention that in economic substance, read
8 economic reality, movements in XRP prices solely,
9 or, if solely is too strong, predominantly reflect
10 responses to disclosures about Ripple's actions.

11 So I -- that was a longer answer
12 than I realized I was embarking on, but the -- you
13 were asking for my basis, and I did describe my
14 basis.

15 Q. Okay. Let's move on to paragraph
16 17 of your report, please.

17 A. That suggests to me, at this rate,
18 we'll be done in ten minutes.

19 Q. Why would we want to cut our time
20 short, Dr. Marais?

21 So paragraph 17, among other
22 things, contains your Table 1. Is that right?

23 A. Yes.

24 Q. And as I understand your Table 1,
25 it displays, among other information, tallies of

1 numbers of days related to Dr. [REDACTED] Model 5, key
2 milestone news events model. Is that correct?

3 A. Yes. But for the statement to be
4 entirely correct, you also have to include
5 one -- you also have to include one-sided
6 parametric approach.

7 Q. Okay. Thank you. So looking at
8 the table, the top row is labeled -- or rather, I
9 should say the columns are labeled "Daily XRP
10 Return."

11 Do you see that?

12 A. Yes.

13 Q. And the Daily XRP Return columns
14 are split into "unusual" and "regular."

15 Do you see that?

16 A. Yes.

17 Q. And "unusual" there, is that the
18 same meaning of unusual that you explained to us
19 earlier today?

20 A. Yes.

21 Q. Okay.

22 A. Throughout my report, there's only
23 one meaning.

24 Q. And "regular" essentially means not
25 unusual. Is that right?

1 A. That's exactly correct.

2 Q. Okay. And on the left side of the
3 table, addressing the rows, there's "News Event?"
4 question mark.

5 Do you see that?

6 A. Yes.

7 Q. And for "News Event?" question
8 mark, there are two values, "Yes" and "No."

9 Do you see that?

10 A. Yes.

11 Q. Does "Yes" indicate those days on
12 which Dr. [REDACTED] identified a Ripple key milestone
13 news event?

14 A. Yes.

15 Q. And "No" indicates any of the days
16 within this period in which Dr. [REDACTED] did not
17 identify a key milestone news event?

18 A. Yes.

19 Q. Okay. And the total number of days
20 in the entire Model 5, using a one-sided
21 parametric approach, is 2,007?

22 A. Yes.

23 Q. Okay. And -- go ahead.

24 A. Actually 2,008 but ...

25 Q. Do you want to elaborate on why --

1 the difference between 2,007 and 2,008?

2 A. Well, to get returns, you have to
3 have one extra day -- right? -- it takes two days
4 to calculate one return. Then you can reuse the
5 second of those days for the second return.

6 So the number of day -- your
7 question was about the number of days involved,
8 and the days and the returns are not identical.

9 Q. I see. Okay. So the -- but the
10 number of days -- the Number 2,007 in this chart
11 does refer to days. Is that right?

12 A. It refer- -- it does refer to days,
13 but it does not count all of the days that are
14 involved in creating this little chart. There's
15 one more day involved. That's all I meant to
16 point out. And it's only because of the way you
17 framed your question.

18 Q. Okay. Turning to the "News Event?
19 Yes" row.

20 Do you see that?

21 A. Yes.

22 Q. And on "News Event? Yes," it
23 appears that Dr. [REDACTED] has identified four days on
24 which there was a Ripple key milestone news event
25 and also unusual daily XRP returns. Is that

1 right?

2 A. Yes.

3 Q. Okay. And the Number 1 is one day
4 on which Dr. [REDACTED] has identified a Ripple key
5 milestone news event, and that day there were
6 regular daily XRP returns. Is that right?

7 A. Correct.

8 Q. Okay. And the total number of days
9 on which Dr. [REDACTED] observed a Ripple key milestone
10 news event in this period is five. Is that right?

11 A. Yes.

12 Q. Okay. Do you agree that there is a
13 statistically significant correlation between the
14 Ripple key milestone news events identified by
15 Dr. [REDACTED] and the categorization of trading days
16 into unusual and regular?

17 MR. FIGEL: Objection.

18 A. Despite my coffee, I do need -- I
19 apologize, I do need to hear the question again.

20 Q. Of course. Do you agree that there
21 is a statistically significant correlation between
22 Ripple key news event- -- strike that.

23 Do you agree that there is a
24 statistically significant correlation between
25 Ripple key milestone news events, identified by

1 Dr. [REDACTED] and the categorization of trading days
2 into the categories "Unusual" and "Regular"?

3 MR. FIGEL: Objection.

4 A. Measured in terms of the
5 hyp- -- the nonstandard hypergeometric
6 distributional analysis that Dr. [REDACTED] introduces
7 for his work in this case, I do agree that there
8 is a p-value that is significant in relation to
9 the 95 percent confidence level.

10 Measured in terms of a standard
11 event study, I don't know because Dr. [REDACTED] doesn't
12 tell us.

13 Q. What is it that's missing from
14 Dr. [REDACTED] analysis that leads you to say that,
15 measured in terms of a standard event study, you
16 don't know?

17 MR. FIGEL: Objection.

18 A. Well, one completely standard
19 approach would be to have a pooled regression
20 analysis that encompasses all of the event dates
21 of the particular kind he's interested in here
22 with an indicator variable that turns on for
23 events of that kind included in the regression.

24 That's a zero-one variable that
25 turns -- that exists, is populated for all of the

1 dates in the analysis, but is mostly equal to zero
2 and equal to 1 just on the event dates. That
3 variable would have a coefficient. That
4 coefficient would have a corresponding T
5 statistic.

6 And although it is likely that,
7 based on what I'm seeing here, that the -- that
8 that approach would yield -- it may well yield a
9 statistically significant result, we don't
10 actually know, because Dr. [REDACTED] analysis doesn't
11 actually produce that result.

12 So that's what I mean when I say I
13 can't really tell what a stand- -- what a standard
14 event study using indicator -- an indicator
15 variable would tell us.

16 But in terms of Dr. [REDACTED] somewhat
17 peculiar hypergeometric analysis, yes, I agree,
18 there's -- he gets a p-value that is less than
19 .05.

20 Q. It looks like, at least in part,
21 your paragraph 18 summarizes Dr. [REDACTED] analysis
22 with respect to these four unusual days that are
23 displayed in Table 1. Is that fair?

24 A. I need to read it.

25 Q. Sure.

1 A. (Document review.)

2 Yes, it's intended to be an
3 explanation of Dr. [REDACTED] finding.

4 Q. And is it fair to say that, as
5 described in your paragraph 18, you do not dispute
6 Dr. [REDACTED] finding with respect to his
7 characterization of these four unusual days?

8 MR. FIGEL: Objection.

9 A. I certainly strongly stand by my
10 paragraph 18. So I -- if that's what -- if you're
11 asking me whether I agree with what I say in my
12 paragraph 18, unambiguously, yes.

13 Q. Okay. And to make sure I'm reading
14 your paragraph 18 correctly --

15 A. Yes.

16 Q. -- at least with respect to
17 Dr. [REDACTED] conclusions based on his analysis of the
18 four unusual daily XRP return days that correspond
19 with the Ripple key milestone news events, you
20 don't dispute his conclusion of statistical
21 significance?

22 A. Within -- yes, with the important
23 proviso that we are talking about this framework
24 of performing the analysis within a hypergeometric
25 distribution looking for what he calls a

1 correlation, but in -- again, not in the sense in
2 which that term is usually used.

3 It's not a correlation coefficient.
4 It's not a nonparametric correlation coefficient.
5 It -- it measures the English language concept of
6 correlation, not the statistical concept, and it
7 is a statistically significant finding within that
8 framework. I do agree with that.

9 Q. Do you believe -- actually, strike
10 that.

11 Let me hand you Exhibit 2.

12 (Exhibit LM-2, Amended expert
13 report of Dr. [REDACTED] marked for
14 identification, as of this date.)

15 Q. Dr. Marais, I'm handing you
16 Exhibit 2. Is LM-2 Dr. [REDACTED] amended expert
17 report submitted in this case?

18 A. I recognize it as being that.

19 Q. Okay. Let's turn to paragraph 12a
20 of Exhibit 2, please.

21 A. I'm there.

22 Q. Okay. The first bolded sentence in
23 12a of Dr. [REDACTED] report says:

24 "XRP prices react to certain news
25 and public statements about Ripple's

1 actions."

2 Do you see that?

3 A. Yes.

4 Q. Do you dispute Dr. [REDACTED] conclusion
5 that I just read?

6 A. I would say, at best, unproven.

7 Q. Okay. Let's move on to the next
8 sentence:

9 "Using a well-accepted event study
10 methodology, I find statistically significant
11 evidence that XRP prices react to news about
12 Ripple's actions."

13 Do you see that?

14 A. I see. I do see it.

15 Q. Okay. Do you dispute that
16 sentence?

17 A. Properly read and interpreted in
18 the context of his report, I understand what the
19 sentence means. The sentence is misleading.

20 Q. Please tell me why.

21 A. The statistically significant
22 evidence that he finds is the correlation, the
23 coincidence between certain days that he's labeled
24 news days and certain days that he has labeled, in
25 my terminology, unusual returns days.

1 Now, there is the well-known
2 truism -- which doesn't mean it is false, it is
3 true -- that association is not causation. And
4 correlation is association.

5 So the statistical significance of
6 the finding is suggestive of correlation and
7 causes us, if we accept the evidence of the
8 p-value of the statistical significance, causes me
9 to agree that this is -- this is evidence that has
10 passed the usual thresholds for association.

11 It is a large step from there to
12 causation. And p-values don't tell you causation.
13 And observational studies have great difficulty in
14 telling you causation. And event studies are
15 observational studies.

16 And where event studies are used in
17 scholarly research, they have a property that is
18 simply absent from Dr. [REDACTED] work in this case
19 that goes to the issue of causation.

20 Q. What property is absent from
21 Dr. [REDACTED] work in this case that goes to the issue
22 of causation?

23 MR. FIGEL: Objection.

24 A. Event studies including the event
25 studies that are referred to by Dr. [REDACTED] Joo

1 reference to an article by a pair of Scandinavians
2 with unpronounceable names for the generalized
3 rank test, that Dr. [REDACTED] ultimately imports into
4 his own work, are typically, in academic research,
5 performed for groups of firms.

6 For example, do financial firms'
7 stock prices respond to their earnings
8 announcements? What that means is that there are
9 large cross sections, and ideally in those large
10 cross sections, the event dates don't coincide for
11 different firms. So different firm announcements
12 on different dates.

13 That adds a dimension that helps --
14 it doesn't fully distinguish between correlation
15 and causation, but it adds a dimension that is
16 helpful in moving towards a causal conclusion.

17 In the case of Dr. [REDACTED] work in
18 this case, as is often the case in
19 litigation-related event studies -- so this is --
20 this is not -- I'm not criticizing Dr. [REDACTED]
21 personally for this -- but the problem here is
22 that this is a single price series.

23 It's like a single firm event
24 study, which is not the same thing as a portfolio
25 event study. That makes it particularly difficult

1 to move from association to causation, as Dr. [REDACTED]
2 himself expressly acknowledges in his report. And
3 I don't see Dr. [REDACTED] bridging that gap in this
4 report.

5 Q. Can you point me to the place in
6 your report where you set forth the critique that
7 you just articulated?

8 A. We've been there already. But we
9 can go back. Let's see. In my conclusion, where
10 you asked me whether these are my conclusions, I
11 note that:

12 "Instead, the [REDACTED] event study
13 cannot prove a causal relationship between
14 Ripple's actions and XRP price movements."

15 That's in the middle of paragraph
16 30. And you spent some time asking me about that
17 earlier, I recall.

18 You -- I remember -- I recall you
19 asking me what I meant when I said "even if it
20 could do so," and I said that refers to the
21 proposition that the [REDACTED] event study cannot prove
22 a causal relationship.

23 Now, that's just the summary
24 statement. I say it back in paragraph 7 where we
25 just were, I think. Paragraph 7 is not the right

1 paragraph reference.

2 (Document review.)

3 Oh, in paragraph 7, I -- yes, "this
4 language invites a reader ... 'evidence' showing
5 that" it's -- blah, et cetera:

6 "'Evidence' showing that XRP price
7 movements are driven largely" -- and then set
8 apart in between em dashes:

9 "And causally -- by actions taken
10 by Ripple. As I explain below, Dr. [REDACTED]
11 event study is not designed to investigate
12 this proposition."

13 So that's where I am setting it up.
14 I -- so I book-ended it. There are 12 pages in
15 between that I would need to go through to point
16 to where else I reach this point.

17 Q. I would be particularly interested
18 in any places where you could point to that --
19 where you explain why, in your view, the [REDACTED]
20 event study cannot prove a causal relationship
21 between Ripple's actions and XRP prices?

22 A. I take it you mean apart from the
23 virtually universally known limitation of
24 observational studies which I've referred to.

25 Q. Where are you reading from, Doctor?

1 A. I'm not reading.

2 Q. Oh.

3 A. I was thinking about what kind of
4 statement I'm looking for.

5 (Document review.)

6 In paragraph 20, I bring up,
7 without using the term "confounding," the
8 confounding hypothesis of the -- the point being
9 the apparent absence of any attempt by Dr. [REDACTED] to
10 rule out, even by searching for news events
11 related to cryptocurrency other than going to
12 Ripple's repository of news releases and links, I
13 mean, there's no indication that I find that
14 Dr. [REDACTED] has searched widely for answers to the
15 question, Well, what else happened on those days?

16 That's called confounding. And if
17 there is a confounding factor operating, you
18 really can't say what the association is with or
19 what the potential cause is.

20 So I'm noting confounding as a
21 discussion in paragraph 20. In sum, I say "the
22 association," and that's a carefully chosen word:

23 "Between Dr. [REDACTED] subjectively
24 selected days with Ripple news events and
25 un-" -- "as a matter of fundamental

1 statistical principles," in which I'm
2 referring to the confounding idea that I just
3 brought up.

4 But the princ- -- when I say
5 "fundamental statistical principle," I've already
6 said -- quoted here the fundamental principle of
7 association is not causation. That is so
8 well-known that most middle schoolers can quote
9 it.

10 So the fact that I'm referring to
11 the association that he has documented here, "as a
12 matter of fundamental statistical principles, does
13 not per se, establish that the key milestones news
14 caused" -- in italics -- the abnormal XRP
15 coincident returns.

16 So he overreaches in his apparent
17 causal claim, I say. That -- I would concede that
18 that is terse, which is unlike me. But it is an
19 explanation of confounding, and the -- a reference
20 to the extreme limitations of observational data.
21 Now, there's probably more. I just paused on
22 paragraph 20.

23 Q. May I ask, in paragraph 20, why you
24 did not use the word "confounding"?

25 A. Because I explained the concept.

1 Q. No reason not to use the word?

2 MR. FIGEL: Objection.

3 A. There is no -- there is no specific
4 reason not to use the word. I'm not writing for a
5 technical audience in this report. And I could
6 have said "confounding," but then I would have had
7 to explain it anyway.

8 Q. Are single firm event studies used
9 in securities litigation to establish causation
10 from correlation?

11 MR. FIGEL: Objection.

12 A. They are used to find evidence that
13 may then be interpreted based on other
14 considerations as possibly causal or not.

15 They -- the event study per se is
16 incapable of establishing causation for all -- for
17 all of the reasons and more that I've been -- that
18 I've just alluded to.

19 May I ask respectfully, are we done
20 with the previous question, or should I continue
21 finding references to where I flesh out what I am
22 saying about association is not causation and
23 there is a potential for confounding?

24 Q. I think I understand those two
25 principles that you've identified.

1 Did you, in your work on this case,
2 check for whether there was confounding
3 information on, for instance, the four unusual
4 news days identified in Dr. [REDACTED] Model 5?

5 MR. FIGEL: Objection.

6 A. I did not. I did not need to to
7 arrive at the conclusions that I have arrived at.
8 It was enough for me to -- since that's not a --
9 that's not really front and center in -- in my own
10 opinions, it's enough for me to note that -- it
11 seemed enough for me to note that Dr. [REDACTED] does
12 not seem to have done anything to rule out other
13 factors.

14 Q. And just so the record is clear
15 because I limited my last question, did you check
16 for any confounding information at all as part of
17 your work in this case?

18 A. No, I've -- I -- to be clear, and
19 this may save us some time, I did not change or
20 add to -- except in presentation of some results
21 that Dr. [REDACTED] chose not to highlight -- to
22 Dr. [REDACTED] work, I'm not endorsing his modeling,
23 his index modeling, and I'm not endorsing his news
24 search. But I do accept both as the premise of my
25 work in this case.

1 Q. Do you have any objection to
2 Dr. [REDACTED] index modeling in this case?

3 MR. FIGEL: Objection.

4 A. I question aspects of his index
5 modeling. It seems to me perfect -- it seems to
6 me fairly reasonable as, sort of, the first
7 preliminary thing that one would try.

8 But then there are -- there are
9 other kinds of things that I would think one would
10 want to do that Dr. [REDACTED] does not seem to give any
11 indication that he did as the -- as a, kind of, an
12 obvious refinement of his work.

13 Q. Did you undertake any such
14 refinements to determine whether Dr. [REDACTED] results
15 would change if he had taken the approach that you
16 would prefer?

17 MR. FIGEL: Objection.

18 A. No, I didn't do -- I did not
19 attempt to do what Dr. [REDACTED] seems to have failed
20 to do. And I really didn't need to do anything of
21 the kind to arrive at my key opinions in this
22 case.

23 Q. Turning back to Dr. [REDACTED] paragraph
24 12a. Just want to focus on a portion of a
25 sentence that we've already looked at to make sure

1 I understand your views. And that's -- Dr. [REDACTED]
2 writes -- this is the first sentence, the second
3 half:

4 "I find statistically significant
5 evidence that XRP prices react to news about
6 Ripple's actions."

7 Is it true, Dr. Marais, that,
8 typically, event studies provide statistically
9 significant evidence of a price reaction to a
10 particular piece of news?

11 MR. FIGEL: Objection.

12 A. Event studies typically measure an
13 association. There is then a question of whether
14 that association represents a reaction. Reaction
15 implies a causal effect that -- in other words,
16 that if the news had not happened, the price
17 movement that is documented would not have
18 happened.

19 That part is sort of an extra
20 statistical meaning and be outside of the strict
21 p-value calculation, regression calculation
22 inference. And that is almost always true with
23 observational data, that you can't just look at
24 what the -- comes out of a statistical calculation
25 and call it a causal effect.

1 Dr. [REDACTED] recognizes that expressly
2 and writes as much in his own report. Now, he
3 says there are things that you have to do to reach
4 a causal -- causal conclusion, and then he doesn't
5 appear to do them.

6 And yet, here at the beginning, he
7 states that he has evidence of a price reaction,
8 meaning causation. That's kind of a gap in -- a
9 logical gap in [REDACTED]

10 Q. Let me make sure I understand your
11 answer. There's one set of circumstances in which
12 an event study could per se prove causation, and
13 there's another set of circumstances in which an
14 event study could provide evidence of causation.

15 Are you with me so far?

16 A. No, I'm not.

17 Q. Okay. I'm just trying to
18 understand your answer. I think it's your view,
19 correct me if I'm wrong, that -- backing up from
20 Dr. [REDACTED] report -- in general, the results of an
21 event study do not per se prove causation.

22 A. I think that's fair.

23 Q. Okay. Again, at a level of
24 generality, I'm asking, are event studies
25 typically used to provide evidence toward or

1 against a conclusion of causation?

2 A. Yes.

3 Q. Okay.

4 A. That's fair as a very general
5 characterization.

6 Q. Okay. And is it your view in this
7 case that Dr. [REDACTED] study fails to provide
8 statistically significant evidence that XRP prices
9 react to news about Ripple's actions?

10 A. No, that's not my view.

11 Q. Okay. What evidence does Dr. [REDACTED]
12 study -- let me rephrase.

13 What statistically significant
14 evidence does Dr. [REDACTED] study provide that XRP
15 prices react to news about Ripple's actions?

16 MR. FIGEL: Objection.

17 A. We have already discussed in the
18 context of one -- a paragraph in my report, my
19 explication of Table 1, that is Table 1 from my
20 report. So I have Table 1 on page 7, and then I
21 have paragraph 18. And you asked me whether
22 paragraph 18 describes what I understand to be
23 Dr. [REDACTED] process of logic.

24 And I -- I agree that that is his
25 process of logic, which leads to a finding of

1 statistical significance. But it is a
2 statistically significant correlation, a
3 statistically significant association in a certain
4 way. I test -- well.

5 Q. So is it your view that -- I'm now
6 looking at your Table 1.

7 A. I'm there.

8 Q. Okay. Is it your view that
9 Dr. [REDACTED] conclusion that there was a
10 statistically significant correlation between --
11 in Model 5 news events and unusual daily XRP
12 returns, is that, in your view, evidence, that at
13 least for this set of occasions, Ripple's actions
14 affected XRP's prices?

15 MR. FIGEL: Objection.

16 A. It is evidence. It is a -- it's
17 small, but it documents -- it's a little patch of
18 evidence that documents the idea of association
19 between a category of Ripple news events and
20 unusual trading days for XRP.

21 It's an association. That -- that
22 is evidence that weighs in favor but does not
23 establish causation. It's just -- it's one --
24 it's one tiny weight on a scale. It is that. But
25 you need some more stuff as Dr. [REDACTED] himself

1 explains.

2 Q. What is the "more stuff" that is
3 needed -- strike that.

4 Well, let me ask the question.
5 I'll use your terminology.

6 What is the "more stuff" that is
7 needed in your view?

8 MR. FIGEL: Objection.

9 A. Well, it is generally accepted by
10 people in my field that you can never get exactly
11 all the way by pure deductive logic. There will
12 remain a leap at the end. But you can search hard
13 for confounding factors and rule them out.

14 You can construct explanations for
15 the plausibility of the effect that -- for
16 example, discussions by analysts or market
17 commentators on the crypto space or on XRP, in
18 particular, saying at about the same time or the
19 day after that this was a really important move
20 for XRP, and speaking to the plausibility of the
21 causal linkage.

22 I think Dr. [REDACTED] where he refers
23 to this, mentions three things, and I'm forgetting
24 his third thing. But there is -- he refers to,
25 under certain conditions, an event study finding

1 can point to causation.

2 And I've mentioned two kinds of
3 factors which look kind of like Bradford Hill
4 criteria for the case of inferring causation from
5 an event study.

6 Q. When you say you've mentioned two
7 kinds of factors, is one of those factors
8 confounding news?

9 A. The search for confounding factors.

10 Q. Okay. That I understand. And I
11 understand is embodied perhaps in other places,
12 but you've identified as embodied in paragraph 20
13 of your report?

14 A. Yes.

15 Q. Okay. The second factor I don't
16 understand -- I think you just articulated it. I
17 didn't follow it. Can you point it to me in your
18 report?

19 A. No, my report doesn't -- my report
20 has -- my report makes the point association is
21 not causation. And we are now well beyond the
22 level of detail that I get into in my report.

23 Q. I see.

24 A. On the theme, prompted I hope by
25 your questions, I hope I'm not just on a riff

1 here. But I thought that you were asking me
2 about, well, what's necessary to get from
3 association to causation. So I did not mean to be
4 pointing to something that is in my report.

5 These are very, completely general
6 statistical precepts that do apply to event
7 studies, but this is not event study stuff I'm
8 talking about now. This is general analysis of
9 observational data as opposed to experimental
10 data.

11 Q. Okay. You've mentioned that
12 confounding news is a factor that can break the
13 link between correlation and causation. Is that
14 fair?

15 A. That can -- what was the verb in
16 that sentence?

17 Q. Break the link.

18 A. Break. No, well, that's not really
19 what I meant to convey. It's a -- I think I can
20 sign on to that statement, but it's not what I was
21 testifying about. I was -- the -- I should wait
22 for a question.

23 Q. Other than -- I want to return to
24 Table 1.

25 A. Whose Table 1?

1 Q. I'm sorry. Your Table 1, Doctor.
2 Other than Ripple key milestone events -- strike
3 that.

4 I think it's fair to characterize
5 Dr. [REDACTED] conclusions in his report that Ripple
6 key milestone events are the cause of the unusual
7 daily XRP returns on the four days identified in
8 your Table 1.

9 Would you agree with that?

10 A. I don't know from memory alone
11 whether he actually says that. I do agree that
12 he -- where he is summarizing in his summary of
13 opinions he has landed on XRP prices react.

14 But whether -- when he is
15 specifically talking about the milestone events,
16 whether he has language in there that suggests
17 there that he concludes that, I don't recall. The
18 report is right in front of me. I can find it.

19 Q. That's okay, Doctor. It's a fair
20 point. I may have overstated it. Let me put it
21 this way: One of the things -- just looking at
22 Dr. [REDACTED] results as summarized in your Table 1,
23 one of the things that may have caused the unusual
24 daily XRP return on the four days reported in this
25 chart is the Ripple key milestone news events.

1 That's one possibility, right?

2 A. That is a hypothesis, yes.

3 Q. And there's also a possibility that
4 there were confounding news events that caused
5 XRP's price to be unusual, the daily XRP returns
6 to be unusual on that day. Is that right?

7 A. That is also possible.

8 MR. FIGEL: Objection.

9 Q. Okay. Is there anything else that
10 you can think of besides Ripple key milestone news
11 events or confounding news events that might have
12 caused the unusual daily XRP return on those four
13 unusual days in your Table 1?

14 A. I can't think of anything else that
15 is a, as Dr. [REDACTED] puts it, a nonrandom systematic
16 cause. As long as one defines confounding news
17 events broadly enough. And what I mean by that is
18 there could be, you know, here's a hypothetical:

19 So the European Central Bank takes
20 some action to either outlaw or to authorize the
21 use of XRP for paying taxes in European countries.
22 I suppose -- we get back to the point of, you
23 know, is it news or is it the action or is it --
24 are those distinguishable at all, because how
25 would you know about the action if the news didn't

1 get to you?

2 Well, maybe you would know about
3 the action because the action was taken but not
4 reported, but somebody traded an enormous chunk
5 of -- I can think of stories that don't quite
6 involve news, but that -- so events more in a
7 broader category than just news disclosures. But
8 something happened, some confounding thing.

9 Whether or not it's the sort of
10 thing that you would pick up in a news index
11 looking for XRP-related news on that day.

12 Q. Can we take a look at -- let's go
13 back to your report, please, paragraphs 13 and 15.

14 A. 13 and 15.

15 Q. Yes.

16 A. I'm there.

17 Q. Okay. Is it fair to say that in
18 paragraphs 13 and 15, you summarize certain
19 aspects of Dr. [REDACTED] methodological design?

20 A. Give me just a moment to ...

21 (Document review.)

22 That seems like a fair
23 characterization to me.

24 Q. Do you have any critique of
25 Dr. [REDACTED] methodological design as set forth in

1 your paragraphs 13 and 15?

2 MR. FIGEL: Objection.

3 A. Well, paragraphs 13 and 15 are
4 really just a tabulation of how in the world is it
5 that he comes up with 400 alternative ways of
6 doing the thing.

7 The methodological design isn't
8 really set forth in paragraphs 13 and 15. I do
9 have some critiques. You asked me earlier and I
10 said I do. But they aren't identified or easily
11 linked to paragraphs 13 and 15 for the reason that
12 I just testified about.

13 Q. And -- understood. Thank you.
14 What -- to make sure we have a clear record, what
15 are your critiques -- -- strike that.

16 Setting aside the confounding news
17 issue, which we've discussed, what are your other
18 critiques of Dr. [REDACTED] methodological design, if
19 any?

20 A. I want to clarify first. I said
21 critiques. And I was actually more accurate in
22 characterizing what I am talking about here in a
23 previous answer when I explained that we are --
24 we've reached issues that I did not need to go
25 into for my opinions in this case.

1 And so they are questions in my
2 mind about what is this? This is fine for the
3 first thing you would think of doing, but what is
4 the second thing you would think of doing and what
5 might you learn from that?

6 So these are questions that might
7 very well lead to critiques. But I did not
8 develop a detailed critique. I didn't need to.

9 But given that qualification, it is
10 striking to me that Dr. [REDACTED] analysis is
11 concerned with distinguishing nonsystematic,
12 nonrandom systematic effects as he calls them in
13 his technical appendix from everyday price
14 movement, and yet he allows days of putative
15 nonrandom systemic price movements into his
16 estimation -- his rolling estimation periods.

17 So when he is analyzing, for
18 example, the five milestone event days, he has --
19 as he explains this, he calls them rolling -- I
20 think they're actually sliding, not rolling -- he
21 has this sliding 180-day window that follows along
22 each analysis day.

23 But when he comes to his other
24 analysis, he has different event days. And he
25 simply ignores the fact that he is allowing to

1 creep into his estimation days the same days that
2 a moment ago he was treating as event days with
3 potential nonrandom systematic effects.

4 And I -- I note that there are as
5 many as 500 days of potential nonrandom systematic
6 effects during the 2,000 or so days of his event
7 period, of his analysis period.

8 And because of the way he does his
9 analysis, every time he switches gears to a new
10 category of news events, it's as if he forgets
11 about the fact that he just a moment ago was
12 talking about days with nonrandom systematic
13 effects, and he now includes them in the
14 estimation period, the baseline estimation period.
15 So I -- I question that element of his -- of his
16 work.

17 But I -- so let me be clear, that
18 is not a detailed critique, and it -- I don't know
19 what one would learn from exploring that point.
20 But there would be a logical coherence to
21 excluding all of the event -- the potential event
22 days from estimating the index model.

23 Q. Is the critique that you just
24 described one of the bases for the opinions that
25 you're providing in this case?

1 A. No. I don't need to get into this.

2 As I've already testified, I think expressly just
3 a minute ago, I don't need to get into that
4 territory to arrive at my opinions in this case.

5 Q. Other than your -- strike that.

6 Other than confounding news, which
7 we've discussed, are there other critiques of
8 Dr. [REDACTED] methodology in this case that underlie
9 your opinions set forth in your report?

10 A. I'm sorry, but your question as you
11 frame it seems to say something about my testimony
12 that I don't think I meant to convey in the way
13 that your question characterizes it.

14 Q. Do you think that Dr. [REDACTED] in
15 your -- it's your view that Dr. [REDACTED] failed to
16 look for confounding news. Is that correct?

17 A. Yes.

18 Q. Is this a methodological flaw in
19 your view?

20 A. It's a question I would raise, and
21 it has a strong potential to be a methodological
22 flaw. It certainly means that he can't rule out
23 confounding.

24 Q. Is the failure to look
25 for -- strike that.

1 Does Dr. [REDACTED] failure to look for
2 confounding news render his opinions about
3 statistical significance unreliable?

4 A. No. I don't see how it does quite
5 that, for the -- within the narrow scope of what
6 his opinions about statistical significance are
7 about and what they convey, I don't think that
8 they are rendered unreliable by that oversight per
9 se period.

10 Q. Is there anything about Dr. [REDACTED]
11 methodological design that, in your view, renders
12 his results unreliable?

13 A. With an appropriate understanding
14 of what I mean, and what we mean about his
15 results, I don't -- I've replicated his
16 hypergeometric probability calculations, and I
17 believe they were correctly performed. Those are
18 results.

19 From there on, things get more
20 complicated. What do these results mean? What do
21 they convey? But as far as those results are
22 concerned; in other words, p-values attached to
23 certain two-by-two tables like my table,
24 illustrative Table 1, his calculations are not --
25 are neither unreliable nor wrong.

1 Q. In paragraph 14 of your report, you
2 discuss Dr. [REDACTED] categorization of Ripple news.
3 Is that right?

4 A. Yes.

5 Q. Is there anything about Dr. [REDACTED]
6 categorization of Ripple news that renders his
7 results unreliable here?

8 A. There's nothing beyond what I say
9 in paragraph 14 that comes to mind that I would
10 point to sitting here this afternoon. That is not
11 the same as an endorsement. I don't have an
12 opinion -- I really am not expressing an opinion
13 one way or another to begin with about what it
14 would even mean for a categorization of news to be
15 unreliable and then whether this is such an
16 unreliable categorization.

17 I note that there's a certain
18 subjectivity in it. I have no quibble, I have no
19 fight with Dr. [REDACTED] about that. He says himself
20 that it's subjective.

21 There may be other things that, if
22 I had reason to delve into what he did that I
23 might find at least questionable, but I don't have
24 such a thing in mind as I sit here this afternoon.
25 That's just not an area I needed to go into for

1 the opinions I have in this -- arrived at in this
2 case.

3 Q. Okay. Is there a generally
4 accepted statistical or economic methodology to
5 identify relevant news days?

6 MR. FIGEL: Objection.

7 A. There are informal professional
8 standards that have emerged in scholarly work and
9 separately in litigation settings informed by
10 different imperatives in those two cases. But
11 I -- I wouldn't say there's a set of bright-line
12 standards.

13 Q. Do you have an opinion as to
14 whether Dr. [REDACTED] did or did not follow those
15 standards that you just described in selecting
16 news events?

17 A. I don't -- I don't have -- I'm not
18 proffering an expert opinion on that subject in
19 this matter. I have noted in my report the
20 confounding issue. And I have noted in my
21 testimony here the fact that I find no indication
22 that he's looked for any kind of news other than
23 really the most -- the path of least resistance
24 and effort, which is to go to Ripple's website.

25 Q. Do you --

1 A. But that doesn't rise to the level
2 of an expert -- a distinct expert opinion that I'm
3 proffering.

4 Q. Do you believe that Dr. [REDACTED]
5 omitted any important news events from his
6 analysis?

7 A. As far as I know, he includes no
8 news event that isn't -- doesn't happen to be
9 listed in some form on Ripple's website. I don't
10 have any reason to think that everything that is
11 important in the world of cryptocurrency price
12 movements generally is listed on Ripple's website.
13 So I don't have a -- I'm not offering an expert
14 opinion.

15 I don't have a fully established
16 and supported belief, but it seems likely to me
17 there -- that things must have happened. It can't
18 be that the only cryptocurrency pricing-related
19 events in the world in these 2,000 days all happen
20 to have to be related to Ripple and XRP.

21 Q. But you did not identify any such
22 events. Is that right?

23 A. That's -- I have not done any
24 independent work on searching for news events that
25 Dr. [REDACTED] omitted.

1 Q. In some of Dr. [REDACTED] regression
2 models, he constructs a returns index of multiple
3 digital assets.

4 Do you have any critiques of that
5 index that Dr. [REDACTED] used in his work in this case?

6 A. I have questions. It raises
7 questions for me that, if I were engaged in work
8 like what Dr. [REDACTED] is doing, I would attempt to
9 answer, and I would write up as part of my work if
10 I ended up propounding anything like what Dr. [REDACTED]
11 propounds.

12 Q. And is it your view that his
13 failure to take those steps renders his results
14 unreliable?

15 A. That's -- I haven't reached that
16 opinion as an independent expert opinion. And I
17 didn't need to go there for purposes of my work in
18 this case.

19 MR. SYLVESTER: I think it would be
20 useful to take a brief break if that's all
21 right, Dr. Marais.

22 THE WITNESS: Certainly.

23 THE VIDEOGRAPHER: The time is 3:41
24 p.m. This concludes Media 4. Off the
25 record.

1 (Recess taken from 3:41 p.m. to
2 4:04 p.m.)

3 THE VIDEOGRAPHER: The time is
4 4:04 p.m. This begins Media 5. On the
5 record.

6 (Exhibit LM-3, Copy of Table 2
7 from report LM-1, marked for
8 identification, as of this date.)

9 BY MR. SYLVESTER:

10 Q. Dr. Marais, I'm going to hand you
11 what's been marked LM-3. And I will represent to
12 you that LM-3 is just a larger copy of the Table 2
13 that appears in your report, LM-1. So if you
14 prefer to look at your report, that's fine. I
15 just figured that this might be a little easier.

16 Okay. Taking a look at your
17 Table 2, other than the column where it says "[REDACTED]
18 Model Number," are all of the numbers in your
19 Table 2 numbers of days?

20 A. Yes.

21 Q. Okay. And the "Notes" section at
22 the bottom of Table 2 supplies information
23 regarding the ratio of non-coincident unusual days
24 to the number of coincident unusual days. Is that
25 right?

1 A. Yes.

2 Q. Okay. Turning back to paragraphs
3 25 and 26 of your report.

4 A. I am there.

5 Q. Okay. Do those paragraphs also
6 discuss the ratio between no Ripple news unusual
7 days and Ripple news unusual days?

8 A. Yes.

9 Q. In paragraph 26 --

10 A. I'm sorry, can I --

11 Q. Sure.

12 A. -- define that. Paragraph 25
13 obviously speaks to that ratio. It begins with
14 the words "The ratio."

15 Paragraph 26 is a summary paragraph
16 that does not address ratios per se. It's just a
17 summary of what I would call the upshot of the
18 discussion before, including but not limited to
19 paragraph 25.

20 Q. In addition to the contents of
21 paragraph 25, what are the other bases for your
22 statements in paragraph 26?

23 A. Okay. Well, let me read it
24 carefully.

25 (Document review.)

1 I would say the actual counts are
2 as important as the -- the ratios are just a way
3 of summarizing disparities. That's all they are.
4 The ratios are not an object in and of themselves.

5 And the only reason I get into
6 ratios at all is that when I was discussing
7 Table 1, I pointed to a disparity in which I ended
8 up saying that -- just to make the point about the
9 disparity, that there was a ratio of -- I thought
10 I had mentioned a ratio in connection with -- I'm
11 not sure if it's there or not. I'm not seeing it
12 right now.

13 But my point is that the discussion
14 is a discussion of disparities in numbers, and the
15 ratios is secondary. It's just illustrative.

16 Q. In that sentence that you just
17 said, disparities of numbers --

18 A. Yes.

19 Q. -- in the case of 26, paragraph 26,
20 do you mean numbers of days?

21 A. Yes.

22 Q. Okay. Looking at Table 2 again,
23 [REDACTED] Model Number 5, there are 2,007 -- strike
24 that.

25 On Table 2, there's a column that

1 says: "All Trading Days and Analysis Period."

2 Do you see that?

3 A. Yes.

4 Q. Under [REDACTED] -- the corresponding
5 entry for [REDACTED] Model Number 5 is 2,007. Correct?

6 A. Yes.

7 Q. Okay. And is that 2,007 the same
8 2,007 that is displayed in the bottom-right corner
9 of your Table 1?

10 A. Yes.

11 Q. Okay. Turning back to Table 2,
12 there's a column labeled: "'Unusual' trading days
13 in analysis period."

14 Do you see that?

15 A. Yes.

16 Q. And for Model Number 5, that's a
17 total of 183. Is that right?

18 A. Yes. Yes, it is.

19 Q. Okay. And that corresponds to the
20 183 total unusual days in the first column of
21 Table 1. Is that right?

22 A. Yes.

23 Q. Okay. Similarly, the four unusual
24 yes news event days in Table 1 correspond to the
25 entry of 4 under unusual trading days coincident

1 with Ripple news in Table 2. Correct?

2 A. Yes.

3 Q. Okay. And the entry of one in
4 regular trading days in Table 2 corresponds to the
5 entry of one in the news event yes regular daily
6 XRP return cell in Table 1. Correct?

7 A. Yes.

8 Q. Okay. And just for the record,
9 the -- starting -- on Table 2 again, there's two
10 categories of unusual trading days, the first
11 coincident with Ripple news, that column
12 identifies days with unusual returns on which
13 there was also a Ripple news event. Correct?

14 A. Yes.

15 Q. Okay. And the next column,
16 no-coincident Ripple news, that identifies days
17 with unusual returns in which there was not a
18 Ripple news event. Correct?

19 A. Yes.

20 Q. Okay. And finally, the third
21 column -- or the column immediately to the right
22 of no-coincident Ripple news -- is regular trading
23 days, and that identifies days in which there was
24 a Ripple news event but no unusual returns.
25 Correct?

1 A. Again, correct.

2 Q. Okay. Great. For Model Number 5,
3 how many days did Dr. [REDACTED] identify as days with
4 unusual returns on which there was a Ripple news
5 event, any Ripple news event?

6 A. In other words, not limited to key
7 milestones?

8 Q. That's exactly right.

9 A. I don't know that with precision,
10 sitting here, other than to say that the [REDACTED]
11 select categories over near the right-hand end of
12 this table refer to just as the -- just as the 4
13 plus 1 on -- are -- I'm sorry.

14 How many days did he identify with
15 news events? And the answer is the maximum in the
16 select categories, which is the same as the first
17 four categories on this page. It's the union of
18 those with some acquisition dates thrown in, as he
19 describes it. There are 100 and -- a maximum of
20 105, but in the case of Model 5, actually, an
21 actual total of only 90.

22 Q. Can you show me where you're seeing
23 90?

24 A. (Document review.)

25 Coincident?

1 Q. Let me --

2 A. Yes, I can show you where I'm
3 seeing 90. I am seeing 90 -- the trading days in
4 those three columns are -- the ones with news in
5 the select category are the 24 plus the 66.

6 Q. I see. And that adds up 90?

7 A. That sums to 90. In every other
8 case, you will notice the -- actually what I was
9 about to say is not quite correct. So I'll just
10 stop there.

11 Q. Okay. And just for the record, the
12 right-hand three columns of Table 2 report unusual
13 trading days coincident with Ripple news, unusual
14 trading days not coincident with Ripple news, and
15 regular trading days coincident with Ripple news
16 for all of Dr. [REDACTED] news categories combined. Is
17 that right?

18 A. It's almost right.

19 Q. Go ahead. I'm sorry. Will you
20 explain why it's almost right?

21 A. There are -- these are the [REDACTED] --
22 these are the news categories that Dr. [REDACTED] chose
23 to include in Figure 1 of his report.

24 So I think it's fair to say these
25 are the news categories on which Dr. [REDACTED] -- to

1 which Dr. [REDACTED] directs the attention of his reader
2 as the basis for -- the key basis for whatever
3 opinions that he arrives at.

4 When one reads the news-gathering
5 section of Dr. [REDACTED] report, he doesn't have only
6 four or maybe five categories in there. He has a
7 total of 14 categories of news events, some of
8 which I gather he just sets aside a priori as not
9 of interest, one of which he tests expressly as a,
10 sort of, a -- from his perspective, internal test
11 of validity. And that is staffing decisions and
12 appointments.

13 And that doesn't show up in his
14 Figure 1. And it doesn't show up as generating
15 significant correlations or associated with
16 significant correlations.

17 So your question was all of -- no,
18 there's a more textured story. I've given you
19 some out -- some elements of it, but it's in
20 Dr. [REDACTED] report anyway. That -- he's the author
21 of it. I'm not the author. I'm just the Cliff's
22 Notes version.

23 Q. In choosing the categories of
24 Dr. [REDACTED] news categorizations to include in
25 Table 2, how did you go about choosing those to

1 include?

2 A. I just explained, in substance, how
3 I went about it. Dr. [REDACTED] has a Figure 1 in his
4 report. I excerpt, in paragraph 8 of my report,
5 Dr. [REDACTED] Figure 1 from his report which is around
6 page 9 -- no. Page 3. So that's Figure 1 of the
7 [REDACTED] report.

8 Dr. [REDACTED] never, as I read his
9 report, never fully explains the transition from
10 the 14 news categories to what he ends up
11 reporting as the basis of his opinion.

12 But whatever that story is, I go to
13 his Figure 1 for my guidance in -- and you will
14 see that my headings of milestones, trading
15 platforms, customers, commercialization, and
16 select categories track the headings of Dr. [REDACTED]
17 Figure 1.

18 Q. Understood. Thank you. Turning
19 back to your Table 2, for Model 5, how many days
20 did Dr. [REDACTED] identify as days with unusual returns
21 on which there was a Ripple news event, any Ripple
22 news event?

23 A. Table 2 shows for that number
24 exactly what Table 1 showed for that number, which
25 is four.

1 Q. And what about the select category
2 that combines all the different news category that
3 Dr. [REDACTED] looked at?

4 MR. FIGEL: Objection.

5 A. In the case of Model 5, the answer
6 is 24.

7 Q. Okay. Turning to paragraph 19 of
8 your report, you write:

9 "One striking feature of Dr. [REDACTED]
10 analysis of the tallies shown in Table 1
11 above -- not highlighted by Dr. [REDACTED] -- is
12 that it offers no account of what factors or
13 events caused the remaining 179 (equals 183 -
14 4) unusual trading days to have unusual XRP
15 returns."

16 If we look at Table 2, isn't it
17 true that Dr. [REDACTED] actually offers an opinion as
18 to 20 additional days as being coincident with
19 Ripple news?

20 A. That would be a fair statement if
21 Dr. [REDACTED] did not point to Model 5 and key
22 milestones as an element of evidence in itself.
23 It is -- it ought to be clear to the reader of my
24 paragraph 19 that paragraph 19 is a discussion of
25 Table 1.

1 And Table 1 is a discussion of a
2 cell from Dr. [REDACTED] Figure 1, which like so many
3 other cells, is shaded in green with a check mark
4 and is discussed all on its own in an entire
5 section of Dr. [REDACTED] report being Section 6(a),
6 ranging from page 29 to 34.

7 In all of those places,
8 table -- Model 5, in conjunction with milestone
9 events, is presented as a piece of evidence that
10 stands on its own.

11 So against that background, it's an
12 entirely reasonable space statement that he
13 presents no account in the context of this
14 purported independent autonomous piece of evidence
15 of what happened on the remaining 179 days.

16 I'll pause there because that, I
17 think, is a fair answer to your question. But I
18 have a whole lot more to say about it.

19 Q. I appreciate the answer to the
20 question. Is it also true that Dr. [REDACTED] presents
21 in his report the results of his various news
22 categories combined in a select category?

23 A. Yes.

24 Q. Okay. You note in paragraph 21
25 that --

1 A. Whose paragraph 21?

2 Q. Great point, Doctor. In your
3 paragraph 21 of your report, you note that for
4 the -- let me just quote it. That will be easier.

5 In about the middle of the
6 paragraph, you note:

7 "In striking contrast, the same
8 dollar invested and reinvested for the 179
9 non-coincident unusual trading days (plus the
10 two days following each non-coincident day)
11 would have compounded to a total value of
12 \$4,198,673, more than 2.1 million times
13 \$1.99."

14 Do you know what portion of the
15 approximately \$4.2 million in cumulative proceeds
16 you identify as associated with the 179 days was,
17 in fact, associated with the 20 additional news
18 days identified by Dr. [REDACTED]

19 MR. FIGEL: Objection.

20 A. I don't know that offhand as I sit
21 here, but I do know one can get some sense of it
22 from Table 3 of my report, which may not answer
23 precisely that question, but comes close and
24 teaches that in the same spot where the \$1.99 that
25 is tailored to Dr. [REDACTED] Model 5 and key

1 milestones appears, adding the additional 20 days,
2 to which you have drawn my attention, gets us to
3 \$482.20 in comparison to \$7,776 with an additional
4 number for the regular trading days.

5 So, yes, one can tell from the way
6 that I have laid out Table 3 that the disparity is
7 different in magnitude but the disparity
8 continues.

9 Q. The disparity laid out in your
10 paragraph 19 is 2.1 million times. Is that right?

11 A. I think you must be referring to
12 paragraph 21?

13 Q. I am. Thank you for the
14 correction.

15 A. Yes.

16 Q. And the disparity between 7,776 and
17 \$482.20, roughly what's that disparity?

18 A. It is roughly -- sorry. I'm still
19 making my way there.

20 (Document review.)

21 It's -- in very rough, round
22 numbers, it's a 15-fold disparity.

23 Q. So the disparity drops from
24 2.1 million X to approximately 15X?

25 A. That's correct.

1 Q. Turning to paragraph 21 of your
2 report -- actually 21 this time -- you discuss
3 consideration of magnitudes of returns.

4 Do you see that?

5 A. I'm sorry. We're in paragraph 21
6 of my report?

7 Q. That's right. And the first
8 sentence says:

9 "Simple tallies of news event
10 occurrences with and without coincidences
11 with unusual XRP returns, lacking any
12 consideration of the magnitudes of these
13 returns, provide no indication of the
14 economic magnitude of the disparity between
15 the four coincident and 179
16 non-coincident trading days."

17 Do you see that?

18 A. Yes, I do.

19 Q. Okay. What do you mean by
20 magnitude of returns and/or magnitude of disparity
21 in that sentence?

22 A. I mean that contrary to what I
23 would expect to find in a standard event study
24 where there are concepts like end-point metrics,
25 like cumulative abnormal returns, possibly turned

1 into total amounts of dollar value changes so
2 frequently expressed in dollar magnitudes.

3 There's nothing in Dr. [REDACTED] dry
4 abstraction of colored marbles in
5 a -- hypothetical colored marbles in -- and
6 p-values that he analogizes to, draws from an urn
7 full of marbles, that measures the magnitude of
8 what he purports to identify or measures the
9 magnitude of what he does not explain, which is
10 the -- in the case of each discrete analysis that
11 he performs, such as the milestones or the select
12 category, each of which he rep- -- he presents as
13 yet another application of the same results. See,
14 here's another of the same -- of the same general
15 result.

16 They all look like just a check
17 mark against a green background in Dr. [REDACTED] work.
18 That gives no indication of the economic magnitude
19 which -- you know, which is sometimes called
20 practical significance or clinical significance of
21 the result that he arrives at.

22 Now, what I show is in the case
23 looking only at the milestones, there is a
24 2.1 million fold discrepancy as -- I have no
25 trouble calling the piece of the total abnormal

1 day unusual return that is associated with the
2 effect that he documents under milestones a sliver
3 at 1.21 millionth.

4 And if you go to the other end of
5 his table, where he has flung all of his
6 categories -- his key four categories plus
7 acquisitions into the hopper -- I have no problem
8 calling, 1 -- in my own mental arithmetic of a
9 moment ago, I have no trouble calling 1/15 a
10 sliver.

11 That's what I mean by the tallies.
12 Four out of one or four out of five or four out of
13 183 don't tell you anything about the magnitude in
14 the sense -- in the same manner that an ordinary
15 standard event study would do.

16 It doesn't reveal to you the
17 slivery nature of what Dr. [REDACTED] has related to
18 purportedly associated with -- not related to in
19 any causal sense -- associated with Ripple news
20 events.

21 Q. What is the result that an ordinary
22 standard event study would typically provide that
23 is, in your view, missing from Dr. [REDACTED] report?

24 A. I have -- it is typically a result,
25 especially in a litigation setting, that has some

1 dollar magnitudes associated with the purportedly
2 statistically significant effects.

3 Q. Let's turn to paragraph 7 of your
4 report.

5 A. I'm there.

6 Q. Is this issue of the -- strike
7 that.

8 You just responded that, in a
9 litigation setting, an event study typically
10 prevents -- strike that.

11 I believe you just testified in a
12 litigation setting, an event study typically
13 presents some dollar magnitudes associated with a
14 purportedly statistically significant effect. Is
15 that right?

16 A. Yes.

17 Q. Okay. Is that concept that you
18 just testified related in any way to the
19 conclusions you reach in paragraph 7?

20 MR. FIGEL: Objection.

21 A. I need to read the paragraph.

22 Q. Please.

23 A. (Document review.)

24 Yes.

25 Q. How are those, the concept that you

1 just testified about and your conclusions in
2 paragraph 7, related?

3 A. Paragraph 7 covers several patches
4 of territory. But I am thinking of the final
5 sentence:

6 "Properly interpreted, Dr. [REDACTED]
7 event study rebuts rather than supports the
8 conclusion that the price of XRP is primarily
9 a function of disclosures about Ripple's
10 actions."

11 Now, understanding that I am not at
12 all implying that, if I were asked that question
13 de novo, that this is how I would approach --
14 Dr. [REDACTED] analysis is how I would approach that
15 question.

16 Nevertheless, having been asked to
17 assess Dr. [REDACTED] work, I note that in terms of
18 these unusual returns that are a fundamental
19 ingredient of his analysis, most of the pricing --
20 price change action that is captured by the
21 unusual returns happens on days that he does not
22 relate to Ripple news, so that is my basis.

23 That plus the counting of days, but
24 the dollar value as even more than the counting of
25 days, although those two are mutually

1 corroborative, go -- stands for the proposition
2 that these events that he rebuts rather than
3 supports the conclusion that the price of XRP is
4 primarily a function of disclosures about Ripple
5 actions.

6 Q. So in your view, it's fair to say
7 the magnitude of returns is important to examine
8 in the context of determining whether or not
9 there's a price reaction?

10 MR. FIGEL: Objection.

11 A. As general as that statement is,
12 it's easy to agree with.

13 Q. Let's go back to paragraph 21,
14 please.

15 A. Paragraph --

16 Q. Back to 21, please.

17 A. I'm there.

18 Q. Okay. In paragraph 21 you supply
19 an accumulated total value figure of \$1.99 for the
20 four days reflected in Table 1. Is that right?

21 A. Yes.

22 Q. Okay. Those four days are the days
23 in which there was a key milestone news event and
24 an unusual daily XRP return. Is that right?

25 A. Correct.

1 Q. Okay. Can you please explain how
2 you arrived at the \$1.99 figure?

3 A. Yes. The -- as I disclose in
4 Footnote 19, in performing this calculation,
5 although I refer to it as "the days," the
6 co- -- four representing the coincident days, I
7 follow in Dr. [REDACTED] footsteps, in that, when he
8 calls a day -- when he labels it as coinciding
9 with -- when he labels it as an unusual return
10 day, that is actually based as, I explained much
11 earlier today, on a small data-mining exercise
12 over the up to three-day window.

13 The -- so while I say these are
14 returns measured over four certain days, as I say
15 in Footnote 19, I use three-day windows. That
16 gives rise to a small complication in that what if
17 a three-day window overlaps with a successor day
18 that is also of the same kind? We wouldn't want
19 to double count the return.

20 So I'm supposing, for
21 example -- and I have not committed these data to
22 memory, so I don't know whether this happens for
23 the milestone events, but it does happen
24 elsewhere, if not for the milestone events.

25 So the -- to be really explicit,

1 the complication that I am pointing to is what if
2 day two of the first milestone event day of the
3 window, of the three-day window -- day three of
4 the window coincides with another milestone event
5 day? I wouldn't want to double count that day.

6 So the -- the, I guess, economical
7 explanation is: Take a calendar, color in all of
8 the coincident return days -- "coincident" meaning
9 coincident with news -- and color in the two
10 following days.

11 It may be that in that process of
12 coloring some cells get colored more than once.
13 They get colored because of a preceding coincident
14 day and they also overlap with another coincident
15 day. But ignore the fact that you've
16 double-colored some days. They're still -- if the
17 color is blue, they're still blue.

18 Now, invest \$1 -- now that we've
19 got that part laid out on the calendar, invest \$1
20 at the closing price of midnight of the day before
21 the first blue streak on the calendar and hold
22 that investment until the end of that blue streak.
23 Whether it's three days later or five days later,
24 whenever that blue streak ends, hold that \$1.

25 Cash-out at the -- so you're

1 starting at midnight, universal time, on the day
2 before the first blue color day, and you are
3 cashing out at the price of midnight of the last
4 day colored in blue. Take those proceeds and
5 reinvest at the beginning midnight of the day
6 before the beginning of the next blue streak on
7 the calendar. And hold until that blue streak
8 ends. Cash-out at midnight. Take those proceeds
9 and reinvest until you run -- continue that
10 process until you run out of blue streaks.

11 So this is assuming that you really
12 can -- it's a hypothetical in that it assumes that
13 you can -- you can actually execute your
14 transaction at the recorded closing price of both
15 the day before you invest and the last day of your
16 investment. That's exactly how you'd calculate
17 the \$1.99 or the 2.1 -- the 4.199 million.

18 Q. And is that the methodology that
19 you set forth in Footnote 20 of your report?

20 A. Yes. Footnote 20 doesn't provide
21 all of the detail that I just did about how to
22 handle overlaps. But in substance, that is what
23 Footnote 20 was meant to convey.

24 Q. Is there any part of your report
25 that addresses your methodology when overlaps, as

1 you just described, occur?

2 A. The answer is certainly yes,
3 although I don't know without paging through the
4 report whether it's visible on the face of the
5 report. But what I mean by that "yes" is that, as
6 I testified earlier, I provided electronic
7 supporting materials for all of these
8 calculations; and in my view, the electronic
9 supporting materials produced along with the
10 report are part of the report.

11 So far better and far more precise
12 than a verbal description is the fact that the
13 actual calculation including the computer code
14 that performs the calculation are part of what I
15 produced in this case.

16 Q. Was there ever any overlap in
17 three-day windows where one window contained a
18 news day with regular returns and one window
19 contained a no-news day with unusual returns?

20 A. There were some mixed overlaps of
21 that kind which required that I define a way of
22 breaking the tie between -- in a mixed overlap of
23 that kind.

24 In other words, would I include the
25 day in -- would I label it -- would I tag it as

1 a -- the extended -- with it falling within the
2 extended span of a coincident unusual return day
3 or something else.

4 And the answer is -- well, there is
5 an answer. And there were such days and there is
6 an answer to what I did.

7 Q. And is that answer set forth in the
8 face of your expert report, or in your backup
9 materials, or elsewhere?

10 A. It is certainly set forth in my
11 backup materials. I do not recall whether I make
12 reference to that complication in the body of the
13 report.

14 Q. Okay. Let's take a look
15 at -- handing you LM-4, which is just an enlarged
16 copy of your Table 3 in your report.

17 (Exhibit LM-4, Enlarged copy of
18 Table 3 from M. Laurentius Marais' expert
19 report, marked for identification, as of
20 this date.)

21 Q. In your Table 3, Dr. Marais, are
22 the values displayed calculated using actual XRP
23 daily returns?

24 A. In mathematical substance, yes. I
25 don't recall whether they are actually calculated

1 in terms of recorded prices on -- at discrete
2 end-points. The same calculation could be
3 performed with returns by adding up -- by summing
4 log returns and taking the exponential function or
5 simply taking the ratio of prices at discrete
6 days. And I could tell with a code in front of,
7 me but I don't recall offhand.

8 What I'm explaining here is that
9 the mathematical -- the same mathematical
10 calculation can be performed via different
11 pathways. And I don't recall whether the express
12 pathway expressly used daily XRP returns or
13 whether it jumped to without going via -- without
14 involving returns.

15 Q. The numbers that are displayed in
16 Table 3 of your report are rounded. Correct?

17 A. Well, yes.

18 Q. If I were to examine your backup
19 materials and click on the Excel spreadsheet that
20 you produced for Table 3, I would see digits up to
21 several places. Correct?

22 A. If you clicked -- if you
23 interrogated my backup materials at the
24 appropriate point in the chain of calculation, you
25 would -- you could certainly achieve the result --

1 get the information you are asking about.

2 What I don't know anymore as I sit
3 here, whether that point extends all the way down
4 to the Excel tables or whether the information was
5 rounded by the time it reached the Excel tables.

6 But if that turns out to be the
7 case, then going upstream in the materials that I
8 have produced would allow you to get the full
9 precision of the number. So they are there. I
10 just am not testifying that they are in the Excel
11 spreadsheet, although they may be.

12 Q. Understood. Okay. For -- looking
13 at Table 3 for the Model 5 row, the entry under
14 "'unusual' trading days coincident with Ripple
15 news" is \$1.99.

16 Do you see that?

17 A. Yes, I do.

18 Q. And is that the total accumulated
19 proceeds for the four Ripple key milestone news
20 unusual return days that you reference in
21 paragraph 21 of your report?

22 A. Yes. The \$1.99 from paragraph 21
23 is the same as the \$1.99 that I think you are
24 directing my attention to.

25 Q. Okay. For the Model 5 row in

1 Table 3, is the \$4,198,673 figure under
2 no-coincident Ripple news the total accumulated
3 proceeds for the 179 Ripple news -- no Ripple
4 news -- strike that.

5 It's important to get this right.

6 For the Model 5 row of your
7 Table 3, is the \$4,198,673 figure under
8 no-coincident Ripple news the total accumulated
9 proceeds for the 179 no-news unusual return days
10 that is referenced in your paragraph 21?

11 A. Yes.

12 Q. Okay. If I -- looking at Table 3
13 again. If I multiply the \$1.99 in the unusual
14 trading days coincident with Ripple news column
15 with the approximately 4.2 million in the unusual
16 trading days no-coincident Ripple news column,
17 will I get, at least in rough terms, the
18 approximately 8.3 million figure in the unusual
19 trading days in [REDACTED] analysis period, third
20 column in Table 3?

21 A. With your qualification of "at
22 least in rough terms," which I take to mean
23 approximately in the same ballpark, you will get a
24 number that is close but not mathematically -- I
25 actually don't know about the particular case of

1 Model 5.

2 But there are some instances where
3 that multiplication will not get you an exact, a
4 mathematically exact reconciliation for reasons
5 that have to do with testimony I've already given.

6 Q. Okay. And setting aside the issue
7 of whether or not there's an exact mathematical
8 reconciliation. What's the principle behind the
9 phenomenon that if you multiply the \$1.99 for the
10 unusual trading days coincident with Ripple news
11 with the approximately 4.2 million for the unusual
12 trading days no-coincident Ripple news, you will
13 get approximately the 8.3 million and the unusual
14 trading days in [REDACTED] analysis period?

15 MR. FIGEL: Objection.

16 A. Well, the principle behind that is
17 the principle of commutativity of multiplication.

18 Q. Okay. And how does that principle
19 apply to multiplying together the coincident with
20 Ripple news unusual trading day returns and the
21 no-coincident Ripple news unusual trading day
22 returns to get the total unusual trading days in
23 [REDACTED] analysis period figure?

24 A. In the following way: The -- one
25 can take that same calendar with the blue streaks

1 that I referred to earlier and write into every
2 cell of that hypothetical calendar, hanging in
3 midair here between us, the total return for that
4 day of un-Ripple.

5 Now, things get a little bit
6 complicated because what I -- because of the
7 overlapping of the streaks and the fact that you
8 have already asked me about that, there is more
9 than one classification of the kinds of days that
10 we are talking about here.

11 So now we have to have in mind that
12 there are red -- there are blue streaks but also
13 yellow streaks and green streaks and there may
14 be -- those streaks may collide. And to make an
15 overall coherent table, I had to impose some
16 priority rules on what do I do in the cases where
17 the streaks overlap to some extent.

18 But for answering your pending
19 question, I'm going to assume away that
20 complication, so there are no overlaps to be
21 concerned about. And there's only one color
22 involved here.

23 Well, one way of describing the
24 calculation of the -- that we're talking about
25 here is to start at the far left-hand end of the

1 blue streaks with \$1 and to multiply it by the
2 total return -- one -- 100 percent, plus the total
3 return for that first day, and then multiply the
4 result of that by 100 percent, plus the total
5 return for the second color of the streaked -- the
6 "streaky" day, and so on.

7 And then skip to the next
8 place -- over the white space, to the next space
9 where a blue streak has been colored in on this
10 chart.

11 Now some of those event days are --
12 some of those blue streaky days are of the
13 coincident kind, and -- but we are now talking
14 about combining them with the not-coincident kind.
15 And so I've added in some more blue streaks for
16 the not-coincident kind.

17 Now the commutative law of
18 multiplication says that if I do a whole bunch of
19 multiplications, it doesn't really matter whether
20 I multiply the second or the third things first
21 and then multiply by the first, the order of the
22 multiplications doesn't matter.

23 And since the total return over
24 unusual trading days is simply the
25 multi- -- consists of the multiplication of all of

1 the days that I have colored in blue, and the two
2 components that are reported separately under the
3 milestones day is simply the multiplication of
4 some of them, those are the coincident ones.

5 And the no confounding Ripple news
6 are -- represents the multiplication of others of
7 them. It's easy to see that if I multiply all of
8 them together, I must get the result from
9 multiplying them together in groups.

10 So that is why my testimony was
11 that the -- yes, there is a principle behind it,
12 and it is the principle of the commutativity of
13 multiplication, the commutative law.

14 Q. Thank you, Doctor. For -- going
15 back to your Table 3, for the Model 5 row, what
16 does the entry for -- of \$1.03 under the regular
17 trading days heading for key milestones reflect?

18 A. That over all of the regular
19 trading days that -- so those are trading days
20 that are not individually labeled as unusual and
21 that do not coincide with news. Let me see.

22 So if you refer back to Table 2,
23 and you look in the same spot, you would see that
24 there is a count of one.

25 Q. Yes.

1 A. And this \$1.03 is really just what
2 the proceeds of trading over a three-day -- for
3 consistency, over a three-day window holding a \$1
4 investment starting on that one day. So no
5 multiplication is involved.

6 Q. And the regular trading days column
7 on both your Table 2 and your Table 3 corresponds
8 to days in which there was a Ripple news event but
9 there was not an unusual daily XRP return. Is
10 that right?

11 A. Correct.

12 Q. Okay. If I wanted to know -- going
13 back to Table 3, if I wanted to know the total
14 cumulative proceeds for the five days of Ripple
15 news events in the key milestones data set, would
16 I multiply \$1.99 and \$1.03?

17 A. Yes. Subject only to the
18 complications about which I have already testified
19 about the possibility of overlapping streaks and
20 how those are dealt with and my testimony about
21 how one -- about what I had to do to make for an
22 overall coherence and how that can be found in
23 precise detail in my backup materials.

24 Q. Okay. The product of \$1.99 and
25 \$1.03 is approximately \$2.05. Correct?

1 A. That seems about right.

2 Q. Okay. And what is the -- strike
3 that.

4 Okay. Returning to Table 3 of your
5 report, again, sticking with Model number 5, is
6 the \$92.55 figure the total compounded proceeds
7 for all trading days in the [REDACTED] analysis period
8 for Dr. [REDACTED] Model Number 5?

9 MR. FIGEL: Objection.

10 A. Yes.

11 Q. Okay. Now, I'm going to move to
12 the right-hand side of Table 3 and look at the
13 [REDACTED] select categories columns.

14 Is \$482.20 the total compounded
15 proceeds for unusual trading days coincident with
16 Ripple news in Dr. [REDACTED] Model 5?

17 A. Yes.

18 Q. And is \$7,776 the total compounded
19 proceeds for unusual trading days not coincident
20 with Ripple news in Dr. [REDACTED] Model 5?

21 A. Yes.

22 Q. Okay. Now, I'm going to look at
23 Tables 2 and 3 together. Is the \$482.20 figure in
24 Table 3 the total compounded proceeds for the 24
25 days of unusual returns coincident with Ripple

1 news displayed in Table 2?

2 A. Yes. Subject to all of the minor
3 complications that I testified about earlier in
4 response to questions from you.

5 Q. Setting aside those same minor
6 complications, is the \$7776 figure in Table 3 the
7 total compounded proceeds for the 159 unusual
8 trading days no-coincident Ripple news displayed
9 in Table 2?

10 A. Yes.

11 Q. Okay. If we compare all 24 Ripple
12 news events unusual return days within the Model 5
13 trading period -- strike that.

14 Okay. Going back to Table 3. The
15 unusual trading days in Dr. [REDACTED] analysis period
16 for Model 5 is the approximately \$8.3 million
17 figure. Right?

18 A. Yes.

19 Q. And is that approximately
20 \$8.3 million figure the total compounded proceeds
21 for all unusual return days in Model 5?

22 A. Yes. Again, subject to everything
23 I've testified about here. With details that can
24 be found in my electronic backup materials.

25 Q. Okay. Okay. Going back to the

1 Ripple news days within Model 5, is it fair to say
2 that if one undertook an investment strategy where
3 \$1 is invested in all five of the key milestone
4 news days plus the two days as described in your
5 Footnote 20, the proceeds would be an accumulated
6 total value of \$2.05?

7 A. Something close to that. I don't
8 know whether this is one of the instances where a
9 simple multiplication yields exactly the right
10 number. I've -- for reasons I've already
11 testified about.

12 Q. Okay. And looking now at Tables 2
13 and 3 together, would you agree that the total
14 compounded proceeds for all trading days in [REDACTED]
15 analysis period is \$92.55?

16 A. I'm sorry. Looking at both tables
17 together --

18 Q. Yeah. Strike that. Let me ask
19 another question.

20 A. You're asking me about a dollar
21 figure which only appears in one.

22 Q. You're right. Let me not do that.
23 Withdrawn.

24 Does the \$92.55 figure displayed in
25 all trading days in [REDACTED] analysis period

1 correspond with the 2,007 all trading days in
2 analysis period identified in Table 2?

3 A. Yes.

4 Q. Okay. So it's fair to say that we
5 know that the total compounded proceeds for all
6 2,007 days in [REDACTED] Model 5 is \$92.55?

7 A. That's what this number means.

8 Q. Okay. And we know that the total
9 compounded proceeds for the five Ripple news days
10 in the [REDACTED] Model Number 5 is \$2.05
11 approximately?

12 A. Again -- again, that is correct.

13 Q. So if we wanted to determine the
14 compounded total proceeds for the remaining 2,002
15 days in Dr. [REDACTED] Model Number 5, we can divide
16 92.55 by 205. Is that right?

17 A. I have to think about that.

18 Q. Okay.

19 A. Yes. The compounded return over
20 the five days alone is \$2.05. And over the entire
21 period, all 2,007 is 92.55. And those should --
22 subject to the same complications that I described
23 earlier, those should multiply.

24 Q. The \$2.05 for the five days should
25 multiply by some number assigned to the 2,002 days

1 to get us the total 92.55 for the 2,007 days. Is
2 that right?

3 A. Yes. I hesitate just in case there
4 is some complication arising from different
5 numbers of total days in these calculations, but I
6 -- as I sit here, I can't think of a reason why
7 the days covered in the various columns here would
8 change from group to group.

9 Q. Okay. And if we divide \$92.55 by
10 \$2.05 to try to reach an approximation for the
11 cumulative total proceeds for the 2,002 days,
12 that's approximately \$45.06. Is that right?

13 A. That seems about right.

14 Q. Okay. So is it fair to say that if
15 one undertook an investment strategy where \$1 is
16 invested on all of the 2,002 no Ripple news days
17 plus the additional days described in your
18 methodology in Footnote 20, the proceeds of that
19 investment strategy would be an accumulated total
20 value of \$45.06 approximately?

21 A. I'm sorry. The -- I need to hear
22 the premise of the question again. I heard the
23 trailing end, but what is the premise again?

24 Q. Sure. So the premise is someone is
25 undertaking an investment strategy where they

1 invest \$1 on the 2,002 no Ripple news days in

2 [REDACTED] Model 5.

3 And my question is: Is the
4 cumulative proceeds of that strategy approximately
5 \$45.06?

6 A. Yes. With -- that sounds right
7 with one adjustment to the series of questions to
8 which -- of which this is a part. There was a
9 point in which you mentioned 2,002 days.

10 Q. Yes.

11 A. Recall that the returns that I am
12 measuring here are measured over three-day
13 periods. That is -- I explained that in part
14 using the concept of the blue streaks drawn onto
15 the calendar. I think you got to 2,002 by
16 subtracting five from 2,007.

17 The \$90 that we are seeing on row
18 five is for the entire run of the calendar, and
19 the \$2.05 that you have calculated and that I've
20 broadly agreed to is for five days.

21 But each of those five days, if
22 they're widely separated so that there are no
23 overlaps, each of those five days could account
24 for three trading days because of the way this
25 calculation is performed.

1 So what I won't agree to -- or
2 can't agree to -- is that it's, in fact, exactly
3 2,002 trading days because there are complications
4 resulting from the extent of the blue streaks.

5 Q. I see. So would it be fair to say
6 that the proceeds for -- the cumulative total
7 proceeds for the days coded as no news days within
8 the 2,007 is approximately \$45.06?

9 MR. FIGEL: Objection.

10 A. That's -- that is a -- that seems
11 to me to be fair.

12 Q. Okay.

13 A. When -- when it works for you,
14 could we take another break? It's getting late
15 and I need to get some blood flow.

16 MR. SYLVESTER: Sure. We can take
17 a quick break. Thanks. Off the record.

18 THE VIDEOGRAPHER: The time is
19 5:13 p.m. This concludes Media 5. Off the
20 record.

21 (Recess taken from 5:14 p.m. to
22 5:35 p.m.)

23 THE VIDEOGRAPHER: The time is 5:35
24 p.m. This begins Media 6. On the record.

25 BY MR. SYLVESTER:

1 Q. Okay. Now, Dr. Marais, turning to
2 Table 3, I believe that you testified earlier that
3 in applying your methodology for calculating the
4 cumulative proceeds, you applied a method such
5 that a single day would not be counted in both the
6 unusual trading days coincident with Ripple news
7 column and also the unusual trading days
8 no-coincident Ripple news column. Is that right?

9 A. Yes.

10 Q. Okay. Is it also true that you
11 applied a methodology such that if a day were
12 counted in the regular trading day's column, it
13 was then not counted in either of the two unusual
14 trading days columns?

15 A. Yes.

16 Q. Okay. I would like to show you
17 what I have marked LM-5.

18 (Exhibit LM-5, Summary table of
19 data provided by M. Laurentius Marais,
20 marked for identification, as of this
21 date.)

22 Q. LM-5 is a summary table of data
23 that you provided displaying many of the numbers
24 that we were just discussing before the break.
25 And it's formatted in the same format as the

1 Table 1 of your report, which is to say that the
2 columns are cumulative XRP return and categorized
3 in unusual daily XRP return days and regular XRP
4 return days.

5 And the news events are categorized
6 by milestones again into, yes, there was a Ripple
7 milestone news day or, no, there was not a Ripple
8 milestones news day.

9 But instead of the number of days,
10 what I've inserted into this chart is largely
11 numbers drawn from your Table 3. So if we start
12 at the top-left cell of LM-5, you'll see \$1.99.
13 And \$1.99 is the cumulative return for the four
14 unusual return days with Ripple milestone news
15 according to your Table 3. Correct?

16 A. Yes.

17 Q. Okay. And the top middle cell is
18 \$1.03. And \$1.03 is the total cumulative return
19 for the one regular return day with Ripple
20 milestone news according to your Table 3.
21 Correct?

22 A. That's correct. As you indicated
23 yourself, a rounded number, but --

24 Q. Approximately.

25 A. -- yes, that is the number that is

1 reported in my Table 3.

2 Q. Okay. And turning to the middle
3 left cell, 4,198,673 is the cumulative return for
4 the 179 unusual return days with no Ripple news in
5 [REDACTED] Model Number 5. Correct?

6 A. I'm just checking that out.

7 Q. Yes.

8 A. 673 unusual trading days, key
9 milestone. Yes, that -- that is correct.

10 Q. Okay. The bottom left cell is
11 labeled "all." And you can see it's 8,352,186.
12 And that is the total cumulative return for all
13 183 unusual return days in [REDACTED] Model Number 5.
14 Correct?

15 A. Yes.

16 Q. Okay. Now, moving to the
17 right-most cells on LM-5, \$2.05 is the approximate
18 total cumulative return for all five Ripple
19 milestone news days in Dr. [REDACTED] Model Number 5.
20 Correct?

21 A. That's correct.

22 Q. Okay. And the bottom-right cell,
23 the \$92.55, that's the total cumulative return for
24 the entire period in [REDACTED] Model Number 5.
25 Correct?

1 A. Yes.

2 Q. Okay. And before the break, we
3 determined that the total return for all trading
4 days in [REDACTED] Model Number 5 period, taking out
5 the days associated with the five Ripple milestone
6 days, is approximately \$45.06. Is that correct?

7 A. Correct.

8 Q. Okay. Looking at this table, is it
9 correct that to reach the missing values that we
10 haven't discussed, the way you would fill in those
11 numbers is to reach the total that's in the "all"
12 column, you would multiply across the rows.

13 So for instance, for the yes news
14 event it's \$1.99 times \$1.03 equals approximately
15 \$2.05?

16 A. Oh, yes. Yes.

17 Q. Okay. And then when you're
18 examining just no-news event days, to reach the
19 \$45.06 in the "all" column, you would have to
20 multiply the approximately 4.1 million times a
21 very small number. Is that right?

22 A. Right. The \$45.06 itself comes
23 from -- I mean, I see a \$45.06 there, but ...

24 Q. That was if we wanted to determine
25 the compounded total proceeds for the remaining

1 days in [REDACTED] Model Number 5. I initially had
2 called that 2,002, but you pointed out that you
3 can't really just take 2,007 minus five.

4 A. Mm-hmm.

5 Q. So I think we'd agreed before the
6 break that one way to put it is that if you take
7 the total 2,007 [REDACTED] Model 5 trading day period
8 and you subtract out the returns associated with
9 the Ripple key milestone days, the way to reach
10 that is to divide the total returns for the entire
11 period on all days, \$92.55, by the returns
12 associated with the yes Ripple milestones days
13 which is \$2.05.

14 Is that right?

15 A. Yes. I testified that you could do
16 that calculation, but it would be subject to the
17 various qualifications in my prior testimony and
18 -- which may be -- have unusual mag- -- relative
19 magnitudes because of the small number of news
20 days we're talking about here.

21 Q. When you say --

22 A. But broadly -- broadly, that is
23 what I testified to.

24 Q. Okay. So if we look, Dr. Marais,
25 just at the "all" column in LM-5, is it fair to

1 conclude that without the five days of cumulative
2 returns from days with Ripple key milestone
3 announcements, the total compounded proceeds for
4 the entire 2,007 day trading period are about cut
5 in half?

6 A. Subject to gain to the
7 qualifications in my previous testimony, I would
8 have to agree that dividing anything by two about
9 cuts it in half.

10 Q. Okay. All right. I'd like to show
11 you another exhibit. This one is labeled LM-6.

12 (Exhibit LM-6, Summary table
13 referencing data provided by M. Laurentius
14 Marais for the same 2,007 day trading
15 period in [REDACTED] Model Number 5, marked for
16 identification, as of this date.)

17 Q. So LM-6 is also a summary table
18 referencing data you provided. And this is for
19 the same 2,007 day trading period in [REDACTED] Model
20 Number 5. The difference is that this, instead of
21 the key milestone period, is the select event
22 period.

23 A. Got it.

24 Q. Okay. So looking at the numbers on
25 this table, is the \$482.20 in the top-left cell,

1 is that the total compounded proceeds on unusual
2 return days coincident with Ripple news from your
3 Table 3?

4 A. That is the number from Table 3 for
5 Model 5.

6 Q. Okay. And just for the record, the
7 way this is displayed in LM-6 is that the \$482.20
8 is in the cell reflecting yes news event and
9 unusual return for daily XRP return.

10 All right. Looking at the top
11 middle cell, the 29 cents figure, is that the 29
12 cents figure that appears in the regular trading
13 days column for the select category in your
14 Table 3?

15 A. That is indeed that figure.

16 Q. Okay. And if we wanted to know
17 for -- I'm turning to the "all" category. If we
18 wanted to know the total cumulative proceeds for
19 all news event days, the way we would reach that
20 is we would multiply 482.20 by .29. Is that
21 right?

22 A. Yes. Subject to all of the
23 qualifications in my previous testimony on such
24 multiplications.

25 Q. And 48 -- sorry. Strike that.

1 482.20 times .29 is approximately
2 139.95. Would you agree?

3 A. That's a level of precision and a
4 kind of mental arithmetic that I don't do anymore.
5 But it's certainly the ballpark -- the right
6 ballpark. It's about .3 times 480.

7 Q. Looking at the middle left cell in
8 LM-6, that 7,776, that corresponds with the
9 unusual trading days, no-coincident Ripple news in
10 your Table 3. Correct?

11 A. I'm sorry. It's the seven thousand
12 seven hundred and -- yes, I do see that number.

13 Q. Okay. And the bottom-right cell,
14 "all," "all," that's still \$92.55 because this is
15 the same total compounded proceeds figure for the
16 2,007 trading days. Correct?

17 A. Yes, that is correct.

18 Q. Okay. Now, if we want to get the
19 figure -- so we've established the 139.95 in
20 approximate terms. We've established the 92.55
21 from your chart. If we want to get the figure for
22 the cumulative returns for all no Ripple news
23 days, would we do that by dividing 92.55 by
24 139.95?

25 A. If there were no peculiarities that

1 of the kind that I alluded to in my earlier
2 testimony, the qualifications about these
3 multiplications, that would be a way of getting a
4 number for that cell.

5 Q. And what -- just to make sure we're
6 on the same page, what peculiarities are you
7 referring to in your last answer?

8 A. I'm referring to the peculiarities
9 that arise from classifying potentially
10 indeterminate cells in my hypothetical image that
11 I drew in the air, as it were, of streaks of
12 different colors overlapping and making a
13 calculation involving or completing filling out a
14 table involving categories of events that might
15 have overlaps.

16 Q. Mm-hmm. Is it fair to say that
17 applying the sort of, methodological selections
18 you made in the event, that there were these
19 overlaps, the way you would reach the total
20 cumulative proceeds for no-news events in
21 Exhibit 6 would be to divide 92.55 by 139.95?

22 A. I'm sorry. Say -- say that again.
23 The --

24 Q. Sure. I want to -- I want to say,
25 like, assuming that we apply the methodological

1 choices that you made with respect to overlapping
2 windows, taking those as a given, as a
3 construction of how to determine the returns, the
4 total cumulative proceeds associated with all of
5 the days in which there were no Ripple news
6 events, the way we would approach that is to
7 divide the returns for all trading days in the
8 period, 92.55, by the returns for the yes Ripple
9 news event trading days in the period, 139.95.

10 A. The -- your question refers to
11 my -- what I've -- the qualification that I've
12 been stating, and then appears to make an abrupt
13 U-turn and to simply ignore that qualification.

14 I have been -- I've consistently
15 testified that the multiplic- -- ones ability to
16 multiply numbers in tables like this is qualified
17 by, limited by anomalies that arise from the
18 classification -- the hierarchical classification
19 that I provided that I needed to implement. And
20 that does not yield perfect multiplications.

21 And then you -- your question
22 appears to recognize that and then to immediately
23 deny it. The -- one's ability -- the correctness
24 of multiplying cell entries in these tables to get
25 to the margins, so dividing the margins by cell

1 entries to get other cell entries, is all limited
2 by the effect of the classifications I needed to
3 make and the fact that those classifications do
4 not affect different columns in this table in the
5 same way.

6 So the answer -- the long answer
7 I'm giving you here is really the same as the
8 answer I gave you -- I have just given you about
9 five times in a row. If those complications did
10 not exist then we could multiply and divide as you
11 suggest.

12 The complications do exist, and so
13 I have no reason to expect that you can replicate
14 calculations that can be done with the actual
15 returns by multiplying round and dividing rounded
16 numbers from my Table 3 in the format of tables
17 like the LM-6 and whatever the previous, LM-5.

18 Q. Turning to LM-6, I want to make
19 sure I understand your methodology with respect to
20 overlapping days.

21 The value represented, the
22 480 -- maybe it's easier to point to your chart,
23 to your Table 3. The \$482.20 that's reported as
24 coincident with Ripple news -- do you see that?

25 A. Yes.

1 Q. Is it true that for that period,
2 whatever days make up the total proceeds of
3 \$482.20, none of those days overlap with either
4 the no-coincident Ripple news period or the
5 regular trading days period?

6 A. I'm not certain whether that is
7 true because of the way the hierarchy of rules
8 that I applied affects the calculation behind
9 different cells in this table. But the way to
10 know that is to look at the actual computer code
11 that created the actual calculations without
12 rounding and without truncation, and with no
13 ambiguity about potentially overlapping colored
14 streaks in the hypothetical calendar that I have
15 referred to.

16 Q. The methodology that you applied to
17 reach the figures in your Table 3 for \$482.20 for
18 unusual trading days coincident with Ripple news,
19 \$7,776 associated with -- or rather, cumulative
20 proceeds for unusual trading days no-coincident
21 Ripple news, do you believe that you applied that
22 correctly?

23 A. I do.

24 Q. Okay. And is the same true with
25 the methodology that you applied with respect to

1 determining that 29 cents total cumulative
2 proceeds associated with the regular trading days
3 in your Table 3?

4 A. "The same" meaning I believe that I
5 applied the methodology that I applied correctly?

6 Q. I guess I'm asking more for your
7 own value judgment on your methodology. It seems
8 that you are confronted with a situation where you
9 had overlapping windows between several
10 categories. Is that fair?

11 A. That is fair.

12 Q. And you also decided that the right
13 thing to do was to implement a strategy so that
14 you didn't double count any day in any of those
15 categories, notwithstanding the overlapping
16 windows.

17 A. That was my intention.

18 Q. And is that -- do you think that
19 was the appropriate methodology to apply to this
20 exercise set forth in Table 3?

21 A. I think that there is no -- because
22 of the nature of the data and the nature of the
23 issue that we're discussing, I think that there is
24 no uniquely correct way of dealing with the issue.

25 But I believe that what I -- I

1 certainly think that what I applied, the method
2 that I did apply and the hierarchy of
3 classification that I did apply was an entirely
4 reasonable and appropriate method for illustrating
5 the point that I am -- that I intended to
6 illustrate.

7 Q. So given your familiarity with your
8 data and your methodology, sitting here today, if
9 you look at LM-6, are these returns for, say, the
10 news event yes category of 139.95 in the ballpark
11 of what you'd expect?

12 A. I have no particular expectation.
13 I don't have a preformed expectation. If I were
14 attempting to make tables like LM-5 and LM-6
15 entirely consistently with my previous testimony,
16 I would not be attempting to multiply and divide
17 numbers from Table 3 of my report.

18 I would turn instead to the
19 electronic supporting materials for my report,
20 which not only set forth the full precision
21 numbers so that they're not subject to rounding,
22 but also reveal exactly what was multiplied to get
23 to the dollar figure reported in a truncated or a
24 rounded form in each cell of Table 3.

25 So if I had an interest in

1 calculating, in filling in a table like Table LM-6
2 or Table LM-7, I've just described the method that
3 I would follow which is not the method --
4 certainly not relying on somebody else's
5 arithmetic and isn't even based on starting from
6 the numbers that are reported on the visible face
7 of Table 3.

8 Q. You would not start with such
9 numbers?

10 MR. FIGEL: Objection.

11 Q. I wanted to make sure I heard you
12 correctly.

13 A. For filling in the cells of tables
14 like LM-6 and LM-5, I would not start with the
15 rounded numbers that I have just -- as I just
16 explained.

17 I would go to the source material
18 for Table 3 where I would have the benefit of full
19 precision and full understanding of how potential
20 overlaps had been dealt with.

21 Q. If you had the -- your Table 3
22 Excel spreadsheet in front of you, and you wanted
23 to undertake the exercise set forth in the yes
24 news event row in LM-6, would you do that by
25 multiplying the cell that corresponds with \$482.20

1 on LM-4 with the cell that corresponds with 29
2 cents on LM-4?

3 A. No.

4 Q. Why not?

5 A. Because, first, as I've testified
6 already, I do not know, sitting here, whether
7 there is a level of rounding that occurred before
8 the numbers got into the spreadsheets like the one
9 that created Table 3.

10 You may recall that I explained
11 that I would go upstream from that table as far as
12 was necessary to get full precision.

13 But I would also, in order to avoid
14 any possibility of misunderstanding due to
15 overlapping cell products, I would go upstream far
16 enough not only to get the full precision, but
17 upstream far enough to be completely clear about
18 what were the -- which cells in the hypothetical
19 calendar that I have referred to a number of
20 times, contributed to each of the products
21 reported in Table 3, in order to understand
22 whether I should expect a multiplicative
23 relationship like the ones in Tables LM-5 and
24 LM-6, and if not, to apply suitable footnotes to
25 account for whatever it was that I discovered.

1 Q. If one wanted to undertake the
2 exercise that you just described, could one do so
3 with the data that you supplied in Marais backup?

4 A. Yes. That's -- in fact, those
5 materials are exactly what I have meant to refer
6 to -- what I did -- was, in fact referring to as
7 my electronic backup for every -- in every answer
8 in the past ten minutes or so.

9 Q. When you undertook your assignment
10 in this case, did you investigate to what
11 extent -- strike that.

12 Let's assume, as a hypothetical,
13 that the numbers on LM-6 are roughly correct.

14 Would it change your opinion at all
15 with respect to your rebuttal of Dr. [REDACTED] report
16 in this case, if, in fact, Ripple news events were
17 responsible for returns of 139.95 and all news
18 events were 92.55?

19 MR. FIGEL: Objection.

20 A. I would turn instead to Table 3 and
21 assume that the numbers on Table 3 were
22 approximately correct, where the -- I'm using the
23 word "approximate" only to refer to the
24 complications resulting from the overlapping
25 phenomena that I have testified about. And I

1 would continue to base my opinions and conclusions
2 on the Table 3 numbers on that assumption.

3 Q. Okay. The Table 3 numbers, though,
4 are the -- I think we established the Table 3
5 numbers for 482.20 for unusual trading days
6 coincident with Ripple news and 29 cents for
7 regular trading days are from your Table 3. Is
8 that right?

9 MR. FIGEL: Objection.

10 A. There are certain inputs in
11 table -- I'm sorry, I may have missed the gist of
12 that question. But I think you were asking me,
13 did certain input numbers on LM-6 and/or LM-5 come
14 from Table 3?

15 Q. I was, but I was -- I thought your
16 answer to my hypothetical was, I wouldn't look at
17 LM-6, I would look at LM-4, which is your Table 3.
18 And I was just pointing out that it seems that to
19 supply at least certain of the numbers in LM-6,
20 you can look at LM-4 and identify those numbers.

21 MR. FIGEL: Objection.

22 A. The fact that someone else had
23 transcribed some numbers from my Table 3 into
24 their table and done some arithmetic with them is
25 immaterial to me. Any number of people can do any

1 number of things with numbers from Table 3.

2 Table 3 is organized the way I
3 would organize these data. And I don't really
4 care what somebody else might -- how they might
5 rearrange the numbers. I would continue to base
6 my conclusions and opinion in this matter on
7 Table 3.

8 Q. Okay. Understood. But backing up
9 from what tables are in front of you, let's assume
10 the hypothetical case where, for a given period,
11 this 2,007-day period, the total returns for all
12 days are 92.55, and the total returns attributed
13 just to Ripple news events days are 139.95.
14 That's the hypothetical.

15 Does that affect your opinion at
16 all in this case?

17 MR. FIGEL: Objection.

18 A. No.

19 Q. Why not?

20 A. Because the total return for all
21 trading days of 92.95 -- 92.55 or whatever the
22 \$92 -- 92.55, describes a -- obscures a
23 complicated history of ups and downs, including an
24 up that went all the way to \$3.50 and then came
25 down again.

1 Dr. [REDACTED] purports to draw
2 conclusions from a two-part procedure, one of
3 which involves three-day trading
4 windows -- trading day windows in which he
5 identifies a certain number of those snippets of
6 time as being unusual in the sense in which I have
7 identified that term with a -- defined that term
8 with a capital U.

9 And he labels certain other days as
10 being categorized as having -- being associated
11 with Ripple news events. He finds highly
12 statistically significant coincidences between the
13 trading day snippets and the news days.

14 \$95 versus \$136 are two average
15 statements about -- two statements about certain
16 averages that really have very -- have nothing to
17 do, that I recognize as I sit here, with the
18 substance of my commentary and set of conclusions
19 on Dr. [REDACTED] work, which is that he has identified
20 a highly statistically significant correlation of
21 Ripple news with a sliver of the days -- of the
22 trading day snippets that he has also identified
23 as ones potentially containing nonrandom
24 systematic effects of something.

25 The averages that you were asking

1 me about just have next to nothing -- they have
2 nothing to do, that I recognize, with Dr. [REDACTED]
3 analysis in the first place.

4 With due respect, Mr. Sylvester,
5 you're off on a tangent, and on a very slender
6 limb of that tangent. And it has nothing to do,
7 that I recognize, with Dr. [REDACTED] purported
8 analysis or with my opinion that Dr. [REDACTED]
9 analysis, although it has identified a seemingly
10 highly statistically significant correlation, has
11 identified a correlation with only a sliver of the
12 event, the trading day snippets that he, that he
13 himself has identified as the candidates for
14 nonrandom systemic price effects.

15 Q. Is there any place in your report,
16 Dr. Marais, where you set forth the total
17 cumulative proceeds for the 2,007-day period in
18 [REDACTED] Model Number 5?

19 A. For the 2,007 days?

20 (Document review.)

21 I see that in -- I believe that
22 spot is visible in the counterpart of the
23 2,007-day number, if you just go to that same cell
24 in Table 3.

25 Q. I see. Is there any part of your

1 expert report where you compare the total
2 cumulative proceeds attributable to Ripple news
3 days with the total cumulative proceeds for the
4 entire period?

5 A. I do not -- I could flip through my
6 report and see if I'm reminded of something.
7 Sitting here, without doing that, I don't recall
8 any place where I do that, because that is simply
9 not a comparison that is pertinent to what I do,
10 in fact, do, which I set forth again in a -- in a
11 longish answer about two minutes ago.

12 MR. SYLVESTER: I think we're very
13 close to the end. Can we just take five
14 minutes off the record to wrap up?

15 MR. FIGEL: Gladly.

16 MR. SYLVESTER: Off the record.

17 THE VIDEOGRAPHER: The time is
18 6:14 p.m. This concludes Media 6. Off the
19 record.

20 (Recess taken from 6:14 p.m. to
21 6:28 p.m.)

22 THE VIDEOGRAPHER: The time is now
23 6:28 p.m. This begins Media 7. On the
24 record.

25 BY MR. SYLVESTER:

1 Q. Dr. Marais, turning to your Table 1
2 again in your expert report.

3 A. I'm there.

4 Q. Okay. There are 179 days that
5 correspond with unusual daily XRP returns and no
6 Ripple news events. Is that right?

7 A. Yes.

8 Q. Did you undertake any analysis to
9 determine what unaccounted for factors might have
10 driven unusual returns on those 179 days?

11 A. I did not. I did not need to do
12 that to arrive at the opinions I have in this
13 case.

14 Q. Did you undertake any analysis to
15 determine what unaccounted for factors might have
16 driven unusual returns on any days that were not
17 coincident with Ripple news days?

18 MR. FIGEL: Objection.

19 A. I -- as I have testified earlier
20 today, I did not undertake any brand new work
21 outside of what Dr. [REDACTED] reported and delivered.
22 Dr. [REDACTED] as far as I can tell, undertook no such
23 analysis. And I do point that out, but I did not
24 attempt to fill in that gap.

25 Q. Are you familiar with the concept

1 of false positives in statistical tests?

2 A. Yes.

3 Q. Turning again to the 179 days, is
4 it possible that some of those days could be false
5 positives?

6 MR. FIGEL: Objection.

7 A. It is -- it is certainly possible
8 as it is possible that some of the four days
9 identified by Dr. [REDACTED] are false positives.

10 Q. What is a typical expectation, if
11 any, for false positive observations?

12 MR. FIGEL: Objection.

13 A. That they are flagged by a
14 statistical procedure as being significant such as
15 Dr. [REDACTED] procedure in this case.

16 Q. As the percentage --

17 A. And --

18 Q. Go ahead.

19 A. I'm sorry. But that, in reality,
20 they do not correspond to a nonrandom, systematic
21 effect of the kind that Dr. [REDACTED] refers to when he
22 describes his procedure for identifying them.

23 Q. Is the typical expectation in
24 percentage terms for false positives around 5 or
25 10 percent?

1 A. It depends on the nature of the
2 data and on the nature of the procedure for
3 identifying them. I -- I would not say there is
4 such a thing as a typical rate of -- for -- that
5 fits all situations.

6 Q. I want to turn now to page 4 of
7 your report in which Dr. [REDACTED] Figure 1 is
8 reproduced.

9 A. I see it sitting right there.

10 Q. Okay. Is it fair to say that the
11 check-marks in Dr. [REDACTED] Figure 1 are intended to
12 indicate significance at the 5 percent level
13 according to Dr. [REDACTED]

14 A. Yes.

15 Q. Okay. Do you dispute any of
16 Dr. [REDACTED] conclusions regarding statistical
17 significance as is indicated in his Figure 1?

18 A. I agree that the arithmetic that
19 Dr. [REDACTED] arrive -- performed to arrive at the
20 coloring of the cells and the check-marks in the
21 cells appears to me to be correct. In fact, I've
22 replicated it and I think he got the arithmetic
23 correct.

24 Q. And that includes his conclusions
25 regarding significance at the 5 percent level

1 displayed in Figure 1?

2 A. Within the framework of
3 Mr. -- Dr. [REDACTED] analysis, I do agree that his
4 hypergeometric calculation, probability
5 calculations produced p-values below 5 percent --
6 actually, below 5 percent wherever he indicates
7 that he got such an outcome.

8 MR. SYLVESTER: I have nothing
9 further. Thank you very much for your time.

10 Reid?

11 MR. FIGEL: We don't have any
12 follow-up, obviously reserving all our rights
13 to check the transcript and to have him
14 consider some of the questions you asked.

15 But I think we need to ask the
16 Cleary folks and the Paul Weiss folks if they
17 have questions.

18 MR. SYLVESTER: Sure. Are they on?
19 Cleary? Paul Weiss?

20 MR. BONILLA LOPEZ: Nothing on my
21 end from Cleary.

22 MR. WARD: Nothing from Paul Weiss.
23 Thank you.

24 MR. SYLVESTER: Okay. Great.

25 Thank you very much, Dr. Marais.

1 Appreciate your time.

2 THE WITNESS: Thank you.

3 CERTIFIED STENOGRAPHER: So would
4 counsel please state your orders for the
5 transcript on the record, please; if you
6 would like a rough draft and when you would
7 like the final.

8 I have SEC's order already.

9 MR. FIGEL: What are our choices?
10 Expedited.

11 CERTIFIED STENOGRAPHER: If you
12 would like a rough and when you would like
13 the final.

14 MR. FIGEL: How soon can we get the
15 final?

16 CERTIFIED STENOGRAPHER: Tomorrow?

17 (Continued on the next page.)
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1 MR. FIGEL: That's fine. We'll
2 just do that. You can skip the rough. Just
3 give us the final tomorrow. Thank you.

4 And I assume this is highly
5 confidential?

6 MR. SYLVESTER: It's up to you.

7 MR. FIGEL: Yeah, I think we should
8 keep it highly confidential. That's how his
9 report was designated and we agreed to that.
10 So let's keep the deposition consistent with
11 the report.

12 That's it for us.

13 THE VIDEOGRAPHER: The time is 6:35
14 p.m. This concludes Media 7 of 7 of today's
15 deposition. Off the record.

16 (Time noted: 6:35 p.m.)
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1 CERTIFICATE OF WITNESS

2
3
4 I, M. LAURENTIUS MARAIS, do hereby declare under
5 penalty of perjury that I have read the entire
6 foregoing transcript of my deposition testimony,
7 or the same has been read to me, and certify that
8 it is a true, correct and complete transcript of
9 my testimony given on December 21, 2021, save and
10 except for changes and/or corrections, if any, as
11 indicated by me on the attached Errata Sheet, with
12 the understanding that I offer these changes and/or
13 corrections as if still under oath.

14 _____ I have made corrections to my deposition.

15 _____ I have NOT made any changes to my deposition.

16
17 Signed: _____
18 M. LAURENTIUS MARAIS

19 Dated this _____ day of _____ of 20____.
20
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C E R T I F I C A T E

STATE OF NEW YORK)

: ss.

COUNTY OF NASSAU)

I, PATRICIA A. BIDONDE, a Notary
Public within and for the State of New
York, do hereby certify:

That M. LAURENTIUS MARAIS, the
witness whose deposition is hereinbefore
set forth, was duly sworn by me, and
that such deposition is a true record of
the testimony given by the witness.

I further certify that I am not
related to any of the parties to this
action by blood or marriage, and that I
am in no way interested in the outcome
of this matter.

IN WITNESS WHEREOF, I have
hereunto set my hand this day,
December 22, 2021.

PATRICIA A. BIDONDE
Stenographer
Registered Professional Reporter
Realtime Certified Reporter

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Case Name: SEC v Ripple

Dep Date: December 21, 2021

Deponent: M. Laurentius Marais

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E R R A T A (Continued)

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Date	M. Laurentius Marais

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Exhibit 38

**UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF NEW YORK**

SECURITIES AND EXCHANGE)	
COMMISSION,)	
)	
Plaintiff,)	
)	
v.)	CASE NO. 20 CIV. 10832
)	
RIPPLE LABS INC.,)	
BRADLEY GARLINGHOUSE,)	
AND CHRISTIAN A. LARSEN,)	
)	
Defendants.)	
_____)	

**Expert Report of M. Laurentius Marais, PhD
November 12, 2021**

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Attachment A: Curriculum Vitae of M. Laurentius Marais

Attachment B: Previous Testimony of M. Laurentius Marais

Attachment C: Materials Considered

Attachment D: [REDACTED] Event Study: Coincidences Between “Unusual” Trading Days and Ripple News Days

Attachment E: [REDACTED] Event Study: Cumulative Investment Returns on “Unusual” Trading Days with and without Coincident Ripple News

I. Introduction and Background

1. I am an Executive Vice President at Compass Lexecon, a consulting firm that specializes in the rigorous empirical analysis of complex issues in business, industry, and government. I hold a PhD degree and master's degrees in business administration, mathematics, and statistics from Stanford University. I have taught and conducted scholarly research while serving on the faculties of the University of Chicago and Stanford University. I am a fellow of the Royal Statistical Society and a member of the American Statistical Association, the Society for Industrial and Applied Mathematics, and the American Economic Association, among other professional societies. I have extensive experience in applying mathematical and statistical theory and methods and in reviewing and assessing the validity of applied mathematical and statistical studies, inferences, and conclusions.

2. My qualifications and a list of my professional publications are shown in my curriculum vitae, which is appended to this report as Attachment A. A list of cases in which I have testified as an expert at trial or by deposition in the last four years is appended to this report as Attachment B.

3. Compass Lexecon bills for my work in this matter at a rate of \$1,040 per hour. My compensation does not depend on the opinions I offer or on the outcome of this proceeding.¹

4. I understand that the Plaintiff in this matter, the U.S. Securities and Exchange Commission ("SEC"), asserts as follows:²

From at least 2013 through the present, Defendants sold over 14.6 billion units of a digital asset security called "XRP," ... without registering their offers and sales of XRP with the SEC ...;

and, accordingly, that

¹ In addition to my own time spent on this matter, Compass Lexecon staff have assisted me with the preparation of this report, at their applicable hourly billing rates.

² First Amended Complaint ("FAC"), ¶¶ 1 and 9.

By engaging in the conduct set forth in this Complaint,
Defendants engaged in and are currently engaging in the unlawful
offer and sale of securities

I understand further that Plaintiff has engaged Dr. [REDACTED] to determine whether “actions by Ripple Labs, Inc. impact XRP prices.”³ Based on what he refers to as the results of his “well-accepted event study methodology,” Dr. [REDACTED] reached the opinion that “XRP prices react to certain news and public statements about Ripple’s actions,” particularly “news of important milestones in the history of Ripple Labs and for announcements more directly related to XRP.”⁴

5. Counsel for Ripple Labs Inc. (“Ripple”) asked me to assess, from the perspective of my areas of expertise in applied mathematics and statistics, including the econometric methods used for events studies, whether the analysis, conclusions, and opinions in Dr. [REDACTED] report are reliable and supported by well-accepted statistical and econometric principles and methods, and whether, based on my expertise, his opinions support the contention that, in economic substance, movements in XRP prices solely or predominantly reflect responses to disclosures about Ripple’s actions.

II. Dr. [REDACTED] Event Study

6. In relevant part, Dr. [REDACTED] defines his assignment from the Plaintiff as follows:⁵

I have been retained by the [SEC] ... to perform an empirical analysis of XRP’s price movements and assess whether actions by Ripple Labs, Inc. impact XRP prices.

I have been asked by the SEC’s litigation counsel to test whether news about Ripple Labs and its actions is associated with statistically significant XRP price changes. This association can be

³ Amended Expert Report of [REDACTED] Ph.D., October 6, 2021 (“[REDACTED] Report”), ¶ 10.

⁴ [REDACTED] Report, ¶ 12(a).

⁵ [REDACTED] Report, ¶¶ 10 and 30.

tested ... by evaluating the likelihood that news about Ripple Labs would occur at the same time as a significant XRP price change.

Based on his “empirical analysis of XRP’s price movements,” Dr. [REDACTED] opines, in relevant part, as follows:⁶

I find statistically significant evidence that XRP prices react to news about Ripple’s actions.... The results hold for nearly all statistical models I examine at scientifically accepted levels of statistical significance.... Taken together, this evidence indicates that XRP prices react to the news of actions by Ripple Labs.

7. This language invites a reader of the [REDACTED] Report to conclude that Dr. [REDACTED] has identified statistical “evidence” showing that XRP price movements are driven largely—and causally—by actions taken by Ripple. As I explain below, Dr. [REDACTED] event study is not designed to investigate this proposition and does not, in fact, support such a conclusion. Properly interpreted, Dr. [REDACTED] event study rebuts rather than supports the conclusion that the price of XRP is primarily a function of disclosures about Ripple’s actions.

8. Dr. [REDACTED] summarizes the statistical support for his opinion as follows:⁷

In Figure 1, I present a summary table that illustrates my findings. Across 20 different regression model specifications, which in varying degrees account for the price movements of digital tokens like Bitcoin (“BTC”), Ether (“ETH”), and other variables, I indicate the cases in which the relationship between news and XRP prices is statistically significant.

⁶ [REDACTED] Report, ¶ 12(a).

⁷ [REDACTED] Report, ¶ 12(a).

FIGURE 1: XRP PRICES REACT TO DIFFERENT TYPES OF RIPPLE NEWS

Model Number	Milestones	Trading Platform Listings	Customers & Product Developments	Ripple Commercialization Initiatives	Select Categories
1	✓	✓	✓	✓	✓
2	✓	✓	✓		✓
3	✓	✓	✓	✓	✓
4	✓	✓	✓		✓
5	✓	✓	✓	✓	✓
6	✓	✓	✓		✓
7	✓	✓	✓	✓	✓
8	✓	✓	✓		✓
9	✓	✓	✓	✓	✓
10	✓	✓	✓		✓
11	✓	✓	✓	✓	✓
12	✓	✓	✓	✓	✓
13	✓	✓	✓	✓	✓
14	✓	✓	✓	✓	✓
15	✓	✓	✓	✓	✓
16	✓	✓	✓		✓
17	✓	✓	✓	✓	✓
18	✓	✓	✓		✓
19	✓	✓	✓	✓	✓
20	✓	✓	✓	✓	✓

Notes:

- ✓ Indicates significance at the 5% level.
 Indicates not significant at the 5% level.

Select Categories is defined as the combination of Corporate Milestones, Trading Platform listings, Customer & Product Announcements, Ripple Commercialization Initiatives, and Acquisitions & Investments.

9. In the following subsections, I provide a brief explanation of the methodology by which Dr. [REDACTED] created the table above, on which Dr. [REDACTED] bases the opinion quoted in ¶ 6 above.

A. Nature of the Data Used for the [REDACTED] Event Study

10. The [REDACTED] event study involves data on XRP market prices on approximately 2,740 consecutive trading days^{8, 9} during the period February 4, 2014 – August 5, 2021. For each trading day in this range, Dr. [REDACTED] obtained the

⁸ Some of Dr. [REDACTED] 20 predictive models are limited to subperiods of the full [REDACTED] analysis period due to data limitations.

⁹ Dr. [REDACTED] further limits the time period for his analyses based on occurrence of specific Ripple news events. More specifically, he drops days before the first news day and days after the last news day of each [REDACTED] news events category. Dr. [REDACTED] provides no justification for his decision to exclude those days, and none is self-evident. I did not apply Dr. [REDACTED] exclusions in my own analyses reported here.

reported “closing” price of XRP in U.S. dollars. For all but the first trading day, he then calculated the corresponding daily percentage return on a unit of XRP for that day. For example, if XRP closed at \$0.90 on day 0 and \$1.00 on day 1, the day 1 return is 11.1% ($= \$1.00/\$0.90 - 1$).¹⁰

11. By analogy to well-established methods and accepted academic research, as applied to the study of price movements for equity securities traded on public exchanges, it is reasonable to hypothesize that these daily XRP returns are driven in part by noise trading but also in part by information-based trading in response to both XRP-specific information and more general, market-influencing information that affects prices of cryptocurrencies and other assets more broadly. The event study methodology applied to price movements of equity security returns typically attempts to partition such returns data into one component that reflects the impact of market-wide information, from which the “normal” or expected return on the same day can be estimated, and a second, residual, component that remains after removing the market-wide components and pertains specifically to the individual security of interest: the so-called “abnormal return.”

12. Dr. [REDACTED] attempts to apply an analogous approach to his event study in this matter. He posits 20 distinct statistical regression models¹¹ for removing from each day’s total XRP return the component due to market-wide effects, leaving an XRP-specific “abnormal return” (*i.e.*, residual percentage change) for each trading day. Each of his 20 alternative statistical models produces a series of daily abnormal XRP returns for each day in his analysis period.

13. For each of his 20 models, Dr. [REDACTED] also posits four distinct approaches for identifying what he labels “significantly positive” return days (hereinafter “Unusual” trading days): a “Parametric Approach” and a “Nonparametric

¹⁰ More precisely, Dr. [REDACTED] actually uses an essentially equivalent formula that defines returns in terms of the natural logarithms of price ratios.

¹¹ [REDACTED] Report, ¶¶ 39–42.

Approach,” each implemented on either a “one-sided ” or a “two-sided” basis, for a total of four “approaches.”¹² Thus, Dr. [REDACTED] posits a total of 80 distinct methods (= 20 models × 4 approaches) for identifying a particular daily XRP return as Unusual or, alternatively, Regular (shorthand for *not* Unusual).¹³ In sum, Dr. [REDACTED] employs 80 alternative methods to convert the single series of XRP daily closing prices to 80 alternative corresponding series of binary classifications of each XRP trading day as “Unusual” or “Regular.”¹⁴

14. The stated objective of Dr. [REDACTED] event study is to detect any association between news events concerning Ripple’s actions and Unusual XRP pricing. Thus, the second major data input of his event study consists of labeling each XRP trading day as either involving or not involving a Ripple news event. For this purpose, Dr. [REDACTED] subjectively creates five main categories of Ripple news events, which he labelled: Key Milestones, Digital Asset Trading Platform Listings, Customer and Product Announcements, Commercialization Initiatives, and an aggregate category of “Select” events that includes all events in the first four categories.¹⁵ Dr. [REDACTED] then determines, based on his own subjective judgments, without apparent reliance on any generally accepted statistical or economic methodology, on which of the trading days in his analysis there was a significant, new Ripple news event. Each category thus yields a corresponding series of binary

¹² [REDACTED] Report, ¶¶ 62–63.

¹³ I use the descriptive terms “Unusual” and “Regular” in my discussion of Dr. [REDACTED] event study rather than his own term (“significantly positive”) because “statistical significance” (at a specified level, typically 5%) is an unambiguously defined term of art, while Dr. [REDACTED] procedure involves many more steps and choices than a straightforward textbook determination of statistical significance.

¹⁴ For determining whether a trading day is “Unusual,” Dr. [REDACTED] focuses on the three-day period starting on that day. He flags a trading day as “Unusual” if any of the one-day, two-day, or three-day returns is statistically significantly positive and none of the three is statistically significantly negative ([REDACTED] Report, ¶ 63).

¹⁵ [REDACTED] Report at 3, Figure 1. “Select” news events also include one additional category of news: Acquisitions & Investments.

classifications for each XRP trading day as “Yes” or “No,” reflecting the occurrence (or not) of what Dr. █████ determined to be a Ripple news event.

15. In sum, therefore, Dr. █████ posits a total of 400 alternative configurations (= 80 methods × 5 categories of news events) of methods and data for analyzing XRP pricing in relation to Ripple news events.

B. Dr. █████ Analysis of and Inference from His Event Study

16. In this subsection, I use one of Dr. █████ 400 configurations of methods and data as an illustrative example to explain his basis for the conclusion he draws from his event study, as well as my assessment of the validity and scope of his conclusion. Specifically, I use his Model 5 in conjunction with his “one-sided” “Parametric Approach” in relation to his “Key Milestones” category of Ripple news events.

17. Table 1 below shows the disposition of the 2,007 trading days in this variant of the █████ event study.¹⁶

**Table 1: █████ Analysis of Ripple Key Milestone News Events
in Relation to Unusual XRP Return Days
as Identified by Dr. █████ Model 5 and One-Sided Parametric Approach**

		Daily XRP Return		All
		Unusual	Regular	
News Event?	Yes	4	1	5
	No	179	1,823	2,002
	All	183	1,824	2,007

Source: █████ backup.

The table shows that Dr. █████ methods classified a total of 183 (9.1%) of the 2,007 trading days as Unusual, and a total of five trading days (top row, right-hand column) as containing a Key Milestone news event. Of these five news days, *four* days with Key Milestone events (80% = 4/5) coincided with Unusual trading days.

¹⁶ Here too (see fn. 9 above), I do not adopt Dr. █████ implicit assumption that days before the first Key Milestone news event (May 18, 2015) and days after the last Key Milestone news event (December 20, 2019) are irrelevant to his analysis.

18. Dr. [REDACTED] analysis of this observed outcome consists essentially of recognizing that the Ripple news days tend to coincide with Unusual XRP trading days. Put differently, it is extremely unlikely that a sample of only five trading days chosen *at random* from among 2,007 trading days (including only 183 Unusual trading days) will be found to contain as many as *four* Unusual days. Accordingly, Dr. [REDACTED] concludes that this observed coincidence is a “statistically significant” departure from complete independence between Ripple news days and Unusual XRP trading days, indicating that there existed a nonzero correlation between Unusual XRP returns and the Key Milestones category of Ripple news events.

19. One striking feature of Dr. [REDACTED] analysis of the tallies shown in Table 1 above—not highlighted by Dr. [REDACTED] is that it offers no account of what factors or events caused the remaining 179 (= 183 – 4) Unusual trading days to have Unusual XRP returns. Put differently, Dr. [REDACTED] analysis advances an explanation for four out of 183 Unusual XRP returns but is silent about any causation of the great majority¹⁷ of the Unusual XRP returns identified by that same analysis.

20. Nothing in Dr. [REDACTED] analysis rules out that the unaccounted-for factors driving the 179 *non*-coincident Unusual returns—rather than the Ripple news event—may also have operated during the four *coincident* trading days, and may thus have driven the Unusual returns on those days as well, in whole or in part. In sum, the association between Dr. [REDACTED] subjectively selected days with Ripple news events and Unusual trading days, as a matter of fundamental statistical principles and common sense alike, does not per se establish that the Ripple Key Milestones news *caused* the abnormal XRP returns on the four

¹⁷ There are almost 45 times as many *non*-coincident Unusual returns as *coincident* Unusual returns.

coincident days. Thus, Dr. [REDACTED] overreaches in his apparent *causal* claim that “XRP prices *react to* the news of actions by Ripple Labs.”¹⁸

21. Simple tallies of news event occurrences with and without coincidences with Unusual XRP returns, lacking any consideration of the magnitudes of these returns, provide no indication of the economic magnitude of the disparity between the four coincident and 179 *non*-coincident trading days. To illustrate this point, if \$1.00 were invested and reinvested for the four coincident days found in Dr. [REDACTED] study (plus the two days following each coincident day)¹⁹, the proceeds would be an accumulated total value of \$1.99.²⁰ In striking contrast, the same dollar invested and reinvested for the 179 *non*-coincident Unusual trading days (plus the two days following each non-coincident day) would have compounded to a total value of \$4,198,673, more than 2.1 *million* times \$1.99.²¹ This overwhelming disparity suggests that, from the perspective of a speculative XRP investor, the 179 Unusual return days *without* Ripple news were of considerably greater consequence than the four Unusual return days *with* Ripple news.

22. In sum, Ripple news events are associated with a relative handful of the Unusual XRP returns in Dr. [REDACTED] analysis, while the great majority of Unusual days and the overwhelming preponderance of compounded investment returns associated with Unusual trading days occurred on days that did *not* coincide with Ripple news events identified by Dr. [REDACTED]

¹⁸ [REDACTED] Report, ¶ 12(a) (emphasis added).

¹⁹ I use three-day windows for this analysis to parallel Dr. [REDACTED] reliance on three-day windows for his identification of Unusual trading (see fn. 14 above).

²⁰ For example, \$1.99 represents the compounded final hypothetical proceeds, at the end of the final day among the four Unusual trading days (plus the two days following each) that coincided with Ripple news events in Dr. [REDACTED] Key Milestones category, from purchasing \$1.00 in XRP at the last closing price before the first of these Unusual days, selling at the closing price two days later, and then reinvesting the proceeds in the same way for each Unusual day in succession.

²¹ See Table 3 and ¶ 28 below.

III. The News Events Dr. [REDACTED] Identifies Fail To Account for the Great Majority of the “Unusual” XRP Trading Days He Identifies

23. The Model 5 example from § II.B above represents just one of the 400 configurations of the [REDACTED] event study (see ¶¶ 12–15 above). Table 2 below summarizes those 100 among these 400 configurations that use the first of Dr. [REDACTED] four distinct analytical approaches (described in ¶ 13 above). The results of the other three [REDACTED] approaches are displayed in the same format in Attachment D. The Model 5 example above appears in row 5, under “Key Milestones.”

Table 2

██████████ Event Study: Coincidences Between “Unusual” Trading Days and Ripple News Days
“Unusual” Trading Days Identified by Dr. ██████████’s “One-Sided Parametric Approach”

██████████ Ripple News Event Category:			Key Milestones (Max N=8)			Digital Asset Trading Platform Listings (Max N=11)			Customer and Product Announcements (Max N=73)			Commercialization Initiatives (Max N=7)			██████████ “Select” Categories (i.e., All News Dates) (Max N=105)		
██████████ Model No.	All Trading Days in Analysis Period	“Unusual” Trading Days in Analysis Period	“Unusual” Trading Days ...			“Unusual” Trading Days ...			“Unusual” Trading Days ...			“Unusual” Trading Days ...			“Unusual” Trading Days ...		
			Coincident	No	“Regular”	Coincident	No	“Regular”	Coincident	No	“Regular”	Coincident	No	“Regular”	Coincident	No	“Regular”
			with Ripple News	Coincident Ripple News	Trading Days	with Ripple News	Coincident Ripple News	Trading Days	with Ripple News	Coincident Ripple News	Trading Days	with Ripple News	Coincident Ripple News	Trading Days	with Ripple News	Coincident Ripple News	Trading Days
1	2,740	235	6	229	2	5	230	6	12	223	61	3	232	4	24	211	81
2	2,723	204	5	199	3	4	200	7	13	191	60	2	202	5	24	180	81
3	2,740	238	5	233	3	5	233	6	12	226	61	3	235	4	25	213	80
4	2,723	212	4	208	4	4	208	7	11	201	62	2	210	5	21	191	84
5	2,007	183	4	179	1	5	178	6	12	171	48	3	180	4	24	159	66
6	1,990	146	3	143	2	4	142	7	12	134	48	2	144	5	21	125	69
7	2,007	161	4	157	1	4	157	7	12	149	48	3	158	4	22	139	68
8	1,990	146	3	143	2	4	142	7	12	134	48	2	144	5	20	126	70
9	2,740	244	5	239	3	4	240	7	13	231	60	3	241	4	25	219	80
10	2,723	221	4	217	4	4	217	7	12	209	61	2	219	5	22	199	83
11	2,739	237	6	231	2	5	232	6	13	224	60	3	234	4	25	212	80
12	2,722	213	4	209	4	5	208	6	14	199	59	3	210	4	26	187	79
13	2,739	232	5	227	3	5	227	6	12	220	61	3	229	4	25	207	80
14	2,722	220	4	216	4	5	215	6	11	209	62	3	217	4	24	196	81
15	2,006	176	4	172	1	4	172	7	12	164	48	3	173	4	23	153	67
16	1,989	162	3	159	2	5	157	6	12	150	48	2	160	5	22	140	68
17	2,006	167	4	163	1	4	163	7	10	157	50	3	164	4	21	146	69
18	1,989	158	3	155	2	5	153	6	11	147	49	2	156	5	21	137	69
19	2,739	233	5	228	3	5	228	6	12	221	61	3	230	4	25	208	80
20	2,722	227	5	222	3	5	222	6	13	214	60	3	224	4	25	202	80

Source: ██████████ backup.
Notes: Median ratio of the number of non-coincident Unusual days to the number of coincident Unusual days is 40.3, 5th percentile is 6.6, 95th percentile is 79.2.

24. The 20 rows of the table correspond to Dr. [REDACTED] 20 Models (described in ¶ 12 above). The columns of the table are grouped into five categories that correspond to Dr. [REDACTED] five categories of Ripple news events, from Key Milestones on the left to [REDACTED] “Select” on the right (¶ 14 above). Within each of these groupings, there are three columns, representing counts of Unusual trading days that *coincide* with Ripple news days in the indicated category, Unusual trading days that do *not* coincide with Ripple news days in the indicated category, and Ripple news days that coincide with Regular (that is, *not* Unusual) trading days, respectively.

25. The ratio of “almost 45 times as many *non*-coincident Unusual returns as *coincident* Unusual returns” from fn. 17 above is that of 179 to 4 in the first and second columns of row 5 under the header Key Milestones. This ratio reflects the disparity between Unusual returns without an apparent association with Ripple news identified by Dr. [REDACTED] and those that *do* coincide with such news. It can be calculated for each of the 100 [REDACTED] analysis configurations shown in the table. The median of these 100 ratios is 40.3, and 90% of them fall in the range from 6.6 to 79.1. This shows that the predominance of non-coincident Unusual returns over coincident Unusual returns that is quantified by the ratio of “almost 45 times” in the Model 5 example in § II.B above is no aberrant outlier limited to that particular example; rather, this predominance is pervasive throughout the many configurations of Dr. [REDACTED] event study (because “almost 45 times” is well within the range “from 6.6 to 78.4”).

26. In sum, Ripple news events are associated with a relative handful of the Unusual XRP returns in Dr. [REDACTED] analysis, while the great majority of Unusual returns occurred on days that did *not* coincide with Ripple news events identified by Dr. [REDACTED]

IV. The Overwhelming Preponderance of the Cumulative XRP Returns Associated with the “Unusual” Trading Days Dr. ██████ Identifies Is Not Associated with the Ripple News Event Days He Identifies

27. Table 3 below parallels Table 2 above but summarizes cumulative, compounded Unusual XRP returns instead of the simple tallies of Unusual trading days discussed in § III above. Table 3 again summarizes those 100 ██████ event study configurations that use the first of Dr. ██████ four distinct analytical approaches (described in ¶ 13 above). The results of the other three ██████ approaches are displayed in the same format in Attachment E.

Table 3

██████████ Event Study: Cumulative Investment Returns on “Unusual” Trading Days With and Without Coincident Ripple News
Accumulated over Three-Day Holding Periods at Each “Unusual” Trading Day Identified by Dr. ██████████’s “One-Sided Parametric Approach”

Ripple News Event Category:			Key Milestones				Digital Asset Trading Platform Listings				Customer and Product Announcements				Commercialization Initiatives				"Select" Categories (i.e., All News Dates)			
			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...				
			Coincident with		"Regular" Trading Days	Coincident with		"Regular" Trading Days	Coincident with		"Regular" Trading Days	Coincident with		"Regular" Trading Days	Coincident with		"Regular" Trading Days	Coincident with		"Regular" Trading Days		
All Trading Days		"Unusual" Trading Days	Ripple News	No Coincident Ripple News		Ripple News	No Coincident Ripple News		Ripple News	No Coincident Ripple News		Ripple News	No Coincident Ripple News		Ripple News	No Coincident Ripple News		Ripple News	No Coincident Ripple News		Ripple News	No Coincident Ripple News
Model No.	in Analysis Period	in Analysis Period	Ripple News	No Coincident Ripple News	Trading Days	Ripple News	No Coincident Ripple News	Trading Days	Ripple News	No Coincident Ripple News	Trading Days	Ripple News	No Coincident Ripple News	Trading Days	Ripple News	No Coincident Ripple News	Trading Days	Ripple News	No Coincident Ripple News	Trading Days		
1	\$34.26	\$4,404,943,559	\$2.05	\$1,814,870,743	\$1.08	\$2.45	\$1,939,936,630	\$0.51	\$91.55	\$29,032,638	\$0.51	\$3.80	\$1,158,169,642	\$1.06	\$586.66	\$2,939,472	\$0.33					
2	\$26.06	\$274,588,059	\$1.52	\$152,500,970	\$1.46	\$2.18	\$126,121,683	\$0.57	\$107.28	\$1,560,391	\$0.44	\$2.49	\$71,973,458	\$1.62	\$510.31	\$212,832	\$0.38					
3	\$34.26	\$1,623,199,077	\$2.04	\$687,687,307	\$1.09	\$2.45	\$714,856,684	\$0.51	\$108.63	\$8,762,771	\$0.43	\$3.80	\$426,779,564	\$1.06	\$713.15	\$885,706	\$0.27					
4	\$26.06	\$82,554,034	\$1.52	\$47,145,813	\$1.47	\$2.18	\$37,918,086	\$0.57	\$85.93	\$590,142	\$0.54	\$2.49	\$21,638,593	\$1.62	\$372.69	\$90,291	\$0.52					
5	\$92.55	\$8,352,186	\$1.99	\$4,198,673	\$1.03	\$2.45	\$3,678,302	\$0.51	\$75.49	\$64,976	\$0.48	\$3.80	\$2,195,998	\$1.06	\$482.20	\$7,776	\$0.29					
6	\$70.39	\$259,267	\$1.48	\$175,689	\$1.39	\$2.18	\$119,084	\$0.57	\$75.49	\$2,735	\$0.48	\$2.49	\$67,958	\$1.62	\$318.56	\$495	\$0.44					
7	\$92.55	\$908,467	\$1.99	\$456,689	\$1.03	\$2.18	\$450,661	\$0.57	\$64.68	\$8,595	\$0.56	\$3.80	\$238,859	\$1.06	\$358.01	\$1,204	\$0.39					
8	\$70.39	\$124,990	\$1.48	\$84,698	\$1.39	\$2.18	\$57,409	\$0.57	\$64.68	\$1,604	\$0.56	\$2.49	\$32,762	\$1.62	\$266.41	\$302	\$0.53					
9	\$34.26	\$311,247,562	\$2.04	\$131,863,677	\$1.09	\$2.18	\$154,399,767	\$0.57	\$117.43	\$1,849,615	\$0.40	\$3.80	\$81,834,755	\$1.06	\$684.41	\$210,117	\$0.28					
10	\$26.06	\$35,805,980	\$1.52	\$20,448,450	\$1.47	\$2.18	\$16,446,128	\$0.57	\$92.90	\$342,822	\$0.50	\$2.49	\$9,385,260	\$1.62	\$402.89	\$52,335	\$0.48					
11	\$34.91	\$4,993,983,115	\$2.05	\$2,057,559,586	\$1.08	\$2.45	\$2,199,349,582	\$0.51	\$125.88	\$31,311,651	\$0.37	\$3.80	\$1,313,042,848	\$1.06	\$806.64	\$3,170,216	\$0.24					
12	\$26.55	\$175,818,959	\$1.43	\$107,244,603	\$1.55	\$2.45	\$71,693,590	\$0.51	\$100.03	\$1,059,140	\$0.47	\$3.80	\$46,227,194	\$1.06	\$501.64	\$141,294	\$0.39					
13	\$34.91	\$1,518,622,995	\$2.04	\$643,382,425	\$1.09	\$2.45	\$668,801,390	\$0.51	\$118.16	\$8,391,536	\$0.40	\$3.80	\$399,283,901	\$1.06	\$775.67	\$848,183	\$0.25					
14	\$26.55	\$104,448,189	\$1.52	\$59,649,354	\$1.47	\$2.45	\$42,590,774	\$0.51	\$85.93	\$602,651	\$0.54	\$3.80	\$27,462,037	\$1.06	\$542.89	\$74,866	\$0.36					
15	\$87.93	\$5,910,838	\$1.99	\$2,971,398	\$1.03	\$2.05	\$2,828,966	\$0.61	\$70.23	\$69,101	\$0.52	\$3.80	\$1,554,107	\$1.06	\$375.27	\$8,987	\$0.37					
16	\$66.87	\$603,304	\$1.48	\$408,821	\$1.39	\$2.45	\$246,009	\$0.51	\$75.49	\$4,804	\$0.48	\$2.49	\$158,135	\$1.62	\$358.83	\$775	\$0.39					
17	\$87.93	\$939,991	\$1.99	\$472,537	\$1.03	\$2.18	\$466,299	\$0.57	\$40.79	\$13,752	\$0.89	\$3.80	\$247,147	\$1.06	\$230.69	\$1,891	\$0.61					
18	\$66.87	\$164,742	\$1.48	\$111,636	\$1.39	\$2.45	\$67,177	\$0.51	\$60.29	\$2,331	\$0.60	\$2.49	\$43,181	\$1.62	\$285.81	\$363	\$0.49					
19	\$34.91	\$327,751,160	\$2.04	\$138,855,619	\$1.09	\$2.45	\$144,341,573	\$0.51	\$92.90	\$1,917,968	\$0.50	\$3.80	\$86,173,963	\$1.06	\$609.85	\$193,431	\$0.32					
20	\$26.55	\$30,566,988	\$1.52	\$17,376,707	\$1.46	\$2.45	\$12,464,282	\$0.51	\$93.32	\$277,056	\$0.50	\$3.80	\$8,036,824	\$1.06	\$454.49	\$37,665	\$0.43					

Source ██████████ backup.

Notes: Median ratio of the cumulative (3-day window) return associated with non-coincident Unusual days to the cumulative (3-day window) return associated with coincident Unusual days is 109,684, 5th percentile is 5.8, 95th percentile is 340,794,133.

28. The structure of this table parallels that of Table 2 as explained in ¶¶ 23–24 above. The ratio of “more than 2.1 *million* times” from ¶ 21 above is that of \$4,198,673 to \$1.99 in the first and second columns of row 5 under the header Key Milestones. This ratio again reflects the disparity between Unusual returns without an apparent association with Ripple news events identified by Dr. [REDACTED] and those that *do* coincide with such news events. It can again be calculated for each of the 100 [REDACTED] analysis configurations shown in the table. The median of these 100 values is 109,684, and 90% of them fall in the range from 5.8 to 340.8 million. Thus, the predominance of *non*-coincident Unusual returns over *coincident* Unusual returns from the Model 5 example in § II.B above is again no aberrant outlier; rather, this predominance is pervasive throughout the many configurations of Dr. [REDACTED] event study (because “more than 2.1 million times” is well within the range “from 8.0 to 336.8 million”).

29. In sum, Ripple news events are associated with a relative handful of the Unusual XRP returns in Dr. [REDACTED] analysis, while the overwhelming preponderance of compounded investment returns associated with Unusual trading days occurred on days that did *not* coincide with Ripple news events identified by Dr. [REDACTED]

V. Conclusion

30. In sum, it would be wrong to interpret Dr. [REDACTED] event study as establishing that XRP price movements are essentially a function of Ripple’s actions. Instead, the [REDACTED] event study cannot prove a causal relationship between Ripple’s actions and XRP price movements. And, even if it could do so, the [REDACTED] event study documents at best that any dependence of XRP price movements on Ripple-related news accounts for no more than a modest, far from preponderant portion of XRP’s Unusual price movements since 2014.

31. I hold each opinion expressed in this report to a reasonable degree of economic, mathematical, and statistical certainty. My opinions are based on information, data, and analyses of types typically and reasonably relied upon by

experts in economics, statistics, and applied mathematics. I may perform further work, and I may supplement this report in light of additional information or analysis. In particular, I understand that I may be asked to assess and respond to any opinions or exhibits offered by the parties at or before a trial in this matter.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 12, 2021.

M.L. Marais

M. Laurentius Marais

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Attachment A:

Curriculum Vitae of M. Laurentius Marais

November 2021

M. LAURENTIUS MARAIS

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332 S Michigan Ave, Ste 1300
Chicago, IL 60604

tel 312 322 0283

EDUCATION:

PhD Stanford University (Business Administration, Mathematics), 1985
MS Stanford University (Statistics), 1983
MS Stanford University (Mathematics), 1976
BSc Stellenbosch University (Mathematics, Applied Mathematics, Computer Science), 1973

EMPLOYMENT:

2019 present Compass Lexecon, Executive Vice President
1993 2019 William E. Wecker Associates, Vice President and Principal Consultant
1994 1998 Stanford University School of Law, Consulting Professor
1992 1993 William E. Wecker Associates, Senior Consultant
1982 1991 University of Chicago Graduate School of Business, Instructor,
Assistant Professor, and Associate Professor

ACTIVITIES:

Referee for: *Journal of Business and Economic Statistics*
Journal of Financial Research
Journal of Accounting Research
Journal of Accounting and Economics
The Accounting Review
Contemporary Accounting Research
Journal of Money, Credit and Banking

Editorial Board, *Journal of Accounting Research*, 1987-1992

Member of: American Statistical Association
Royal Statistical Society
Mathematical Association of America
Society for Industrial and Applied Mathematics
American Accounting Association
American Economic Association

PUBLICATIONS and WORKING PAPERS:

The experimental design of classification models: an application of recursive partitioning and bootstrapping to commercial bank loan classifications, (with James M. Patell and Mark A. Wolfson), *Journal of Accounting Research*, 1984.

An application of the bootstrap method to the distribution of squared, standardized market model prediction errors, *Journal of Accounting Research*, 1984.

An analysis of a multivariate regression model in the context of a regulatory event study by computer intensive resampling, Working Paper, Institute of Professional Accounting, University of Chicago, July 1986.

A note on the algebraic and statistical properties of the multivariate market model, Working Paper, Institute of Professional Accounting, University of Chicago, September 1986.

On drawing inferences about market reactions to the regulation of accounting for oil and gas exploration: An application of computer intensive resampling methods, Working Paper, Institute of Professional Accounting, University of Chicago, September 1986.

On detecting abnormal returns to a portfolio of nonsynchronously traded securities, Working Paper, Institute of Professional Accounting, University of Chicago, October 1986.

Reduced demands on recovery room resources with Diprivan compared to thiopental-isoflurane, (with Michael W. Maher et al.), *Anesthesiology Review*, January/February 1989.

Wealth effects of going private for senior securities, (with Katherine Schipper and Abbie J. Smith), *Journal of Financial Economics*, 1989.

Consequences of going-private buyouts for public debt and preferred stock: 1974 to 1985, (with Katherine Schipper and Abbie J. Smith), in *Proceedings of the 25th Annual Conference on Bank Structure and Competition: Banking System Risk - Charting a New Course*, Federal Reserve Bank of Chicago, 1989.

Discussion of 'Post-earnings-announcement drift: Delayed price response or risk premium?', *Journal of Accounting Research*, 1989.

Using relative productivity assessments for allocating housestaff to departments, (with Michael W. Maher, Michael F. Roizen, et al.), *Medical Care*, 1990.

An adaptable computer model of the economic effects of alternative anesthetic regimens in outpatient surgery, (abstract; with Michael W. Maher et al.), *Anesthesiology (Supplement)*, September 1990.

On the finite sample performance of estimated generalized least squares in seemingly unrelated regressions: nonnormal disturbances and alternative standard error estimators, Working Paper, Institute of Professional Accounting, University of Chicago, January 1991.

Exploiting tax attributes of spinoffs to structure takeovers and takeover-related defenses, (with Katherine Schipper), Working Paper, Institute of Professional Accounting, University of Chicago, August 1991.

Technological innovation and firm decision-making: accounting, finance and strategy, (with Paul J. H. Schoemaker), Working Paper, Institute of Professional Accounting, University of Chicago, September 1991.

Process-oriented activity-based costing, (with Michael W. Maher), Working Paper, Institute of Professional Accounting, University of Chicago, June 1992.

A field study on the limitations of activity-based costing when resources are provided on a joint and indivisible basis (with Michael W. Maher), *Journal of Accounting Research*, 1998.

Correcting for omitted-variables and measurement-error bias in regression with an application to the effect of lead on IQ (with William E. Wecker), *Journal of the American Statistical Association*, June 1998.

Event study methods: detecting and measuring the security price effects of disclosures and interventions (with Katherine Schipper), in *Litigation Services Handbook: The Role of the Financial Expert, Cumulative Supplement*, 3rd ed., John Wiley & Sons, 2005.

Estimating Cost Behavior (with Michael W. Maher), in *Handbook of Cost Management*, 2nd ed., John Wiley & Sons, 2005.

Audit Committee Financial Literacy: A Work in Progress (with Douglas J. Coates and Roman L. Weil), *Journal of Accounting Auditing and Finance*, March 2007.

Statistical Estimation of Incremental Cost from Accounting Data (with William E. Wecker and Roman L. Weil), in *Litigation Services Handbook: The Role of the Financial Expert*, 6th Ed., John Wiley & Sons, 2017.

The Length of Civil Trials and Time to Judgment in Canada: A Case for Time Limited Trials (with Kevin LaRoche and David Salter), *Canadian Bar Review*, September 2021.

Attachment B:

Previous Testimony of M. Laurentius Marais

M. Laurentius Marais
Deposition and Trial Testimony
January 2017 – November 2021

1. Glaxosmithkline v. Teva Pharmaceuticals. United States District Court for the District of Delaware. Civil Action No. 14-878-LPS-CJB.
2. In Re Testosterone Replacement Therapy Products Liability Litigation. United States District Court for the Northern District of Illinois. MDL No. 2545. Master Docket Case No. 1:14-cv-01748.
3. Guarantee Trust Life Insurance v. Platinum Services, American Arbitration Association. Case No. 01-15-0005-9328.
4. Fairfield Sentry Limited v. PriceWaterhouseCoopers. Ontario Superior Court of Justice. Case No. CV-14-10550-00CL.
5. Graci v. Omega Flex. United States District Court for the District of Connecticut. Case No. 3:15-cv-00513.
6. The People of the State of California v. General Motors. California Superior Court of Orange County. Case No. 30-2014-00731038-CU-BT-CXC.
7. Wolf v Thomas. California Superior Court of Sonoma County. Case No. SCV-251845.
8. Mitchell v AbbVie. United States District Court for the Northern District of Illinois. Case No. 14 C 9178.
9. Couch v. AbbVie. Circuit Court of Cook County, Illinois. Case No. 2014 L 005859.
10. Super98 v. Delta Air Lines. United States District Court for the Northern District of Georgia, Atlanta Division. Case No. 1:16-cv-1535-LMM.
11. Risperdal and Invega Product Liability Cases. California Superior Court of Los Angeles County. Judicial Council Coordination Proceeding No. 4775.
12. Konrad v. AbbVie. United States District Court for the Northern District of Illinois, Eastern Division. Case No. 15 C 966.
13. Jordan v. Nationstar and Federal Housing Finance Agency, United States District Court for the Eastern District of Washington. Case No. 2:14-CV-00175-TOR.
14. Cotromano v. United Technologies and Adinolfi v. United Technologies. United States District Court for the Southern District of Florida. Case Nos. 13-CV-80928-RYSKAMP and 10-80840-CIV-KLR.
15. Nolte v AbbVie. United States District Court for the Northern District of Illinois, Eastern Division. Case No. 14 C 8135.
16. In Re General Motors LLC Ignition Switch Litigation. United States District Court for the Southern District of New York. Case No. 14-MD-2543.

17. Pinares v. United Technologies. United States District Court for the Southern District of Florida. Case No. 10-CIV-80883-Marra/Hopkins.
18. Reinard v. Crown Equipment. Iowa District Court for Black Hawk County. Case No. LACV130248.
19. Snyder v. California Insurance Guarantee Association. California Superior Court of Alameda County. Case No. RG-13-666656.
20. United States v. J-M Manufacturing. Case No. CV 6-55-GW (cf. No. 5:06-cv-00055-GW-PJW) (C.D. Cal.), Phase 2
21. Williams v. Crown Equipment. Superior Court of New Jersey, Camden County. Case No. L-511-16.
22. In Re National Prescription Opiate Litigation. United States District Court for the Northern District of Ohio, Eastern Division. MDL No. 2804.
23. State of Oklahoma v. Purdue Pharma. District Court of Cleveland County. Case No. CJ-2017-816.
24. George v. Omega Flex. United States District Court for the Western District of Missouri. Case no. 6:17-CV-03114-MDH.
25. Noven Pharmaceuticals v. Amneal Pharmaceuticals. United States District Court for the District of Delaware. Case No. 1:18-cv-699-LPS.
26. In Re Opiate Litigation. Supreme Court of the State of New York, County of Suffolk. Index No. 400000/2017.
27. KAIFI LLC v. AT&T. United States District Court for the Eastern District of Texas, Marshall Division. Case No. 2:19-CV-138.
28. Club Champion v. True Spec Golf. United States Patent and Trademark Office, Patent Trial and Appeal Board. Case No. IPR2019-01148.
29. Lundquist and Lara v. First National Insurance, LM General Insurance, and CCC Information Services. United States District Court for the Western District of Washington. Case No. 3:18-cv-05301-RJB.
30. Syngenta Crop Protection v. FMC. American Arbitration Board. Case No. 01-19-002-4208.
31. MV3 Partners LLC v. Roku, Inc. United States District Court for the Western District of Texas, Waco Division. Case No. 6:18-cv-00308.
32. Par Pharmaceuticals v. Amneal Pharmaceuticals. United States District Court for the District of Delaware. Case No. 18-cv-2032-CFC.
33. Arendi S.á.r.l. v. LG Electronics, Apple, Blackberry, Motorola, Sony, Google, and Oath. United States District Court for the District of Delaware. Case Nos. 12-1595-LPS–12-1597-LPS, 12-1601-LPS, 12-1602-LPS, 13-919-LPS, and 13-920-LPS.
34. People of the State of North Carolina v. JUUL Labs. General Court of Justice, Superior Court Division, Durham County. File No. 19CVS2885.

35. Jama v. State Farm Fire and Casualty, and Ngethpharat v. State Farm Fire and Casualty. United States District Court for the Western District of Washington at Seattle. Case Nos. 2:20-cv-00652-MJP and 3:20-cv-00454-MJP.
36. Olberg v. Allstate. United States District Court for the Western District of Washington. Case No. 18-cv-00573-JCC.
37. Treehouse v. Valve Corporation. United States District Court for the Western District of Washington. Case No. 2:17-cv-01860-RAJ.
38. State of New Hampshire v. Johnson and Johnson. New Hampshire Superior Court. Case No. 217-2018-CV-00678.
39. Fintiv v. Apple. United States District Court for the Western District of Texas, Austin Division. Case No.: 1:19-cv-01238.
40. State of California v. Purdue Pharma et al. California Superior Court, Orange County. Case No. 30-2014-00725287-CU-BT-CXC.
41. Vallee v. Crown Equipment. United States District Court for the Eastern District of Louisiana. Case No. 20-1571.
42. County of Dallas v. Purdue Pharma et al. District Court of Dallas County, Texas. MDL Pretrial Cause No. 2018-77098.
In Re: Texas Opioid Litigation. District Court of Harris County, Texas. Master File No. 2018-63587.
43. KAIFI LLC v. T-Mobile US. United States District Court for the Eastern District of Texas, Marshall Division. Case No. 2:20-CV-00281-JRG.
44. In Re JUUL Labs, Inc., Marketing, Sales Practices, and Products Liability Litigation. United States District Court for the Northern District of California, San Francisco Division. Case No. 19-md-02913-WHO.
45. KAIFI LLC v. Verizon. United States District Court for the Eastern District of Texas, Marshall Division. Case No. 2:20-CV-00280-JRG.

Attachment C:
Materials Considered

Materials Considered

1. First Amended Complaint.
2. Amended Expert Report of [REDACTED] Ph.D., October 6, 2021.
3. Dirk F. Gerritsen, Rick A.C. Lugtigheid, and Thomas Walther, “Can Bitcoin Investors Profit from Predictions by Crypto Experts?,” *Finance Research Letters*, 2021.
4. Mohammad Hashemi Joo, Yuka Nishikawa, and Krishnan Dandapani, “Announcement effects in the cryptocurrency market,” *Applied Economics* Vol. 52, No. 44, 2020.
5. [REDACTED] electronic backup.

Attachment D:

**█ Event Study: Coincidences Between “Unusual” Trading Days and
Ripple News Days**

██████████ Event Study: Coincidences Between “Unusual” Trading Days and Ripple News Days
“Unusual” Trading Days Identified by Dr. ██████████’s “Two-Sided Parametric Approach”

██████████ Ripple News Event Category:			Key Milestones (Max N=8)			Digital Asset Trading Platform Listings (Max N=11)			Customer and Product Announcements (Max N=73)			Commercialization Initiatives (Max N=7)			██████████ “Select” Categories (i.e., All News Dates) (Max N=105)		
██████████ Model No.	All Trading Days in Analysis Period	“Unusual” Trading Days in Analysis Period	"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...		
			Coincident			Coincident			Coincident			Coincident			Coincident		
			with Ripple News	No Coincident Ripple News	"Regular" Trading Days	with Ripple News	No Coincident Ripple News	"Regular" Trading Days	with Ripple News	No Coincident Ripple News	"Regular" Trading Days	with Ripple News	No Coincident Ripple News	"Regular" Trading Days	with Ripple News	No Coincident Ripple News	"Regular" Trading Days
1	2,740	172	5	167	3	4	168	7	8	164	65	3	169	4	19	153	86
2	2,723	153	3	150	5	4	149	7	8	145	65	2	151	5	17	136	88
3	2,740	190	5	185	3	4	186	7	10	180	63	3	187	4	22	168	83
4	2,723	167	4	163	4	4	163	7	11	156	62	2	165	5	21	146	84
5	2,007	147	4	143	1	3	144	8	11	136	49	3	144	4	20	127	70
6	1,990	117	3	114	2	3	114	8	12	105	48	2	115	5	19	98	71
7	2,007	129	4	125	1	3	126	8	10	119	50	2	127	5	18	111	72
8	1,990	117	3	114	2	3	114	8	11	106	49	1	116	6	17	100	73
9	2,740	178	5	173	3	4	174	7	10	168	63	3	175	4	21	157	84
10	2,723	164	4	160	4	4	160	7	11	153	62	1	163	6	19	145	86
11	2,739	168	5	163	3	4	164	7	8	160	65	3	165	4	19	149	86
12	2,722	152	3	149	5	5	147	6	9	143	64	2	150	5	19	133	86
13	2,739	183	5	178	3	4	179	7	10	173	63	3	180	4	21	162	84
14	2,722	171	4	167	4	5	166	6	11	160	62	3	168	4	23	148	82
15	2,006	142	4	138	1	3	139	8	11	131	49	3	139	4	20	122	70
16	1,989	116	2	114	3	4	112	7	12	104	48	2	114	5	20	96	70
17	2,006	125	4	121	1	4	121	7	10	115	50	2	123	5	19	106	71
18	1,989	121	3	118	2	5	116	6	11	110	49	1	120	6	19	102	71
19	2,739	175	5	170	3	4	171	7	10	165	63	3	172	4	21	154	84
20	2,722	169	4	165	4	5	164	6	11	158	62	3	166	4	23	146	82

Source: ██████████ backup.
Notes: Median ratio of the number of non-coincident Unusual days to the number of coincident Unusual days is 33.7, 5th percentile is 6.0, 95th percentile is 75.3.

██████████ Event Study: Coincidences Between “Unusual” Trading Days and Ripple News Days
“Unusual” Trading Days Identified by Dr. ██████████’s “One-Sided Non-Parametric Approach”

██████████ Ripple News Event Category:			Key Milestones (Max N=8)			Digital Asset Trading Platform Listings (Max N=11)			Customer and Product Announcements (Max N=73)			Commercialization Initiatives (Max N=7)			██████████ “Select” Categories (i.e., All News Dates) (Max N=105)		
Model No.	All Trading Days in Analysis Period	“Unusual” Trading Days in Analysis Period	"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...		
			Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days
1	2,740	280	6	274	2	5	275	6	14	266	59	3	277	4	28	252	77
2	2,723	269	5	264	3	4	265	7	15	254	58	2	267	5	27	242	78
3	2,740	296	5	291	3	5	291	6	17	279	56	3	293	4	31	265	74
4	2,723	269	4	265	4	4	265	7	14	255	59	2	267	5	26	243	79
5	2,007	222	4	218	1	5	217	6	13	209	47	3	219	4	25	197	65
6	1,990	199	3	196	2	4	195	7	14	185	46	2	197	5	23	176	67
7	2,007	219	4	215	1	5	214	6	14	205	46	3	216	4	26	193	64
8	1,990	211	3	208	2	4	207	7	13	198	47	2	209	5	22	189	68
9	2,740	311	6	305	2	5	306	6	18	293	55	3	308	4	31	280	74
10	2,723	299	5	294	3	4	295	7	17	282	56	2	297	5	27	272	78
11	2,739	293	6	287	2	5	288	6	15	278	58	3	290	4	29	264	76
12	2,722	280	4	276	4	5	275	6	17	263	56	3	277	4	30	250	75
13	2,739	294	5	289	3	5	289	6	14	280	59	3	291	4	28	266	77
14	2,722	290	4	286	4	5	285	6	15	275	58	3	287	4	29	261	76
15	2,006	226	4	222	1	5	221	6	14	212	46	3	223	4	26	200	64
16	1,989	223	3	220	2	5	218	6	15	208	45	2	221	5	25	198	65
17	2,006	218	4	214	1	4	214	7	14	204	46	3	215	4	25	193	65
18	1,989	233	3	230	2	5	228	6	14	219	46	2	231	5	24	209	66
19	2,739	300	6	294	2	5	295	6	15	285	58	3	297	4	28	272	77
20	2,722	313	5	308	3	5	308	6	16	297	57	3	310	4	30	283	75

Source: ██████████ backup.
Notes: Median ratio of the number of non-coincident Unusual days to the number of coincident Unusual days is 51 3, 5th percentile is 7.9, 95th percentile is 107.5.

██████████ Event Study: Coincidences Between “Unusual” Trading Days and Ripple News Days
“Unusual” Trading Days Identified by Dr. ██████████’s “Two-Sided Non-Parametric Approach”

██████████ Ripple News Event Category:			Key Milestones (Max N=8)			Digital Asset Trading Platform Listings (Max N=11)			Customer and Product Announcements (Max N=73)			Commercialization Initiatives (Max N=7)			██████████ “Select” Categories (i.e., All News Dates) (Max N=105)		
██████████ Model No.	All Trading Days in Analysis Period	“Unusual” Trading Days in Analysis Period	"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...		
			Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	"Regular" Trading Days
1	2,740	140	2	138	6	4	136	7	8	132	65	3	137	4	16	124	89
2	2,723	128	2	126	6	4	124	7	9	119	64	2	126	5	17	111	88
3	2,740	147	4	143	4	4	143	7	7	140	66	3	144	4	18	129	87
4	2,723	140	4	136	4	4	136	7	8	132	65	2	138	5	18	122	87
5	2,007	119	3	116	2	3	116	8	11	108	49	3	116	4	20	99	70
6	1,990	97	3	94	2	3	94	8	11	86	49	2	95	5	19	78	71
7	2,007	113	4	109	1	3	110	8	9	104	51	2	111	5	17	96	73
8	1,990	101	3	98	2	3	98	8	9	92	51	1	100	6	15	86	75
9	2,740	155	3	152	5	4	151	7	9	146	64	2	153	5	18	137	87
10	2,723	141	3	138	5	4	137	7	9	132	64	1	140	6	17	124	88
11	2,739	151	3	148	5	4	147	7	9	142	64	3	148	4	18	133	87
12	2,722	143	3	140	5	5	138	6	9	134	64	2	141	5	19	124	86
13	2,739	159	4	155	4	4	155	7	9	150	64	3	156	4	20	139	85
14	2,722	157	4	153	4	5	152	6	8	149	65	3	154	4	20	137	85
15	2,006	124	3	121	2	3	121	8	11	113	49	3	121	4	20	104	70
16	1,989	115	2	113	3	4	111	7	11	104	49	2	113	5	19	96	71
17	2,006	123	4	119	1	4	119	7	11	112	49	2	121	5	20	103	70
18	1,989	124	2	122	3	5	119	6	11	113	49	1	123	6	18	106	72
19	2,739	161	5	156	3	4	157	7	8	153	65	3	158	4	20	141	85
20	2,722	158	4	154	4	5	153	6	9	149	64	3	155	4	21	137	84

Source: ██████████ backup.
Notes: Median ratio of the number of non-coincident Unusual days to the number of coincident Unusual days is 31.3, 5th percentile is 5.4, 95th percentile is 69.8.

Attachment E:

█ Event Study: Cumulative Investment Returns on “Unusual” Trading Days with and without Coincident Ripple News

Event Study: Cumulative Investment Returns on “Unusual” Trading Days With and Without Coincident Ripple News Accumulated over Three-Day Holding Periods at Each “Unusual” Trading Day Identified by Dr. [REDACTED]’s “Two-Sided Parametric Approach”

[REDACTED] Ripple News Event Category:		Key Milestones					Digital Asset Trading Platform Listings			Customer and Product Announcements			Commercialization Initiatives			[REDACTED] “Select” Categories (i.e., All News Dates)		
Model No.	[REDACTED]	All Trading Days in [REDACTED] Analysis Period	“Unusual” Trading Days in [REDACTED] Analysis Period	"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...		
				Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days
				with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News	
1		\$34.26	\$231,276,027	\$2.04	\$95,725,130	\$1.09	\$2.18	\$114,728,496	\$0.57	\$66.33	\$1,955,161	\$0.70	\$3.80	\$60,808,242	\$1.06	\$377.33	\$222,976	\$0.51
2		\$26.06	\$21,826,605	\$1.42	\$13,374,758	\$1.56	\$2.18	\$10,025,229	\$0.57	\$66.33	\$215,810	\$0.70	\$2.49	\$5,721,065	\$1.62	\$341.98	\$33,120	\$0.57
3		\$34.26	\$113,589,327	\$2.04	\$48,123,449	\$1.09	\$2.18	\$56,347,961	\$0.57	\$58.14	\$1,251,965	\$0.80	\$3.80	\$29,865,470	\$1.06	\$338.84	\$142,539	\$0.57
4		\$26.06	\$10,043,271	\$1.52	\$5,735,615	\$1.47	\$2.18	\$4,612,998	\$0.57	\$85.93	\$101,327	\$0.54	\$2.49	\$2,632,485	\$1.62	\$372.69	\$15,503	\$0.52
5		\$92.55	\$1,446,767	\$1.99	\$727,295	\$1.03	\$1.82	\$779,957	\$0.68	\$51.07	\$18,178	\$0.71	\$3.80	\$380,391	\$1.06	\$236.51	\$2,736	\$0.59
6		\$70.39	\$121,741	\$1.48	\$82,496	\$1.39	\$1.82	\$60,768	\$0.68	\$75.49	\$1,403	\$0.48	\$2.49	\$31,910	\$1.62	\$260.15	\$284	\$0.54
7		\$92.55	\$74,892	\$1.99	\$37,648	\$1.03	\$1.82	\$40,374	\$0.68	\$40.79	\$1,580	\$0.89	\$3.31	\$22,603	\$1.22	\$164.55	\$272	\$0.85
8		\$70.39	\$38,581	\$1.48	\$26,144	\$1.39	\$1.82	\$19,258	\$0.68	\$60.29	\$551	\$0.60	\$2.17	\$11,608	\$1.86	\$180.99	\$128	\$0.77
9		\$34.26	\$55,701,613	\$2.04	\$23,598,641	\$1.09	\$2.18	\$27,631,754	\$0.57	\$58.57	\$688,272	\$0.80	\$3.80	\$14,645,345	\$1.06	\$333.20	\$80,102	\$0.58
10		\$26.06	\$6,961,014	\$1.52	\$3,975,368	\$1.47	\$2.18	\$3,197,280	\$0.57	\$86.57	\$74,335	\$0.54	\$2.17	\$2,094,416	\$1.86	\$319.28	\$13,386	\$0.61
11		\$34.91	\$151,871,877	\$2.04	\$64,342,300	\$1.09	\$2.18	\$75,338,686	\$0.57	\$51.85	\$1,886,229	\$0.90	\$3.80	\$39,930,908	\$1.06	\$294.97	\$220,188	\$0.66
12		\$26.55	\$6,253,727	\$1.42	\$3,922,496	\$1.56	\$2.45	\$2,550,078	\$0.51	\$76.64	\$60,248	\$0.61	\$2.49	\$1,639,191	\$1.62	\$445.10	\$8,976	\$0.43
13		\$34.91	\$150,491,381	\$2.04	\$63,757,437	\$1.09	\$2.18	\$74,653,867	\$0.57	\$58.14	\$1,658,694	\$0.80	\$3.80	\$39,567,942	\$1.06	\$330.74	\$193,469	\$0.59
14		\$26.55	\$3,242,315	\$1.52	\$1,851,655	\$1.47	\$2.45	\$1,322,117	\$0.51	\$85.93	\$32,787	\$0.54	\$3.80	\$852,486	\$1.06	\$418.51	\$4,963	\$0.46
15		\$87.93	\$1,652,658	\$1.99	\$830,797	\$1.03	\$1.82	\$890,954	\$0.68	\$51.07	\$20,765	\$0.71	\$3.80	\$434,525	\$1.06	\$236.51	\$3,126	\$0.59
16		\$66.87	\$33,127	\$1.39	\$23,909	\$1.48	\$2.05	\$14,680	\$0.61	\$75.49	\$382	\$0.48	\$2.49	\$8,683	\$1.62	\$281.86	\$71	\$0.50
17		\$87.93	\$86,244	\$1.99	\$43,355	\$1.03	\$2.18	\$42,783	\$0.57	\$40.79	\$1,819	\$0.89	\$3.31	\$26,029	\$1.22	\$196.69	\$288	\$0.71
18		\$66.87	\$75,062	\$1.48	\$50,865	\$1.39	\$2.45	\$30,608	\$0.51	\$60.29	\$1,071	\$0.60	\$2.17	\$22,585	\$1.86	\$243.68	\$203	\$0.57
19		\$34.91	\$53,196,612	\$2.04	\$22,537,368	\$1.09	\$2.18	\$26,389,105	\$0.57	\$58.57	\$658,821	\$0.80	\$3.80	\$13,986,718	\$1.06	\$333.20	\$76,674	\$0.58
20		\$26.55	\$2,761,401	\$1.52	\$1,577,010	\$1.47	\$2.45	\$1,126,015	\$0.51	\$86.57	\$29,556	\$0.54	\$3.80	\$726,041	\$1.06	\$421.62	\$4,030	\$0.46

Source [REDACTED] backup.

Notes: Median ratio of the cumulative (3-day window) return associated with non-coincident Unusual days to the cumulative (3-day window) return associated with coincident Unusual days is 21,665, 5th percentile is 1.6, 95th percentile is 31,327,597.

██████████ Event Study: Cumulative Investment Returns on “Unusual” Trading Days With and Without Coincident Ripple News
Accumulated over Three-Day Holding Periods at Each “Unusual” Trading Day Identified by Dr. ██████████’s “One-Sided Non-Parametric Approach”

Ripple News Event Category:				Key Milestones			Digital Asset Trading Platform Listings			Customer and Product Announcements			Commercialization Initiatives			"Select" Categories (i.e., All News Dates)			
Model No.	in ██████	Analysis Period	in ██████	Analysis Period	"Unusual" Trading Days ...		"Unusual" Trading Days ...		"Unusual" Trading Days ...		"Unusual" Trading Days ...		"Unusual" Trading Days ...		"Unusual" Trading Days ...				
					Coincident	with	Coincident	with	Coincident	with	Coincident	with	Coincident	with	Coincident	with			
					Ripple News	No Coincident Ripple News	Regular" Trading Days	Ripple News	No Coincident Ripple News	Regular" Trading Days	Ripple News	No Coincident Ripple News	Regular" Trading Days	Ripple News	No Coincident Ripple News	Regular" Trading Days	Coincident with Ripple News	No Coincident Ripple News	Regular" Trading Days
1		\$34.26		\$20,933,031,362	\$2.05	\$8,624,570,477	\$1.08	\$2.45	\$9,218,904,573	\$0.51	\$130.92	\$101,508,024	\$0.36	\$3.80	\$5,503,816,588	\$1.06	\$1,114.87	\$9,146,731	\$0.17
2		\$26.06		\$13,237,688,744	\$1.52	\$7,351,959,810	\$1.46	\$2.18	\$6,449,448,808	\$0.57	\$153.77	\$61,619,473	\$0.30	\$2.49	\$3,416,406,232	\$1.62	\$768.10	\$8,489,520	\$0.25
3		\$34.26		\$9,356,265,880	\$2.04	\$3,963,891,662	\$1.09	\$2.45	\$4,120,498,404	\$0.51	\$174.15	\$49,856,523	\$0.27	\$3.80	\$2,422,149,810	\$1.06	\$1,154.89	\$4,798,762	\$0.17
4		\$26.06		\$1,811,720,236	\$1.52	\$1,034,655,961	\$1.47	\$2.18	\$762,311,532	\$0.57	\$170.48	\$7,932,288	\$0.27	\$2.49	\$467,571,978	\$1.62	\$1,007.19	\$970,098	\$0.19
5		\$92.55		\$14,503,462	\$1.99	\$7,290,940	\$1.03	\$2.45	\$6,387,323	\$0.51	\$75.92	\$127,472	\$0.48	\$3.80	\$3,813,322	\$1.06	\$484.89	\$15,242	\$0.29
6		\$70.39		\$4,502,262	\$1.48	\$3,050,902	\$1.39	\$2.18	\$1,894,402	\$0.57	\$112.21	\$35,571	\$0.32	\$2.49	\$1,180,107	\$1.62	\$473.49	\$5,898	\$0.30
7		\$92.55		\$1,689,587	\$1.99	\$849,361	\$1.03	\$2.45	\$828,310	\$0.51	\$91.47	\$15,234	\$0.40	\$3.80	\$444,235	\$1.06	\$560.54	\$1,940	\$0.25
8		\$70.39		\$1,674,237	\$1.48	\$1,134,526	\$1.39	\$2.18	\$768,998	\$0.57	\$66.53	\$15,305	\$0.55	\$2.49	\$438,841	\$1.62	\$269.33	\$2,650	\$0.52
9		\$34.26		\$681,098,380	\$2.05	\$287,236,133	\$1.08	\$2.45	\$299,955,647	\$0.51	\$112.49	\$4,244,122	\$0.42	\$3.80	\$179,077,769	\$1.06	\$710.34	\$428,029	\$0.27
10		\$26.06		\$131,974,421	\$1.52	\$75,024,757	\$1.46	\$2.18	\$60,617,479	\$0.57	\$121.67	\$895,210	\$0.38	\$2.49	\$35,274,424	\$1.62	\$507.59	\$139,357	\$0.38
11		\$34.91		\$32,205,701,307	\$2.05	\$13,268,997,495	\$1.08	\$2.45	\$14,183,387,104	\$0.51	\$136.47	\$171,660,459	\$0.34	\$3.80	\$8,467,682,966	\$1.06	\$1,162.19	\$15,468,059	\$0.17
12		\$26.55		\$4,713,522,744	\$1.43	\$2,875,115,850	\$1.55	\$2.45	\$2,225,508,774	\$0.51	\$149.11	\$23,735,584	\$0.31	\$3.80	\$1,220,236,617	\$1.06	\$785.25	\$3,491,389	\$0.25
13		\$34.91		\$7,156,148,334	\$2.04	\$3,031,786,086	\$1.09	\$2.45	\$3,151,566,892	\$0.51	\$155.34	\$32,234,831	\$0.30	\$3.80	\$1,852,583,451	\$1.06	\$1,070.88	\$3,102,649	\$0.18
14		\$26.55		\$2,354,905,754	\$1.52	\$1,344,863,974	\$1.47	\$2.45	\$1,111,878,249	\$0.51	\$144.84	\$10,693,117	\$0.32	\$3.80	\$609,637,926	\$1.06	\$960.86	\$1,464,710	\$0.20
15		\$87.93		\$8,791,088	\$1.99	\$4,419,310	\$1.03	\$2.45	\$3,871,594	\$0.51	\$67.52	\$106,566	\$0.54	\$3.80	\$2,311,396	\$1.06	\$431.28	\$12,753	\$0.32
16		\$66.87		\$3,768,698	\$1.48	\$2,553,811	\$1.39	\$2.45	\$1,536,760	\$0.51	\$108.97	\$29,518	\$0.33	\$2.49	\$1,007,306	\$1.62	\$517.92	\$4,840	\$0.27
17		\$87.93		\$625,642	\$1.99	\$314,512	\$1.03	\$2.18	\$345,487	\$0.57	\$91.47	\$6,442	\$0.40	\$3.80	\$164,497	\$1.06	\$497.64	\$1,013	\$0.28
18		\$66.87		\$335,538	\$1.48	\$227,373	\$1.39	\$2.45	\$136,822	\$0.51	\$67.15	\$3,222	\$0.54	\$2.49	\$87,564	\$1.62	\$306.22	\$506	\$0.46
19		\$34.91		\$872,299,114	\$2.05	\$367,870,240	\$1.08	\$2.45	\$384,160,428	\$0.51	\$67.84	\$6,949,769	\$0.69	\$3.80	\$229,349,216	\$1.06	\$445.34	\$700,899	\$0.43
20		\$26.55		\$145,263,737	\$1.52	\$82,579,461	\$1.46	\$2.45	\$68,586,859	\$0.51	\$96.63	\$744,179	\$0.48	\$3.80	\$38,193,463	\$1.06	\$623.75	\$104,852	\$0.31

Source: ██████████ backup.
Notes: Median ratio of the cumulative (3-day window) return associated with non-coincident Unusual days to the cumulative (3-day window) return associated with coincident Unusual days is 450,663, 5th percentile is 11.1, 95th percentile is 3,360,749,256.

Event Study: Cumulative Investment Returns on “Unusual” Trading Days With and Without Coincident Ripple News Accumulated over Three-Day Holding Periods at Each “Unusual” Trading Day Identified by Dr. [REDACTED]s “Two-Sided Non-Parametric Approach”

		Ripple News Event Category:		Key Milestones			Digital Asset Trading Platform Listings			Customer and Product Announcements			Commercialization Initiatives			"Select" Categories (i.e., All News Dates)			
Model No.	in	Analysis Period	in	Analysis Period	"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...			"Unusual" Trading Days ...		
					Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days	Coincident		"Regular" Trading Days
					with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News		with Ripple News	No Coincident Ripple News	
1		\$34.26		\$7,330,417	\$1.39	\$4,965,900	\$1.60	\$2.18	\$3,366,951	\$0.57	\$61.70	\$90,135	\$0.76	\$3.80	\$1,927,350	\$1.06	\$237.87	\$22,813	\$0.81
2		\$26.06		\$2,674,410	\$1.39	\$1,569,306	\$1.60	\$2.18	\$1,228,390	\$0.57	\$91.20	\$18,810	\$0.51	\$2.49	\$701,001	\$1.62	\$457.50	\$3,748	\$0.42
3		\$34.26		\$9,829,221	\$1.52	\$4,451,387	\$1.47	\$2.18	\$4,514,682	\$0.57	\$55.81	\$126,874	\$0.84	\$3.80	\$2,584,348	\$1.06	\$241.30	\$20,954	\$0.80
4		\$26.06		\$2,473,758	\$1.52	\$1,412,739	\$1.47	\$2.18	\$1,136,228	\$0.57	\$82.49	\$21,603	\$0.57	\$2.49	\$648,407	\$1.62	\$357.77	\$4,485	\$0.54
5		\$92.55		\$384,424	\$1.48	\$178,933	\$1.39	\$1.82	\$191,889	\$0.68	\$67.37	\$4,966	\$0.54	\$3.80	\$101,075	\$1.06	\$237.09	\$916	\$0.59
6		\$70.39		\$26,470	\$1.48	\$17,937	\$1.39	\$1.82	\$13,213	\$0.68	\$72.42	\$235	\$0.50	\$2.49	\$6,938	\$1.62	\$255.66	\$63	\$0.55
7		\$92.55		\$91,232	\$1.99	\$45,863	\$1.03	\$1.82	\$49,184	\$0.68	\$39.13	\$1,463	\$0.93	\$3.31	\$27,535	\$1.22	\$157.85	\$348	\$0.89
8		\$70.39		\$15,736	\$1.48	\$10,663	\$1.39	\$1.82	\$7,855	\$0.68	\$39.13	\$342	\$0.93	\$2.17	\$4,735	\$1.86	\$117.46	\$109	\$1.19
9		\$34.26		\$9,803,158	\$1.48	\$4,153,347	\$1.51	\$2.18	\$4,502,711	\$0.57	\$56.19	\$123,505	\$0.83	\$3.31	\$2,958,676	\$1.22	\$205.90	\$21,904	\$0.94
10		\$26.06		\$379,435	\$1.48	\$202,721	\$1.51	\$2.18	\$174,279	\$0.57	\$56.19	\$6,243	\$0.83	\$2.17	\$114,164	\$1.86	\$206.54	\$1,392	\$0.94
11		\$34.91		\$14,480,925	\$1.42	\$10,485,992	\$1.56	\$2.18	\$6,651,268	\$0.57	\$71.29	\$177,384	\$0.66	\$3.80	\$3,807,397	\$1.06	\$282.49	\$47,989	\$0.68
12		\$26.55		\$7,667,894	\$1.42	\$4,809,497	\$1.56	\$2.45	\$3,126,732	\$0.51	\$76.64	\$54,474	\$0.61	\$2.49	\$2,009,865	\$1.62	\$445.10	\$8,116	\$0.43
13		\$34.91		\$28,826,553	\$1.52	\$11,307,833	\$1.47	\$2.18	\$13,240,392	\$0.57	\$71.48	\$350,449	\$0.65	\$3.80	\$7,579,221	\$1.06	\$309.04	\$50,092	\$0.63
14		\$26.55		\$7,319,716	\$1.52	\$4,180,219	\$1.47	\$2.45	\$2,984,756	\$0.51	\$69.33	\$64,417	\$0.67	\$3.80	\$1,924,536	\$1.06	\$337.62	\$9,752	\$0.57
15		\$87.93		\$475,372	\$1.48	\$221,265	\$1.39	\$1.82	\$237,286	\$0.68	\$67.37	\$6,141	\$0.54	\$3.80	\$124,987	\$1.06	\$237.09	\$835	\$0.59
16		\$66.87		\$83,411	\$1.39	\$60,201	\$1.48	\$2.05	\$36,963	\$0.61	\$72.42	\$739	\$0.50	\$2.49	\$21,863	\$1.62	\$270.38	\$138	\$0.52
17		\$87.93		\$186,039	\$1.99	\$93,523	\$1.03	\$2.18	\$92,288	\$0.57	\$56.08	\$2,823	\$0.65	\$3.31	\$56,148	\$1.22	\$270.44	\$615	\$0.52
18		\$66.87		\$175,979	\$1.39	\$130,972	\$1.48	\$2.45	\$71,759	\$0.51	\$60.29	\$1,944	\$0.60	\$2.17	\$52,948	\$1.86	\$228.79	\$389	\$0.61
19		\$34.91		\$29,399,637	\$2.04	\$12,455,501	\$1.09	\$2.18	\$14,584,202	\$0.57	\$51.98	\$355,096	\$0.90	\$3.80	\$7,729,899	\$1.06	\$302.92	\$54,863	\$0.64
20		\$26.55		\$1,103,209	\$1.52	\$630,032	\$1.47	\$2.45	\$449,855	\$0.51	\$76.82	\$10,844	\$0.61	\$3.80	\$290,061	\$1.06	\$374.14	\$1,642	\$0.52

Source [REDACTED] backup.

Notes: Median ratio of the cumulative (3-day window) return associated with non-coincident Unusual days to the cumulative (3-day window) return associated with coincident Unusual days is 20,536, 5th percentile is 2.2, 95th percentile is 4,832,779.