Exhibit 15

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF FLORIDA
Case No. 1:21-MD-2989-CMA
----------x
IN RE JANUARY 2021 SHORT SQUEEZE
TRADING LITIGATION

----------x

May 3, 2023
10:06 a.m.

Videotaped Deposition of ADAM WERNER, Ph.D., taken by Defendants, pursuant to Notice, held at the offices of Cravath Swaine & Moore LLP, 825 Eighth Avenue, New York, New York, before Todd DeSimone, a Registered Professional Reporter and Notary Public of the State of New York.

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ALSO PRESENT:
PHIL GLAUBERSON, Videographer

WERNER

THE VIDEOGRAPHER: Good morning. We are going on the record at 10:06 a.m., 5-3-23.

Please note that microphones are sensitive and may pick up whispering and private conversations. Please mute your phones at this time and please place your phones away from the microphones as they can interfere with the audio. Audio and video recording will continue to take place unless all parties agree to go off the record.

This is media unit one of the video-recorded deposition of Dr. Adam Werner in the matter of In Re January 2021 Short Squeeze Trading Litigation, filed in the United States District Court, Southern District of Florida, 21-MD-2989-CMA. The location of this deposition is Cravath Swaine & Moore, 825 Eighth Avenue, New York, New York.

My name is Phil Glauberson representing Veritext and I am the

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videographer. The court reporter is Todd DeSimone from Veritext. I am not authorized to administer an oath, I am not related to any party in this action, nor am I financially interested in the outcome.

If there are any objections to proceeding, please state them at the time of your appearance. Counsel will now state their appearances and affiliations for the record, beginning with the noticing attorney.

MR. RYAN: Antony Ryan, Cravath Swaine & Moore LLP, representing the Robinhood defendants, and I'm joined here today by my colleagues Robert DeNunzio and Charlotte Lepic.

MR. ROSEN: Laurence Rosen on behalf of the securities class action plaintiffs and the class, and also here to defend the deposition of Dr. Werner.

THE VIDEOGRAPHER: Will the court reporter please swear in the witness.

WERNER

* * *

ADAM WERNER, Ph.D., called as a witness, having been first duly sworn, was examined and testified as follows:

EXAMINATION BY MR. RYAN:

Q. Good morning, Dr. Werner.

A. Good morning.

Q. Could you please state your full name for the record.

A. Legally it is Dr. Adam Davis Werner. If you look at my license, it goes back to when I was 16 years old, someone mistyped it at the DMV, so I have always been Adam David Werner.

Q. Got it. What is your educational background, Dr. Werner?

A. I got my undergraduate degree with honors in economics at Oberlin College. I got my Ph.D. in finance from Northwestern University. I believe I also have a master's in finance or MS in finance, but I think that is just like give it to you sort of as part of the process.

WERNER

Q. Do you understand that you are appearing here today as an expert in this litigation?
A. I do.
Q. What is your area of expertise?
A. Economics and finance.
Q. Now, am I right that after you graduated from Oberlin, you worked for a year as a research assistant for the Federal Reserve Bank in Cleveland?
A. I did that for six months. Immediately after college I actually worked as a secretary at the New York Public Library, but I didn't feel, that was probably not relevant to my expert opinion.
Q. All right. And then after those six months at the New York Public Library, did you work as a research assistant for the Federal Reserve Bank in Cleveland?
A. I did.
Q. And then you went to graduate school at Northwestern?
A. Correct.

WERNER

Q. And then am I right that since then you have been affiliated with a variety of economic consulting firms?
A. I think that's accurate.
Q. And those include Cornerstone, NERA, CRA, LitiNomics, Gnarus, and the Berkeley Economic Consulting Group; is that right?
A. Correct.
Q. Were you employed by those organizations?
A. The first three. Since then I think I have been a 1099 employee. I don't recall at Berkeley Economic Consulting, I think I was still a 1099 employee. But, I mean, at one point I subsumed the firm because the principals went to the Brattle Group. So I don't know technically what status I was, whether I was paying myself as a 1099 employee or a W-2 employee.
Q. Am I right that you are presently a lecturer in economics at Cal Poly San Luis Obispo?
A. You actually are incorrect.

WERNER

Q. All right. Why don't you correct me then.
A. I recently retired from teaching at Cal Poly.
Q. Got it. And when did you retire from teaching at Cal Poly?
A. I believe it was April 4th, April 3rd, something like that.
Q. And is that the end of a term at Cal Poly?
A. I think it was the beginning of a quarter, the day prior to the beginning of a quarter.
Q. Understood. So that school operates on a quarter system and you retired at the end of -- approximately the end of March of 2023?
A. Correct.
Q. All right. And am I right, then, that for some period of years up until recently you were a lecturer in economics at Cal Poly San Luis Obispo?
A. Correct.
Q. What is your association with

WERNER

Crowninshield Financial Research?
A. Again, I mean, I think the title is affiliated expert, but I'm a 1099 employee. So I don't know if that makes me a consultant.
Q. Okay. And for the last -- well, strike that.
Am I right that you have been affiliated with Crowninshield since around 2015?
A. I think that's correct. I can check my vitae if it makes it easier.
Q. Sure.
A. So just to be accurate. So, I don't know, is this an exhibit?
MR. ROSEN: I brought those.
THE WITNESS: Oh, you brought these, sorry. Okay.
MR. ROSEN: Those are what I thought were the relevant reports.
Q. We will make it an exhibit in a moment.
A. Yes, 2015.
Q. All right. And then from 2015

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until you recently retired from Cal Poly San Luis Obispo, how much of your professional time was spent teaching at the school versus consulting with Crowninshield?

A. Time?

Q. Yes.

A. Probably 50/50.

Q. Okay. And did the majority of your compensation during that time frame come from Crowninshield?

A. I would say about 65 percent of my compensation came from Crowninshield.

Q. Do you know Steven Feinstein?

A. I do, as does Dr. Grenadier, Professor Grenadier I believe.

Q. And did Dr. Feinstein hire you originally at Crowninshield?

A. I don't know the answer to that question. Again, I'm a 1099 employee, so as an affiliate, I don't know if I was ever technically hired by Crowninshield.

Q. Did you meet with Dr. Feinstein before you began your affiliation at

WERNER

Crowninshield?

A. I certainly spoke with him numerous times on the phone. I don't think I physically met -- I don't recall physically meeting him.

Q. All right. And did Dr. Feinstein encourage you to become affiliated with Crowninshield?

A. I don't think so. I think I reached out to him.

Q. I see. He is somebody who you knew beforehand?

A. No.

Q. How did it come about that you reached out to Dr. Feinstein?

A. I was familiar with his work and I needed more support than I had at the time.

Q. Now, am I right that you have worked with The Rosen Law Firm before this lawsuit?

A. That is correct.

Q. And approximately how many times have you provided an expert report in

WERNER

cases for The Rosen Law Firm?

A. I mean, I would be speculating. If you want me to go through it, I can try to figure it out.

Q. Is it more than ten?

A. Oh, I'm sure it is more than ten. Let me ask a clarifying question, so when you say reports, would a rebuttal report and an initial -- so, for example, in this case, right, I have submitted two reports, is that one engagement or would you consider that two reports?

Q. I would consider that two reports in one case. So let me ask -- let me reask the question so we have a clear record.

Am I right that you have submitted expert reports or declarations in more than ten cases in which you have worked with The Rosen Law Firm?

A. I believe that is correct.

Q. And are there other occasions beyond the cases in which you have submitted expert reports or declarations in

WERNER

which you have consulted with The Rosen Law Firm?

A. Yes.

Q. Have you ever submitted an expert report or declaration on behalf of a defendant in a securities case?

A. Maybe once or twice.

Q. Okay. And what cases are those?

A. So I'm going to start -- so I'm looking, again, here, this is my initial report -- this is my original declaration here.

Q. Right.

A. So now I'm looking at Exhibit 1 to my initial declaration. So I believe that this case, and this is on page 50 of my initial declaration, and this is Exhibit 1 to my initial declaration, Securities and Exchange Commission versus Bradley Davis. I believe that was a civil securities class action. Oh, was it a securities class action? You know, I don't know. It dealt with securities, but, I mean, I think

technically, was it a securities class action? It was a securities case. As a legal matter, I don't think -- I mean, it wasn't a class action, right? It was a suit brought by the SEC. So maybe that doesn't count.

Q. All right. So let me just ask you a follow-up question about that case. So that was a case that is captioned Securities and Exchange Commission v. Bradley C. Davis, right?

A. Correct.

Q. And were you retained on behalf of Mr. Davis?

A. I was.

Q. All right. Okay. So assuming for a moment that that was a case brought by the SEC and not a securities class action, are there any matters in which you have submitted an expert report or declaration on behalf of a defendant in a securities class action?

A. I don't -- well, let me just go through here and make sure, let's be as

accurate as possible.

So I'm pretty sure this is not a securities class action, but Gwyn Hartman Revocable Living Trust v. Southern Michigan Bancorp. So I believe the answer to your question is no, for securities class actions.

Q. So I asked you just now if there were any matters in which you submitted an expert report on declaration on behalf of a defendant in a securities class action. Let me ask you now, is it also the case that you have never testified in court on behalf of a defendant in a securities class action?

A. So have I testified without submitting a report?

Q. Yes. I'm just trying to be careful and cover all my bases here.

A. I'm just trying to be careful too. I'm trying to figure out how that might occur. State court maybe? I don't believe so.

Q. Have you ever submitted an

expert report or declaration with the opinion that a market for a security was inefficient?

A. Inefficient?

Q. Yes.

A. I don't believe so, but let me -- with the caveat that oftentimes when I'm retained, I render an opinion that I don't believe a stock is efficient or I can't claim that a stock is efficient, oftentimes my opinions aren't used by potential clients.

Q. All right. But in matters where you submitted an expert report or a declaration, you can't think of one where you have provided the opinion that the market for a security was inefficient, right?

A. Right. Well, so in this case I opined that I couldn't prove or I didn't have enough evidence to show that two stocks were efficient. I don't think that's the same as rendering an opinion that those two stocks are inefficient. So

I believe the answer to your question is no.

Q. All right. Meaning that it is right that you can't think of a matter where you submitted an expert report or declaration and provided the opinion that the market for a security was inefficient, right?

A. Again, with the caveat that when I have found that, my reports haven't been submitted, but yes.

Q. All right. And is it then also the case that you haven't provided testimony in court that the market for a security was inefficient in your opinion?

A. I'm just trying to be careful. I'm going back to this logic game that we're doing here. I think, again, I believe -- wait, could you -- I'm sorry, could you reask the question?

Q. Sure, no problem. Is it also the case that you have not provided testimony in court that the market for a security was inefficient in your opinion?

WERNER

A. I believe that is correct.
Q. Have you ever provided an opinion that the market for a security was efficient at one time but not at another?
A. I don't recall as I sit here today.
Q. Now, your CV includes a list of certain publications; is that right?
A. Correct.
Q. Am I right that you have not published any articles in a peer-reviewed economics or finance journal?
A. Well, okay, so let me -- let me ask a clarifying question here, because I was reading Dr. Fischel's report the other day and he alluded to academic literature and then he cited to the Wall Street Journal. Would that -- would something appearing in the Wall Street Journal count as academic literature?
Q. Well, I'm asking you, sir, about peer-reviewed journals. Do you understand that phrase, a peer-reviewed journal?

WERNER

A. Yeah, I understand that academic literature is peer-reviewed, so I'm asking a clarifying question, is the Wall Street Journal considered peer-reviewed literature?
Q. I certainly don't consider the Wall Street Journal to be peer-reviewed, no. So let me ask you the question.
Have you ever published an article in a peer-reviewed journal of economics or finance?
A. I don't believe so. I believe my commentary at the Federal Reserve was peer-reviewed by other economists and the Federal Reserve Board, but other than that, I don't believe so.
Q. All right. And that's an article that you published jointly with an economist at the Federal Reserve Bank of Cleveland when you were a research assistant there in 1993; is that right?
A. That is correct.
Q. And am I right that while you were teaching at Cal Poly San Luis Obispo,

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you were not on the tenure track?
A. I was not, correct.
Q. And is it the case that you have never held the position of professor at Cal Poly San Luis Obispo or any other university?
A. Yeah. I mean, well, so at the two places I have taught, at the Kellogg Graduate School of Management where I taught MBA courses and at Cal Poly where I taught economics courses, and we will just say a portfolio of economics courses, I was not in a tenure track position.
Q. All right. And while you were teaching at the Kellogg Graduate School of Management at Northwestern, were you a graduate teaching assistant?
A. Well, I was a graduate teaching assistant for some courses, and then for some courses I taught MBA courses, I myself taught the MBA courses.
Q. Okay.
A. So not as a graduate assistant, as I guess -- I don't know what the title

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is. I mean, when was that? So maybe 25 years ago. I don't remember what the title was, maybe like lecturer, adjunct.
Q. All right. But you didn't have a title as a professor at Northwestern University, right?
A. That is correct.
Q. All right. And you have never had the title of professor at Cal Poly San Luis Obispo either, right?
A. I think I have answered that already, so the answer hasn't changed.
Q. All right. The answer being that you have never held that title at Cal Poly San Luis Obispo, right?
A. Correct.
Q. Okay. Why don't we mark the two exhibits. So these will be Exhibits 281 and 282. Exhibit 281 will be the Declaration of Dr. Adam Werner and Exhibit 282 will be the Rebuttal Report of Dr. Adam Werner. And I'm happy for you to use the copies you brought with you if that is easier.

WERNER

A. I assume the copies are the same.

Q. They should be exactly the same. Why don't I give you the ones that will have exhibit stickers on them.

A. Okay.

(Defendant's Exhibit 281 marked for identification.)

(Defendant's Exhibit 282 marked for identification.)

Q. So here is 281, and now I'm handing you 282.

A. Okay, thank you.

Q. All right. And is Exhibit 281 your initial declaration that you submitted in this action? I'm trying to find a date here, but I'm not seeing one.

A. Well, I'm going to guess it is February 16th, 2023.

Q. It was certainly sometime in February.

A. Looking at Mr. Fischel's initial report.

Q. Sounds right. Let me reask the

WERNER

question so we have a clear record.

Is Exhibit 281 your initial declaration that you submitted in this action in February of 2023?

A. I believe it is, but let me just go through it quickly.

(Witness perusing document.)

A. It appears to be.

Q. Thank you. And is Exhibit 282 your rebuttal report that you submitted in this action on or about March 28th, 2023?

A. It appears to be.

Q. And is there anything contained in either of these reports that you wish to change, amend or withdraw?

A. Substantively, no.

Q. How about nonsubstantively?

A. I may have found one or two grammatical errors in my review of these, but I don't recall where they were. So, again, substantively, no.

Q. All right. So am I right that you are unaware of any errors in either of your reports beyond the one or two

WERNER

grammatical errors you were just referring to?

A. That is correct.

Q. Have you been asked to consider any supplementation to these reports?

A. Supplementation by your reports? So do the reports by your experts count as supplemental material? To the extent I would refer to them in my rebuttal report, I would assume that is encompassed, so is that correct?

Q. Yes. I meant that to be encompassed, so let me ask the question again.

Apart from the opinions that are set forth in your two reports you submitted in this action, is there any additional analysis that you have done since submitting your second report?

A. I have not done any additional analysis. Oh, I should also clarify, I have read the depositions of both of your -- of the two defense experts. That wasn't obviously encompassed in my rebuttal

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report, so that may have informed my opinion. But I personally, no, I have not performed any additional work since submitting these two reports.

Q. All right. Have you asked anybody at Crowninshield to perform any additional work since you submitted these two reports?

A. I don't believe so.

Q. Have you been asked by counsel at The Rosen Law Firm to consider performing any additional work since submitting your second report?

A. Not that I recall.

Q. All right. Let me ask you in your opening report, sir, Exhibit 281, if you could look with me, please, at paragraph 1.

A. Okay.

Q. Sir, do you see that in the first paragraph there, there is a list of nine companies that are then defined as the affected companies or affected stocks?

A. I do.

WERNER

Q. All right. And so then is it right that you were asked by The Rosen Law Firm to determine whether the common stock of those nine affected companies traded in efficient markets prior to the class period?

A. In efficient markets, plural?

Q. Yes, traded in efficient markets, plural.

A. I believe that's correct.

Q. So was the limitation on this assignment that you were asked about whether the stocks traded in efficient markets prior to the class period, was that prior to the class period limitation part of the assignment you were given by The Rosen Law Firm?

A. It was.

Q. And so another way of putting that would be The Rosen Law Firm did not ask you to evaluate whether the common stock of these nine affected companies traded in efficient markets during the class period; isn't that right?

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A. I believe that's correct.

Q. And is it the case, then, that the suitability for the case of evaluating the efficiency of the markets prior to the class period and not during the class period, that's not something that you're opining on yourself, is it?

A. I'm just -- I'm slightly confused by the word "suitability." Could you expand upon that?

Q. Sure. Let me try to ask it a better way.

A. Okay.

Q. Are you offering any opinion in this case as to whether the right analysis for analyzing efficiency of markets for the nine affected stocks is to analyze their efficiency prior to the class period and not during the class period?

MR. ROSEN: Objection to the extent it calls for a legal conclusion.

A. So what do you mean by "right analysis"? I don't -- I mean, my assignment was to determine whether these

WERNER

things were efficient prior to the class period. I don't know whether that's the right analysis. It was the analysis I was asked to perform.

Q. Got it, okay. So you took the assignment you got from The Rosen Law Firm as a given in determining the scope of the work you did; is that right?

A. Could you reread the question, please?

(The record was read.)

A. I mean, there is a lot of words there. I mean, I was asked to -- I was asked to do what I was asked to do and I did it. I don't know, you know, whether there was some --

MR. ROSEN: Are you asking whether we limited the scope of what work he could do?

MR. RYAN: No.

Q. So let me try to ask the question a better way.

So you understand that there may be a legal question in this case as to

WERNER

what the right period is over which to analyze efficiency, right?

A. I mean, I assume so. I don't know one way or the other.

Q. Okay.

A. That seems to make sense to me.

Q. And am I right that you as an expert in economics and finance are not offering any opinion as to what the right period is over which to analyze market efficiency in this case?

MR. ROSEN: Objection. In this line of questioning, are you asking him just about this opening report or are you also asking him about the rebuttal report?

MR. RYAN: I'm asking him about all of his opinions in this case.

MR. ROSEN: Okay. Just reread the question.

MR. RYAN: Sure.

Q. Am I right that you as an expert in economics and finance are not offering any opinion in this case as to

what the right period is over which to analyze market efficiency in this case?

A. I mean, I'm sorry, I'm not trying to be difficult, I just have a problem with this description of the right period. I was asked to determine whether or not, at least in my initial report, whether these stocks were efficient prior to the class period, that's what I did.

I was asked to opine whether or not class-wide damages could be measured in this matter in my initial report and that's what I did. I don't know if that was the right thing to do or the wrong thing to do; it was my assignment and that's what I did.

Q. Understood. And so let me just follow up since in your answer just now you said --

A. Well, I mean, look, if we want to get into it exactly, I can read to you exactly what my assignment was on the off chance there was something inaccurate about what I said, but that's my remembrance of what my assignment was.

Q. Understood. I'm not -- I'm not trying to change any of the words. Am I right that your assignment is set forth -- strike that.

Am I right that your assignment for your opening report is set forth in paragraphs 1 and 2 of your opening report that we have marked as Exhibit 281?

A. That is correct.

Q. Okay. And am I right that neither in your opening report nor in your rebuttal report have you analyzed whether the common stock of any of these nine companies traded in efficient markets during the class period?

A. I believe that is correct.

Q. All right. And is the reason that you haven't performed that analysis that that was not part of your assignment from The Rosen Law Firm with respect to either the opening or the rebuttal report?

A. I believe that's correct.

Q. All right. Now, one of the attachments to your opening report, Exhibit

281, and this is specifically called Exhibit 2, is a list of documents and other information considered; is that right?

A. I'm sorry, could you reread the question?

Q. Yes. Am I right that Exhibit 2 to your opening report, which is Deposition Exhibit 281, is a list of documents and other information considered?

A. That is correct.

Q. And then similarly for your rebuttal report which we have marked as Deposition Exhibit 282, you similarly have an exhibit, again, called Exhibit 2, which this time lists documents considered in addition to those cited in your opening report?

A. Yeah, documents considered in addition to those cited in the Werner declaration. That's Exhibit 2 to Exhibit 282, yeah.

Q. Right. And are there any documents that you considered in forming your opinions in this lawsuit that are not

set forth in one of the two Exhibit 2's that we just looked at?

A. Up until the submittal of this second report?

Q. Yes, sir.

A. That is correct.

Q. All right. Since the submittal of the second report, are there any documents that you have considered in forming your opinions in this lawsuit that are not set forth in one of the two Exhibit 2's that we just looked at?

A. Well, I believe the depositions of your two experts informed -- subsequently informed my opinion, as well as a few academic articles I have looked at with regards to estimating demand for securities. I don't recall off the top of my head what those articles were, but I distinctly remember looking at two articles.

Q. Anything other than the two deposition transcripts and the two academic articles you just referred to?

WERNER

A. I don't believe so.
Q. What do you mean by estimating demand for securities?
A. Well, so something similar to what Dr. Fischel, sorry, similar to what Mr. Fischel did in the IPO litigation, so trying to determine how changes in order flow affect demand for securities.
Q. All right. And do you recall --
A. As in like individual securities. So the supply and demand for, let's say, Apple Computer, that would be -- that's what I mean.
Q. What were those two academic articles?
A. I don't recall.
Q. Do you have them somewhere?
A. I do, somewhere.
Q. Okay.
A. Not on me.
Q. Understood. Would you be able to send them after this deposition to Mr. Rosen?

WERNER

A. Sure.
Q. Thank you. All right, now --
A. Actually, can we take a quick break?
Q. Sure.
MR. RYAN: Let's go off the record.
THE VIDEOGRAPHER: This will end media unit one. We are going off the record at 10:46.
(Recess taken.)
THE VIDEOGRAPHER: We are back on the record at 10:50. This will begin media unit two.
BY MR. RYAN:
Q. Did you have some item that you thought of on the break that you wanted to clarify, Dr. Werner?
A. I did. Thanks. Well, I think when I was talking about the demand, I'm not sure whether I talked about -- the articles dealt with how the change in demand affects the price of the underlying stock. I don't know if I was clear about

WERNER

that in my initial recitation.
Q. Thank you, all right. And you will provide those two articles to counsel, right?
A. I will.
Q. Thank you. All right, now, turning now to your rebuttal report which we have marked as Exhibit 282, do you see that there is a series of intraday stock price charts at the back of your rebuttal report that are labeled Exhibit 6A through Exhibit 6I?
A. 6A through Exhibit 6I, do you have a page number there?
Q. Yes, 96 until the end. I didn't even notice the page numbers.
A. I figured that would be quicker.
Q. That is quicker.
A. Okay. I am there.
Q. Okay. And am I right that Exhibit 6A through 6I are intraday stock price graphs, one for each of the nine affected stocks?

WERNER

A. That is correct. Intraday, to the extent we are also talking about periods when the markets -- after the markets closed.
Q. There are periods here --
A. I'm sorry -- my bad, go ahead.
Q. There are periods here before the market opens, right?
A. Correct.
Q. All right. And were these graphs generated using a program called Stata?
A. I believe that's correct.
Q. So we have asked your counsel if we could receive the backup stat accompanied for these nine exhibits. Is that something that you could provide to us after this deposition?
MR. ROSEN: Objection. So we have an outstanding objection to that request, and that still stands. So it is not up to Dr. Werner, you know.
MR. RYAN: I actually didn't realize, to be honest, Larry, that you

had an objection. I just thought you hadn't responded. Again, I'm not saying in sort of a snide way, I just actually didn't realize you had an objection.

A. Can I say one thing about these graphs?

Q. Yes.

A. I mean, you can use any program to generate these graphs, right. I can put this data in Excel and the problem is putting in these vertical lines, so, you know, if I printed this out in Excel and just drew in lines, that would be the equivalent of what my Stata code did just for clarification. There is not some rocket science going on here that I needed a powerful computing code to do this graph.

Q. All right. But you or folks working with you at Crowninshield used the Stata program to generate the stock price graphs in Exhibit 6A through 6I, right?

A. I believe that is correct.

Q. And so there would be some

Stata code that underlies these graphs, right?

A. I think by definition the answer is yes.

Q. Okay. So now let me ask you about Table 12 to your rebuttal report, which is on page 44.

A. Okay, here we go, Table 12, right.

Q. And I'm looking now at the first sentence in paragraph 102 in Table 12. Am I right that Table 12 is an intraday price chart of an equal weighted index of the affected companies on January 28th, 2021?

A. That is correct.

Q. And by equal weighted, you mean that you counted each of the companies the same even though, for example, the market capitalization of BlackBerry may be 100 times the market capitalization of Koss?

A. Counted them the same? I mean, I guess that's right. It is just an equal -- yeah, there is not some sophistry going

on here, it is just an equal weighted index as opposed to a value weighted index.

Q. So equal weighted means it is simply an average of the nine stocks where each of the stocks counts to the same extent?

A. Correct, correct.

Q. All right. And was this Table 12 similarly generated using Stata code in the way we just talked about?

A. I believe so, yes.

Q. All right. Now let me ask you about Table 7 to your rebuttal report which appears on page 21, and do you see that there is a column here in your Table 7 called Statistically Significant News Days?

A. I do.

Q. Whose regression analysis did you use to determine statistical significance for purposes of Table 7 to your rebuttal report?

A. My regression analysis that I used in my first report, which if I remember correctly is Exhibit 281.

Q. Got it, okay. So let's go back, please, to your opening report, which as you just mentioned is Exhibit 281, and I'm now looking at Opinion 1 which appears in the middle of page 3.

MR. ROSEN: What page are you on?

MR. RYAN: Page 3.

A. Okay.

Q. All right. And do you see there that Opinion 1 reads "Seven of the nine Affected Companies traded in an efficient market during the relevant period. Those seven companies are AMC, BlackBerry, Bed Bath & Beyond, Express, GameStop, Nokia and Trivago"?

A. Do I see it?

Q. Yes.

A. Yes. You expounded upon the ticker symbols, but that's in essence what this says.

Q. All right. And am I right, then, in your opening report your opinion for seven of the affected companies is that

WERNER

they traded in an efficient market during a one-year period that ended on January 27th, 2021?

A. In this report?

Q. Yes.

A. That is correct. Subsequently in my rebuttal report I looked at the period -- well, let's be exact. Oh, we were just looking at this.

MR. ROSEN: Table 7 on 22.

A. Well, Table 7, but in terms of -- I looked at the market efficiency for those seven stocks from I want to say -- well, again -- well, I will just say January 2021.

Q. All right. It might be helpful if we look at paragraph 17 of your rebuttal report, Exhibit 282.

A. Oh, I now realize when I say January 2021, that includes part of the class period. So that was inaccurate.

Q. All right. So I'm hoping that maybe we can get this precise by looking at paragraph 17. Do you see that midway

WERNER

through paragraph 17 of your rebuttal report there is a sentence that reads "Therefore, for purposes of the Cammer and Krogman analysis I perform herein, I focus on the period from January 4th, 2021 through January 27th, 2021," and you then define that period as the immediate pre-class period, and you go on, "which is Mr. Fischel's period of choice and encompasses Dr. Grenadier's pre-class period"?

A. Correct.

Q. All right. So am I right, then, that in your rebuttal report you performed an additional analysis for seven of the nine stocks for the period that you defined here as the immediate pre-class period?

A. Well, a couple of clarifications. So additional analyses I believe probably would be the right way to describe it, and then, I mean, I chose that because that's what -- that's what Mr. Fischel used.

WERNER

Q. So is it the case that in your rebuttal report you performed additional analyses regarding market efficiency for seven of the nine stocks over the period that Mr. Fischel used and that you define as the immediate pre-class period?

A. That is correct.

Q. And am I right that you do not perform those additional analyses regarding market efficiency in your rebuttal report for the other two stocks at issue in this case?

A. So for Koss and Tootsie Roll, I believe that is correct.

Q. Okay. So now let's go back to your opening report, Exhibit 281, and we were looking at Opinion 1 on page 3. Are you there?

A. Opinion 1 on page 3, yup.

Q. All right. And so you express here an opinion that seven of the nine affected companies traded in an efficient market during what you called the relevant period, right?

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A. Correct.

Q. And, again, that means the full year up to and through January 27th, 2021, right?

A. Correct.

Q. All right. And am I right that you express no opinion regarding whether the other two companies, namely Koss and Tootsie Roll, traded in an efficient market during any period?

A. Could you reread the question, please?

(The record was read.)

A. I believe that's correct. I mean, there were indicators of efficiency for those two stocks -- different indicators of efficiency, but I don't opine that they traded in an efficient market.

Q. All right. You were unable to reach what you believed was a reliable conclusion that those two stocks did trade in an efficient market, right?

A. I mean, I don't -- "reliable" is your word. I just -- again, there was

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indications of efficiency. I just didn't conclude that they traded in an efficient market.

Q. All right. Are all of your opinions in your view based on reliable conclusions that you reached?

A. I think -- I believe the answer to that question is yes.

Q. Okay. And am I right, then, that you were unable to reach a reliable conclusion as to whether either Koss or Tootsie Roll traded in an efficient market?

A. So based on the prior statement, I believe that would logically follow.

Q. Okay. Now, do you see Opinion 2 which appears on the top of page 5 of your opening report, Exhibit 281?

A. I do.

Q. And do you see that opinion reads "With expert assistance, the finder of fact in this matter will be able to compute damages using a common class-wide methodology that applies to the calculation

WERNER

of damages for each and every class member"?

Did I read that right?

A. You did.

Q. What do you mean by the phrase "with expert assistance"?

A. With the assistance of an expert, I mean, I guess as opposed to a layman.

Q. All right. So do you mean, then, in your Opinion 2 that an expert would be able to compute damages using a common class-wide methodology?

A. That's what I mean, yes.

Q. And when you refer there to damages, do you have per-share damages in mind?

A. I believe that is correct.

Q. All right. You are not referring there to aggregate damages, are you?

A. One could calculate aggregate damages, but no, I'm referring to per-share damages. I mean, you would need to make

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additional assumptions like trading models, etc.

Q. When you say that you would need to make additional assumptions like trading models, etc., are those additional assumptions you would need to make only to calculate aggregate damages?

A. Not necessarily. I guess, I mean, I'm thinking about aggregate damages, and so I'm thinking about a single versus multi-trader model. I mean, again, I talked about a demand model. It showed how stock price changes as demand changes. I don't know if you call that a trading model or not. I don't know if that falls under the umbrella of what you consider a trading model.

Q. I see. So you are, I think, if I understood you right in your answer just now, referring back to some of the testimony you gave previously when you were talking about the two articles that you recall looking at since your second report, you are talking about constructing a model

WERNER

of how a change in demand for a stock might affect that stock price; is that right?

A. I believe that's correct.

Q. Okay. Have you constructed such a model?

A. I have not.

Q. Okay. So you haven't constructed such a model for any of the nine stocks in this case, right?

A. I have not.

Q. Have you ever constructed such a model for any security?

A. Have I ever constructed a model such as these models that I have discussed with regards to these two academic papers? I don't believe so. But that doesn't mean -- I mean, I could just follow the instructions in the papers.

Q. Okay.

A. Do it that way.

Q. And since I haven't seen the papers --

A. But I should say, I haven't been asked to calculate damages.

WERNER

Q. Okay. I will ask you that in just a moment.

So since I haven't seen the papers yet, let me ask you what might be the same question, but what might be somewhat broader. Have you ever constructed a model regarding how a change in demand and/or supply for a security may affect the market price for that security?

A. Well, I mean, I'm sure I have derived theoretical models on that. Based on actual trading data, as I sit here, I don't recall, but I don't believe so.

Q. Okay. And when you say that an expert could in your opinion calculate per-share damages in that way, what type of expert do you have in mind?

A. An expert in finance.

Q. All right. Do you believe --

A. Finance and/or economics.

Q. Do you believe that you would be qualified to perform such a damages calculation?

A. I believe so, but, again, I

WERNER

haven't been asked to do so.

Q. All right. And you haven't ever done so at any time during your career, right?

A. I believe, from an empirical standpoint, I believe that is correct. Wait, let's see. I'm trying to think about the market microstructure class I took and whether we looked at it.

MR. ROSEN: You are just focusing on this demand-based model? You are not talking about the other model? Because I kind of lost --

MR. RYAN: So I was asking about a demand and/or supply-based model.

A. Okay. So now we are adding supply-based model. I mean, if I have empirically looked at that, over the last 25 years, certainly when I took a market microstructure course I probably did, but that was 20 years ago. I don't recall.

Q. Who did you take market microstructure with?

WERNER

A. Michael Fishman and Kathleen Hagerty.

Q. What is market microstructure?

A. Basically how stocks are traded, or I should say assets are traded maybe. Stocks may be a little too broad -- or a little too specific, not too broad.

Q. Have you ever published in market microstructure?

A. I have not.

Q. Have you ever taught a course on market microstructure?

A. I don't believe so.

Q. Do you believe that market microstructure may be relevant to the type of demand and/or supply models that we were just talking about?

A. For those specific models, I think that that would certainly inform one's opinion.

Q. Do you have any other model in mind that could be used to compute damages in this case using a common class-wide methodology?

WERNER

A. Now I'm looking at my initial report. So one such example, and let me underline example, because that seemed to be missed by your experts, so one way to do it, and this, again, I'm not a lawyer, but based on my understanding of Affiliated Ute, so I'm looking at paragraph 93, and, again, this is an example, one of at least three methodologies that I can think of to calculate damages, one of them being this demand-based model, I have been informed by counsel for plaintiffs that under Section 9(a)(2) and 10(b) of the Exchange Act in a case where class members are defrauded, sorry, defrauded sellers, the measure of damages, and here is beginning the quote citing to Affiliated Ute, is the difference between the fair value of all that the seller received and the fair value of what he would have received had there been no fraudulent conduct.

And let's be specific that when we talk about fair value, we are not talking about some valuation model, we are

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talking about dollar value. When I say valuation model, I mean let's just say a discounted cash flow model. I mean, that could be one way to measure it, but that's not what they are talking about here.

So, you know, I go on to talk about how one could look at the difference, and now I'm reading from subpoint (b) of paragraph 96 on page 39. Well, I mean, I guess I could start at (a). Well, we will just go with (b). One way to possibly do it is look at the price at the end of trading or the close of trading on January 27th and subtract off the seller's -- or the investor's sales price. That could be one potential measure of damages.

Q. All right. So you said just now that the difference between the market price at the close of trading on January 27th, 2021 and the investor's sale price during the class period could in your opinion be a way of calculating class-wide damages; is that right?

A. That would be -- that is

WERNER

correct.

Q. Do you have other ways to perform such a calculation in mind other than that method based on the market price at the close of trading on January 27th, 2021?

A. Sure. I mean, and this now goes -- we're in my rebuttal report, right? No.

Q. I think we are in your opening report, Exhibit 281.

A. So let's go to Exhibit 282, and I just want to use this for example purposes, or at least for illustrative purposes. So we are back to Table 12 here. I could certainly run a regression on intraday data looking at the impact of the PCO restrictions -- the imposition of the PCO restrictions, and I should say because we are dealing with Robinhood, the Robinhood specific PCO restrictions, and determine the impact that they had on the price of the underlying securities.

Q. All right. And when you refer

WERNER

to a regression on intraday data, you are talking about a correlation between the timing of Robinhood's PCO restrictions and stock price movements in the nine stocks; is that right?

A. Am I talking about a correlation between -- I mean, I don't -- I'm not -- I don't know if that's the right way to generalize. It would measure the impact of the Robinhood PCO restrictions on the stock price, or the price of the underlying stocks.

Q. And when you say would measure the impact, that's because one of your variables would be the time when Robinhood put PCO restrictions in place?

A. I'm not sure that that would be one of the variables. One of the dependent, independent variables? Could you be more specific?

Q. What would the inputs in the regression that you were just referring to be?

A. Well, again, I haven't been

WERNER

asked to do this, so this is -- this is not like some complete model I would have done. I mean, I could put in -- the dependent variable could be -- I mean, yeah, I would want to look at the stock price.

I guess I could use dummy variables to indicate when the PCO restrictions were indicated or were installed. I mean, that's an extremely simplistic model. Again, this is not something I have been asked to do at this point in time, but, you know, that might be one way to do it. I'm sure I could come up with additional variables I would want to take into consideration, but that could be one simple way to do it.

Q. All right. So when you referred just now to a dummy variable, you mean something like zero if there is no PCO restriction in place and 1 if there is a PCO restriction in place, right?

A. That would be one example. I actually hadn't thought about it in those specific terms, but sure.

WERNER

Q. Okay. And so the regression that you have in mind just now is whether Robinhood had a PCO restriction in place correlated with the stock price movement?

A. Again, I don't -- correlated, I don't -- maybe, again, like look, this is just an extremely simplistic model. I haven't been asked to measure damages. You asked me how I might go about doing it. That would be one way I might go about doing it. I haven't, you know, sat down and said all right, this is the exact model I want to use and this is how I would implement it. But, again, it is something an economist certainly could do.

Q. All right. So is it the case that you have not tried to implement a model of the type you have just described based on the stock price movements and whether Robinhood had a PCO restriction in place?

A. For this specific case?

Q. Yes.

A. I mean, other than the visual

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presentations, which, you know, are you going to believe me or your lying eyes? You know, it appears to me that they had impact.

Have I, you know, beyond the surface observations, no, I have not gone ahead and estimated a model that shows the exact impact of the PCO restrictions by Robinhood on the underlying securities.

Q. Okay. And nor have you constructed a model for how changes in demand might affect the stock price, right?

A. I believe that's what I stated previously.

Q. Okay. And when you a few answers ago referred to, I believe you said three types of models that you had in mind --

A. Three, maybe three types of damage measurements, three different ways to damage -- but yeah, if you want to describe those as models, by all means go ahead.

Q. Okay. And so were those three

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the demand-based model, the model using the price at the close on January 27th, 2021, and the regression along the lines of Table 12 to your rebuttal report?

A. I believe that's correct.

Q. Okay. And am I right that counsel for the class plaintiffs has not asked you to calculate damages?

A. That is correct, in this matter, that is correct.

Q. Am I right that counsel for the class plaintiffs has not asked you to calculate loss causation or to determine loss causation in this matter?

A. So now you are asking me a different question?

Q. Yeah. Let me ask the question again.

Am I right that counsel for the class plaintiffs has not asked you to give an opinion on loss causation in this matter?

A. That is correct. When you said "calculate," I appreciate the

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clarification, yes.

Q. All right. And there are components of the damages calculations you were just going through that would relate to loss causation, right?

A. That is correct. I mean, I would only want to include the components that are attributable to the alleged actions of Robinhood when calculating damages.

Q. All right. So back in your opening report, Exhibit 281, if you could go with me, please, to page 4, I'm in paragraph 8(f).

A. Hold on, easy. Page 4, okay, I'm there.

Q. Do you see that in paragraph 8(f) you refer to empirical analyses that study the relationship between information flow and security price movement, and you state that those analyses demonstrate that a cause and effect relationship existed between news flow and movements in the security price of the seven companies? Do

you see that?
A. I do.
Q. All right. And when you refer there in paragraph 8(f) to a cause and effect relationship, is the news flow the cause?
A. Is the news flow the cause?
Q. I'm trying to understand which is the cause and which is the effect. Are you stating here in paragraph 8(f) of your opening report that the news flow is the cause and the security price movements are the effect?
A. I believe that the information contained in the news flow is what is affecting the underlying stock price.
Q. All right. So you would agree that the information in the news flow is the cause in the cause and effect relationship that you are describing in paragraph 8(f)?
A. I think that's a little -- that's a little -- I mean, there are other factors that could cause the price changes

beyond the information flow.
Q. Right. But when in paragraph 8(f) you describe a cause and effect relationship, is the cause that you are describing there the information in the news flow?
A. It is the information in the market.
Q. All right. And so you are performing an analysis, if I understand you right, of whether information that reaches the market affects the stock price?
A. That is correct.
Q. And you're not studying the inverse of that relationship, that is, you're not studying whether changes in the stock price affect the news flow; is that right?
A. I don't know. I mean, they could certainly be correlated. To the extent that I'm looking at news flow as a proxy of news, I'm not sure.
Q. Okay. So this is something that I'm very interested in, right? So I'm

interested in trying to understand this cause and effect relationship, and so we started off by saying that it was the information in the news flow that was the cause, and you are trying to measure whether there is an effect in the security price, right?
A. Well, the information in all of the news flow is the cause, yes.
Q. Okay. So am I right, then, that you are not studying a cause and effect relationship in the reverse direction, that is, you are not studying whether security price movements cause a change in the information flow?
A. I mean, they could. Is that what I'm studying? No.
Q. All right. And you are interested, in terms of market efficiency, you are interested just in the first cause and effect relationship, right?
A. Yeah. I want to understand whether or not the information out in the market is incorporated in the stock price.

In other words, are these stocks informationally efficient.
Q. Okay.
A. That is my understanding under Halliburton II.
Q. Could you please turn to page 10 of your opening report, paragraph 21.
A. Page 10, okay.
Q. I take it you agree that the efficient market hypothesis is the foundation of modern finance theory?
A. Well, it is certainly one of the foundations of modern finance theory. I mean, are the Miller-Modigliani principles also foundations of the modern finance theory? They are in the pantheon, how about that?
Q. All right. And you wrote here in paragraph 21 of your opening report that "A security trades in an efficient market when all publicly available information is incorporated in the security price and any new information that impacts the economic outlook of the firm gets quickly reflected

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in its security price," right?
A. That is correct.
Q. What do you mean by the economic outlook of the firm?
A. Well, how people -- what people expect the firm to be worth in the future.
Q. Do you agree that finance theory holds that the market price of a stock reflects the discounted value of expected future cash flows to the stockholder?
A. I believe that people who -- that that is a definition of fundamental value market efficiency. But I'm not sure that -- so academically that's what my statement is. I'm not sure -- my understanding is the courts are looking for informational efficiency. And so to the extent that you may have -- well, let's use the exact words so I don't screw it up. Actually, let's look at my rebuttal report.
So I'm looking at paragraph 82, page 35, of what is Exhibit 282 for this deposition, and I think what you're talking

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about, and I will just read the sentence. "While neither expert explicitly admits this, Dr. Grenadier's and Mr. Fischel's analyses inappropriately require that all of the Affected Companies' stocks be fundamentally efficient in order to establish the market prices of the Affected Companies' stocks were reasonable proxies for information. Fundamentally, efficiency" -- and this is what you were describing -- "means that a market is only considered efficient if an asset's price is, at all times, a perfect representation of the present value of the asset's expected future cash flows. That is, using fundamental efficiency as a standard means the market for a security is inefficient unless that security prices matches a specific target price derived from one specific valuation model. This is not the correct standard for evaluating market efficiency."
And when I say this is not the correct standard for evaluating market

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efficiency, I mean this is not the correct standard for evaluating market efficiency in a securities class action. And, again, that's based on my understanding of what the Supreme Court said in Halliburton II.
Q. Okay. So you are not a lawyer, sir, are you?
A. Not today.
Q. Not ever, right?
A. Not ever, not ever. I don't know, maybe in traffic court.
Q. And you don't have any legal training, do you?
A. Other than dealing with securities law over the last 25 years, no.
Q. All right. And you don't hold yourself out as an expert in securities law, do you?
A. I do not.
Q. Okay. All right, so let's go back to my question. Do you agree as an economist that finance theory holds that the market price of a stock reflects the discounted value of expected future cash

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flows to the stockholder?
A. And I would just give the same answer, that is a definition of fundamental market efficiency.
Q. Is that a definition that you as an economist agree with?
A. As the definition of fundamental -- if you are asking me is that the correct definition of fundamental market efficiency? Yes, that is the correct definition of fundamental market efficiency.
Q. I see. And when you use the term "fundamental market efficiency," do you mean, as stated in paragraph 82 of your rebuttal report --
A. Hold on, I've got to go back there, I'm sorry, I closed off. Paragraph 82, right?
Q. Yes.
A. Do you have a page number? It is just easier.
Q. It is page 35.
A. All right, 35. Okay, go ahead.

WERNER

Q. When you use the term "fundamental market efficiency," do you mean, as stated in paragraph 82 of your rebuttal report, that the market for a security is inefficient unless that security price matches a specific target price derived from one specific valuation model?

A. Well, I mean, I don't -- I would encompass the entire part that I read previously. I think that gives a fuller explanation. I don't know if that one sentence by itself encompasses the entire definition.

Q. And when you write in the last sentence of paragraph 82 of your rebuttal report that "this is not the correct standard for evaluating market efficiency," that's just a statement of your understanding of what securities law is, right?

A. Well, I mean, it is based on my understanding of what my clients have told me over the last -- well, I don't know,

WERNER

when was Halliburton II? 2014. So the last nine years.

Q. Your clients being plaintiffs securities class action lawyers, right?

A. Well, my clients being lawyers. They are not all plaintiffs securities class action lawyers.

Q. Okay. So you are not opining as an expert here today whether what you define in paragraph 82 of your rebuttal report as fundamental efficiency is or is not the correct standard for evaluating market efficiency in a securities class action, are you?

A. Am I opining about whether or not that is the correct standard? I mean, I say it is the incorrect standard. I don't know, is that opining that it is not the correct standard?

Q. Okay. So then are you, I guess I'm just -- I'm quite surprised to hear that, so are you opining here today --

A. Well, I'm asking you. I don't know whether that is considered opinion.

WERNER

I'm just stating what I stated in my report.

Q. I'm asking you what you are opining, sir. Are you opining that what you in paragraph 82 of your rebuttal report call fundamental efficiency is not the correct standard for evaluating market efficiency in a securities class action?

A. That is my understanding.

Q. Is it an opinion that you are rendering as an expert?

A. I don't believe so.

Q. You are merely repeating what lawyers have told you they believe the law is, right?

A. Well, as well as my reading, but as a layman. To be specific, as an economist, that's my understanding. So based on, yes, based on conversations with lawyers, both plaintiff and defense lawyers, as well as my conversations I guess with my colleagues and my reading of academic articles, Supreme Court decisions.

I mean, look, economists make a

WERNER

distinction between fundamental efficiency and informational efficiency. I mean, Dr. Fischel -- fuck -- sorry -- can we strike -- can we strike that? No.

Mr. Fischel, right, delineates between, and he did this in the IPO case as well as some of his academic work, delineates between fundamental efficiency and informational efficiency. So, I mean, is there a difference? Yeah, there is a difference.

Q. All right.

A. But, I mean, it is not like economists just say oh, stocks must be -- it is not like all economists or all financial economists have determined that all stocks might be fundamentally efficient. Again, I mean, I cite to Fischel in his -- well, I guess since I'm citing to Fischel, we should go to the cite. Where are we here? Again, I'm back at 282, Exhibit 282 to this deposition.

So among other things that he said, I'm looking at paragraph 84, page 36,

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"Unfortunately, no direct method exists for testing how closely prices reflect value because the value of an asset cannot be measured apart from its price."

And then he goes on to say -- now I'm reading from Halliburton, sorry. Oh, all right, yeah, so here, paragraph 86, page 37, this is quoting from Mr. Fischel's Cornell Law Review article in '89.

"Indeed, the constant search for market professionals for mispriced securities is the mechanism whereby price reflects information about underlying values, and to emphasize, again, the critical question is not whether market prices are always a perfect proxy for the underlying value of the asset, but whether a better proxy exists on a consistent basis. Thus far, the answer to this critical question is no."

And to the best of my knowledge, even though this was written in '89, the answer to that question continues to be no today.

WERNER

Q. Do you understand, sir, that the judge in this case will determine what the law is?

A. I think that's true in every case, right? But as opposed to other cases?

Q. Do you understand that it is true in this case?

A. I believe that's true. I have no reason not to.

Q. All right. And so am I right that you are not purporting to opine as to what the legal standard for market efficiency in this case should be?

A. Oh, that is correct. That is correct, yes.

Q. All right.

A. Is now a good time to take a break?

Q. Let me just ask you this question again, because I'm trying to finish this question about what finance theory holds.

Do you agree as an economist

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that in an efficient market finance theory holds that the market price of a stock reflects the discounted value of expected future cash flows to the stockholder?

A. And, again, I refer to you, that is the definition of fundamental market efficiency. Does finance theory hold that fundamental market efficiency is exactly what you wrote? The answer is yes.

Q. Okay. And do you agree, then, that as a result new information that causes the market to significantly alter its expectations of future cash flows will cause a quick repricing of the security to reflect these new expectations?

A. Oh, I would certainly expect that to be the case, yes, whether it is fundamentally efficient or informationally efficient.

MR. RYAN: Okay. Why don't we take a quick break.

THE VIDEOGRAPHER: This will end media unit two. We are going off the record at 11:41.

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(Recess taken.)

THE VIDEOGRAPHER: We are back on the record at 11:49. This will begin media unit three.

BY MR. RYAN:

Q. All right. So did I understand you before, Dr. Werner, correctly that based on discussions you have had with lawyers, your understanding is that what you call fundamental efficiency does not apply in a securities class action?

A. I don't know if that's accurate. I mean, I don't know, there could be instances where it does apply.

Q. Let me ask a better question. Let me ask a better question, since I think I may have asked a bad one.

A. Sure, sure.

Q. Did I understand you correctly before, Dr. Werner, that based on discussions you've had with lawyers your understanding is that what you call fundamental efficiency is not required for a finding of market efficiency in a

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securities class action?

A. My understanding, and it's not just on my discussions with lawyers, it is also discussions with my colleagues, reading of case law, and, again, I'm not a lawyer, review of academic literature, that the basis under Halliburton II is that stocks must be informationally efficient. That's the impression I'm under. If that's wrong, then I'm incorrect or my understanding is incorrect.

Q. All right. So you are under the impression that only what you call informational efficiency is required in a securities class action, right?

A. I believe that -- I believe that is correct.

Q. All right. And so the flip side of that, then, would be that you are under the impression that in a securities class action, what you call fundamental efficiency is not required, right?

A. I guess the question, is it necessary or sufficient? I think as

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long -- so it might be -- I don't know. Let's not get into logic.

Q. Right. I was asking you whether it was necessary, not whether it was sufficient.

A. I guess the answer to that question is yes, that is my understanding.

Q. Okay. And so when you approached your assignment in this matter and the opinions on market efficiency that you gave in this matter, am I right that you did not attempt to apply the proposition from finance theory that holds that in an efficient market the market price of a stock reflects the discounted value of expected future cash flows to the stockholder?

A. So, I mean, do we want to stipulate that that's the definition of foundational market efficiency? I don't know why you keep reading that particular statement rather than just say fundamental market efficiency. But you are asking the questions.

WERNER

Could you repeat the question, please?

Q. Sure. When you approached your assignment in this matter and the opinions on market efficiency that you gave in this matter, am I right that you did not attempt to apply the proposition from finance theory that holds that in an efficient market the market price of a stock reflects the discounted value of expected future cash flows to the stockholder?

A. I did not apply the standard of foundational market efficiency.

Q. All right.

MR. ROSEN: He misspoke. He used the word "foundational."

THE WITNESS: Oh, foundational, you are right. I should have said fundamental market efficiency. You used the word "foundational," so it obviously stuck in my brain.

Q. Okay. And so when you say that you did not render in your opinions in this case attempt to apply what you call

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fundamental market efficiency, you are saying that you did not attempt to apply the proposition that the market price of a stock reflects the discounted value of expected future cash flows to the stockholder, right?

A. My answer hasn't changed.

Q. And so is your answer that you did not attempt to apply that because that is what you believe fundamental market efficiency is?

A. Again, it's the same answer I gave you five, ten minutes ago. It hasn't changed.

Q. So I don't know what the answer is, sir. So I'm entitled to understand whether the answer is yes or no.

A. So can you go back to the part where he last asked me that question? It has been like five or six times. So whenever you find it, you can just read my response to him.

Q. I'm entitled to an answer to this question. So let me ask again. It is

WERNER

a quite simple question. My question is this:

In your work on this case and in the opinions that you rendered in this case, am I right that you did not attempt to apply the proposition from finance theory that the market price of a stock reflects the discounted value of expected future cash flows to the stockholder?

A. I did not use fundamental -- the fundamental -- the definition of fundamental market efficiency as the standard in my work in this case.

Q. All right. And you believe that the proposition that I read out in my immediately preceding question is the definition of fundamental market efficiency which you did not apply?

A. I believe it is the definition of fundamental market efficiency.

Q. Okay. Do you agree that an efficient capital market rapidly and efficiently digests all available information and translates that information

WERNER

into the processed form of a market price?

A. Okay, so that sounds like something I may have said. Is that something you want me to look at or do you want to reread it?

Q. I'm happy to ask the question again.

A. You can let him reread it. It is fine.

MR. RYAN: Sure. Go ahead.

(The record was read.)

A. I mean, could you read it again? I mean, if you want me to look at something, I'm happy to look at it, but let me just -- let me process all of the information incorporated in that question.

(The record was read.)

A. In the processed form of a market price? What do you mean by processed form?

Q. Well, let me ask the question more simply then.

Do you agree that an efficient capital market rapidly and efficiently

WERNER

digests all available information and translates that information into a market price?

A. I believe that statement is accurate. But, again, I mean, I can cite to Mr. Fischel, I'm not sure if it was in the IPO litigation or other litigation, that he defined fast and quickly as an 18-hour period. You know, one's definition of fast is definitely possibly subjective.

Q. Do you agree that a corollary of the efficient market hypothesis is that disclosure of confirmatory information, or information already known by the market, will not cause a change in the stock price?

MR. ROSEN: Could you reread that question.

(The record was read.)

A. I think under the definition of fundamental market efficiency, that statement is correct.

Q. Do you believe that that statement is incorrect under the definition of what you call informational market

WERNER

efficiency?

A. Well, it could be incorrect.

Q. So you believe that that statement is not necessarily correct under what you call informational market efficiency?

A. I believe your statement is correct.

Q. Okay. And so in providing your opinions on market efficiency in this matter, am I right that you did not attempt to apply the proposition that disclosure of confirmatory information or information already known by the market will not cause a change in the stock price?

A. Could you repeat that, please?

(The record was read.)

A. There is one word I missed there. Sorry, can you reread it again? And I will stop you when I reach the word that I was focused on and forgot.

(The record was read.)

A. So it's the word "proposition." I don't know if I applied that proposition

WERNER

or not.

Q. All right. You didn't set out to apply that proposition I take it then?

A. I didn't, I mean, I didn't do it one way or the other. I didn't set out, I didn't not set out.

Q. Okay.

A. I mean -- well, we -- I'm sure we will get into it more later. Go ahead.

Q. Do you agree that if you saw all sorts of crazy stock price movements on no information, that might inform you that the stock was not efficient?

A. Crazy stock price movements, so I'm sure you have examples of what you mean by crazy stock price movements. So would you like to give me some examples? I mean, you --

Q. I will, but let me -- let me ask you -- let me ask you the general question first.

So do you agree that if you saw what you considered crazy stock price movements on no information that might

WERNER

inform you that the stock wasn't efficient?

A. So things that I thought were crazy?

Q. Yes.

A. Could that inform my opinion? It certainly could inform my opinion as to whether or not the stock was fundamentally efficient.

Q. Could it inform your opinion as to whether or not the stock was, to use your term, informationally efficient?

A. I don't, as I sit here today, I don't know. It is not anything I have thought about. I mean, in your hypothetical you are talking about crazy stock price movements.

Q. I am.

A. I don't know what you mean by crazy stock price movements. So it is not anything -- I haven't sat down with anyone and said hey, let's think about crazy stock price movements without defining what crazy stock price movements are and then how does that affect my opinion about market

WERNER

efficiency.

Q. Well, how would you define crazy stock price movements?

A. It's your -- it's your term. I don't know. It's not -- it's not anything I have thought about. I don't sit around thinking, you know what, this is a crazy stock price movement or this is not a crazy stock price movement. That's why I'm asking, go ahead, show me what you mean. I mean, I'm sure you have examples. I'm happy to render an opinion about those.

Q. Right. I do certainly have examples in this case of crazy stock price movements, that's for sure.

A. I should say what you believe are examples of crazy stock price movements.

Q. Were you an expert in a case called Hi-Crush Partners?

A. Evidently.

Q. Do you remember being an expert in that case?

A. I do not recall being an expert

WERNER

in that case. But I was -- I mean, it's on my vitae.

Q. All right. Let me hand you what we have marked as Deposition Exhibit 283, which is a transcript of the deposition of Dr. Adam Werner in the case captioned In Re Hi-Crush Partners LP Securities Litigation held on April 24th, 2014.

(Defendant's Exhibit 283 marked for identification.)

A. April 24th, so over nine years ago. All right, go ahead.

Q. So if I could ask you, please, to look at page 124 of this deposition, line 25.

A. Page 124. Hold on. 124.

Q. Do you see that you said at page 124, line 25, to page 125, line 4 "So, I mean, if I saw all sorts of crazy stock price movements on no information, that might inform me that the stock wasn't efficient"?

Do you see that?

WERNER

A. I do see that.

Q. All right. And that is testimony that you gave in the Hi-Crush case, right?

A. Right, or, I'm sorry, correct.

Q. And the reason that you gave that testimony is that if you saw all sorts of crazy stock price movements without any new information coming to the market, that might inform you that the stock was not trading in an efficient market, right?

A. Well, let me -- let me read around this so I know exactly. I mean, look, I don't even -- I don't have this report. I don't remember this case at all. So let me -- let me read some of the context in which -- and I will figure out whether the facts and circumstances are similar to this case and what exactly I meant.

(Witness perusing document.)

Q. So if you have read pages 122 to 125 I think you have all the context that we need to understand this.

WERNER

A. Oh, well, I don't want to disagree with you, but, again, this is -- when was this deposition? Over nine years ago. And I believe it was before -- I don't know, when did the Halliburton II decision come out? Anyway, I mean, I need to read what I need to read to answer your question properly, right?

Q. All right. So let me try to -- let me ask you a question --

A. So do you want to rescind that question? Or do you want me to continue to try to answer it?

Q. Why don't I withdraw my previous question and ask you this question:

Do you see on page 122 of this transcript from the Hi-Crush case that you had -- that you were analyzing a class period in this case from September 19th through November 12th, 2012?

A. I do see that that's what I was doing, yes, or at least that's what the lawyers -- again, I don't recall this.

WERNER

That's what the --

MR. ROSEN: Are you saying the class period or the stock period?

MR. RYAN: I'm asking the class period.

MR. ROSEN: Where does the class period say that? I saw study period. I didn't see class period.

A. Wait, hold on. So this is just a question the lawyer is asking, so I have no idea what we are talking about.

Q. Okay.

A. Like I said, I barely remember this case. So yeah, I don't know what was going on here. But if you want me to read it and try to get context so I can answer your questions, I'm happy to do that.

Q. Do you see on page 122 on lines 13 to 18 the lawyer who is questioning you asks you whether you agree with him that in your event study in that case there were no statistically significant dates during the class period, and he explains that the class period was from September 19th

WERNER

through November 12th of 2012?

A. I mean, yeah, that's the way I would read it as I sit here today.

Q. And then do you see that the lawyer goes on to ask you about how there is a subsequent event period that you study for one year after the class period in the Hi-Crush case from November 13th, 2012 through November 13th, 2013 where there are a number of statistically significant dates in your regression analysis?

A. Well, again, in order to answer these questions, I really need to put these statements that I made into context. So I'm happy to read this and let that inform my opinion of exactly what I said if you would like me to. But I would like that opportunity so I can answer the question as accurately as possible. Again, I don't remember this case at all.

Q. Right. So what I'm asking you right now is whether you see on pages 122 to 123 that that is what the lawyer is asking you, whether you agree that in this

WERNER

case, the Hi-Crush case, you analyzed an event period for one year subsequent to the class period and there were statistically significant dates during that period?

A. So if you are just asking if you are reading that statement correctly, the answer is yes, you are reading the statement correctly. But I have no context for what that guy was asking or why he was asking it without reading more of my deposition.

Q. Okay. And then do you see on page 123 at lines 8 through 17 you are asked to confirm that there were no statistically significant dates during the class period in Hi-Crush, and you confirmed that that's accurate? Do you see that?

A. Where?

Q. On page 123, lines 8 through 17.

A. Wait, I'm sorry, so it seems like -- my reading of this is that there were some disagreement over what the class period was. Was that the case?

WERNER

Q. That's not my understanding. My understanding is these questions are just distinguishing between the class period and a one-year period that you also analyzed in the Hi-Crush case following the class period.

A. Okay. So during the class period, and this is me asking it, I'm using your definition or everyone's definition, so that to me suggests that there was some conflict over what the proper class period was.

I certainly want more information about that so that I can -- I mean, again, if you want to ask me if you are just reading it correctly, the answer is yes. If you want me to give a substantive answer, I need to understand what was going on here.

Again, to the extent that there was some -- I don't know if part of this conflict leaked into this additional period that I was looking at. I have no idea as I sit here today.

WERNER

Q. And then do you see on page 124, beginning at line 5, the lawyer asks you to explain how you were able to conclude based on the presence of statistically significant events during the subsequent period, the subsequent one-year period, how that forms your opinion that the market was efficient during the class period, and then do you see your answer that begins at line 19 that reads "Answer: Well, there are no -- I mean, I don't -- you are right, I don't see any statistically significant price movements, but there was also no significant news issue during that time. So, I mean, if I saw all sorts of crazy stock price movements on no information, that might inform me that the stock wasn't efficient"?

Do you see that?

A. I see your reading of that, yes. I mean, you read it correctly, not that I see your reading, you are obviously reading. I'm not seeing words in front of me.

WERNER

Q. And so what you are saying there was that even though there were no statistically significant stock price movements during the class period in the Hi-Crush case, that wasn't inconsistent with efficiency, because there was also no material information that was coming out about the company during the period, and so you didn't expect to see statistically significant stock price movements, right?

A. I'm sorry, where are you reading from? Where are we talking about material information? I missed that part.

Again, if you want me to answer these questions and you are going to talk about material information, I definitely need to read more of this. I will point out -- see, I don't remember the facts of this case. Was there a corrective disclosure at the end of the class period? Like is this one of these cases where, you know, the class period ended on the 26th and the corrective disclosure came after the market closed on the 26th, and so that

WERNER

we observed the stock price movement on the 27th?

I don't -- I mean, I would say that I need, in order to answer your questions, I need to understand the facts and circumstances surrounding this case, and my guess is the facts and circumstances surrounding this case, to the extent that I recall it, which I don't, are different than the facts and circumstances associated with this case.

Q. So do you see that the phrase that you used in your answer that I just read out beginning at page 124, line 19, was "no significant news"?

A. I'm sorry, where are we?

Q. Do you see that in the answer I just read out from page 124, line 19, through page 125, line 4, you used the phrase, on lines 22 to 23, "no significant news"?

A. I do see that.

Q. All right. So isn't it the case that what you are testifying here was

WERNER

that during the class period in the Hi-Crush case you didn't see any statistically significant price movements, but there was also no significant news issued during that period, and therefore the lack of statistically significant stock price movements was not inconsistent with market efficiency?

A. Again, I don't know what I was saying in this case. This is nine years ago. Again, I'm happy to read more of this so I understand exactly what was going on in this case to accurately answer your question.

I mean, I guess I -- I assume what I meant there was fundamental market. I mean, do I even mention market efficiency? I probably -- yeah, again, I don't recall this at all, but I'm happy to read and refresh my recollection and give you the best answer I can. So I don't understand -- I don't know the facts and circumstances of this case. I don't know why there wouldn't have been any

WERNER

information during the class period.

MR. ROSEN: Do you have his report so --

A. There you go. I can look at my report and tell you.

Q. Let me ask you the question this way: As you sit here today, do you agree that if during a particular time period you see all sorts of crazy stock price movements on no information, that might inform you that the stock wasn't efficient?

A. Do I agree today -- I think if -- and, again, this is nine years ago, and, again, I believe before Halliburton II came out, I believe if I put in the term "fundamental market efficiency," your statement is correct.

But, well, I mean, to the extent I can answer the question, that's my answer. But, again, I mean, this was -- I don't recall this case at all. I mean, I can't even -- I couldn't even find a report. You presumably have the report.

WERNER

I'm happy to take a look at it if you want me to. Maybe that will reflect -- refresh my memory as to it.

Q. So in the work that you are doing in this litigation that brings us here today, in the short squeeze trading litigation, am I right that you are not applying the principle that if you see all sorts of crazy stock price movements on no information, that might inform you that the stock wasn't trading in an efficient market?

A. I think, again, I don't recall this case at all.

Q. I'm not asking you about the case.

A. No, no, no. I'm speculating that what I was talking about here was fundamental market efficiency. What I am talking about and what I have realized over the last nine years based on literature, based on discussions, based on case law, is that the standard is informational market efficiency. That is the standard I'm

WERNER

applying for this case.

Q. So regardless of the specifics of the Hi-Crush case, is it the case that at some earlier point in time during your career as a testifying expert, you were applying a standard that you now consider to be fundamental market efficiency?

A. I think from an academic perspective, to the extent I was thinking like an academic and thinking about a theoretical world, that is correct.

Q. And so am I understanding you right, then, that over time in your career as a testifying expert you have consciously changed the standard that you are applying and you are no longer applying a fundamental efficiency standard, you are now applying what you call an informational efficiency standard?

A. Well, I mean, it's not just me who calls it informational market efficiency. I mean, Mr. Fischel calls it informational market efficiency, thousands of economists call it informational market

WERNER

efficiency. It is an accepted term within the finance world.

So am I applying the standard of informational market efficiency which is accepted throughout academia? Yeah, that's what I'm applying. I'm sorry, whoa, did I say fundamental or informational?

Q. You said informational.

A. I'm sorry, this is just -- again, I'm just confused by this case.

Q. So let me get back to my question. Is it the case, then, that over time in your career as a testifying expert you have consciously changed the standard that you are applying and you are no longer applying a fundamental efficiency standard, you are now applying an informational efficiency standard?

A. I believe that is correct. I believe my understanding is that the standard, and, again, based on everything I have stated, that in this, I don't know, realm, the world of securities class actions, that the standard of efficiency is

WERNER

informational market efficiency.

Q. All right. And so if in this case you believe that there were crazy stock price movements on no information, am I right that you would not draw any conclusion from that one way or the other as to whether the markets for those stocks were informationally efficient?

A. Again, I don't know what I meant by "crazy" nine years ago.

Q. I'm not asking you that, sir. I'm not asking you anything about --

A. But you are. You are asking me about crazy stock price movements, right? Was that not in the question?

Q. Hi-Crush was not in the question.

A. No, no, but the word "crazy" was in the question, correct?

Q. Let me ask you the question again.

If in this case you believed that there were crazy stock price movements on no information, am I right that you

WERNER

would not draw any conclusion from that one way or the other as to whether the markets for those stocks were informationally efficient?

A. Again, I don't know what you mean by "crazy."

Q. All right. So that term "crazy stock price movements" is one that you agree that you used under oath, right?

A. Nine years ago, right. Do you want me to reread this so I get an understanding and context of "crazy"? Because I'm happy to do it so I have a better understanding of what I meant by "crazy" nine years ago. But if you have a definition today of "crazy" that you would like me to use in this matter, define it for me and I will try to apply it to this matter.

Q. Okay.

A. Does that make sense? I mean, I think I'm being reasonable here. I'm just trying to answer the question to the best of my ability, and you are using a

WERNER

subjective term that I guess I used in a deposition nine years ago. Who knows what was going on in my life at that point in time.

So is there a corollary to what "crazy" means today? I honestly -- I don't know what you mean, so give me some examples, I'm happy to take a look at them. But it's a subjective term, so I need to understand what it means, or what you think it means. I think that's reasonable.

Q. All right. And you understand that in the Hi-Crush case itself there in fact were no statistically significant stock price movements during the class period, and so you were introducing a counterfactual of the crazy stock price movements, right? You understand that, don't you?

A. No, I don't understand it. I don't remember the case. But, again, either -- here, I will give you the best answer I can. If you give me the report and allow me to look at it, or allow me to

WERNER

read my deposition testimony so I have a clear understanding of what was happening in this case.

Q. All right. Could you turn, please, to Exhibit 7A.

A. So we're going off of this? We are going off "crazy"?

Q. We are going off the Hi-Crush case. I'm taking you up on your invitation for me to give you some facts of this case so we can see whether the stock price movements are crazy.

A. Okay. Hold on. Hold on. What is this? Did you give me the whole deposition?

Q. Yes, sir.

MR. ROSEN: You just turned around the front page.

A. Do I need this anymore?

Q. No.

A. Okay, we are fine.

Q. Do you have your opening report, marked as Exhibit 281 to this deposition?

WERNER

A. I do. Whoa, all right, I do.

Q. Could you please turn to page 132.

A. 132. Okay.

Q. All right. Are you with me here on the last page of your Exhibit 7A?

A. I am here, yeah.

Q. And these are the day-by-day results of your AMC event study, right?

A. Oh, okay, yeah. I just saw this one page in a vacuum and I thought I couldn't figure out why I would just put one, you know, point on a page.

MR. ROSEN: Which exhibit are you on?

THE WITNESS: 7A, so page 132. And for context you may want to look at 131 before that.

Q. Right. So Exhibit 7A begins on page 125, right?

A. Yeah.

Q. And on --

A. Yes.

Q. And on pages 125 to 132 there

WERNER

is an entry for each day during your one-year period, right?

A. Correct.

Q. And you found that in your event study on January 27th, 2021 the residual return for AMC was 138.05 percent, right?

A. Well, oh, yeah, I'm sorry. I'm looking at the wrong page. On a logarithmic -- on a logarithmic basis, yes, that is correct, the abnormal return.

Q. And if we look, for example, at Koss, this is now page 172 in Exhibit 7F.

A. Okay, hold on. Okay.

Q. You found that the residual return for Koss on January 27th, 2021 was 176.03 percent, right?

A. Correct, again, on a logarithmic basis, but yes.

Q. And I will do one more. If we look at Express, this is now on page 156, Exhibit 7D to your opening report --

A. Oh, I'm sorry, what page?

Q. 156.

WERNER

A. 156.
Q. You found that the residual return for Express on January 27th, 2021 was 118.43 percent, right?
A. Correct.
Q. All right. And so do you agree with me that at least for AMC, Koss and Express, those were crazy stock price movements on January 27th, 2021?
A. No, I don't think I will ever use the term "crazy stock price movements" again. I would say they are large.
Q. They are each over 100 percent residual return on one day, right?
A. That is correct.
Q. And by residual return, we mean adjusted for market and industry index returns, right?
A. Correct.
Q. So this is, in effect, a company-specific return for each of these stocks was each over 100 percent on that day, right?
A. That is correct.

WERNER

Q. That is highly abnormal, isn't it?
A. It is large.
Q. Do you agree with me that it is highly abnormal?
A. I haven't performed a study to determine whether or not it is highly abnormal. It is large.
Q. You have performed a day-by-day study of the returns over a full year for each of those three stocks as well as other stocks, right?
A. Correct.
Q. And so that study informs you as to whether those one-day returns are highly abnormal, doesn't it?
A. Again, what do you mean by highly abnormal? They are large. Highly abnormal relative to what? Is there some statistical standard you are trying to put into place here?
Q. Okay. So you are unable to apply the eyeball test to determine those are highly abnormal; is that right?

WERNER

A. They are large.
Q. Do you agree that they are the largest for any day during your study?
A. Oh, as I sit here, I don't recall. I'm happy to look through all of these exhibits and let you know if that's the case.
Q. That is not something you thought about before I just asked you that question?
A. That these are the largest stock price movements?
Q. Yes, sir.
A. These three companies?
Q. On January 27th, 2021, yes, sir.
A. I mean, I have thought about the stock price movements. I haven't thought about whether they are the largest stock price movements throughout the seven companies I studied, or nine companies I studied. So, I mean, no, I haven't thought about the fact that these are the largest stock price movements among the nine

WERNER

companies.
Q. That wasn't the question I meant to ask, so let me ask a better question.
A. All right, sure.
Q. You have noticed before this line of questioning at your deposition, haven't you, that January 27th, 2021 was the largest stock price movement during your one-year period for AMC, right?
A. I believe that's correct, but I can look through it and verify that for you.
Q. And you have noticed --
A. Wait, do you want me to look for it?
Q. No, I'm asking you whether you -- whether you observed that fact before your deposition here today.
A. So --
Q. Did you observe that fact?
A. I'm sure I did. But I don't know that what you are saying is correct. If you want me to let you know that what in

WERNER

fact you are saying is correct, let me look through --

Q. That is not my question, sir.

A. Well, it is your question.

Q. No, my question is not --

A. Could you reread the question, please?

(The record was read.)

A. Did I observe that fact? Right, so I don't recall.

Q. Okay.

A. If that fact as you stated is in fact a fact. So let me look through --

Q. That means that you didn't --

A. No.

MR. ROSEN: Hold on, don't argue with him. Your question, what you just said, that means if he didn't observe it, therefore he never saw it. That's not true. He may not remember, right?

So he may not have memorized all the stock price movements for the nine stocks over that one-year period.

WERNER

When you ask him a question whether that is the largest, he just wants to look to see if that is true because he may not be remembering.

Q. My question is not whether it is the largest. My question, sir, is before today's deposition did you observe whether the stock price movement in AMC on January 27th, 2021 was the largest of any of the daily stock price movements for AMC during your one-year period?

A. Again, if you want to stipulate to the fact that that is the largest stock price movement along that one-year period, then I'll say yes, I observed it. But if you want me to answer that question without that stipulation, I need to look at daily stock price.

Q. Okay.

A. I mean, this isn't a memory test, right? Like I can't tell you well, you know, Dr. Werner, can you tell me what the price of Tootsie Roll was on December 12th, 2020 and what the abnormal return is,

WERNER

I can't. I gotta look at the report, or, I'm sorry, I should use proper English. I have to look at the report.

Q. So am I right, then, that it was not important for any of your opinions in this case whether the residual returns on January 27th, 2021 were the highest of any day during your one-year period for any of these nine stocks?

A. Again, are we stipulating to the fact that it is the highest day?

Q. No. I'm asking you was it important for any of your opinions in this case whether the residual returns on January 27th, 2021 were the highest of any day during your one-year period for any of these nine stocks? Was that important to any of your opinions or not?

A. So, again, I don't know if -- I don't remember if this is the largest stock price movement during that period. If you want me to look and tell you and verify that it is in fact the largest stock price movement, I will be happy to answer your

WERNER

question.

Q. That's not my question.

A. Or do you want to stipulate --

Q. Let me try to ask the question again.

A. There seems to be a fundamental misunderstanding here, because when you say "observe," at some point I observed it. Did I mentally note that it was the largest stock price movement? I may have at one point, but I can't be expected to sit here today, I've got what, nine stocks, basically 253 days, so nine times 253, can I borrow this pen here?

Q. Dr. Werner, "observe" was many questions ago. Please try to focus on this question I'm asking. Here is my question:

Was it important to any of your opinions whether or not the stock price movements on January 27th, 2021 were the highest of any day during your one-year period for any of the nine stocks you studied? Was that important to any of your opinions, sir?

WERNER

A. So, okay, why don't you want me to look at the data and verify that what you are saying is correct?

Q. Because that's not my question.

A. Well, you are making a statement in your --

Q. Respectfully, I'm not.

MR. ROSEN: Objection. You want him to answer two questions, one of which assumes the truth of the question -- of the stock prices.

MR. RYAN: It doesn't.

MR. ROSEN: Before he answers it, he just wants to check if those really were the largest. Now, there is a way to get to what you want without --

MR. RYAN: Let me ask -- let me try to make very clear now.

Q. I am not making any statement about the fact of whether January 27th was the largest stock price movement or not. I'm not making any statement about that. I'm asking you this question --

WERNER

A. But you have been, correct?

Q. No. I am asking you the following question, sir --

A. All right, so we are going to agree to disagree.

MR. ROSEN: Why don't you just ask him if there were large stock price movements?

MR. RYAN: Not my question. Larry, let me ask my question.

MR. ROSEN: I'm just trying to solve this --

MR. RYAN: Let me ask my question, please.

Q. Was it important for you in reaching your opinions to know whether January 27th, 2021 was or was not the largest stock price movement of any day during the one-year period for any of these stocks?

A. I don't know how to answer that question without verifying. I mean, was it large? Yes. I don't know why you are stuck on the largest. Like does that have

WERNER

some significance? Okay, then -- I mean, we have been talking about this for ten minutes. I could have just looked through this exhibit in one minute and verified that what you are saying is accurate.

Q. Are you able to identify any of your opinions for me that would change based on whether or not the stock price movements on January 27th were the largest during the one-year period?

A. Okay, so now you are asking me a different question.

Q. That is the same question I have been trying to ask you, worded slightly differently. I'm getting at the importance of your opinions.

A. Can you read the question again, please?

(The record was read.)

A. With regards to this report, I don't know without verifying that what you are saying is accurate, but no, my opinions would not change.

Q. Could you turn, please, to

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paragraph 62, which is on page 26 of your opening report, Exhibit 281.

A. Paragraph 62. Paragraph, not page, right?

Q. Yes. The bottom of page 26.

A. Did you say rebuttal or --

Q. Opening report.

A. Opening report, okay. What am I in here? Oh, okay. Okay.

Q. And do you see you wrote there "Prior to running a regression, one must decide on an estimation period over which to measure the relationship between the security at issue and the corresponding market and industry indices"? Do you see that?

A. Is the question do I see it?

Q. Yes.

A. Yes, you read that correctly.

Q. And was your estimation period here the one year through January 27th, 2021?

A. Well, I mean, we might as well be as accurate as possible. So I'm reading

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from paragraph 1 of my -- of Exhibit 281 to this exhibit, the time period I looked at was January 28th, 2020 through January 27th, 2021.

Q. All right. So that was --

A. And that is what I have defined as the relevant period. So if we just want to refer to it as the relevant period, we can do that.

Q. And so that one year through January 27th, 2021 is what you used as the estimation period for your regression, correct?

A. That is correct.

Q. All right. Now, do you see, then, in the sentence that spans the pages from pages 26 to 27 of your opening report, you write "In event study analysis, the choice of using the period preceding the event window, here the year prior to Robinhood's challenged actions, as the regression estimation period is a widely used and generally accepted methodology"?

A. Correct.

WERNER

Q. Okay. And by the event period, do you mean the period of time during which Robinhood's challenged actions were in place?

A. Well, I mean, the class, event period is analogous to the class period.

Q. All right. And in this case is the proposed class period the period of time during which at least some of Robinhood's challenged actions were in place?

A. I mean, I believe that's correct. But if you want to give me the complaint, I can verify that that is exactly what it is.

Q. Now, do you see in paragraph 63, do you see that you write "For each Affected Company, I also used dummy variables in the regression model to control for the potentially abnormal returns on each Affected Company's earnings announcement dates and on January 27th, 2021"?

A. I do, yes.

WERNER

Q. All right. And am I right that you used dummy variables for January 27th, 2021 because of the potentially abnormal returns on that date?

A. I'm sorry, could you reread the question?

(The record was read.)

A. Well, I used it because it was the -- my understanding was it was the mitigating factor to the beginning of Robinhood's actions, which is akin to something I would do if I was looking at a corrective disclosure.

That having been said, if I had known that -- well, I believe what I did was correct from a theoretical standpoint. My analysis, and when I say my analysis, I mean my news/no news test, do not change if I don't dummy out the 27th.

Q. When you referred just now to the beginning of Robinhood's actions, do you mean the time when Robinhood first put the so-called PCO restrictions in place?

A. Well, the actions at issue in

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this case.

Q. All right.

A. So all of the actions.

Q. And do you understand that that began on the morning of January 28th, 2021?

A. I believe that's correct, but let me just look at my report to refresh my memory.

Q. And I would refer you, again, to what we were looking at before, Table 12 in your rebuttal report.

A. Do you have a page number for Table 12?

Q. Page 44.

A. Okay.

Q. And then I would also refer you to paragraph 103, the text of which is beneath that, carrying on to the following page, page 45 of your rebuttal report. Do you see that?

A. Yeah. I'm just reading it.

(Witness perusing document.)

A. Okay, so this is a subset of the -- the PCO restrictions are a subset of

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the restrictions at issue in this case.

Q. All right. So is it your understanding that the first Robinhood restrictions at issue in this case were imposed starting 8:03 a.m. eastern time on January 28th, 2021?

A. I'm sorry, can you repeat the question?

Q. Is it your understanding that the first Robinhood restrictions at issue in this case were imposed starting 8:03 a.m. eastern time on January 28th, 2021?

A. For AMC, BlackBerry, Bed Bath & Beyond, Express, Koss, Nokia and Trivago, that is correct.

Q. And that is all the stocks except Tootsie Roll, right?

A. Correct. All of the affected -- I believe what I called the affected stocks, the nine stocks at issue in this case.

Q. And for Tootsie Roll as stated on page 45 of your rebuttal report, the first Robinhood restrictions at issue in

WERNER

this case were imposed a little under two hours later, at 9:54 a.m. eastern time, right?

A. I'm sorry, could you reread the question?

Q. And for Tootsie Roll as stated on page 45 of your rebuttal report, the first Robinhood restrictions at issue in this case were imposed a little under two hours later, at 9:54 a.m. Eastern time, right?

A. That's my understanding.

Q. Okay. So going back to my original question, you agree then that the first Robinhood restrictions for any of the stocks that are at issue in this case were put in place starting at 8:03 a.m. eastern time on January 28th, 2021, right?

A. The PCO restrictions.

Q. All right. And you are not aware of there being any restrictions at issue in this case that were imposed before the PCO restrictions, are you?

A. Well, okay, now I would want to

WERNER

look at the -- I don't recall, but if you showed me the complaint, I would be happy to give you the most accurate answer I can.

Q. All right. I will take the answer that you don't recall now.

So your understanding, then, is that the full day of January 27th, 2021 was unaffected by Robinhood PCO restrictions, right?

A. When you say the entire day, do you mean the entire trading day? And when I mean trading day, ending at 4:00 p.m. eastern time?

Q. Well, why don't I start with that question. Do you -- strike that.

Is it your understanding, then, that the full trading day of January 27th, 2021 ending at 4:00 p.m. eastern time was unaffected by Robinhood PCO restrictions?

A. To the best of my recollection, I believe that is correct.

Q. All right. And is it similarly your understanding that aftermarket trading on January 27th, 2021 was unaffected by

WERNER

Robinhood PCO restrictions?

A. I'm sorry, can you repeat the question?

Q. Is it similarly your understanding that aftermarket trading, after 4:00 p.m. eastern time on January 27th, 2021, was unaffected by Robinhood PCO restrictions?

A. And so we're just talking about the 27th now, we are not talking about the premarket on the 28th?

Q. Just on January 27th, 2021 eastern time.

A. Yeah, let me refresh my memory.

(Witness perusing document.)

A. Okay, yeah, so I think the PCO -- the first PCO restrictions, as you stated earlier, were on the 28th at 8:03.

Q. Okay. Why then in your regression analysis did you use a dummy variable for January 27th, 2021 when that day was unaffected by any Robinhood PCO restrictions?

A. Again, my understanding was

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those stock price movements were the mitigating factor in Robinhood's actions. That having been said, if I left the dummy variables out, I knew it would cause such consternation. My answers don't -- my answers don't change if I don't dummy out the 27th.

Q. What do you mean by the mitigating factor? I'm not following you.

A. Well, maybe mitigating is the wrong term. It was -- it was the price changes on the 27th that Robinhood's actions were a reaction to. So in the same way that if I was looking at a corrective disclosure in a case I would often dummy that -- I wouldn't often -- I would dummy that out, because -- I mean, yeah, that's it.

Q. I see. So your understanding is that Robinhood's PCO actions were a reaction to the stock price movements on January 27th?

A. Among other things, yes.

Q. Okay. And among what other

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things?

A. Well, I mean, they couldn't essentially meet their margin calls, so they needed to put those restrictions in place. And, I mean, margin call is a euphemism, but I can give you the exact term. But for you and I, it would be the equivalent of a margin call.

Q. All right. Are you referring to the collateral call from the NSCC?

A. Correct.

Q. Okay. Do you agree with me that a dummy variable is used to indicate the absence or presence of some non-model explained event that may be expected to shift the model's outcome?

MR. ROSEN: Objection. Could you reread the question?

(The record was read.)

MR. ROSEN: Objection. But you can answer it if you understand the question.

A. It could. I mean, people use dummy variables for all sorts of reasons.

WERNER

Q. All right. And isn't that why you use a dummy variable for January 27th, 2021 here?

A. I have stated why I used the dummy variable. I'm sorry, January 27th, 2021?

Q. Yes.

A. Right, yeah, I mean, I have stated why I have done that, and I have also stated if I hadn't done it, my results wouldn't have changed.

Q. And did you do it because of the presence of a non-model explained event that may be expected to shift the model's outcome?

A. No, I did it because of what I said before.

Q. Okay. In your report on page 27 of your opening report in paragraph 71, you cite to two academic articles for your use of --

A. I'm sorry, what page are we on now?

Q. Page 27, same page we were on

WERNER

before, of your opening report.

A. Of my opening report. Sorry, we are going back and forth. Okay.

Q. Do you see that in note 71 you cite to two academic articles to support your use of dummy variables?

A. I do.

Q. And the first article is entitled Event Studies with a Contaminated Estimation Period, and it is authored by Nihat Aktas and others. Do you see that?

A. I do.

Q. All right. And it's your understanding, isn't it, that what these authors are discussing is the use of contaminating events in the estimation window?

A. I'm happy to look at -- I mean, if you want me to go based on the title, that seems accurate. But I would want to refresh my memory to know exactly what they did here.

Q. All right.

A. Do you have -- do you have

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their paper?

Q. Yes, I do. And isn't it your understanding that January 27th, 2021 was a contaminating event during the estimation period in the sense that Nihat Aktas and co-authors used that term?

A. Well, now I would need to look at the paper to answer that question.

Q. Well, let me ask it more generally.

It's your understanding, isn't it, that January 27th, 2021 was a contaminating event during your estimation period?

A. No, that's not necessarily my understanding.

Q. I'm not sure what you meant by "necessarily" there. Is it your belief that it was a contaminating event or not?

A. Well, what do you mean by "contaminating event"? Do you mean contaminating event in the context of what they are talking about? Because if that's what you are talking about I would like to

WERNER

see their definition of contaminating event.

Q. All right. So I'm using the term "contaminating event" to mean a firm-specific event that will most likely affect the estimation of the return-generating process. Okay?

A. Okay. All right, can you reread that definition for me?

(The record was read.)

A. Okay.

Q. All right. With that definition in mind, do you agree that January 27th, 2021 was a contaminating event in your estimation window?

A. Based on my understanding of that statement, I don't know if that would fall under the rubric or the umbrella of a contaminating event as stated by you.

Q. Okay. But you did decide to cite this Aktas article as support for your use of the dummy variable described in paragraph 63 of your opening report, right?

A. I did cite to that article.

WERNER

Again, I'm more than happy to look at that article and refresh my memory.

Is now a good time for lunch?

Q. Sure. Why don't we take a break.

THE VIDEOGRAPHER: This will end media unit three. We are going off the record at 12:56.

(Luncheon recess: 12:56 p.m.)

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AFTERNOON SESSION

1:38 p.m.

ADAM WERNER, Ph.D., resumed.

THE VIDEOGRAPHER: We are back on the record at 1:38. This will begin media unit four.

CONTINUED EXAMINATION

BY MR. RYAN:

Q. Good afternoon, Dr. Werner.

A. Good afternoon.

Q. Could you turn, please, in your opening report, Deposition Exhibit 281, to page 11, paragraph 23 on the top of the page.

A. Page 11, paragraph 23, okay.

Q. And do you see you wrote there that "While financial economists rely on event study analysis as direct evidence demonstrating security price response to new information, they accept other factors as tending to support the existence of an efficient market for a security"?

Do you see that?

A. I do.

WERNER

Q. And Cammer factor five often uses event study analysis, right?

A. That is correct.

Q. And do you agree that Cammer factor five is a direct test of market efficiency?

A. I think in academia that is correct. I think for legal matters, and, again, I'm not a lawyer, you look at all Cammer and Krogman factors. You know, I have seen cases, I can't think of any off the top of my head, but I have certainly seen cases in the Second Circuit where, you know, they just ignore factor five and they determine efficiency based on the other Cammer and Krogman factors.

Q. Do you agree that in academia Cammer factor five, the event study analysis, is the only direct test of market efficiency?

A. Let me think about that.

MR. ROSEN: Are you trying to turn that off the screen?

MR. DeNUNZIO: Correct.

WERNER

MR. ROSEN: It will probably turn off itself.

A. Why don't we just wait for that. Could you reread the question?

Q. Yes. Do you agree in academia, Cammer factor five, the event study analysis, is the only direct test of market efficiency?

A. So it is certainly a test -- a direct test of market efficiency. I don't know if it is the only test of market efficiency.

Q. All right. So you wrote here in paragraph 23 of your opening report that financial economists would rely on event study analysis as direct evidence, right?

A. That is correct.

Q. And then you wrote that financial economists accept other factors, not that they rely on them, right?

A. In terms of the Cammer and Krogman factors?

Q. Yes, sir.

A. That is correct.

WERNER

Q. And you agree that these other Cammer and Krogman factors are ones that tend to support the existence of an efficient market for a security, right?

A. Well, I mean, so it's ultimately up to the court to decide whether or not a stock is efficient, right? I'm just asked to do these analyses, and so that's what I present.

So, you know, I think it's true to say that academics, you know, would tend, as you used the word, term, "direct evidence," would say -- then say is direct evidence.

You know, have I seen people talk about market efficiency in terms of let's say firm size or analyst coverage? You know, so, for example, if I look here at footnote 35 of my report, or 34, this is on page 11, this paper by Brad Barber, et al, The Fraud on the Market Theory and the Indicators of a Common Stock's Efficiency. So, you know, economists have looked at other factors as well.

WERNER

Q. All right. But you would agree, wouldn't you, that financial economists accept the other Cammer and Krogman factors as tending to support the existence of an efficient market but not as often direct evidence as the way Cammer factor five does?

A. I'm sorry, are you reading somewhere from my reports?

Q. Yes, from the first sentence of paragraph 23.

You would agree, wouldn't you, that financial economists accept the other Cammer and Krogman factors as tending to support the existence of an efficient market but not as direct evidence the way Cammer factor five does?

A. I think for the most part that's an accurate statement. But, again, there are other things beyond the Cammer and Krogman factors that academicians look at when they discuss market efficiency. But within the context of securities class action, I think that to the extent that

WERNER

academics look at this stuff, I think that's probably accurate.

Q. Do you agree as a financial economist that Cammer factor five is more informative than the other factors in determining market efficiency?

A. So as a financial economist and not as a court, again, I'm not a lawyer, I certainly find it informative. You know, having done this now for 20, 25 years, I don't know if I would adopt the other Cammer and Krogman factors if I was trying to show market efficiency. That's not really anything I thought about.

Q. All right. Well, let me ask you to think about it now. Do you agree sitting here as a financial economist that Cammer factor five is more informative than the other factors in determining market efficiency?

A. Well, again, so it's not ultimately up to me to make that decision. It is up to the court to decide which factors are important and not important.

WERNER

So I'm just presenting the information. It is up to them to determine, you know, interpret.

Q. Absolutely it is. And so I'm merely asking for your opinions as a financial economist, which is all I can do, since a financial economist is what you are, not a court, and all I can do is ask you questions in that role.

So my question is do you agree sitting here as a financial economist that Cammer factor five is more informative than the other factors in determining market efficiency?

A. As a financial economist, I think that's an accurate statement.

Q. Now, let me ask you about paragraph 67 of your opening report, this is on page 28.

A. 67, okay.

Q. And do you see about halfway through there is a sentence there where you wrote "In order to test this proposition, one must first examine whether or not a

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stock's price reacted differently on days in which new information was revealed ('news days') versus all other days ('non-news days')"?

Do you see that?

A. I do see that, yes.

Q. All right. And is this sometimes described as a news/no news test?

A. Yes.

Q. All right. What is a news/no news test?

A. You know, basically it's run an event study, you define, come up with a definition of what news is, you look at the frequency under which there are statistically significant changes on news days versus non-news days, and then usually you perform some kind of statistical analysis. Often I will use a Fisher's exact test to determine whether these reactions -- or the frequency of reactions to news is significantly different between the two subsamples, the subsamples being defined as what is the news days and the

WERNER

non-news days.

Q. All right. So one part of this test is to determine how the stock price reacts on the so-called news days, right?

A. What do you mean, "determine"? Determine, I mean, you look -- you calculate the abnormal return and then you look at the abnormal returns relative to the news days versus the non-news days.

Q. Okay. So one part of this test is to observe how the stock price reacts on the so-called news days, right?

A. What you have defined as news days, yes, that is correct.

Q. Okay. Why is it important to then compare that result, namely the result of how the stock price reacted to news on the so-called news days, to the second set of results, which is how the stock price reacted on the so-called non-news days?

A. Why is it important?

Q. Yes, sir.

A. Because you are trying to determine whether or not the stock price

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reacts differently to news days as opposed to non-news days, that's why it is important.

Q. And if the stock price does react statistically significantly differently on the news days from how it reacts on the non-news days, what can you conclude from that, if anything?

A. I'm sorry, so let me -- so if the stock -- could you reread the question, please?

Q. Sure.

A. I'm not sure it is completely accurate, that's why I would like it reread.

(The record was read.)

A. I mean, one of the conclusions people draw is that the stock price reacts to news.

Q. And that would tend to support a finding of market efficiency?

A. Correct.

Q. All right. And so then if the stock price does not react statistically

WERNER

significantly differently on the news days from how it reacts on the non-news days, what can you conclude from that, if anything?

A. Well, it could depend upon how you define news days.

Q. Sure. So news days are defined however the person carrying out this analysis has defined the news days, right?

A. Okay.

Q. And you were able to answer for me what one could conclude if there was a statistically significant difference in how the stock price reacted on what were the news days as defined by the person carrying out the study as compared to the non-news days, right?

A. Yes.

Q. So my question now is about the inverse of that. If the stock price does not react statistically significantly differently on the news days from how it reacts on the non-news days, what can you conclude from that, if anything?

WERNER

A. Nothing. I mean, it is going to depend upon -- let me give you an example. And I don't mean to say "nothing" like I'm being flippant. But let's say that I'm looking at earnings announcements. So I'm looking at a one-year period, there is four earnings announcements, each earnings announcement meets expectations. I have defined news days as earnings days.

So I observe no statistically significant stock price reaction on those four days because the earnings meet expectations. Now, the news/no news test is going to fail. I'm not going to see a statistically significant difference between those two subsamples, but it doesn't then render that stock inefficient.

Q. All right. But it is an absence of evidence to support efficiency, right, on that test?

A. Is it an absence of evidence to support -- I don't understand.

Q. All right. So you earlier testified that if you find a statistically

WERNER

significant difference and the stock price is reacting more on the news days than on the non-news days, you testified that was evidence in support of market efficiency, right?

A. Well, I don't think -- I don't think I said anything about the stock reacting more on news days versus non-news days.

Q. All right. Let me ask the question differently then.

You testified before that if the stock price reacts differently to a statistically significant extent on news days as compared to non-news days, that in your opinion would be evidence in support of market efficiency, right?

A. That is correct.

Q. And so if the finding is the opposite, that there is no statistically significant difference in how the stock price reacts on the news days as compared to the non-news days, wouldn't you agree with me that that is a lack of evidence on

WERNER

that test in support of market efficiency?
A. And I repeat, no.
Q. You don't agree with me that is a lack of evidence in support of market efficiency?
A. No, because, again, look at the example I gave you, right? The stock price didn't react on news that was expected. To me that means that that's an indicator the stock is efficient. Just because it fails the news/no news test, under that guise, under my definition of what news is in that case, doesn't then render the stock -- it is not necessarily an indicator that the stock is traded in an inefficient market.
Q. All right. But you have answered a different question from what I asked. I never asked you whether it is evidence of inefficiency. What I asked you, sir, was don't you agree with me that it is a lack of evidence in support of market efficiency?
A. And I said no.
Q. All right. And so it is your

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testimony, then, that if you run this test of news/no news test, if it has a certain result, that would be evidence in support of market efficiency, and if it has a different result, it is just no evidence showing anything either way at all?
A. No.
Q. Is that your testimony?
A. No. Again, it would depend upon what you defined as news. I mean, again, I mean, I don't -- I can't -- off the top of my head I can't give you another example other than the earnings example, but it is a perfectly valid one.
The earnings come in as they are expected to come in, I mean, I guess I would be disturbed if there -- I don't know if you would call it a false positive, but if earnings met expectations on each one of those days, and that was the only information that came out, they met expectations, there was no other news that we are talking about in a vacuum, if there were statistically significant stock price

WERNER

movements on each one of those days, would that then indicate to me that the stock was not traded in an efficient market? I don't know. I would have to think about it.
But I think in terms of what you're asking, I'm comfortable with the first assertion you are making. It is not clear to me that the corollary, by taking the other side of the coin, is necessarily correct.
Q. Okay. So it's your testimony that if somebody runs a properly designed news/no news study --
A. Okay, so let me stop you, because now you have said a properly run news/no news study. So that means that the news is defined properly.
Q. Uh-huh.
A. I just want to make that clarifying statement.
Q. Okay.
A. Okay, go ahead.
Q. So is it your opinion, then, that if somebody runs a properly designed

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news/no news study and there is no statistically significant difference in the stock price reaction on the news days as compared to the non-news days, that that shows nothing?
A. I would have to know more about the test to answer that question, beyond properly run.
Q. Okay. Now, looking at paragraph 68 of your opening report, am I right that you designed your news/no news test to isolate a test sample of news days that would be more likely than not to contain valuation relevant information?
A. Are you reading from somewhere in my report?
Q. Yes, sir.
A. Okay. So where are we reading from?
Q. Three lines down from the bottom of the page on page 28.
Let me ask the question this way: Do you agree with me that the right way to design a news/no news test is, and

WERNER

I'm now quoting from your words, "to isolate a test sample of news days that would be more likely than not to contain valuation relevant information"?

A. Right. So that's certainly one example.

Q. Did you attempt in your work on this case to design a news/no news test to isolate a test sample of news days that would be more likely than not to contain valuation relevant information?

A. Well, to the extent I was looking at informational efficiency, that's what I focused on. Does that mean that I looked at events that contained value relevant information? It is certainly possible. I mean, I believe I did. But that might not be the entire set of news days that I looked at.

Q. All right. Let me -- I got confused there, so let me try to ask the question this way: In performing the news/no news test that is set forth in your opening report in this case, was it your

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objective to isolate a test sample of news days that would be more likely than not to contain valuation relevant information?

A. That was an example of one of the things that I attempted to look at.

Q. Sir, I don't know what you mean when you say it was an example.

A. Well, so, again, I mean, we are making the distinctions between value relevant and informationally relevant. So yes, this is certainly one of the things that I would have looked at. But I also look at things that are informationally relevant.

Q. What you wrote in your report was "In order to isolate a test sample of news days that would be more likely than not to contain valuation relevant information, I focused on the frequency of news releases on each day during the relevant period for each Affected Company," right?

A. I'm sorry, where are you at?

Q. I'm on the last full sentence

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that begins three lines from the bottom of page 28 of your opening report. You wrote "In order to isolate a test sample of news days that would be more likely than not to contain valuation relevant information, I focused on the frequency of news releases on each day during the relevant period for each Affected Company," right?

A. That's what I said, yes.

Q. You didn't write anything about finding news that was informationally relevant as opposed to valuation relevant, did you?

A. No. But I'm giving an overview of a news/no news analysis, so, I mean, I guess I should have said "for example."

Q. Okay. So is it your testimony now that the news/no news test that you actually ran in this case did not isolate a test sample of news days that would be more likely than not to contain valuation relevant information?

A. The news, I mean, I have defined the news days as they are defined

WERNER

in my report.

Q. And did your news/no news test isolate a test sample of news days that would be more likely than not to contain valuation relevant information?

A. Oh, is it more likely to contain valuation relevant information? That is certainly a possibility.

Q. Well, I'm asking you as the person who performed the news/no news test and who wrote these words to tell me whether in fact the test that you ran isolated a test sample of news days that would be more likely than not to contain valuation relevant information.

A. And I will give you the same answer.

Q. Which is that it is possible, it is certainly a possibility?

A. Well, I mean --

Q. That's your answer?

A. Yeah, that's my answer.

Q. Okay. In running a news/no news test, is it appropriate -- is it

WERNER

appropriate to use a specific and objective criterion to identify news events that contain new valuation relevant information such that one would, ex ante, reasonably expect a security price reaction?

A. So where are you looking at?

Q. I'm not reading from your report, I'm asking you a question, sir. In running a news/no news test, in your opinion, is it appropriate to use a specific and objective criterion to identify news events that contain new valuation relevant information such that one would, ex ante, reasonably expect a security price reaction?

A. I certainly agree with the statement that you would want to use an objective criterion. Are you reading from the Ferrillo, Tabak and Dunbar paper?

Q. I am not. I will get to that paper shortly.

A. So where -- I mean, do you want to -- well, you are asking the questions.

Q. I'm asking you a question. As

WERNER

somebody -- so you -- let me ask this foundational question: As a testifying expert, you have run news/no news tests in application of Cammer factor five on multiple occasions, right?

A. That is correct.

Q. All right. And so do you believe that in running such a news/no news test for Cammer factor five purposes it is appropriate to identify news events that contain new valuation relevant information such that one would, ex ante, reasonably expect a security price reaction?

A. If I'm testing for fundamental efficiency, yeah, I definitely want to do that.

Q. All right. Is it your testimony you would not want to do that if you are testing for informational efficiency?

A. No. You are now making -- you are making a distinction between a type 1 and type 2 error. I'm saying that if I was looking for fundamental efficiency, I would

WERNER

definitely want to do that. I'm not saying then I wouldn't want to do that if I was looking at informational efficiency.

Q. That's why I asked you the follow-up question. So is it your testimony that you would not want to do that if you are testing for informational efficiency?

A. Right, and I'm saying that, I mean, I don't know how to answer the question other than what I have given you as an answer.

Q. Let me try to rephrase my question this way: If you are running a news/no news test for Cammer factor five purposes in order to test informational efficiency, do you believe it would be appropriate to use a specific and objective criterion to identify news events that contain new valuation relevant information such that one would, ex ante, reasonably expect a security price reaction?

A. Well, so now you are saying informationally efficient. If I was

WERNER

looking at informational efficiency, I might -- I might, and there is no -- there is not necessarily a problem looking at value relevant information, but if I'm just talking about the definition of informational efficiency, I might, and, again, I'm not -- I don't have these words in front of me, so this is off the top of my head, I might want to exclude the term "value" from that statement.

Q. Were you an expert in a case called Omega Healthcare Investors?

A. I was.

Q. Do you recall that in that case you ran a news/no news test using the criteria for a news day that I just read out?

A. No, I don't recall.

Q. Okay. Why don't I show you your report.

(Defendant's Exhibit 284 marked for identification.)

Q. All right, so I will hand you in just a moment here what we have marked

WERNER

as Exhibit 284. It is a document entitled Declaration of Dr. Adam Werner, March 16th, 2022, in a case called In Re Omega Healthcare Investors, Inc. Securities Litigation in the Southern District of New York.

A. Thank you.

Q. And is this your signature on page 41 of Exhibit 284, sir?

A. Page 41?

Q. Yes, sir.

A. Yes.

Q. And is this an expert report you submitted just about one year ago?

A. Yeah, that looks about right.

Q. All right. So if you could turn, please, with me to paragraph 77.

A. 77, okay. Before we do that, let me just refresh my memory. I want to make sure -- right, okay. I have done that. What page do you want me to look at?

Q. Page 30.

A. Page 30.

Q. So let me just ask you first to

WERNER

read paragraphs 75 and 76 to yourself.

A. Oh, page 30?

Q. Yeah, page 30.

A. I'm sorry. Okay.

Q. So if you just read, please, to yourself paragraphs 75 to 76, which are the beginning two paragraphs of this section.

(Witness perusing document.)

A. Okay, so it was coming from one of my reports. All right, I have read it.

Q. This is a case where you applied a news/no news test and then conducted a Fisher's exact test to compare the price reaction on the news days to that on the non-news days, right?

A. I did.

Q. And in defining what constitutes a news days for the Omega case, you wrote "Using a specific and objective criterion to identify news events that contain new valuation relevant information such that one would, ex ante, reasonably expect a security price reaction," right?

A. Correct.

WERNER

Q. All right. And you believed that that was an appropriate way to conduct the news/no news case in the Omega case?

A. In this specific case, given the facts and circumstances surrounding this case, yes, that was appropriate.

Q. All right. In this case were you testing for informational or fundamental efficiency?

A. Well, I don't -- I'm not sure I distinguished. I don't know. That's an interesting question. I have to think about it. But the facts and circumstances of this case are much different than the facts and circumstances of the case we're dealing with now.

Q. Okay. But let me go on my question though. So am I right that you are uncertain whether you were testing for informational or fundamental efficiency in this Omega case?

A. Well, I mean, to the extent that we are talking about a REIT, basically I think I'm testing for both. That's why

WERNER

I'm saying it is fact and case specific. So -- well, go ahead, why don't you ask the questions. I don't want to explain to you what a REIT is and how it trades.

Q. Do you then apply different tests, either fundamental or informational efficiency, as an expert on class certification in different cases?

A. No, not necessarily. But I think my opinions have evolved over time. My understanding of what courts find needed with regards to market efficiency, and it is now clear to me that what they demand is informational efficiency, or I should say that's my opinion. Those are the tests I run.

But it is not inconsistent to say that this thing is fundamentally efficient and informationally efficient, because if we are talking about a REIT where the news days, if I looked at frequency of news days and ran the same test I did, I'm sure they are going to be highly correlated with the days I have

WERNER

identified here as earnings days.

Q. All right. So I just have to follow up on this. You said just now that it was your opinion that courts demand only informational efficiency. That's not your expert opinion as an expert in finance or economics, is it? That is simply your understanding of what the lawyers have told you and what you have read about the law as somebody who has no legal training; isn't that right?

A. That is correct.

Q. Okay. Now, this report was submitted one year ago, in March of 2022, right?

A. Correct.

Q. Okay. Has your understanding of the law changed within the past year?

A. Yes. But, again, because of this particular -- again, the facts and circumstances surrounding this case were the basis for the tests I performed here.

Q. What happened in the past year to change your understanding of what the

WERNER

law requires in terms of market efficiency in class actions?

A. I mean, among other things, more thorough reading of Halliburton II. But, again, this isn't like those stocks in this case. This is a completely different stock. The circumstances of this case are completely different. This is not a market manipulation case. And so anything that I have done here is not necessarily appropriate for this particular case.

Q. Okay. So I just want to make sure I have a complete answer. I asked what happened in the past that changed your understanding of what the law requires in terms of market efficiency in class actions, and you said, among other things, a more thorough reading of Halliburton II.

Is there anything else that has happened in the past that would change your understanding of what the law requires in terms of market efficiency in class actions?

A. Well, yeah, sure, reading of

WERNER

academic work, discussion with colleagues. What else? Off the top of my head, that would certainly fall under that umbrella.

Q. And this reading of academic work, again, would be legal academic work in which you're not an expert, right?

A. No.

Q. All right. Is there any article in a finance or economics journal published within the past year that you can point me to that has changed your understanding of what the law requires in terms of market efficiency in class actions?

A. All right, so let's cut up your question there. First of all, the article doesn't have to be written in the last year, right? I don't have a universal knowledge of every finance article ever written. Is that fair?

Q. You testified, sir, that your understanding changed over the past year and you have now said a number of things on the basis of which it changed. So I'm

WERNER

following up.

A. Okay.

Q. And you said that it changed based on a rereading of Halliburton II, talking to colleagues, and some academic work. And I'm asking you, you are not saying, are you, that whatever the academic work is that you have read in the past year that has changed your understanding of what the law requires for market efficiency in securities class actions was published in an economics or finance journal, are you?

A. So could you go back? Because I think your original question, you said written in the last year, and this was my cause for confusion. If you are asking if I have read academic papers outside of the realm of securities litigation that talks about informational efficiency in the last year, absolutely.

Q. All right. And what articles are those?

A. I don't recall off the top of my head.

WERNER

Q. You are not able to name a single one as you sit here today?

A. Well, I think I referenced some of them here. I mean, I hadn't read -- let me find the reference to Mr. Fischel's paper, because I hadn't read that prior to this year. This is his '89 Cornell Law Review article. Well, we will just go with that. That would be one such example.

Q. Okay. Are there any others that you can think of that have changed your understanding of the law over the past year other than Mr. Fischel's 1989 Cornell Law Review article?

A. Off the top of my head, no. But as I said, I have read numerous articles, it is just I don't recall what they were. In the same way that I recently read two articles that look at how demand changes the price of an underlying stock, I read those extremely recently, but I don't remember the names of the authors or the names of the papers. That's not certainly anything that I focus on.

WERNER

Q. All right. Now, you have used this formulation that we just looked at in paragraph 77 of the Omega report from March of 2022, you have used that formulation in expert reports that are outside the context of REITs, haven't you?

A. What do you mean, formulation?

Q. That group of words put together as a sentence, that sentence appears in expert reports that you have submitted recently that do not involve REITs; isn't that right?

A. Oh, it is certainly possible.

Q. Okay.

A. I mean, I don't recall off the top of my head, but I would not be surprised if that were in fact the case.

Q. Okay. And if I'm following you right, you believe that that standard for identifying news days that is set forth in paragraph 77 of the Omega report is one that goes to fundamental efficiency and is therefore stricter than the one you have applied here; is that right?

WERNER

A. I don't know how to answer that question. Stricter to the extent that fundamental efficiency requires a specific definition? I mean, at this point you have read the definition numerous times prior to this morning, so I don't feel like I need to repeat them. Is that a stricter definition than the definition of informational efficiency? I think that's correct. But I don't know, if you are asking me are the tests stricter, I'm not sure.

Q. All right. So in other cases in which you are a class certification expert in recent years, you have applied the selection criteria in paragraph 77 of the Omega report for your news/no news test, right?

A. I'm sorry, I have used the selection criteria? You said page 77?

Q. No, I said paragraph 77, so that was on page 30 as I recall.

A. Okay.

Q. And in this Omega case, for

WERNER

your news/no news test, you identified news events that contain new valuation relevant information such that one would, ex ante, reasonably expect a security price reaction, right?

A. Well, to the extent that I was talking about earnings announcements, yes, that earnings announcements usually contain value relevant information.

Q. And you applied this test I have just read out from paragraph 77 of the Omega report in other recent expert reports you have submitted in securities class actions on class certification, right?

A. Well, I don't -- I'm not sure if I used that exact wording in my more recent reports. So maybe you want to -- so the test I used or my definition of news that I used in this case, every market efficiency report I have done since then has utilized the specific news/no news test that I used in this matter.

Q. You can't point to a single report that you submitted before you

WERNER

submitted your opening report in this matter where you applied this version of the news/no news test; isn't that right, sir?

A. I believe that's correct. But, I mean, maybe you will understand it better if I explain the evolution.

So when we had our discussion earlier about earnings days, right, and so it could be the case that, you know, each earnings day met expectations and there was no stock price movement. So what I was doing in this case was trying to find a consistent methodology that would work across all companies. So, you know, earnings announcements are extremely restrictive. I have stopped using that at least at this point.

In terms of looking at 8-Ks or news releases, in the NEO case I discovered that when I looked at the underlying information, there were discussions of things like moving stock, like a CEO moving from his personal account to a trust. So

WERNER

it became obvious to me that using 8-Ks or press releases could be over or under-inclusive with regards to news that investors might find material. And then based on court acceptance of these tests that I ran in this case as well -- as well as reports that I've seen by other experts, it seemed to me that this was the most objective way to measure news.

And, by way of example, you know, you have two experts who arrive at different conclusions with regards to which days contained material information over a five or six-day period. So it seemed to me that I wanted to be as objective as possible, and so I have adopted this current methodology on this report and every report since.

Q. All right. So let me follow up, because there was a lot of information in the answer.

So if I understood you right, there are a number of expert reports that you previously submitted in other matters

WERNER

on class certification where for the news/no news test you applied earnings announcements; is that right?

A. I mean, I don't know the frequency, the number, but yes, I have certainly done that in the past. And, I mean -- I will just leave it at that.

Q. And you describe that criterion for selection of news days just now as extremely restrictive; is that right?

A. Well, if I said "extremely," I misspoke. It is restrictive to the extent that, again, if earnings are meeting expectations, the fact that the news/no news test doesn't pass doesn't then render -- I can't -- it doesn't necessarily mean that I should arrive at the conclusion that the stock trades in an inefficient market, or, put another way, the stock does not trade in an efficient market.

Q. You continue to believe that the use of earnings announcements as the selection criterion for news days in running a news/no news test for Cammer

WERNER

factor five on class certification is an appropriate methodology, right?

A. I'm sorry, could you read -- at some point I believed it was an appropriate methodology.

Q. Sure. So let's start with that. At the time you submitted the reports in which you used earnings announcements as the selection criteria for news days, you believed that was an appropriate methodology, right?

A. I assume that that was one possible definition of news that one could use.

Q. And as you sit here today on May 3rd, 2023, do you continue to believe that the use of earnings announcements as the selection criterion for news days in running a news/no news test for Cammer factor five on class certification is an appropriate methodology?

A. Again, it would depend upon the facts and circumstances of the case. So, you know, for instance, you know, I have

WERNER

done a lot of efficiency studies on drug manufacturers.

Q. I have noticed that.

A. Drug manufacturers don't -- it is not necessarily earnings releases that tend to move the stock price of the drug manufacturers, oftentimes it has to deal with the efficacy or FDA approval process. And so to the extent that if I'm looking at a pharmaceutical company and I do a news/no news test based on earnings, it is very possible, very likely that it is going to fail the news/no news test, but that does not necessarily mean that that trades -- does not trade in an efficient market.

Q. Do you have in the stack that Mr. Rosen kindly provided at the outset of the day, do you have the rebuttal expert report of Professor Steven Grenadier?

A. I believe so. Oh, the rebuttal?

MR. ROSEN: I don't have the rebuttal, I just brought the opening report.

WERNER

Q. Okay. Why don't we give you --

A. Can I just get something to drink?

Q. Absolutely.

MR. RYAN: Let's go off the record.

THE VIDEOGRAPHER: This will end media unit four. We are going off the record at 2:24.

(Recess taken.)

THE VIDEOGRAPHER: We are back on the record at 2:29. This will begin media unit five.

BY MR. RYAN:

Q. All right. So during the break I have handed you what we have previously marked as Exhibit 176, which is the rebuttal expert report of Professor Steven Grenadier in this case dated March 28th, 2023. Have you seen this report before, sir?

A. I believe so.

Q. All right. If you could look to the very back of the report, the last

WERNER

three pages, do you see with me --

A. The last three pages?

Q. Yes. Do you see a set of three charts that are headed Exhibit 1A, Exhibit 1B and Exhibit 1C?

A. I do.

Q. All right. And do you see that Exhibit 1A states that it applies Dr. Werner's news versus no news test using earnings and guidance releases?

A. Correct.

Q. Do you see that in the heading?

A. Yes, correct.

Q. And then I know the type is a little bit small, but do you see in footnote 1, Professor Grenadier says that he has identified five publicly available reports where you used earnings or guidance announcements to define news days, and then he lists five matters that includes the Omega Healthcare Investors matter that we just looked at just now? Do you see that?

A. I do.

Q. All right. And do you have any

WERNER

basis to disagree with Professor Grenadier when he says that you used earnings or guidance announcements in the five cases in his footnote 1 to his Exhibit 1A?

A. I have no reason to disagree with -- I haven't looked at each one -- I haven't looked at each one since I received this report, but I have no reason to doubt that what he is saying is accurate.

Q. All right. And that's in part because you know that there are multiple expert reports, these are all from 2019 to present, there are multiple expert reports within the last four or five years where you have used this earnings and guidance release criterion for news days, right?

A. There are certainly five, yes.

Q. Okay. And you earlier testified that using earnings and guidance releases as opposed to the methodology that you used in this case was a more restrictive methodology, right?

A. I don't, again, I don't think I said the methodology is more restrictive.

WERNER

I don't quite remember what I said was more restrictive. But, again, I don't think I said the methodology was more restrictive. But, I mean, I don't want to quibble with you. Maybe that's what I did say.

Q. Well, so let me ask you, you said that using earnings announcements was extremely restrictive. What did you mean by "restrictive"?

A. Well, you are going to get these false negatives that I have discussed.

Q. Certain valuation relevant news that is not included among the news days?

A. I'm sorry, what?

Q. By false negatives, do you mean certain valuation relevant news that is not included among the news days?

A. Certain value -- I don't -- I don't understand that sentence. What do you mean?

Q. Okay. So you introduced the concept of false negatives as opposed to false positives, right?

WERNER

A. Maybe I should make a clarification. When I say false negatives, I mean that it will identify -- it is possible that it will identify a stock that actually trades in an efficient market as one that, at least based on this particular criterion, appears to not trade in an efficient market.

Q. I see. Thank you, that is helpful.

So when you said that using earnings and guidance releases as the criterion for news days was more restrictive, what you were saying was it would lead more often to a negative result on the news/no news test for market efficiency, right?

A. A negative result, meaning --

Q. No finding of efficiency.

A. Based on that particular factor?

Q. Yes, sir.

A. Yes. I believe what you have said is correct.

WERNER

Q. Okay. And indeed if we look here in Professor Grenadier's Exhibit 1A, he finds that only three of the nine stocks meet the Fisher's exact test using your news versus no news test, but with earnings and guidance releases as the news, right?

A. Could you reread that question, please?

(The record was read.)

A. So what do you mean by meets the Fisher's exact test? I'm not familiar with that phrase.

Q. Okay. So you see then in the far right column of Exhibit 1A there are p-values?

A. Correct.

Q. And the p-values below 5 percent indicate statistical significance at the 95 percent confidence level, right?

A. That is correct.

Q. Okay. And so am I right, then, that in Professor Grenadier's Exhibit 1A, he finds that only three of the nine stocks have a statistically significant difference

WERNER

between the news days and the non-news days using your news versus no news test, but with earnings and guidance releases as the news?

A. There is a lot packed in there, but I believe that is correct.

Q. Okay. And you don't have any reason to dispute Professor Grenadier's calculations here, do you?

A. The actual calculations?

Q. Yes.

A. No.

Q. Okay. Now if we look at Exhibit 1B, the following page to Deposition Exhibit 176, Professor Grenadier's rebuttal report, we see now he has a table that applies your news versus no news test but this time uses Forms 8-K and 6-K for the news days, right?

A. Correct.

Q. And you understand that a Form 6-K is essentially the equivalent of a current event filing on Form 8-K if the issuer is foreign, right?

WERNER

A. Correct, correct.
Q. Okay. So in footnote 1 to Exhibit 1B Professor Grenadier states that he has identified seven publicly available reports where you used the filing of a Form 8-K or 6-K to define the news days, right?
A. Correct.
Q. And do you see there are seven reports listed which have dates from 2016 to 2021?
A. I haven't counted them. I have no reason to doubt your calculation.
Q. Okay. And do you have any reason to dispute what Professor Grenadier says in footnote 1 to his Exhibit 1B of his rebuttal report, namely that you used this Form 8-K or Form 6-K criterion to define news days in at least these seven reports?
A. Without looking at -- I mean, again, I haven't looked at these reports even since Professor Grenadier submitted his report, but I have no reason to doubt that what you are saying is accurate.
Q. Okay. And one reason why you

WERNER

say that, I take it, is you agree, even if you don't have the exact number of reports in mind, that there are a number of expert reports over the past five years where you have used a Form 8-K or 6-K criterion for news day selection in performing a news versus no news test for Cammer factor five for market efficiency, right?
A. Absolutely. But I want to point out that since the NEO report I have not used any of these methodologies to define my news/no news test.
Q. Okay. And you see here that in Exhibit 1B, Professor Grenadier reports that the Fisher's exact test showed statistical significance for only two of the nine stocks using the Form 8-K or 6-K news day selection criterion?
A. That is correct.
Q. All right. And you don't have any basis to dispute that calculation, do you?
A. I have not checked. I have not personally checked his calculation. I have

WERNER

no reason to think it is incorrect.
Q. Okay. And NEO, is that a Chinese electric car company?
A. To the best of my recollection, yes.
Q. And I do apologize if you explained this in greater detail in that very long answer you gave, but I didn't manage to write that down. Was there something that occurred as you were working on the NEO case that led you to decide not to use this approach any longer?
A. Yes.
Q. What was that?
A. Well, I mean, there is a couple of things. With regards to NEO, right, I found news, I don't remember if it was in a press release or an 8-K, it is a foreign company, so it is a 6-K, that dealt with news that I thought would not be material to investors.
So the test would quantify those days as news days, but in fact there is no reason to think that that information

WERNER

would have any impact on the stock price. And so to that extent, some firms, and, I mean, you know, it is a case-by-case basis, some firms are going to be over-inclusive in terms of what they report.
So, for instance, this guy, again, reports that he changed his -- he moved his stock, his company stock, and I think it was the CEO, from his personal account to a trust account, and there is no reason for me as a financial economist to think that that would have any informational value to investors.
And the flip side of that, right, is that oftentimes firms will under-report news, so it is basically, to the extent that they are either filing press releases or 8 or 6-Ks, right, there is some decision made on the part of the corporation that this news is material to the market, and so they are making that choice, it is an objective criterion, where -- I'm sorry, subjective criteria, right. Whereas what I have done -- so if

WERNER

you think about this as a, you know, a sliding scale of most objective to most subjective, right, these methodologies are going to be somewhere in here.

In terms of what I've done, I've gone to this extreme point of the most objective test that one could do in performing those news/no news tests. And as I have stated previously, it has been accepted by courts, well, beyond its being accepted by courts, it has also been utilized by one of the authors of the Ferrillo paper written in I believe 2004.

So it has got, even though the Ferrillo paper doesn't deal specifically with that methodology, obviously if one of the co-authors of the paper deemed it sufficient to run a news/no news test, it should be sufficient for me as well as the fact that courts have accepted it.

Q. And when you say you have gone to this extreme point of the most objective test that one could do in performing these news/no news tests, you are referring to

WERNER

the Factiva headline approach that you used in this case, right?

A. Right, correct. Well, I don't -- that might be -- in general, that's correct.

Q. And when you refer to one of the co-authors of the Ferrillo paper, you are referring to Dr. Tabak, right?

A. That is correct.

Q. Have you discussed news/no news selection criteria with Dr. Tabak?

A. It is possible. I worked with him at NERA. I don't recall.

Q. Okay. Have you discussed it within the last two years with him?

A. No.

Q. All right. When you said earlier that you believed that there are some courts that have accepted your current approach, this Factiva headline approach, the news/no news test, you are not referring to opinions you have rendered, are you?

A. Oh, that is correct. When you

WERNER

call it the Factiva news approach, I'm not sure that that's a fully accurate description. But if you are saying what I have done -- if you are describing what I have done and you want to call it the Factiva news/no news approach, I'm more than happy to accept that definition.

Q. Okay, all right. So when you are talking about courts accepting this Factiva headline approach, are you referring to reports from Dr. Tabak or from others?

A. Certainly I believe Dr. Tabak. I believe I have seen others, but off the top of my head, I don't recall.

Q. Okay. Is it just one court opinion or more than one that you have in mind as accepting Dr. Tabak's use of this more recent news/no news approach?

A. Well, I don't know how many times Dr. Tabak has used it, so I can't tell you if there is more than one court who has accepted it or not.

Q. Okay.

WERNER

A. I don't know, off the top of my head, I don't know the frequency with which other experts have used this definition of news/no news. So I can't tell you, you know, how many times courts have accepted it.

Q. Okay. But if I understood you right, you were saying that you personally have read a court opinion that accepted Dr. Tabak's use of an approach similar to your Factiva headline approach for the news/no news test?

A. Well, I'm not sure that the courts necessarily discussed the news/no news test specifically, but to the best of my recollection, I believe some courts have found -- have certified classes where this methodology was used.

Q. Okay. So if you didn't learn this from speaking to Dr. Tabak, because you say you haven't spoken to him about news/no news test in the past two years, and if you didn't learn this from reading a court opinion yourself because you said you

WERNER

don't know whether the court necessarily discussed the no news test, what is the basis for your belief that some courts have found this news/no news test using the Factiva headline approach to be acceptable?

A. So you've said that I didn't read court opinions. I have said I have read court opinions. I don't recall what court opinions.

Q. Okay. So I believe you said that you are not sure that the courts necessarily discussed the news/no news test specifically, but to the best of your recollection you believe some courts certified classes where this methodology was used?

A. That's a correct statement.

Q. And so my question is if the court opinion doesn't talk about the news/no news test, how do you know that any court has certified a class using this methodology?

A. Oh, okay, now I think I understand. It is certainly possible that

WERNER

the court discussed the news/no news test. It is also possible that I saw the report written by the expert in which this methodology was used.

Q. And as you sit here today, you don't know which of the two it is?

A. Which of the two it is? It could be both.

Q. Okay. But you're not telling me that there is a court case out there that you're aware of that accepts this broad of a news/no news test where it is just every headline result from Factiva, right?

A. I mean, I don't know how else to answer the question. I mean, I have answered the question to the best of my ability.

Q. Okay.

A. I don't know that -- I mean, I did the best I could.

Q. Okay. Let's turn to Exhibit 1C. This is in Professor Grenadier's rebuttal report previously marked as

WERNER

Deposition Exhibit 176.

So do you see that Exhibit 1C states that it is an application of your news/no news test but this time using press releases as the news day selection criterion?

A. Correct.

Q. And do you see that Professor Grenadier in footnote 1 to Exhibit 1C states that he identified two reports where you did that, the Ebix report from 2012 and the Hi-Crush report from 2014? Do you see that?

A. Yes. Yes, I do.

Q. And do you have any reason to dispute Professor Grenadier's statement here in footnote 1 that you did indeed use a press release, news day selection criterion in at least those two reports?

A. I believe that prior to 2014 I definitely, so nine years ago, I definitely used this methodology. I don't recall -- my guess is if I had used it since then, Dr. Grenadier may have highlighted it. So

WERNER

based on what I'm seeing here, yeah, I have used it twice, not since 2014.

Q. All right. And do you see in Exhibit 1C Professor Grenadier calculates that using the Fisher's exact test there is statistical significance to the comparison of the high information flow days to the low information flow days for only one of the nine stocks?

A. I don't think what you've said is correct.

Q. I may have bolloxed that, so let me try again.

A. Okay.

Q. Do you see in Exhibit 1C that Professor Grenadier calculates Fisher exact test p-values using the press release method for each of the nine stocks?

A. Yes, I do see that.

Q. And do you see that he finds statistical significance at the 95 percent confidence level for only one of the nine stocks using the press release method, namely Bed Bath & Beyond?

WERNER

A. Well, statistical significance, to the extent that you are looking at a difference between news and no news, yes.

Q. Okay. And --

A. Or as defined here by using press releases.

Q. Okay. So let me just make sure. Running a Fisher's exact test to calculate statistical significance of the difference between news and no news days is the same methodology that you used in your opening report in this case, right?

A. I believe that is correct.

Q. All right.

A. But we haven't said anything about the definition of news.

Q. Understood. We have alluded to it several times. We are going to get into it in more detail, worry not. All right.

So now if you could turn, please, with me in Professor Grenadier's rebuttal report, this same document we have been looking at, to page 26.

MR. ROSEN: This is Grenadier's

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report again?

MR. RYAN: Yes.

Q. You see in paragraph 53 he goes through his findings for three exhibits that you and I just looked at together for the last half hour, Exhibits 1A, 1B and 1C, right?

A. Correct.

Q. And then in footnote 96, Professor Grenadier reports that "Additionally, when news days, or high information flow days, are defined as the combination of earnings releases, Form 8-K and Form 6-K filings, and press releases, his results," meaning your, Dr. Werner's results, "are reversed for all but two stocks, namely AMC and Bed Bath & Beyond."

A. Hold on a second.

Q. Uh-huh.

A. I'm sorry, maybe I misunderstood you. Did you say he combined those definitions into one news day?

Q. Yes. So what he is saying as I understand it in 96, we saw how he did the

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three different recalculations in Exhibits 1A, 1B and 1C, and here he is saying if he instead defines in effect a combined set of news days that meet any of those three criteria, and he defines that as the news day set, then his result is that there is statistical significance for only two stocks, namely AMC and Bed Bath & Beyond, right?

A. Correct.

MR. ROSEN: What paragraph are you referring to?

MR. RYAN: Footnote 96, which is off of paragraph 53 on page 26 of Professor Grenadier's rebuttal report.

Q. And you don't have any basis to disagree, do you, Dr. Werner, with the calculations in Professor Grenadier's note 96?

A. I have no reason to disagree that the calculations are accurate.

Q. Okay. And you haven't done anything for any of the cases that are still ongoing that are cited here in

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footnotes 1 to Exhibit 1A or 1B of Professor Grenadier's rebuttal report, you haven't done anything to somehow withdraw the news/no news test that you ran in any of those cases, have you?

A. No, not to my knowledge. I mean, you said ongoing. I mean, if you really want me to look at it, I'm pretty sure none of those cases are ongoing, but it is possible they are.

Q. Okay.

A. Obviously, you know, the Hi-Crush case and the case from -- the Ebix case are not ongoing to the best of my knowledge.

Q. Understood.

A. But that caveat aside, yeah.

Q. Okay. All right. Now, you cite in your report, so let's try to find this now, this would be your opening report, Exhibit 281, on page 31 --

A. I think I mixed up some stuff here. Oh.

MR. ROSEN: You are talking

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about the opening report?

MR. RYAN: Yes.

MR. ROSEN: Page 31?

MR. RYAN: Yes.

A. So this only goes up to page 28, which suggests to me that I may have combined some documents.

MR. ROSEN: I think the problem is they are not stapled, so you are mixing everything together.

THE WITNESS: Do you want to give me your copy, Larry, or Mr. Rosen?

MR. ROSEN: Which report are we talking about?

THE WITNESS: So my initial report.

MR. ROSEN: Your initial report, that should be here. Oh, I have it here. Hang on. Your initial report is this one, 284, right?

MR. RYAN: No, it is 281. It is the thick document.

THE WITNESS: This is the Omega document. Yeah, the big one.

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MR. ROSEN: I'm sorry.

THE WITNESS: No worries.

Q. All right. So we are looking at page 31, note 74.

A. Okay, page 31, note 74.

Q. Right.

A. Footnote 74.

Q. Yes.

A. Okay.

Q. And do you see the citation to Ferrillo, et al, from the St. John's Law Review in 2004?

A. I do.

Q. And is this the Ferrillo article that you were referring to previously in your testimony?

A. Correct.

Q. Okay. And do you consider this article to be a reputable authority in how to conduct event studies for market efficiency purposes?

A. Reputable? It is informative. But, as I've said, the underlying authors' opinions of how one defines news and what

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one looks at may have changed since they read this report, or, sorry, report, paper back in 2004.

Q. Maybe. I mean, you can't ask Fred Dunbar, can you, unfortunately?

A. No, I'm sure you could depose David Tabak, but the evidence is that he has adopted possibly a different criterion than what was strictly said in this report. His opinions may have evolved over time I guess is what I'm saying. In fact, all indications are that they have evolved over time.

Q. All right. So let me go back to my question. Do you consider the Ferrillo article to be a reputable authority in how to conduct event studies for market efficiency purposes?

A. I think it is a reputable study with regards to how to conduct -- I don't -- again, reputable study? It is -- it is informative. It has met the methodology of looking at a news/no news test is certainly something that has been

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adopted by many economists, many courts. I don't know if that makes it a reliable source. That's your term, reliable source. I think you said reliable source.

Q. Reputable.

A. Reputable, reputable. So I don't know how to necessarily define that. But to the extent that they present an analysis, a news/no news analysis that people have since adopted or at least the methodology that people have still -- have since adopted, again, I don't know if that renders it reputable. It certainly renders it informative.

Q. All right. You chose to cite the Ferrillo article in your opening report, right?

A. That is correct.

Q. And I assume that is because you hold the article in high esteem?

A. It informs my opinion about how to run a news/no news test.

Q. Has the article been influential in terms of a methodology for

running a news/no news test?
A. When you say influential, influential to who?
Q. Has it had influence on other people, readers?
A. Readers?
Q. Yes.
A. Well, I mean, I don't remember if it is cited in Halliburton I or in Halliburton II, the amicus brief. I mean, people certainly have cited it. I don't know -- what was the specific word he used?
MR. ROSEN: Reliable.
THE WITNESS: No, we are past "reliable."
Q. Has it had influence on other people, namely readers?
MR. ROSEN: Objection, calls for speculation.
A. Again, I don't know. Like I said, people have seemed to adopt the general methodology that these people used in this report.
Q. All right. Do you believe that

the Ferrillo, et al, methodology is reliable?
A. Do I believe that running a news/no news test can inform one about whether or not a security trades in an efficient market? I do.
Q. All right. My question, though, is a little different. Do you believe that the methodology for running a news/no news test set forth in Ferrillo, et al, is reliable?
A. I would have to look -- if you want to give me the paper, I'm happy to look at it. I have given you the best answer that I can without actually looking at the report.
Q. Okay. So am I understanding you right that without looking at the report you cannot tell me one way or the other whether you believe that the methodology in Ferrillo, et al, for running a news/no news test is reliable?
A. Well, let's see the full methodology and then I will tell you. I

mean, I don't -- I haven't perfectly memorized the entire methodology as described in this report. So if you want me to look how they describe it, again, even Dr. Tabak has changed some of his opinions. So I don't know how that might or might not be reflected in the methodology that they describe in this paper. Now, I do know, again, courts have accepted the news/no news analysis in general. Again, I don't know if that makes it reputable, reliable, whatever.
Q. I am going to show you the report. I'm going to show it to you in just a minute. But I do want to see whether you can answer this question: Are you able to answer my question before we look at the report whether you considered the methodology for running the news/no news test in Ferrillo, et al, to be reliable?
THE WITNESS: Do you want to object?
MR. ROSEN: I already objected. You know, it is up to you to answer the

question.
THE WITNESS: You didn't technically object, that's why I was waiting.
A. I mean, I don't know how to give you a different answer than I have previously given. That's my answer.
Q. You won't know if it is reliable until you have looked at it?
A. I defer to what I said previously.
Q. That's the best answer you are able to give me to that question?
A. Well, I mean, there has been -- I don't know, you keep asking me the question.
MR. ROSEN: You want an answer to a question that specifically refers to a specific -- to the specific model in that specific academic paper, and he is saying well, let me look at the academic paper so I can better answer your question. So you said you have the paper, so just show it to him and

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he will answer your questions. It seems that that will get us through this.

MR. RYAN: I will.

Q. So you're not able to answer the question unless I show you the paper, right? Is that right?

A. I believe that in order to give you the most accurate answer possible I would need to see the paper. As my understanding, at the deposition, my job is to give the most accurate testimony possible. It doesn't seem odd that I should ask to see the underlying paper for which you are asking me this question.

Q. All right. Why don't we look at the paper. So this will be Exhibit 285 I believe.

(Defendant's Exhibit 285 marked for identification.)

Q. All right. So why don't we turn to page 119.

A. 119.

Q. Let me just ask you a

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foundational question first, which I meant to do. Is Exhibit 285 the Ferrillo, et al, paper that we have been talking about?

A. I believe so, yes.

Q. All right. So if you could turn, please, to page 119. Do you see a heading there number 2, Price Reaction to News?

A. I do.

MR. ROSEN: What page are you on?

MR. RYAN: 119.

Q. And so if you could maybe just read to yourself from that heading in the middle of page 119 to the very top of page 121 before the table about Metro Global Media and then I will ask you some questions.

A. I want to first go to -- I don't recall what their -- what type of definition they are using for the efficient market hypothesis, so I would like to go to the beginning and just refresh my memory about the exact standard they were using.

WERNER

This was -- this is 2004, so ten years before Halliburton II.

(Witness perusing document.)

Q. So I believe that discussion you are looking for begins at the very bottom of page 102 under the heading Efficient Markets in Theory. That also defines the term EMH.

MR. ROSEN: It is also on page 117 there is a discussion. You said 102 or 112?

MR. RYAN: 102.

(Witness perusing document.)

MR. ROSEN: The beginning of page 14 and the middle of page 14 --

MR. RYAN: I don't think we need this commentary.

MR. ROSEN: Well, all right, then we can go through the whole thing.

(Witness perusing document.)

Q. All right. Have you had the chance now to read pages 119 to 121?

A. No, I haven't.

(Witness perusing document.)

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MR. ROSEN: Go to page 117.

THE WITNESS: Do you want me to move ahead to page 117?

Q. I would like you to read pages 119 to 121 and then I'm going to ask you some specific questions. You asked where efficient market hypothesis was defined in the document. I have shown you where it was defined. There is no need for you waste time on the record reading 20 pages of this article, which is an article that you are quite familiar with.

MR. ROSEN: Look, he is entitled to read the article if you are going to ask him questions about it.

Q. Well, let me start asking you questions. So, Dr. Werner, do you agree, and I'm reading from -- five lines from the bottom of page 119 --

A. I'm like ten pages -- yeah, I'm on 109, so let's slow your roll there.

Q. Do you agree that because stock prices move all the time one must compare the movements in response to news stories

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with a control group of prices?

A. I haven't read that yet.

Q. So you can't tell me if you agree or disagree with that?

A. I would like to read it in the context in which it was written.

Q. Well, I have given you about ten minutes already to read portions of this article, and I directed you to a full two pages and you apparently have been reading other pages of the article. I just want the record to clearly reflect that. So you are not able to answer that question?

A. I will be able to answer that question when I read that sentences or sentence and put it in the context of what the authors are saying.

Q. Okay. Let me ask you then the top of page 120, you see that Ferrillo, et al, write "Using whatever sample is chosen, one could then separate out those days on which the company is mentioned in the news from those on which it is not. Of course

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there are various ways to implement this procedure."

Do you agree with the authors that there are various ways to implement this procedure?

A. You are on page 120 now?

Q. Yes, sir.

A. That is what they wrote.

Q. All right. And do you agree with them as an expert in finance and economics who yourself apply the news/no news test regularly, do you agree with them that there are various ways to implement this procedure?

A. Well, I don't know exactly what procedure they are talking about, so, I mean, if you would let me -- I still haven't read 119 through 121. So, I mean, I guess you want me to skip ahead and ignore what is written with regards to the efficient market hypothesis and what needs to be shown.

MR. ROSEN: Well, before you answer the question, read what you want

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to read. You should start at least at 117, because the whole context --

MR. RYAN: I'm going to continue.

MR. ROSEN: He is allowed to read it if you ask him about it.

THE WITNESS: I can't read while you are asking questions.

MR. ROSEN: This is a long, complicated academic paper and you want to ask him is it true what is written in this long, complicated academic paper. He has to read it. He hasn't looked at it in -- even if he hasn't looked at it in three weeks, it is still three weeks ago. So he is entitled to read it.

MR. RYAN: I gave the witness plenty of time to read it.

Q. Now, do you see here now on line 5 of page 120, the authors say that "There is the choice of news sources to be searched (for example, major newspapers and presswires versus all available news

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sources) and whether to limit the search to those stories where the company name and/or ticker is mentioned in the headline, the headline or lead paragraph, or anywhere in the story"?

A. What paragraph are you on?

Q. I'm on page 120, beginning five lines from the top. And do you agree with the authors that there are these choices of what news sources to be searched and whether to limit the search to stories where the company name or ticker is in the headline or the headline and lead paragraph or anywhere in the story?

A. I agree that that's what they wrote.

Q. And do you agree that those are all reasonable methodological choices to make in conducting a news/no news test for the purpose of testing market efficiency?

A. Is it a reasonable assumption? It is certainly one that one could use.

Q. Do you see the next sentence then reads "One could also refine the

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search to only focus on particular types of news stories, for example, earnings announcements"?

A. You have read that correctly.

Q. Okay. And that's a methodological choice that you have made in multiple previous expert reports as we went over, right?

A. Yes, prior to my submission of the NEO report, correct.

Q. All right. So your submission of the NEO report I think had to do with not using Form 8-K or 6-K, right?

A. No. It had to deal with the problems under any definition -- under any subjective definition of news. I don't recall -- I mean, if you want to show me the NEO report, I don't remember whether I was looking at 8-Ks or press releases.

Q. Didn't you tell me 15 minutes ago that in the NEO case you were looking at a Form 8-K and you found that an executive, you believed it was the CEO, was making a disclosure in the Form 8-K about

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moving a certain investment from a personal account to a trust account, and you said that it was your experience in looking at Forms 8-K and 6-K that companies used different standards in how often they reported items and that you concluded that the Form 8-K and 6-K approach was both over and under-inclusive, isn't that what you testified to 20 minutes ago?

A. Well, let's be specific, because when we were talking about NEO, I wasn't talking about 8-Ks, I was talking about 6-Ks. So if you go to the beginning of your statement there, it is incorrect. Now, whether I was looking at press releases or 6-Ks at the time, I don't recall.

Q. And you agree that a 6-K is basically the same as an 8-K except for a foreign issuer, right?

A. That is correct.

Q. And I guess because you're not a lawyer, you are unfamiliar with the SEC regulations for when companies are required

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to make 8-K and 6-K filings; is that right?

A. I don't know if that's accurate. I mean, if you want to show me -- just show me an 8-K or show me the SEC rules about when a firm needs to issue an 8 or 6-K, I'm happy to review it. I have a general understanding.

Q. All right. What is your general understanding of the SEC rules for when a firm needs to issue an 8-K or a 6-K?

A. Again, I don't want to give an inaccurate answer. So if you want to show me where that's written, I'm happy to review that and then give you an answer.

Q. Okay. Without reviewing SEC regulations or other documents, am I right that you are unable to provide any general understanding of what the SEC rules are about when a firm needs to issue an 8-K or a 6-K?

A. See, my problem is I don't remember if it specifically states that it has to include -- that it must be written or published when they have material

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information. That's the only distinction. I'm not positive that that's exactly what they say, and that's why I would want to refresh my memory as to whether or not that is the exact wording used by the SEC.

Q. Because that would be relevant to you in assessing the suitability of that news day selection criterion for purposes of testing market efficiency, right?

A. Well, again, it would -- it goes to what -- assuming that my definition is correct, right, it goes to what the company believes is material, and that is necessarily a subjective view of what news is or what material news is.

So to the extent that the company has to determine, and, again, I don't recall it off the top of my head, but if you want to stipulate that in fact what it discusses is material news, it then -- it rests on how -- what a company believes is material, and as I've said, and as you've stated, those two things could be over or under-inclusive with regards to

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news.

Q. Okay. Help me understand what you are saying better. You are saying your criticism of the use of 8-K or 6-K as a news day selection criterion as you used to do in running the news/no news test is that materiality is in the eye of the beholder?

A. Well, again, that's to the best of my recollection.

Q. Okay.

A. With regards to the definition -- the definition being materiality. That being the benchmark under 8 or 6-K. That's my recollection, but I could be wrong.

Q. Do you agree that it is reasonable to refine the search to only focus on particular types of news stories, for example, earnings announcements, as discussed by Ferrillo, et al?

A. Well, see, now here is where this paper that was written in 2004, where people's opinions about things have evolved. Like I said before, Dr. Tabak has

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used the exact same analysis I have used in this report in determining market efficiency. So he is one of the co-authors of the report. He obviously doesn't think that you have to do that exact type of screening.

Q. Sure. I didn't ask you whether anybody believed that you had to do that exact type of screening. My question is do you agree it is reasonable to refine the search to only focus on particular types of news stories, for example, earnings announcements, as discussed by Ferrillo, et al?

A. Oh, I don't know whether it is reasonable or not. I think if you want to be as objective as possible, you should use my methodology. There is some subjectivity in that type of screening.

Q. All right. Do you see the authors of the Ferrillo article continue "In any case, one would still have to be careful to assign stories to the proper dates, that is stories after a market

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closed could only affect the next day's stock price movements"?

Do you see that?

A. Oh, right. I do see that.

Q. All right. And do you agree with them that whether one uses all news stories or whether one refines the search to focus on particular types of news stories, one would still have to be careful to assign stories to the proper dates?

A. The proper dates?

Q. Yes.

A. Yes, you would definitely have to assign them to the proper dates.

Q. All right. You see they also state in this sentence "In any case, one would still have to be careful to remove any stories that exist because they report on a price movement"?

Do you see that?

A. I do see that, yes.

Q. And do you agree with the authors of the Ferrillo, et al, paper that regardless of whether one includes all news

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articles or instead refines the search to only focus on particular types of news stories, one would still have to be careful to remove any stories that exist because they report on a price movement?

A. So here I defer to Dr. Tabak. He doesn't -- he runs this test without removing information that has to deal with price movement. So evidently he doesn't currently agree with this statement that he made 20 years ago, so I'm going to defer to him and disagree with that statement.

Q. All right. So you disagree with the statement in the Ferrillo, et al, paper that one has to be careful to remove any stories that exist because they report on a price movement; is that right?

A. In order to be as objective as possible, yes, that is correct.

Q. Okay. And have you discussed with Dr. Tabak why he no longer follows this methodology if indeed he does no longer follow it?

A. I have not discussed it with

WERNER

him.

Q. All right. Have you seen anything in writing from Dr. Tabak where he has explained why he no longer follows this aspect of the methodology set forth in the Ferrillo, et al, article, if indeed he does no longer follow it?

A. I have not.

Q. Okay. So if I understand you right, you are simply observing that you've seen expert reports Dr. Tabak has submitted at some point since 2004 in which you didn't notice him removing any stories that existed because they reported on a price movement and you are inferring that Dr. Tabak must have changed his mind about the need to do that; is that right?

A. Among other things. I mean, look, your client, Robinhood, and I haven't seen this personally, but they published I think on the website, you know, they would show the ten biggest stock price movers every day, throughout the day, right? So that is reporting on stock price movements.

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I assume they put it up there because they think it is relevant to investors and that investors possibly use that information.

So I think that this is, going back to 2004, it is oversimplified. It is not accounting for things like Chartis, who might possibly use stock price as an indicator. I think momentum traders would be an example. I think Professor Grenadier worked or advised on a hedge fund that used momentum trading.

So I think it is overly simplistic, and, again, we are talking about a different period of time, to say that price is not informative.

Q. Am I right that in conducting your news/no news test in your opening report in this case, you did not remove any stories that exist because they report on a price movement?

A. That is correct.

Q. And in fact you are aware that in that last week before the class period at the end of January 2021, there were many

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stories that existed because they reported on a price movement, right?

A. Well, you say -- what do you mean by "many"?

Q. I mean a very high proportion of the news articles about these nine stocks in the week before the class period begins at the end of January 2021 are news stories that exist because they report on a price movement, right?

A. I don't know if it is a high frequency. Did you use the term "high frequency"?

Q. High proportion.

A. High proportion, right. Yeah, as I sit here, I mean, certainly there were discussions about price movements. I won't -- I don't disagree with that. Whether or not it was a high proportion, I don't know as I sit here today.

Q. Okay.

A. As you have defined a high proportion, I don't know what you mean by a high proportion.

WERNER

Q. Okay. So do you know anything about what proportion of the news stories in that week before the class period exist because they report on a price movement?

A. I do not.

Q. All right. That's not something that you thought was important to look into in connection with rendering your opinion, right?

A. No. Look, so, you know, I'm damned if I do, I'm damned if I don't. What I initially did was I started to look through the information and then I started to ask the question, okay, well, is each one of these news articles material? In other words, is it something that an investor might find informative? And in doing so, it became more and more apparent that whatever decisions I made as to what was material and what was not, which was what was immaterial, was going to be criticized.

So it has been this seven and a half hours discussing Dr. Werner, how did

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you decide that this information is material or that information is material? What I decided then based on my initial review of documents is that look, I'm going to use the most objective criterion possible, and so that is exactly what I did here.

So, you know, does it matter that prices -- that there was a reporting on prices? Look, again, people seem to find that information informative. There are people who trade based on the stock price. Again, Dr. Grenadier, or Professor Grenadier, was a consultant to a hedge fund that based some of its trading strategy on momentum trading. All right, what is momentum trading based on? Stock prices.

So is it relevant to investors? It appears that some investors find it relevant. So rather than suss out, Dr. Werner, you included this, but you didn't include that, why is this relevant, why is that not relevant, I used the most objective criterion I could use in looking

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at nine separate companies across a year.

Q. All right. And this case, I think you testified earlier, is the first case in which you have submitted a report in which you used this inclusive method of using every single Factiva hit, right?

A. That is true. But this is also the first case where I have needed to look at nine different companies in order to render an opinion.

Q. All right. And did I understand your answer two answers ago that what you initially did when you started your work on this case was to ask the question of how you could weed out the articles that didn't contain material information?

A. I don't know if I said that I was trying to weed out. I was trying to determine what information would be material, and it occurred to me that any decision I made was going to be criticized as being subjective. So I used the most objective criterion I could use.

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And, I mean, look, you have two experts who used what I would consider an objective, I'm sorry, subjective criterion, and they couldn't agree over a five or six-day period which days, and this is their definition, had value relevant information.

So, look, if I go ahead and did that, if I did that, and granted, I mean, I recreated, I used a super set of their information to show that those stocks traded in an efficient market over that week, I'm going to be criticized for being subjective. So I'm trying to be as objective and scientific as possible. That was how I arrived at that decision.

Q. And so am I understanding your testimony right, I think you have now said twice that when you began work on this matter, you began on some process of trying to subjectively sort through the articles, and then you abandoned that; is that right?

A. Did I abandon it?

Q. Well, you didn't use that --

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you didn't complete your work using that approach and include it in your report, did you?

A. That is correct. I did a cost/benefit analysis of what would be the most appropriate thing to do looking at nine companies over a one-year period. I determined based on how I wanted to deal with criticisms, in other words, did I want to deal with people criticizing me for being subjective or criticizing me for being too objective, I thought that it was better to be too objective as opposed to being too subjective.

Q. All right. And this conscious decision you made to be too objective rather than too subjective, that's a decision that you didn't make at the outset, you made it after having begun work on trying to sort through the articles using value relevance criteria, right?

MR. ROSEN: Objection, mischaracterizes his prior testimony.

A. I shouldn't say too -- if I

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said too objective, I misspoke.

MR. ROSEN: He said criticized for being too objective.

A. Right. I believe that is correct. I was worried about being criticized. Oh, if I had to be worried about criticism, I was going to err on the side of being criticized for being too objective, which is how we ended up here right now, as opposed to too subjective.

Q. All right. So at some point you made a decision that you were going to err on the side of being criticized for being too objective rather than being criticized for being too subjective, right?

A. That certainly was something that informed my opinion, informed my opinion as to what I would do in this case.

Q. Okay. And that was a decision you made after you began work undertaking what you are describing as the more subjective process to sort through the news articles, right?

A. I believe that's a fair

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characterization.

Q. Okay. Now let's return to the Ferrillo, et al, article that we have marked as Deposition Exhibit 285 and we are still on page 120.

Do you see the last paragraph in this page begins with the sentence "The final step involved comparing the percentage of days with news that have a statistically significant price movement to the percentage of days without news that have a statistically significant price movement"?

Do you see that?

A. I do.

Q. And you agree with that statement of methodology?

A. I don't know if that's technically the final step, but that's certainly something one would do.

Q. Okay. And that's something you did in your news/no news test in your opening report, right?

A. Yes. I did do that.

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Q. Ferrillo, et al, then give an example. They say "For example, if 7 percent of the days with news have statistically significant price movements and 4 percent of the days without news have statistically significant price movements, then the analyst would test whether the difference between the 7 percent and the 4 percent is statistically significant."

That makes sense so far to you, right?

A. Yes.

Q. They then write "If it is, then the evidence would show that on average the defendant's stock price reacts to news announcements."

Do you agree that that's what the comparison of the news days to the no news days would show in their example?

A. I believe that that would be the conclusion that the person writing this statistical methodology would arrive at.

Q. All right. And then do you see that Ferrillo, et al, continue in the same

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sentence beginning at the very bottom of page 120 and going over to the top of page 121 by saying "If the difference is not statistically significant, then there would be no basis for saying that the defendant's stock price is affected by news"?

And you agree with them that in comparing the news days with the no news days, if the difference is not statistically significant then there would be no basis for saying that the defendant's stock price is affected by news?

A. So here, I mean, I don't want to keep rehashing this, here I go back to my earnings example. And so to the extent that we're looking at earnings announcements and the firm continually meets expectations, the fact that it consistently meets expectations and fails the news/no news test would not necessarily mean that I don't have a basis for saying that the defendant's stock price was affected by news. I could come to the conclusion that the stock price is reacting

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in exactly the way one would expect it to react to news.

Q. All right. So am I right, then, that you disagree with what Ferrillo, et al, write about what they would conclude if the difference is not statistically significant?

A. I think that they are being overly broad in what they have stated there.

Q. Okay. Do you believe that there are instances where, as Ferrillo, et al, write in a comparison of the news days with the non-news days, if the difference is not statistically significant, then there would be no basis for saying that the defendant's stock price is affected by news?

A. Again, I'm not going -- the answer I'm going to give is the same. The fact that -- in the example I have given, the fact that there was no difference between the news and no news days certainly informed my opinion that the stock may have

WERNER

traded in an efficient market. I mean, again, I would have to look at it on a case-by-case basis.

Q. So I don't understand that response. So what I believe you have said is that you can think of some instances, like your earnings release example, where the earnings releases come in as expected, where you believe that the Ferrillo, et al, conclusion in the event of no statistical significant difference does not follow, and I understand your response, and so what I'm asking you as a follow-up question is can you also think of any instances where you believe that the Ferrillo, et al, conclusion does follow, or do you believe that they are just flat wrong always?

A. Of course what they are saying is possibly correct. I'm just thinking of specific examples where it may not be correct, and it would still inform my opinion with regards to market efficiency.

So, I mean, I can't even remember what we were talking about,

WERNER

Hi-Crush, so Hi-Crush, I looked at earnings, right? If all the earnings came in as expected and there was no -- and it failed the news/no news test based on earnings being the indicator, that might inform my opinion as to whether or not that stock traded in an efficient market. How it would affect my opinion? I don't know as I sit here today, but it would certainly inform my opinion.

Q. All right. So you agree that there are instances when the Ferrillo, et al, conclusion would follow?

A. Yes.

Q. How did you go about reviewing the results of your Factiva search?

A. What do you mean, how did I go about reviewing --

Q. I'm just trying to understand in a very granular methodological basis, were you looking a a computer monitor, were you looking at printouts, did somebody else read you results over the phone? I'm just trying to understand really granularly, how

WERNER

did you receive and review the results of this Factiva test?

A. I would say printouts. They weren't literally printed out, right? I didn't put them out on a printer. So if you want to, I don't know, maybe it was a PDF, and I looked through the documents. I definitely did not print them out.

Q. All right. So you didn't print hundreds or thousands of pages?

A. No, I did not.

Q. All right. Am I right that the PDF files, I will just use that term, I'm not implying it was necessarily that format, but are you saying the PDF file was the headlines and the first few words of the article or was it the entirety of every article?

A. In some cases it was just the headlines, in some cases it was the content of the article. But, I mean, again, I have made a very specific explanation of what I did in this case, and I relied on the idea of content analysis to arrive at what I

WERNER

defined as news days.

Q. Okay. So why don't we look at an example of this to see how this worked. So I'm going to mark now as Exhibit 286 a document that The Rosen Law Firm produced to us as part of the backup to your work, Dr. Werner.

(Defendant's Exhibit 286 marked for identification.)

A. Okay. Let's not get these confused. Do you have a bigger binder clip?

MR. ROSEN: Take this one.

THE WITNESS: Thank you.

Q. And just for the record, this is a printout from Dow Jones, it says Factiva on the bottom, it relates to BlackBerry, there are 143 pages.

A. You know what, it occurs to me since you are going to ask me about this, I should probably review the appendix in my initial report where I discuss exactly what I did in looking at these news articles.

Q. That's a great idea. So that

WERNER

was I think Exhibit A to your opening report, Deposition Exhibit 281, and that is found on, sorry, it was Exhibit B, so it was found on pages 44 to 46.

A. Okay. Do you mind if I just read this quickly?

Q. No, please.

(Witness perusing document.)

A. Okay, I'm done, thank you.

Q. Now we are looking at Exhibit 286. Is this the format in which you reviewed the Factiva results?

A. To the extent I reviewed them, yes, and I also saw -- I believe I have seen some more -- some longer articles. I'm pretty sure this is just the first paragraph or first couple of lines. There are certainly other -- other formats I've seen.

Q. All right. So for what articles did you go and look at the entire article as opposed to just looking at the headline and the first few lines as shown here in Exhibit 286?

WERNER

A. As I sit here, I don't recall. There was no -- I don't recall.

Q. You didn't do that in any systematic way; is that right?

A. I think that's accurate.

Q. Okay. So let's just look at an example here. Let's turn to page 118.

A. Okay.

Q. And do you see the second article there is "Batavia man charged with DUI after crashing into Con Ed pole"?

A. I do.

Q. And do you see that this is a drunken driving report from the Kane County Chronicle?

A. I do.

Q. Do you see that this appears to be included because the drunk driver was in Blackberry Township in Pennsylvania?

A. I do.

Q. Okay. And you would agree that that's a false positive, the inclusion of this article in a set of articles about BlackBerry, the company, right?

WERNER

A. Yeah. Let me -- let me just look at BlackBerry's results here.

(Witness perusing document.)

A. Okay.

Q. All right. So my question --

A. I'm sorry, hold on -- hold on one more second.

(Witness perusing document.)

A. Right, so this is outside the range of my study, so this wasn't included in my study.

Q. So this article we have just been looking at --

A. Oh, December 28th, 2020, sorry, my bad, my mistake. Hold on.

Q. Just so we have a clear record, the article that we have been talking about on page 118 of Deposition Exhibit 286 is from December 28th, 2020, about one month before the end of your one-year period, right?

A. Correct.

Q. And so my question about this is do you agree with me that the inclusion

WERNER

of this article about drunken driving in Blackberry Township is a false positive for your set of articles about BlackBerry, the company?

A. I would agree. But to the extent that -- so, first of all, that was not in the top 10 percent news days. To the extent that that would be included, and I wouldn't expect that to move the stock price, it would -- it would lead me, if it was -- if it happened to be a news day, you know, let's say there were 20 articles about this drunk driving accident, that would lead me to -- that would bias my results towards a finding of -- a finding of nonefficiency.

Q. Do you know whether there are articles included in your set about blackberries, the fruit, the edible fruit that is grown on bushes?

A. I do not as I sit here today.

Q. And you would agree with me that articles about blackberries, the edible fruit that grow on bushes, are not

WERNER

relevant to investment in BlackBerry, the company, right?

A. Yeah, in a vacuum, that is correct.

Q. Are you aware that your set of articles about the company Express include articles about the restaurant chain Panda Express?

A. It is certainly possible.

Q. All right. And you would agree with me that articles about the restaurant chain Panda Express are not relevant to investment in the company Express, right?

A. Look, I mean, these questions are based on -- I mean, you are perfectly reasonable to ask these questions. The question is should that impact my results. If by chance there happened to be 50 news articles on BlackBerry the day where there is a discussion of blackberry the fruit, that would then show up in the news days. Does that mean that I think this article about blackberries was informational? No. But that's part of what this methodology

WERNER

does.

It is based on the theory, and, again, let's look at what I have said about content analysis here --

Q. All right, I do think we are getting very far away from my question, sir, which is do you agree with me that articles about the restaurant chain Panda Express are not relevant to investment in the company Express?

A. Right. You are right. I'm taking it a step further and saying okay, let's say that there are false positives, will this have any impact on our results? You are right, I'm going beyond that. Because based on my understanding, I would be shocked if any of these false positives actually had an impact on my results. Look, to me, that is --

MR. ROSEN: Let him finish. He is not done.

MR. RYAN: He is not done answering something that has nothing to do with my question.

WERNER

MR. ROSEN: But if he wants to respond to your question, he is entitled to respond.

MR. RYAN: Not in a way that has nothing to do with my question, Larry.

MR. ROSEN: He can answer the question as he sees fit.

A. Look, ultimately, I mean, you want to ask, does that -- I mean, okay, so there are these false positives. Does it have any impact on my results? And the probability that it would have any impact on my results is minuscule.

Q. All right. Have you done any study to determine how many false positives there are and whether they have an impact on your results?

A. Well, okay, I have not. But I imagine that if they did have a significant impact on my results, one of your two experts would have done so. So based on the absence of any analysis that looks at that, my guess is it doesn't have any

WERNER

impact on my results.

Q. Do you know whether there are articles in your set about the rapper Princess Nokia?

A. Who?

Q. The rapper, Princess Nokia.

A. It is certainly possible. Again, there is absolutely no reason -- are you familiar with her music? I'm sorry, I know I'm not supposed to ask you questions.

Q. I gather you're not familiar with Princess Nokia?

A. I am not familiar with her music. Again --

Q. Do you agree that articles about the rapper Princess Nokia are not relevant to investment in Nokia, the company?

A. I agree, and yet I also agree that the probability of that having any impact on the results of my study are minuscule.

THE WITNESS: What time did we start or go back on?

WERNER

MR. ROSEN: 2:29 I think.

THE WITNESS: Can we take a break, a five-minute break? Is that okay?

MR. RYAN: Do you want to do it right now?

THE WITNESS: Yeah, yeah, yeah.

THE VIDEOGRAPHER: This will end media unit five. We are going off the record at 3:51.

(Recess taken.)

THE VIDEOGRAPHER: We are back on the record at 4:02. This will begin media unit six.

BY MR. RYAN:

Q. Were there individuals at Crowninshield who worked with you, Dr. Werner, on your reports in this matter?

A. There were.

Q. Who were they?

A. And forgive me with regards to spelling, we may have to go to a website, there is Alex Huang, that is with an H-u-a-n-g. There is Alex Zhang, Z-h-a-n-g.

WERNER

There is Dylan McCabe. There is Rashi, I believe the last name is Agarwal, Miguel Villanueva, Dan Bettencourt may have tangentially worked on this, but I don't know, not in any significant way. I think off the top of my head, those would be the individuals.

Q. Okay. So at least four or five individuals from Crowninshield?

A. Correct.

Q. How many hours did you work on this engagement through submission of your rebuttal report?

A. I have no idea.

Q. Do you have an approximation?

A. More than 150, less than 500.

Q. Okay.

A. But, I mean, that's a guess. I'm not sure that that's -- I mean, I would -- I would be very surprised if I worked under 150. I gave you an upper estimate that I would be surprised that I worked more than, but it is possible.

Q. Do you know how many hours the

WERNER

Crowninshield team worked on this?

A. I do not.

Q. But presumably several hundred hours?

A. I think that is a pretty safe assumption.

Q. Now, I have seen two publications that you are a co-author of in Law 360 with an individual named Narinder Walia; is that right?

A. Correct, yes.

Q. And is he affiliated with Crowninshield?

A. He was at the time those articles were submitted. He is now, I'm trying to remember the name of the firm, I think the firm -- he worked at a firm called StoneTurn, TurnStone.

Q. I'm familiar with StoneTurn.

A. Oh, you are. It is StoneTurn, okay.

Q. Yes, I actually know an expert that works now at StoneTurn.

All right. At the time you

WERNER

co-authored these articles about securities damages with Mr. Walia, was he affiliated with Crowninshield?

A. He was. I don't know if technically he was an employee or he was a 1099. What's the right term? 1099 employee, I don't know, consultant.

Q. Okay, sure. And have you worked with Mr. Walia on a number of expert reports?

A. Over the years, certainly. I mean, we worked together at CRA.

Q. Oh, I see.

A. If you mean my expert reports, we have certainly worked on some together.

Q. All right. And did he work at all with you on this engagement for the Robinhood matter?

A. He did not.

Q. Okay. And do you consider Mr. Walia to be a capable financial economist?

A. He is a capable financial economist, yes.

WERNER

Q. Okay. Now, back in your opening report, this was Exhibit 281.

A. I'm sorry, I shouldn't anticipate questions. I'm pretty sure I know where you were going with that. Okay, 281?

Q. Yes, sir.

A. Why don't you just tell me which one that is.

Q. It is your original report.

MR. ROSEN: What page of it?

MR. RYAN: Page 23.

Q. I'm at the top of the page, which is the carryover of paragraph 52.

A. Page 23?

Q. Yes, sir.

A. Okay, all right, yup.

Q. And do you see there, there is a sentence that reads "To demonstrate this cause and effect relationship, I conducted collective event study tests investigating whether the market for each of the nine Affected Companies' common stock was efficient"?

WERNER

A. I'm sorry, I don't see that particular -- is it on 22 or 23?

Q. The first full sentence on 23.

A. Okay, there we go.

Q. And my question really is quite simple, which is what does the word "collective" mean in that sentence?

A. A collection of information. I mean, that's what a -- people always -- not always -- often refer to a news/no news test as a collective test.

Q. I see. You are not saying that you studied the nine stocks in a collective way?

A. I don't know the answer. That's not anything I thought about. I don't know the answer to that.

Q. You ran separate regression analyses for the nine stocks, right?

A. That is correct.

Q. Okay. Now, there is a citation here in paragraph 52, I'm looking at Note 64.

A. Okay, hold on. I shouldn't

WERNER

have shut it. I apologize. Note 64, yes.

Q. There is a citation to an article by Eugene Fama. Do you see that?

A. I do.

Q. And is Professor Fama considered to be a foremost authority on the efficient market theory?

A. I believe he has -- he won a Nobel Prize. He is certainly knowledgeable about it.

Q. All right. He won a Nobel Prize in large part for his work --

A. Is that correct?

Q. That is my understanding. He won a Nobel Prize in large part for his work on the efficient market theory, right?

A. Right, as an academic, but yeah.

Q. Sure. Now, let me ask you to turn to paragraph 96 of your rebuttal report.

A. All right.

Q. So this is what we marked as Deposition Exhibit 282, and we are on page

WERNER

41.

A. Page 41, okay, I'm there.

Q. All right. Do you see you have a discussion here in your paragraph 96 that Dr. Grenadier, in your words, presents a contradictory opinion in Section 7 of his report?

A. Yes, I do.

Q. And then you have a quotation in the middle of the paragraph where you write "Dr. Grenadier writes 'I see no reasons why a restriction on a subset of retail investors that account for a fraction of the overall market would have artificially distorted the stock price throughout the proposed class period.'"

Do you see that?

A. I do.

Q. And you read Dr. Grenadier's deposition, right?

A. I did.

Q. All right. And you saw that he explained that you had misquoted him, that the sentence in his report, that you left

WERNER

out a material portion of the sentence in his report, do you remember that?

A. I remember him saying that I misquoted him, but I don't remember -- I'm happy to look at his deposition to know exactly what he said.

Q. Okay.

A. I mean, other than the fact that -- I mean, I don't know why he thought that I misquoted him. Like I don't remember any of that.

Q. All right. So after you read Dr. Grenadier's testimony that you had misquoted him, what did you do to see whether you had in fact misquoted him?

A. Nothing.

Q. Nothing at all?

A. Correct.

Q. Okay. So you don't dispute that you in fact left out a material portion of the sentence in paragraph 149 of Dr. Grenadier's report, because you apparently haven't checked, right?

A. Well, I mean, I can look at it

WERNER

right now. So this is paragraph 149 of his initial report or his rebuttal? It must be his initial report, right?

Q. It was his initial report. But that wasn't important enough to you, having read his testimony that you misquoted him, you just didn't bother to look it up to see whether he was right; is that right?

A. Let's just see what he said.

Q. Well, I'm asking you a different question first. Am I right that you read --

MR. ROSEN: You asked him two questions. You asked him one question. He was about to give you an answer to the first question and then you asked him a second question before he could answer. So let him answer the first question and then go to the second question.

Q. Here is the question that is on the record: It wasn't important enough to you that after you read his testimony that you had misquoted him, that you took the

WERNER

time to look it up to see whether he was right, I'm right about that, aren't I?

A. I did not look it up, that is correct. I'm looking at it now.

Q. So you are now looking at paragraph 96 of Dr. --

A. Oh, 96? I'm sorry, I'm looking at the wrong thing.

Q. I misspoke, paragraph 149, I apologize. And you see the first full sentence on page 76 of Dr. Grenadier's opening report reads "Conversely, if the markets for the at-issue stocks were efficient, contrary to the evidence I have discussed in Section 6, I see no reason why restrictions on a subset of retail investors that account for a fraction of the overall market would have artificially distorted the stock price throughout the proposed class period"?

A. I do see that.

Q. And you didn't quote the portion of the sentence that reads "Conversely, if the market for the at-issue

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stocks were efficient, contrary to the evidence I have discussed in Section 6," right?

A. That is true.

Q. And you agree that that removes the supposed contradiction that you discussed in paragraph 96 of your report, that is the only reason you thought that he presented a contradictory opinion is you are leaving out a material portion of his sentence, right?

A. That is incorrect.

Q. Okay. Do you agree that a bubble typically will not last forever?

A. In what context?

Q. Financial markets.

MR. ROSEN: I thought you were talking about like blowing bubbles.

MR. RYAN: I'm not talking about blowing bubbles.

Q. Do you agree with the statement that a bubble typically will not last forever?

A. I think that is generally true,

WERNER

to the extent that there are bubbles.

Q. And there are from time to time bubbles in financial markets, right?

A. I'm certainly familiar with the fact that people have talked about bubbles. I don't know if there are periods of time that officially have been defined as bubbles. Certainly people have discussed it.

Q. All right. Well, do you believe that there are bubbles from time to time in financial markets?

A. Is it possible? It is certainly possible.

Q. I guess I'm asking an empirical question. As a financial economist as you sit here today, do you believe that from time to time there are bubbles in financial markets?

A. Why is that an empirical question?

Q. It is something that one could study. That's what I mean by an empirical question.

WERNER

A. Well, I'm sorry, then I don't understand what you mean by an empirical question. I mean, if, you know, I said you could study my intake of Coke Zero, I don't think of that as an empirical question.

Q. I do. We could measure it. We could track it. We could say two cans today, three cans tomorrow, right, that would be five cans over two days, we could do that, couldn't we?

A. Okay, maybe you and I have different understanding or definitions of what empirical is. To me, that's observational.

Q. Fine, observational. As an observational matter, do you believe that from time to time there are bubbles in financial markets?

A. It is certainly possible.

Q. That's not my question, sir. Do you believe that in fact, in the real world, as an observational matter from time to time there are bubbles in the financial markets?

WERNER

A. Okay. Can you show me -- can you show me exactly what you mean by bubble? I don't believe that I have used it in any of my writings here, so if you would like to point me to a definition, I will give you a clear answer.

Q. Do you have an understanding of what the term "bubble" means?

A. I have a notion, but I don't know what your definition of a bubble is, since we are arguing about empiricism.

Q. So how would you define the term "bubble"?

A. In a stock market, I don't know. I mean, I would turn to Brealey and Myers or I would turn to Shleifer and quote him, or quote Brealey and Myers. It is not something I think about, like oh, the definition of a bubble is X.

Q. All right. So you agree that Brealey and Myers, I guess it is now Brealey, Myers and Allen are a leading authority on corporate finance, right?

A. Well, no.

WERNER

Q. Really?
A. I believe that they write a textbook that is frequently used.
Q. Okay.
A. But I don't know if they discuss -- I mean, I used that as an example. I don't know if they discussed bubbles in their textbook.
Q. All right. And you agree that Andre Shleifer is a leading authority on corporate finance, right?
A. I believe that's accurate.
Q. Okay. So to go back to my question about bubbles, if I'm understanding you right, you are unable to give me with any precision a definition of what you believe a bubble in financial markets is, right?
A. Yeah. Again, I have a vague notion, and, you know, if someone asked me to define a bubble I would go to, off the -- I would refer them to Shleifer or someone else and then I would say oh, okay, well then specifically Shleifer means this

WERNER

is a bubble, this is what he is discussing.
Q. Okay. Do you know what a short squeeze is?
A. I do know what a short squeeze is.
Q. What is a short squeeze?
A. Oh, wait, I'm sorry, do I know what a short squeeze is? I don't know -- you know, that's actually a very vague term, and so it is at least the concept, I don't know if it is an actuality, where people short a stock, as a response to the stock price going up they are squeezed out of their positions. Now, again, that is not a formal definition of a short squeeze. Yeah, that's not a formal definition of a short squeeze. But it gets at the -- kind of the idea.
Q. All right. So using that definition of a short squeeze, do you agree that from time to time short squeezes take place in financial markets?
A. Oh, is it possible? It is certainly possible.

WERNER

Q. Do you believe that observationally they occasionally take place?
A. Well, I believe that some people believe, I mean, you have mentioned Mr. Allen -- oh, no, I'm sorry, not Mr. Allen. I mean, so this is really where I got confused, right? So if I look at Mr. Fischel's initial report, he talks about a short squeeze as in that's exactly what happened, and then I read his deposition, and he said I never said that. So I guess let's go to Mr. Fischel's report.
Q. This is very far afield from my question, sir.
A. Well, I'm trying to give you --
Q. My question is not about Mr. Fischel.
A. Well, right, but I'm trying to make sure that I have an accurate description of what a short squeeze is, so I can tell you when one has occurred.
Q. I'm using your definition. You

WERNER

gave me a definition. I'm happy to take it. So now do you believe that, using your definition, that from time to time short squeezes take place in the financial markets?
A. And I said it is possible.
Q. And so observationally do they in fact happen, perhaps rarely, but sometimes, do they happen, ever?
A. Well, I guess by saying it is possible, it is possible they have occurred.
Q. Okay. Do you have any understanding as you sit here today as to whether they in fact have occurred let's say in the last hundred years in financial markets?
A. Again, I haven't memorized when they occurred, but I'm happy to look at people like Mr. Fischel who said the short squeeze happened here, and I'm sure he has cites to examples of short squeezes. I'm more than happy to discuss them with you.
Q. All right. Without looking at

WERNER

Mr. Fischel's report, you are unable to tell me whether you believe short squeezes in fact occur in the financial markets; is that right?

A. I'm not sure that's what I said.

Q. Well, I think the record will reflect that you haven't answered that question.

Do you agree that short squeezes, when they do occur, are typically short-lived?

A. Define short-lived.

Q. A relatively short duration.

A. Okay. Could you be more specific? And I only ask because, you know, in economics, oftentimes when we talk about short term, you could be talking about a year, right? If I talk about short-term macroeconomic events, I could be talking about one or two years. So if you want to give me a specific description of what you consider to be short-lived or a definition of short, I'm happy to do it.

WERNER

Q. Fine. Do you agree that short squeezes, when they do occur, typically last only a matter of days?

A. Do I agree? So, again, why not just let me look at Mr. Fischel's report? Because I'm pretty sure that's what he said. If you want me -- I believe -- evidently that's what he believes. I haven't done a comprehensive study on short squeezes. Off the top of my head, I don't know how long they do or do not last.

Q. I see, okay. Is there any way of knowing when a bubble in the financial markets will burst?

A. To the extent that there are bubbles, is there a way of knowing when they will end? That's not anything I have ever thought about.

Q. Okay. Do you have an opinion as to whether the market for a security is efficient when a bubble is taking place?

A. So you are asking a yes or no question, so that's a binary question. There are different degrees of efficiency.

WERNER

So I'm not quite sure, is it possible? I don't -- I don't know as I sit here today.

Again, I mean, I quibble with what you define as a bubble. So you want to give me an example of a bubble, I will be happy to look at it and then tell you whether or not it is possible that a stock is trading in an efficient market during a period which you've defined as a bubble.

Q. All right. So I take it, then, that you have no opinion as to whether the market for a security is efficient when a bubble is taking place?

A. I defer to my last answer.

Q. Okay. Do you have an opinion as to whether the market for a security is efficient when a short squeeze is taking place?

A. To the extent a short squeeze is taking place, well, since -- my understanding now is that no one believes a short squeeze took place, even though this is called short squeeze litigation. I don't know that that's anything that I have

WERNER

thought about.

If you want to point me to a period in time where people uniformly agree that a short squeeze occurred, I'm happy to look at that and then render an opinion or render you my opinion of what I think about whether or not the stock at issue could be efficient.

Q. So I was asking you a question that wasn't tethered to the facts of this case. It was a general question about financial economics. My question is do you have an opinion as to whether the market for a security is efficient while a short squeeze is taking place?

A. Well, again, so you are assuming a short squeeze has taken place. So show me an example where a short squeeze, people have agreed that a short -- excuse me, sorry, too many Diet Cokes or Coke Zeros -- where a short squeeze has taken place and I will be happy to give you the best answer I possibly can.

Q. All right. But you have got no

WERNER

opinion as a general matter on that question on the efficiency of financial markets for a security while a short squeeze is taking place?

A. Well, so when you say a short squeeze is taking place, define exactly what you mean by it is taking place.

Q. I was using your definition of a short squeeze from before.

A. Right, and I gave you a very broad, a lay -- not a layman's understanding -- but a broad definition of what a short squeeze could be. So if there is something -- look, I mean, throughout all of this work, right, people disagree about what a short squeeze is.

So some people think a short squeeze has occurred. Your two experts, despite what they have suggested, or at least written in one of their original reports, now say that a short squeeze did not occur, at least that's my understanding based on my reading of their depositions.

So to the extent that you want

WERNER

me to look at an exact period of time where people agree, people, economists, agree that a short -- a short squeeze occurred, right, not people talking about a short squeeze, a short squeeze occurred, I will take a look at it and let you know if I think that affects the efficiency of the stock at issue.

Q. So my question is assume with me that all economists agree that in a particular case a short squeeze is taking place. Do you have an opinion about the efficiency of the market for that security while the short squeeze is taking place?

A. So in your hypothetical example, all economists believe that a short squeeze can occur?

Q. No, is occurring.

A. Oh, so, again, let me restate it, in your hypothetical, the assumption is that all economists believe that a short squeeze is occurring?

Q. Correct. And my question is do you, in that hypothetical, do you have an

WERNER

opinion about the efficiency of the market for that security while the short squeeze is taking place?

A. So that's an incomplete hypothetical. I would need much more information to answer that.

Q. All right. So you are not able to answer that either yes or no?

A. Again, if you want to show me where economists say -- why make it a hypothetical? Show me some actual evidence where people say a short squeeze occurred, and we can look at it. Where you people universally agree that a short squeeze occurred, 90 percent of the 100 people who looked at it believe a short squeeze occurred, yeah, I will take a look at it.

Q. As I'm sure you know, it is common to ask experts, whether in financial economics or something else, hypothetical questions to see what expertise they have and whether they actually have expertise in this area. So I take it you, though, have no expertise in short squeezes, right?

WERNER

A. My opinion is you have asked an incomplete hypothetical question.

Q. Okay. Have you ever calculated damages in a securities class action?

A. Per-share damages or aggregate damages?

Q. Per-share damages.

A. I have.

Q. And have you typically used a regression analysis as part of your damages calculation?

A. Typically, yes.

Q. Have you ever calculated per-share damages in a securities case where the market was inefficient during the class period?

A. Not to my knowledge as I sit here today.

Q. All right. Are you aware of any case where someone has done that?

A. I'm not, but that doesn't mean it hasn't happened. Again, I mean, it is a question of how you define efficiency.

I mean, obviously I have been

WERNER

spending a lot of time reading about Halliburton II and what people think about efficiency. So that certainly informs my opinion now.

So I don't know exactly what you are referring to. Is it possible that you could measure damages for a stock that trades in an inefficient market? I believe, one, I believe you could do it, and, two, I believe that -- well, first of all, when you say efficient, you are talking informationally efficient or value -- value relevant efficient? Are we talking about, let's say, Dr. Fischel -- Dr. Fischel, sorry -- Mr. Fischel's example of arbitrage efficiency?

Q. I take it you are unaware of any case where someone has calculated damages in a securities class action for a stock that traded in an inefficient market during the class period, right?

A. I have no knowledge one way or the other about that.

Q. Okay. Is it your understanding

WERNER

that in a securities class action the question of whether a stock trades in an efficient market goes to the issue of reliance?

A. Well, it kind of sounds like a legal conclusion.

Q. I agree. So I'm asking you whether that's your understanding. That's why I did not ask you whether it was your opinion.

Is it your understanding that in a securities class action the question of whether a stock trades in an efficient market goes to the issue of reliance?

A. That's my general understanding, as a layperson.

Q. Is it also your understanding that the question of whether a stock trades in an efficient market goes to whether one can have a reasonably certain proof of damages?

A. Reasonably certain proof of damages? That sounds like you are reading from something. I don't recall having ever

WERNER

seen that. So I don't -- I don't know.

Q. Okay. Have you given any thought before this deposition to the question of whether one can have a reasonably certain proof of damages in a securities class action where the security trades in an inefficient market during the class period?

A. Again, what do you mean by reasonable certainty?

Q. Are you familiar with the concept that damages in the law need to be proved to a reasonable certainty?

A. Oh, is there a law you want me to look at or a specific cite that you want me to look at?

Q. Are you familiar with the legal concept that in calculating damages, damages should be proved, should be calculated, to a reasonable certainty? Is that a principle that you are familiar with?

A. I don't believe -- I don't believe that's anything I have ever read or

WERNER

seen.

Q. I see, okay. So since you are unfamiliar with that term, I will remove those words from my question.

So is it your understanding that whether a stock trades in an efficient market goes not just to the issue of reliance, but also to whether one can prove damages?

A. So one can prove damages? It's possible.

Q. Okay. You don't have a view on that one way or the other?

A. I haven't been asked to render an opinion about that here.

Q. Okay. So let me ask you, in your opening report, if we go toward the back -- sorry, I think it was the rebuttal report. Bear with me one moment.

All right. So I'm in your rebuttal report which we marked as Deposition Exhibit 282.

A. Okay, hold on one second. Okay, sorry, go ahead.

WERNER

Q. I'm on page 51 and I'm looking at paragraph 115. So do you see that the first sentence of that paragraph reads "Because these markets were efficient during the immediate pre-class period, there is no need to deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation"?

A. I do see that.

Q. And you hold that view in terms of calculating class-wide damages in this case, right?

A. Under my understanding of Affiliated Ute, but I have given you two additional damage -- possible damage analyses that would be done that I don't necessarily think -- well, I don't know.

Okay, so yeah, again, I think I refer back to Affiliated Ute with regards to that particular sentence. I think that the other -- the two additional damage analyses I look at don't necessarily use market prices as the but-for price. It may

influence or bear upon the but-for price, but I don't think that it's the exact same thing.

Q. You understand that Affiliated Ute is a case that does not depend on a showing of market efficiency, right?

A. That is correct.

Q. So your first sentence in paragraph 115 says "Because these markets were efficient during the immediate pre-class period, there is no need to deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation," right?

A. Okay, I mean, yes, that's what I said. But I don't know how that's inconsistent with my statement that there are two additional analyses that one could do.

Q. Do you agree with me that if, contrary to your opinion, these markets were inefficient during the immediate pre-class period, there may be a need to

deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation?

A. Is it possible? It is certainly possible.

Q. And I take it that's not something you have looked into because you concluded the other way, that these markets were efficient during the immediate pre-class period, right?

A. I don't think that that was necessarily my thought process. Again, I gave -- this is -- this is not absurd, but, you know, I say in my report for example, this is one way you could measure damages. It doesn't necessarily then mean that all my damage theories are based solely on a market price.

Q. All right. So I'm asking you about the first sentence in paragraph 115 of your rebuttal report, sir. And am I right that the first clause of this sentence is linked causally, because of the word "because," to the second clause,

right?

A. That is correct.

Q. And so if we remove the premise, the first clause, that is if we, hypothetically now, since I understand it is not your opinion, if we remove the premise that markets were efficient during the immediate pre-class period, do you agree with me that it no longer necessarily follows that there was no need to deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation?

A. So that is an extremely long question. I believe in there somewhere you said something -- there wasn't a discussion of assumptions, but there was certainly some qualifications that you made in that statement. Without rehearing those qualifications, I can't answer that question.

Q. Okay. Why don't we read it back.

A. Can you read it slowly, please?

WERNER

I can write it down.

(The record was read.)

A. I'm sorry, I don't know how to answer that question. Do you want to break it into like small chunks so we can walk through it?

Q. Sure.

A. There seems like there was a lot of qualifying statements in there that I need to kind of sequentially go through to accurately answer your question.

Q. I will do this in little bites.

A. Okay, thank you.

Q. So I'm looking now at the first sentence of paragraph 115.

A. Hold on while I go back. So we are in my rebuttal report, right?

Q. Yes, page 51 of your rebuttal report, Deposition Exhibit 282.

A. Oh, paragraph 115, not page 115, right?

Q. Yes.

A. Hold on, hold on, almost there. Okay.

WERNER

Q. All right. It is your opinion that the markets for some of the affected stocks were efficient during the immediate pre-class period, right?

A. It is -- oh, is it my opinion that the market for some of these stocks was efficient during the pre-class period?

Q. Yes.

A. Yes.

Q. All right. And what you are writing here in the first sentence of paragraph 115 is because that is your opinion it follows, you believe, that there is no need to deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation, right?

A. So I see what you are saying. I'm not sure I completely agree with it. Because, I mean, you would have to make adjustment for mitigating factors. I mean, I don't want to attribute damages to actions by E*Trade. Again, I mean, I could be put in a situation where I may have to

WERNER

make adjustments to that. So this is just an example of what one could do.

Q. So I agree one would need to make adjustments for E*Trade and so forth. But I'm just looking at what you wrote. You wrote "Because these markets were efficient during the immediate pre-class period," it followed for you logically that there was no need to deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation, right?

A. I don't think -- see, you are making a causal connection between those two statements and I'm not sure that that was my intention.

Q. I see. So you used the word "because," but you can't say whether you believed there was a causal relationship between the two clauses of the sentence?

A. Well, I'm saying that this is an example, one example of how one might calculate damages. Now, I referred you to at least two other methodologies.

WERNER

Q. I'm asking you about this sentence though, sir. So let me ask you this hypothetical --

A. So I have answered the question to the best of my ability.

Q. I'm going to make one more attempt.

A. Sure.

Q. Which is this attempt: So do you have the hypothetical in mind that you found that the markets were inefficient for each of the nine stocks during the immediate pre-class period?

A. Okay, so in your hypothetical, I find that the stock price is inefficient as defined by what?

Q. As defined by you. You used the word "efficient" and "inefficient" throughout your entire report. So as you used those terms, I'm asking you to assume the hypothetical that you find that the markets were inefficient during the immediate pre-class period, okay?

A. Okay. So I'm just trying to

understand your hypothetical, and let's be clear, it is a hypothetical. So you want me to assume the stocks trade in an inefficient market or that I cannot prove that these stocks trade in an efficient market? Which one are we talking about here?

Q. The first.

A. So I'm supposed to assume that the stock trades in an inefficient market?

Q. During the immediate pre-class period.

A. All right, we are on the same page.

Q. With that hypothetical in mind, do you agree that it no longer necessarily follows that there is no need to deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation?

A. Right. So no longer necessarily follows, this is where I was getting stuck, I don't have an opinion one way or the other.

Q. Okay. That's not something you have thought about?

A. Well, you have used specific wording in your hypothetical example, "no longer applies," that is open to interpretation. So to the extent that your hypothetical at least to me appears to be incomplete, and maybe it is just, you know, I'm dense and it is the end of the day, or it is late in the day, I don't -- I think it is an incomplete hypothetical that I cannot answer as I sit here today.

Q. Okay. So, all right, now you have mentioned several times that since submitting your rebuttal report, you read a couple of academic articles about building a demand-based model to predict stock price movements, right?

A. To changes in demand, correct.

Q. And you don't say anything about that in either of your reports, do you?

A. Oh, I do not, right. I just gave a general -- an example of a general

damage methodology that could be used in calculating damages.

Q. All right. So I just want to make sure, of these three damages methodologies that you have talked about, one, namely this demand-based model, is found nowhere in either your opening or rebuttal report, right?

A. That is correct.

Q. Do you agree that in the week leading up to the class period, the price of the affected stocks increased substantially?

A. Well, I don't want to quibble with you with regards to the definition of "substantially," but yes, they certainly increased.

Q. Do you recall that Professor Grenadier described an analysis he ran where he put together a million different portfolios composed of randomly chosen stocks to see how those portfolios performed?

A. I do recall that, yes.

Q. And do you recall that these stocks in the week we are talking about before the class period had a higher return than any of these million different portfolios that he created?

A. Well, right, that is certainly the conclusion he came to, right, but that doesn't -- yes, that's the conclusion he came to.

Q. So you would agree that these are pretty abnormal returns, right?

A. Well, okay, so "abnormal return" has a very specific definition in finance. So what do you mean by "abnormal return"?

Q. What do you mean by "abnormal return"?

A. The abnormal return was measured as the, I mean, the difference between the actual price and the predicted price of the stock. That's how I would normally use the term "abnormal return" in the context of a securities class action.

Q. Okay. So you are using it

WERNER

synonymously with the residual return in an event study?

A. Correct.

Q. Okay. Have you done anything to analyze why these stocks had such extraordinary run-ups in the week before the class period?

A. Why these stocks had such extraordinary run-ups? Well, certainly they responded to information during those periods. As to the exact magnitude of those price changes, I have not.

Q. You have not worked on a case before where a stock rose 700 percent in a week, have you?

A. I don't know. As I sit here today, I don't know.

Q. You certainly haven't worked on a case before where a stock rose 1,000 percent in a week, have you?

A. Well, if I don't recall the 700 percent, I don't recall the 1,000 percent. It doesn't mean it didn't happen.

Q. And you are aware that that did

WERNER

happen here, right?

A. I mean, if you want me to go through it and refresh my memory, if you want to stipulate to those facts, I will agree with you, but if you want me to verify that that in fact is an accurate statement, I'm happy to do that as well.

Q. All right. Did you see Professor Grenadier's testimony about the 700 percent increase for one stock and the 1,000 percent increase for another stock in the week before the class period?

A. His testimony being his report or his deposition?

Q. His deposition testimony.

A. Okay, so now that we are talking about -- I don't recall every word of his deposition, so if you want to give me his deposition and show me where he said that, I'm happy to look at it.

Q. You agree with me that a lot of the news articles that are included in your news/no news study for the week before the class period are articles about the unusual

WERNER

stock price movements?

A. What do you mean by a large amount?

Q. A large proportion of the articles that you include in your news/no news test in the week before the class period are articles about the unusual stock price movements, right?

A. Okay. Define "large proportion."

Q. Well, do you have any idea what the proportion is?

A. As I sit here today, I don't.

Q. Okay. So you don't know one way or the other whether, let's say, more than 50 percent of the articles in your news/no news test in the week preceding the class period are articles about the unusual stock price movements?

A. That is correct. To the extent that these articles talked about unusual stock price movements, that is correct.

Q. Okay. Are you able to point to any valuation relevant news about any of

WERNER

these nine companies that would explain the stock price movement in the week before the class period?

A. Well, I mean, I defer to what Dr. -- Mr. Fischel and Professor Grenadier determined were value relevant news. Again, they don't agree, so it goes to the subjectivity of their definition.

So, I mean, there certainly was what they determined was value relevant news that came out during that period. So, you know, from a point of view of informational efficiency, my concern is whether or not that information is incorporated in the stock price, and to the best of my knowledge, it was incorporated in the stock price, or the stock prices of these firms.

Q. Dr. Grenadier concluded that he did not find any valuation relevant news about any of these nine companies that would explain the stock price movement in the week before the class period, right?

A. Well, when you say "find," he

WERNER

didn't do any type of study. This was all based on observations. For instance, he didn't do any DCF analysis and said the stock price should be $10 and it is trading at 30.

So what you are talking about with regards to both Professor Grenadier and Mr. Fischel is they present observations and say, you know, I can't explain it, but they make no effort to show what caused these stock prices, or that in fact these stock prices weren't completely -- well, I will leave it at that.

I just disagree with your assertion that they proved or they demonstrated that these stock prices somehow changed in such a way that cannot be explained, because all of their analyses, or the majority of their analyses certainly in their initial reports is all observation.

Q. So I didn't ask you any question about demonstration or proof.

WERNER

What I asked you, and I will ask you again, is do you agree that Dr. Grenadier concluded that he did not find any value relevant news for any of the nine companies at issue that would explain the stock price movement in the week before the class period?

A. I believe that that is what he stated. I have not seen any evidence that allows me to understand how he reached those conclusions.

Q. All right. Do you agree that Mr. Fischel similarly concluded that he did not find any value relevant news for any of the nine companies at issue that would explain the stock price movement in the week before the class period?

A. Well, so now -- so before, I'm sorry, I thought you said the magnitude of the stock price movement, and now you are asking --

Q. No, I never used the word --

A. All right, so then let me -- ask the question about Grenadier again and

WERNER

I will try to answer it. That was my misunderstanding.

Q. So my question was, do you agree that Dr. Grenadier concluded that he did not find any value relevant news for any of the nine companies at issue that would explain the stock price movement in the week before the class period, and you answered that you believed that that is what he had stated, right?

A. So he has demonstrated -- I mean, he has included news that changed the stock price of the stock. So I guess I don't understand your premise. I mean, you know, let's look at a discussion of AMC.

Q. So I'm not asking you whether you have a criticism --

MR. ROSEN: Are you withdrawing the question?

MR. RYAN: He in fact has answered the question. He is now moving on to something else he wants to say and using up my time.

Q. So my question is you

WERNER

understand that Dr. Grenadier's conclusion, whether you agree with it or not, you understand that his conclusion is that he did not find any value relevant news for any of the nine companies at issue that would explain the stock price movement in the week before the class period?

A. I don't think what you are saying is accurate.

Q. All right. Let me ask you the same question about Mr. Fischel. Do you understand that Mr. Fischel's conclusion, again, whether you agree with it or not, do you understand that his conclusion is that he did not find any value relevant news for any of the nine companies at issue that would explain the stock price movement in the week before the class period?

A. Again, based on the way you have phrased the question, I don't believe what you have said is correct.

Q. Okay. Did you do any analysis yourself to try to understand why the nine stocks at issue had such an extraordinary

WERNER

run-up in the week before the class period?
A. Okay, so, first of all, you are using a pejorative term, "extraordinary."
Q. I didn't mean to be pejorative, so let me back up and ask you the question. Let me ask the question.
Do you agree that these nine stocks had an extraordinary run-up in the week before the class period?
A. Define "extraordinary."
Q. You are not able to answer that question either way?
A. Do you want me to point to a definition of extraordinary so I --
Q. Out of the ordinary and highly unusual is my definition.
A. Can I -- look, I'm just trying to answer your questions as accurately as possible.
Q. Do you have my definition of "extraordinary" in mind?
A. Whoa, whoa, whoa. Again, I'm trying to be as accurate as possible in my responses, so when you use terms like

WERNER

"extraordinary" or "significant," those have specific meanings in different situations. I'm just trying to understand exactly what you are talking about.
So I don't -- I don't know why you define -- why can't you define "extraordinary"? Go ahead, ask me the question, give me a description, a definition of "extraordinary," and I will try to answer your question as accurately as possible.
Q. Do you have in mind the definition of "extraordinary" that I have given you twice now? Do you have that in mind, sir?
A. Could you read his definition?
Q. I can repeat it if you don't have it in mind.
A. I'm asking him, because you maintain you have defined it twice, I'm asking him to read your definition of "extraordinary," because you have said you have done it twice.
Q. I will give it to you now --

WERNER

you are wasting time, sir. You are wasting time, and I'm going to give you the definition now. Do you understand that I'm defining "extraordinary" to mean out of the ordinary and highly unusual?
A. Out of the ordinary and highly unusual, okay, those are all vague terms. But, okay, out of the ordinary, so let's go first, out of the ordinary, what would be the ordinary?
Q. So my question is with this definition of "extraordinary" in mind, are you able to answer whether or not these stocks had an extraordinary run-up in the week before the class period?
A. In order to answer your question as precisely as I can, I would need your definition of "ordinary." So would you like to give me a definition of "ordinary" and then we can go to your definition of "extraordinary"? Because it seems to me that it is based on your definition of what "ordinary" is.
Q. All right. So am I right that

WERNER

based on my definition, you find that too vague and you can't answer; is that right?
A. Your definition of what?
Q. "Extraordinary." Am I right that you can't answer the question because you think my definition is too vague and you don't understand what I mean by "extraordinary," right?
A. You are giving me no context into exactly what you mean by "ordinary," and thus I am unable to determine what you believe is extraordinary. You are defining the term, so tell me what you mean. Point to a definition.
Q. I did. If you can't answer the question, that's fine. Let me ask another question.
A. Whoa, whoa, whoa. So we will agree to disagree. I don't believe -- I don't believe that using the term "ordinary" -- not "ordinary" -- is a definition of "extraordinary." It follows tautologically, right, but it is not any more descriptive than saying

WERNER

"extraordinary" or "ordinary."

Q. Let me ask my next question.

A. By all means.

Q. Am I right that you conducted regression analyses for these nine stocks for one year before the class period?

A. That is correct.

Q. And so you studied their volatility, right?

A. Correct. Well, I mean, to the extent we are looking at things like standard errors and R-squared, yeah, I studied its volatility.

Q. Okay. So having studied the volatility of each of these nine stocks for the year before the class period, do you agree that they had extraordinary run-ups during the week before the class period?

A. Well, now you are asking about volatility during this entire one-year period.

Q. Yes, sir.

A. And now you are -- and then you are trying to draw some parallel, to,

WERNER

again, a term that you have not described, an extraordinary stock price. So can you make the connection for me between the volatility during that one-year period and whether or not these things had, as you define it, an extraordinary price run-up?

Q. You are not able to answer the question; is that right?

A. I would like -- I would like clarification before answering the question. Because, again, my job here is to give the most accurate answers I can. So if I need things to inform my opinion, if you are using vague terms, I can ask for clarification. If you don't want to give me the clarifications, that's fine, right, but until I receive such a clarification, I can't answer the question.

And now, again, now you are throwing in a whole other thing about volatility. I'm not -- are you making a connection between the volatility over my estimation period and what you define as extraordinary stock price movements?

WERNER

Q. So I think the record will show that you are avoiding answering my question, so I will move to a different topic.

A. I'm sorry, what? I didn't hear that.

Q. I will move to a different topic.

A. Okay, sure.

Q. Have you studied at all the cause of the increases in stock price for these nine companies during the week before the proposed class period?

A. Certainly part of the increases, yes.

Q. Okay.

A. I mean, again, to the extent that your experts found that there was value relevant information that came out during those periods, that would impact the stock price.

Q. What part of the increase in stock price for these nine companies during the week before the proposed class period

WERNER

did you study?

A. What part did I study?

Q. I asked you whether you studied the cause and you said part of the increases. So my follow-up is what part of the increases did you study?

A. I'm sorry, you lost me there.

Q. All right. Do you recall that I asked you "Have you studied at all the cause of the increases in stock price for these nine companies during the week before the proposed class period?" And you answered "Certainly part of the increases, yes"?

A. Okay.

Q. All right. My follow-up question is which part of the increases were you referring to just now in your answer?

A. Oh, I'm not referring to any particular. The size of -- again, you are asking about magnitude versus increase. Well, I mean, whatever, if you -- you are allowed --

WERNER

Q. Your answer was "Certainly part of the increases" and I'm simply asking you what part of the increases are you referring to? Can you tell me? What did your answer mean?

A. That's not anything I have been asked to opine on for this matter at this point in time.

Q. Okay. So is it in fact the case that you have not studied at all the cause of the increases for any of the nine affected stocks during the week before the proposed class period?

A. That is incorrect.

Q. Is it the case that you have expressed no opinion on the cause of the increases for any of the nine affected stocks during the week before the proposed class period?

A. Certainly some of it was based on information incorporated in the stock price. I mean, again, I found that these stocks were informationally efficient, so whatever information was out there affected

WERNER

those prices.

Q. When you answered just now "That's not anything I have been asked to opine on for this matter at this point in time," what specifically have you not been asked to opine on that you were referring to in that response?

A. I guess I misspoke. I'm sorry, you are coming at me with all sorts of stuff. You seem to be agitated. I'm trying to focus on what I'm saying. So if I misspoke, I apologize. Maybe now would be a good time to take a break.

Q. I would like an answer to this question. So let me ask this question again, since you're now saying you don't stand by your answer.

I'm asking you what part of the increases are you referring to, can you tell me what did your answer mean?

A. Well, according to your experts, and, again, I'm just focusing on what your experts said, there is value relevant information that occurred during

WERNER

that period that altered the stock prices. Now, that's what their definition of value relevant is. Value relevant is an extremely broad term. We have discussed people, Chartis, we have discussed momentum traders. These people take into things -- these things -- these people or these individuals find things like stock prices material, right? So is that reflected in the stock prices of all of these stocks? Absolutely.

Now can I take a break?

Q. You are avoiding answering my question. You can take a break. This is not a torture chamber. You can have a break. But I'm going to follow up with this when you get back. You are evading my questions.

A. Fantastic.

THE VIDEOGRAPHER: This will end media unit six. We are going off the record at 5:03.

(Recess taken.)

(Defendant's Exhibit 287 marked

WERNER

for identification.)

THE VIDEOGRAPHER: We are back on the record at 5:09. This will begin media unit seven.

BY MR. RYAN:

Q. All right. During the break I marked as Exhibit 287 the Factiva headline results we received from plaintiff's counsel related to Bed Bath & Beyond. Do you have that exhibit in front of you, sir?

A. I do.

Q. And does this look like the results that you would have received from your Factiva search for Bed Bath & Beyond?

A. It is certainly possible.

Q. And do you see the very first article that is listed there is an article about Beyond Burger, right?

A. That is correct.

Q. And you don't believe that that contains any relevant information to Bed Bath & Beyond, do you?

A. I have no reason to think it does. But, I mean, look, we went over this

issue before. What I have stated previously with regards to things like Princess Nokia would apply here as well.

Q. So let's look then at page 316 of this exhibit, Deposition Exhibit 287.

A. Okay.

Q. Do you see there that the third article down is an article about the NFL quarterback Aaron Rodgers and why in his own words he is on a journey of self-actualization?

A. I do see that.

Q. And then do you see that there is perhaps an identical article, I'm looking at the first few lines of text, from the Capitol Times and Wisconsin State Journal that same day entitled "Finding his peace: Aaron Rodgers details journey that changes his outlook towards life, NFC championship"?

A. Okay, so is this my production?

Q. Yes, sir.

A. Okay, all right. Because, yeah, that, I mean, it seems that that --

there are multiple -- well, I'm sorry, go ahead and ask your question.

Q. All right. So you have anticipated my next question. Do you see in fact this article appears multiple times, one, two, three, four, five, six times from the Capitol Times and Wisconsin State Journal on the 24th of January 2021 and then another time from the Crossville Chronicle that same day, right?

A. Correct.

Q. All right. And your methodology intended to eliminate duplicates, right?

A. That is correct. I mean, we checked that box in Factiva, in Factiva, yes.

Q. And in this instance, it appears that the duplicates were not eliminated, right?

A. That's what it appears, yes.

Q. And so this is an article on the 24th of January, which is right in the middle of that week before the class

period, right?

A. That is correct.

Q. And so we now have seven articles on that day that are actually about Aaron Rodgers and his journey of self-actualization, not about Bed Bath & Beyond, right?

A. I don't know if it is seven. I can count them. I believe that's correct.

Q. Okay. We can put that aside, sir. Now, in your rebuttal report that we have marked as Exhibit 282 to this deposition --

A. Okay, hold on a minute. Yeah, okay.

Q. You conducted a test that you referred to as a binomial test that relates to news for seven of the companies at issue in the week before the proposed class period; is that right?

A. Well, what your experts defined as news.

Q. Okay. And I'm looking here at Table 7 on page 21 of your rebuttal report.

A. Okay, I'm there.

Q. And so this is the table that presents the results of your binomial test, right?

A. Based on your experts' definition of "value relevant news."

Q. And is the period at issue here January 21st through 27th, 2021? And I'm looking at paragraph 46 and 47.

A. That is correct.

Q. Okay. And the second column here headed News Dates, am I right that you took any date where either Mr. Fischel or Professor Grenadier in his report analyzed potentially value relevant news?

A. I don't know if I would say they analyzed. They said that there was value relevant news on those dates.

Q. Okay. You and I may disagree about the words here, but am I right that this column headed News Dates is a combination of dates either from Mr. Fischel or Professor Grenadier?

A. That is correct.

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Q. All right. And then the next column which is headed Statistically Significant News Days, does that present the number of the news dates in the previous column that in your regression analysis based on your one-year estimation period had a statistically significant return?

A. That is correct.

Q. All right. And then the final column calculates a p-value for the statistical significance of the binomial test, right?

A. Correct.

Q. All right. And this was a test of whether the return was statistically significant on the news dates as used in this table, right?

A. Well, I think I would say "returns," plural.

Q. Okay.

A. But that sounds correct.

Q. All right. And you got a p-value of 5 percent or less for six of the

WERNER

seven stocks you studied, right?

A. That is right.

Q. Am I right that you did not study the two stocks from the original report here, Koss and Tootsie Roll?

A. That is correct.

Q. And for Trivago you found no statistical significance, right?

A. That is correct.

Q. So you say in paragraph 52, in the first sentence, "while the test results for Trivago were inconclusive." Do you see that?

A. I do.

Q. All right. And so the finding of your binomial test was that that binomial test as set forth in Table 7 did not establish market efficiency for Trivago during that week immediately before the class period, right?

A. That is correct. But to the extent that I was only looking at one observation, that's how I arrived at the statement that it was inconclusive. But

WERNER

you are correct, it does not pass the news/no news test.

Q. So do you have an opinion one way or the other if the question is whether Trivago was efficient during that one-week period, as opposed to the question you answered in your opening report, which was whether Trivago was efficient during the full-year period, if the question instead is whether Trivago traded in an efficient market during the one-week period leading up to January 27th, 2021, do you have an opinion on that question?

A. I believe that based on my review of all the information, so all Cammer and Krogman factors, my conclusion was that it did trade in an efficient market during that week.

Q. But you would agree that you have less certainty about Trivago for that week than the other six stocks?

A. Do I have less certainty?

Q. Let me ask a better question.

Do you agree that you have less

WERNER

confidence in the results as to Trivago for that week than for the other six stocks?

A. Do I have less confidence? That's not anything I have really thought about. I don't know. It's not something I considered. I mean, I looked at the totality of the information and determined it was efficient. I didn't think about it in terms of how confident I was or unconfident I was about my findings.

Q. So you say at the end of paragraph 52 on page 22 of your rebuttal report "I am inclined to place more weight on the results of the more robust study performed in the Werner Declaration."

Do you see that?

A. I'm sorry, paragraph 52?

Q. Yes, the very end of that.

A. Correct.

Q. And when you say that you are inclined to place more weight on the results of the full-year study in your opening report than on the results of the one-week study in your rebuttal report, are

WERNER

you indicating that you think a finding of efficiency for Trivago is a closer call?

A. I'm sorry, what do you -- so a finding of efficiency for Trivago is a closer call?

Q. Than for the other six stocks.

A. Okay. Again, I don't -- I don't think that's anything I considered. I didn't think about degrees of separation. So as I sit here today, I don't know one way or the other.

Q. Okay. Now let me go back to Table 7 on page 21. You don't present any analysis here of the statistical significance or not of the returns on non-news dates during this one-week period, do you?

A. I believe that's correct. But can you reread the question?

(The record was read.)

A. Well, I mean, they are baked into the analysis, but I don't -- to the extent here I have got a column that says Statistically Significant News Days, right,

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I haven't put a column that says Statistically Insignificant News Days.

Q. All right. So that's not my question. So let me do a better job of asking my question.

So do you see that for BlackBerry, for example, you say that there are three news dates, as we defined that term a moment ago, taking either Mr. Fischel's or Professor Grenadier's study potentially of value relevant news, and then you find that on two of those three dates there is a statistically significant return based on your regression for the one-year period before the proposed class period, right?

A. That is correct.

Q. All right. If there were three news dates during this period of five trading dates, there also must have been two non-news dates, right?

A. There must have been two non-news dates, as defined by your experts?

Q. Yes, sir.

WERNER

A. I think logically that follows.

Q. Okay.

A. Unless -- maybe I'm missing something.

Q. No, I don't believe you are.

A. Isn't it tautologically correct?

Q. I believe it is.

A. Okay, all right.

Q. So your Table 7 does not present any results as to the statistical significance or not of the returns on those two non-news dates, correct?

A. That is correct. That is correct.

Q. So there is therefore, in your binomial test as set forth in your rebuttal report, there is no comparison between the statistical significance of the returns on the news dates on the one hand and the statistical significance of the returns on the non-news dates on the other hand, correct?

A. I believe that is correct.

WERNER

Q. Okay. If we just keep this open, please, and look back to your opening report, which we have marked as Deposition Exhibit 281, and I'm interested in particular on Table 9 which appears on the top of page 34.

A. You said Table 9, right?

Q. Yes, sir, on the top of page 34.

A. I'm sorry, I didn't mean to interrupt you.

Q. No. So am I right that Table 9 presents the collective test results for the one-year period through January 27, 2021 using your definition of news dates, namely the top 10 percent of articles appearing on those days?

A. That is correct.

Q. And these are -- this is a summary of the results of the news/no news test in your opening report, right?

A. That is correct.

Q. And here you did compare the statistical significance on the news dates

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to the statistical significance of the returns on the non-news dates and from that comparison you calculated a p-value using Fisher's exact test that you presented in the far right column, right?

A. That is correct.

Q. Okay. Now, have you seen the information Professor Grenadier prepared in response to your binomial test in Table 7?

A. So I don't remember seeing that in any of his reports.

MR. ROSEN: Objection. If you are going to show him something that was produced after the rebuttal reports were submitted to each firm, then I object to you using it in litigation because that is an impermissible sur-reply report, and so we object to the use of anything that any expert prepared after the cutoff date for the rebuttal reports.

MR. RYAN: All right. So I'm providing now analysis that was provided to you in response to your

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subpoena before Professor Grenadier's deposition. So I have marked this three-page document as Exhibit 288.

MR. ROSEN: So we object to the admission of 288 as an impermissible sur-reply and for other reasons.

(Defendant's Exhibit 288 marked for identification.)

Q. All right. Have you seen Exhibit 288 before, Dr. Werner?

A. It looks familiar.

Q. Okay.

A. I believe I have.

Q. And do you see that it is headed Analysis and Response to Werner Rebuttal Report Table 7?

A. I do. I do, yes.

Q. And so do you understand that on the first page of Exhibit 288, what Professor Grenadier presents is a version of the binomial test in your Table 7 that shows the days that he, Professor Grenadier, considered to have new potentially value relevant information and

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whether the stock price return on those dates was statistically significant using his regression analysis?

A. That is my understanding of what this is, yes.

Q. All right. And then if we look at page 2 of Exhibit 288, is it your understanding that this table presents the days that Professor Grenadier did not consider to have new potentially value relevant information during this period and then whether the stock price return on those dates was statistically significant using his regression analysis?

A. But, again, so this goes to the problem with your subjective definition of news. He completely ignores Dr. Fischel's analysis. So does that mean I should ignore Dr. Fischel's analysis in doing my experiments?

I mean, he found that some days were statistically -- were value relevant and Grenadier found other days were value relevant. So why should I ignore that

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data? Or maybe -- let me ask it a different way. Do you know why Professor Grenadier ignored that information? Did he think that what Mr. Fischel did was wrong? Or his findings were incorrect?

Q. So I'm asking you a much more limited question. I certainly know why he did what he did. But my question is quite different.

My question is, is it your understanding that page 2 of Exhibit 288 presents the days that Professor Grenadier did not consider to have new potentially value relevant information during this period and then whether the stock price return on those dates was statistically significant using his regression analysis?

A. That is my understanding, but I didn't -- the numbers look all screwed up. Like I don't -- the binomial test p-values look incorrect, or at least I couldn't make sense of them when I looked at it, nor the cumulative distribution p-value.

So I have, as I sit here today,

other than being perplexed by exactly what was done here and whether or not the analysis was done properly, I have no additional opinion about what that is. I mean, sure, if you want to ask me, I mean, obviously you can ask me whatever you want, I just have no idea whether what's been done here is accurate or not.

Q. Okay. So you see that in your Table 7 when you had zero out of one --

A. Hold on.

MR. ROSEN: It is page 21 of your rebuttal report.

A. Here we go. I'm sorry, what page?

Q. Page 21 of your rebuttal report, Table 7, and paragraph 50. Do you see that when you have zero observations out of one, you have a binomial test p-value of 95 percent?

A. Right.

Q. And do you see that that is the same when Professor Grenadier, for different stocks, has zero observations out

of one? Do you see that equivalence in the p-values that I'm pointing out to you?

A. I see that some of them are equivalent.

Q. Right. Do you see that similarly when you have two statistically significant days out of three, you have a p-value of 0.71 percent and when Professor Grenadier has two statistically significant days out of three, he has a binomial test p-value of 0.71 percent?

A. Yes, I now see that.

Q. Okay. Do you still believe that anything looks off with respect to the binomial test p-value column in the chart on page 2 of Deposition Exhibit 288?

A. I mean, I have no opinion one way or the other, given that I haven't been able to examine this document in an academically rigorous way. On the surface, yeah, I would need to -- I would need to hear how he explained what he did here to fully -- I don't know one way or the other --

MR. ROSEN: He never explained it, because I didn't depose him on it.

Q. All right. So let me ask you about page 3 of Deposition Exhibit 288. Do you see that Professor Grenadier reports here that for the seven stocks combined, for 14 total days with news with new potentially value relevant information, there were statistically significant returns on eight of those 14 days?

A. Well, and, again, so let's be very specific here. These are days where Dr. Grenadier determined that there was potentially value relevant information. It is not --

Q. Yes, sir.

A. It is not, to the best of my understanding, the days that your experts collectively determined there was value relevant information. So I understand why he is recreating what he did. I don't know why he would then choose to ignore information that is relevant to the question that he is trying to address.

Q. All right. Do you see, though, that on the left part of page 3 of Exhibit 288, he reports that there are 14 observations for days with news with new potentially value relevant information --

A. I'm sorry, I apologize, are we looking at Table 3?

Q. Yes.

A. Okay, go ahead, sorry.

Q. Do you see that on the left part of page 3 of Exhibit 288, he reports that there are 14 days with news with new potentially value relevant information and eight of those 14 days have statistically significant returns?

A. Yes, I do see that.

Q. And then do you see that he reports on the right-hand side that there are 21 days without news with new potentially value relevant information during this one-week period before the beginning of the proposed class period, and 13 of those 21 days have statistically significant returns?

WERNER

A. According to Dr. Grenadier.
Q. Yes.
A. Professor Grenadier.
Q. Yes. And do you see that he then runs a Fisher's exact test and finds there is no statistically significant difference on the days with news and the days without news, right?
A. Based on his definition of news, again, I haven't had a -- I haven't examined this thoroughly, but on the surface that appears to be what it is.
Q. Okay. And when you conducted your binomial test results for your rebuttal report you did not do this kind of comparison between the news dates and the non-news dates during the one-week period before the proposed class period, did you?
A. Right, based on the small sample size, that is correct.
Q. And your second sentence in paragraph 51 of your rebuttal report states that "Based on Table 7, we can reject the null hypothesis that the companies'

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securities prices behave no differently on days with company specific news than on days without company specific news."
Do you see that?
A. I do.
Q. But your Table 7 has no analysis of days without company specific news, right?
A. No, but, I mean, that's what the binomial test is testing for. So based on these results of the binomial test, that statement is correct.
Q. All right. Isn't it the case that this sentence is wrong, and that your binomial test in Table 7 of your rebuttal report does not allow one to reject the null hypothesis that the companies' securities prices behave no differently on days with company specific news than on days without company specific news?
A. I don't believe that's correct. I determined -- I determined that I should use a binomial test based on the small sample size that we were looking at.

WERNER

That's how I arrived at the decision to use this, and I believe that that, based on, again, both experts' collective definition of value relevant information, this shows that the stock prices reacted to news during that one-week period.
Q. Do you agree that the apparent mispricing of GameStop's stock appears to be an intentional manipulation by a group of investors who all agreed to act irrationally by buying at prices untethered to fundamental value?
MR. ROSEN: Objection.
A. I'm sorry, where are you reading from? It sounds like Professor Grenadier's report.
Q. I'm asking you a question. Do you agree with that statement?
A. I would like to see the statement and then I will tell you whether or not I agree with it.
Q. So I'm just asking you the question regardless of who said it. Do you agree that the apparent mispricing of

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GameStop stock appears to be an intentional manipulation by a group of investors who all agreed to act irrationally by buying at prices untethered to fundamental value?
MR. ROSEN: Objection. It is a compound question.
A. Right, it is a compound question. To the extent you are talking about manipulation, that's a legal term to the best of my understanding. I have no idea how to answer that question.
Q. So are you able to either agree or disagree with that statement?
A. Can you read it one more time?
Q. Sure.
A. Please, I'm sorry, please.
Q. The apparent mispricing of GameStop's stock appears to be an intentional manipulation by a group of investors who all agreed to act irrationally by buying at prices untethered to fundamental value.
A. "Fundamental value" defined as what? What we have talked about in terms

WERNER

of DCF analysis?

Q. How you would define "fundamental value"?

A. Could you reread the question, please?

Q. Do you agree that the apparent mispricing of GameStop's stock appears to be an intentional manipulation by a group of investors who all agreed to act irrationally by buying at prices untethered to fundamental value?

A. I have a lot of problems with that. But "apparent," you used the term "apparent mispricing." Apparent to who? I mean, someone, whoever wrote that, I don't know, maybe it was an analyst or something, believed that the stock was mispriced. I guess I would want to see their justification or what evidence they cite to suggest in fact that it was mispriced.

Q. Do you agree that GameStop's stock was mispriced?

A. Do I believe that GameStop's price was mispriced?

WERNER

Q. Yes, sir.

A. No.

Q. Do you agree that financial markets have a long history of temporarily mispriced individual stocks?

A. Mispriced according to who? Mispriced relative to fundamental value or informational efficiency? I don't -- I mean, there is all sorts of -- first, so I don't have these statements in front of me that you are reading, and I don't know the context in which these individuals made these statements. So I don't want to say yes, I agree with that and then ah, case closed, right? So they are very general statements. I would need much more information to give you a proper response to those questions.

Q. Okay. So you're not able to agree or disagree with the proposition that financial markets have a long history of temporarily mispriced individual stocks?

A. Again, I don't know what you mean by "mispriced." So, you know, I'm

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happy -- if you want to show me where this person has written that and the context in which they wrote that, I'm happy to look at it and give you an answer. But just on the face of it, I can't commit one way or the other to whether or not that question is -- or that statement is correct.

Q. Do you agree that GameStop is a clear case where for a short period of time the market was inefficient?

A. Do I agree with that statement?

Q. Yes.

A. "A short period of time" being what?

Q. A number of days.

A. How many days?

Q. Any number of days that you're able to answer.

MR. ROSEN: What time period are you referring to?

Q. I'm talking about the period right before the proposed class period.

A. So right before the proposed class period?

WERNER

Q. Right.

A. Right. I determined that -- we are talking about GameStop, right?

Q. Yes.

A. That it traded in an efficient market from -- oh, well, all right, let's make it easier, based on Dr. -- Mr. Fischel's and Professor Grenadier's definition of material news, I determined that the stock traded in a, I'm sorry, value relevant news, that the stock traded in an efficient market over that period.

Q. So you believe that somebody who thinks it is a clear case that for a couple of days before the proposed class period here the market for GameStop stock was inefficient is wrong?

A. I have no reason to -- I mean, I'm sure that's their opinion. Is it right or wrong? That's their opinion, right?

Q. You hold a contrary opinion; am I right?

A. Is that the logical conclusion, is that the conclusion you are reaching --

WERNER

Q. Well, do you?

A. Let's go back to the question you asked me, did it trade in an efficient market during that period. I said it did, informationally efficient. Now, I don't know what whoever is making that statement means with regards to efficiency.

So I have, again, based on what Mr. Fischel and Dr. Grenadier did, determined were value relevant days, it appears that the stock was efficient during that four or five-day period, or six-day period, whatever it was. But, yeah, I have nothing else to add.

Q. All right. Do you agree that securities differ from most products that economists study in that they are highly substitutable?

A. I have no idea what you mean by that.

Q. Okay. Are you aware of academic literature about the substitutability of stocks?

A. It is possible. Off the top of

WERNER

my head, I can't think of, what do you mean by substitutability? You tell me and I will tell you whether or not I'm familiar with the idea.

Q. That if somebody wants to make an investment, the stock of one company is often a very good substitute for the stock of another company.

A. Well, I mean, to the extent that you are talking about idiosyncratic risk, it doesn't -- I don't know. I mean, I would have to know a lot more before I could answer that question. Because each company is going to have its own firm-specific risk. I mean, so I don't know whether the firms face the same risk, whether they are in the same industry. There is all sorts of factors that go in. So as a general proposition, I can't answer that question.

Q. So are you familiar with the academic literature on substitutability of stocks?

A. Not as I sit here today.

WERNER

Q. Do you agree that under the efficient market hypothesis, stocks have a nearly horizontal demand curve?

A. Again, how are you defining efficiency? So that is probably going to influence whether or not the demand curve for any individual stock is horizontal.

Q. All right. Under what you call fundamental efficiency, do you agree that stocks have a nearly horizontal demand curve?

A. What I have defined, and so when I have defined it, because -- as your experts have defined fundamental efficiency, is the demand curve for any individual stock horizontal?

Q. Horizontal or nearly so, yes, that's my question.

A. Yeah, that's not anything I have ever thought about.

Q. Okay. Let me try to ask the question a different way.

Do you agree that under the efficient market hypothesis the demand for

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any individual stock is highly elastic?

A. I mean, same answer.

Q. Okay. That isn't something that you have ever thought about?

A. Again, based on whatever definition of market efficiency that these people are using, which I don't know, yeah, no, that's not anything I have thought about.

Q. Okay. Do you agree that since a securities price must be equal to its value, prices should not move without any news about the value of the security?

MR. ROSEN: Could you reread the question?

A. Could you reread that question?

(The record was read.)

A. Well, I mean, there is all -- go ahead, Larry.

MR. ROSEN: I'm not going to say anything.

A. I mean, there is all sorts of things that go into the valuation of a security, right? We have talked about your

client posting price changes of stocks in an effort presumably to encourage people to buy and sell stock. So I don't know what exact -- what exact information you are talking about here, right? So I have no idea how to answer that question.

Q. Okay. So you're not able to state whether you agree or disagree with that sentence?

A. Reread the sentence. I believe the answer is no, I cannot agree or disagree with that sentence, because there is way too many variables. But go ahead and reread the question.

Q. Fine. The question is do you agree that since a securities price must be equal to its value, prices should not move without any news about the value of the security?

A. Okay. So define "value" for me.

Q. How much a security is worth.

A. Oh, so how much a security is worth? So what goes into determining that

value?

Q. You are the finance expert, not me.

A. Well, you are using the term "value," or whoever is --

Q. I told you what I meant by it.

A. What?

Q. I told you what I meant by it.

A. Oh, I'm sorry, go ahead, repeat what you meant by it.

Q. Right. So are you able to agree or disagree with the proposition that under the efficient market hypothesis, since a securities price must be equal to its value, prices should not move without any news about the value of the security?

A. Oh, so the value in question is the price of the security, so let's get -- again, I mean, we have to go into what determines the value of the security and how you are specifically -- you seem to have some vision in your mind of what determines value, and that that value could somehow deviate from price, at least that's

what your question implies. So without knowing exactly what you mean by things that influence or determine value, I can't answer that question.

Q. Okay.

MR. RYAN: Why don't we go off the record and I will see how much more I have.

THE VIDEOGRAPHER: This will end media unit seven. We are going off the record at 5:48.

(Recess taken.)

THE VIDEOGRAPHER: We are back on the record at 6:07. This will begin media unit eight.

BY MR. RYAN:

Q. All right, Dr. Werner, do you recall that you gave some testimony earlier in the day about your belief that there was a potential way to calculate class-wide damages based on a regression analysis on intraday stock price movements?

A. I do.

Q. And I believe what you were

describing there was a regression analysis where the independent variable would be the presence of Robinhood PCO restrictions or not --

A. I'm sorry, dependent or independent?

Q. Independent.

A. Independent variable, okay.

Q. -- and the dependent variable would be the stock price; is that right?

A. That was, again, I haven't thoroughly thought through this, but that was one such example that one may -- I mean, I would have to, again, until discovery is complete, I can't give you exactly the regression I would run if I was asked to do so, but as a simple model, that is descriptive of what I said earlier.

Q. All right. And that regression analysis that I just described would not by itself account for confounding factors that might affect the price of these nine stocks, right?

A. Well, I mean, I guess it would

depend upon when -- again, I haven't gone into a lot of detail about this. It might be dependent upon when one looked -- I don't -- I don't know. I haven't, yeah, I haven't thought about it to that extent. I mean, if you are asking, would you need to adjust for non-Robinhood-related actions? Absolutely.

Q. All right. So that's part of what I am asking. So let me ask the question this way: Do you agree that that regression analysis we have described where the independent variable would be the presence of Robinhood PCO restrictions and the dependent variable would be the stock price --

A. Oh, I'm sorry.

Q. -- that would not account for potential causality from restrictions by other brokers, right?

A. Well, so, I'm not -- maybe we're at -- I guess I wasn't thinking about it in terms of the independent variable having a value of 1 whenever Robinhood's

restrictions were in effect. So I would need to do more, if I'm asked to do so, I think that I would need to do a more targeted analysis.

So I don't -- I guess what I had in mind when we talked about this earlier wasn't necessarily a long indicator variable that would be in effect for, you know, like two days, or one day. That's not what I had in mind.

Q. Okay. So I'm confused, because I thought I asked you earlier today whether the independent variable was going to be the time from imposition of the Robinhood restriction, and you said no, that's not what you had in mind, what you had in mind was a dummy variable for the presence of the PCO restriction.

A. Yeah, right, and I'm saying that, I'm correcting what I said, right?

Q. I see.

A. As you and I talk about it now, I now realize that what I said could be taken to mean that the indicator variable

would take on a value of 1 whenever Robinhood's stock -- or whenever there were PCO restrictions imposed by Robinhood, and I guess -- I mean, yeah, I would not necessarily -- I mean, that's not what I meant.

Q. Okay. So I'm glad I asked you this question. So how, then, are you envisioning the independent variable would work in this regression analysis?

A. Again, look, this is all theoretical. I haven't been asked to do this. But it occurs to me that someone should be able to do it. And I'm not even sure that an indicator variable is the right way to go about doing it. It is just one possible way to go about doing it. But specifically let's look at -- am I looking at my report here? Rebuttal report, yeah.

So, for instance, and, again, this is all theoretical, I don't have the complete fact pattern in this case, I could look at the imposition, and, I'm sorry, I'm looking at Table 12 in my rebuttal report.

Q. Right.

A. I could look at a time period for the imposition of the Robinhood restrictions for, let's say, 10 minutes, 15 minutes, 20 minutes, and see whether or not the price changed over that period.

So, for instance, I mean, if I'm just eyeballing it, right, the restrictions, PCO restrictions come into effect and the stock prices go down. If I were to conclude that what caused these stock price declines were simply Robinhood's alleged misconduct, I would want to capture that decline as a measure of damage. But, again, this is all theoretical. But off the top of my head, that might be one way to do it.

Q. All right. And what if there are other factors such as the end of a short squeeze or the bursting of a price bubble, you wouldn't be able to account for those confounding factors, would you?

A. Well, I'm sorry, are you telling me to assume that a short squeeze

WERNER

occurred or a bubble ended? I don't -- I don't -- I mean, look --

Q. Let me ask the question a better way.

A. Sure.

Q. So using the regression analysis you just described, am I right that if the finder of fact finds that there were other factors such as the end of a short squeeze or the bursting of a price bubble, the regression analysis that you just described would be unable to account for those confounding factors, right?

A. No, not necessarily. I don't know -- I mean, when -- when are these events occurring? When is the bubble bursting? I mean, there is all sorts of -- I guess your question is too general. I would need to know more about this alleged short squeeze or bubble bursting in order to think about how that might affect such a model.

Q. And you have not studied a short squeeze or burst of a price bubble to

WERNER

see how that would affect a loss causation or damages model, have you?

A. That's not something I have been asked to do at this point, right. I have just been asked to provide the damage methodology framework, if you will. I haven't actually been asked to calculate damages or opine on loss causation.

Q. And you haven't begun to do any work on a damages model in using an intraday regression model, correct?

A. That is correct.

Q. And even just as you have sat here today, you changed your mind now about how you might go about constructing the independent variable, right, and that shows that this is all very theoretical for you at this point, right?

A. Well, look, I mean, I don't know if I would agree with your statement that it is very theoretical. I mean, this shows it all.

MR. ROSEN: What are you pointing to?

WERNER

THE WITNESS: I'm sorry, I'm looking at Table 12 here.

A. Sure, until I do -- until I look and see what else was happening during this time period when the stock price, or the average of this index fell, right, I have no reason to think that that -- measuring that price drop wouldn't at least in some way encompass the impact of Robinhood's PCO restrictions on the underlying stocks at issue in this case.

Q. All right.

A. But, again, this is all theoretical, right?

Q. Right.

A. You know, let's say, like you said, let's say the Court determines that there was a short squeeze or a bubble, right, that would then be something that you would need to take into consideration, or one would need to take into consideration in measuring damages.

Q. All right. And am I right that you haven't given any thought yet as to how

WERNER

you would go about taking such a finding into account?

A. That's definitely not anything I have been asked to do at this point in time.

Q. All right. And you would agree with me that the simple two-variable regression model, the intraday regression model that you have described that you have thought about theoretically doesn't provide a means to account for those potential other factors, right?

A. Well, again, you are assuming that to the extent -- if you are making assumptions about those other factors, so in your hypothetical, we are going to assume that these things occurred. Does my simple model take into consideration hypothetical things that might occur or someone might find occurs? I don't think so. But that -- again, it doesn't -- well, we will leave it at that.

Q. Okay. You cited a report from the SEC staff; is that right?

WERNER

A. I believe that's correct.
Q. All right. Let me hand you what I have just marked as Deposition Exhibit 289, a document entitled Staff Report on Equity and Options Market Structure Conditions in Early 2021 dated October 14th, 2021.
(Defendant's Exhibit 289 marked for identification.)
A. Okay.
MR. ROSEN: What exhibit is this?
MR. RYAN: 289.
Q. And is this the SEC staff report that you cite in your expert report?
A. I believe so, but let's just look at my expert report here. I think I'm looking at the wrong report here.
Q. Let me direct you to page 30 of your rebuttal report marked as Exhibit 282 to this deposition.
A. Page 30, okay.
Q. Page 31.
A. Oh, 31, sorry.

WERNER

Q. Do you see on page 31 the beginning of Note 50, you cite to the Staff Report on Equity and Options Market Structure Conditions in Early 2021 dated October 14th, 2021?
A. Correct.
Q. All right. So does it look to you as though Exhibit 289 is the same SEC staff report that you cited in your rebuttal report?
A. It does, yes.
Q. So if you could turn, please, to the bottom of page 30 of Exhibit 289. Do you see that the last paragraph on this page begins "The price surge in GME also raises questions of market efficiency that relate to short selling"?
A. I do, yes.
Q. And do you agree that the price surge in GameStop raises questions of market efficiency that relate to short selling?
A. I'm sorry, could you reread the question?

WERNER

Q. Do you agree that the price surge in GameStop raises questions of market efficiency that relate to short selling?
A. Well, I'm trying to remember, maybe I'm thinking --
MR. ROSEN: What paragraph are you reading from?
MR. RYAN: The bottom paragraph on page 30.
A. Okay. So could you repeat your question?
Q. Yes. Do you agree that the price surge in GameStop raises questions of market efficiency that relate to short selling?
A. It could.
Q. Okay.
A. I mean, again, but yes, it certainly could.
Q. Do you see that the next sentence reads "Staff have observed that it was unusually costly to borrow shares in GME"?

WERNER

A. I do see that.
Q. In connection with your work in this case, did you look into whether it was unusually costly to borrow shares in GameStop?
A. Did I look into it? I mean, I don't -- look, I mean, there was a ton of short interest in the stock, so people were obviously shorting the stock regardless of how expensive it was.
Q. Right. But I'm asking you about the cost to borrow. Did you look into --
A. Well, I mean, the cost of borrowing would be included in the cost of putting on a short position, correct?
Q. Did you look into whether it was unusually costly at this time to borrow shares in GameStop?
A. I do not believe so.
Q. Okay. Do you see the next sentence reads "Academic research implicates constraints on short selling as a possible contributor to bubbles where

stock prices rise above what may be justified by fundamentals"?

A. Oh, yes, I do see that.

Q. All right. Do you --

A. And, sorry, it cites to a paper from 1978.

Q. Uh-huh.

A. Okay.

Q. A fairly well-known paper, right?

A. Speculative Investor Behavior in a Stock Market with Heterogeneous Expectations. I have heard of Kreps. Fairly well known? I mean, maybe I read it at some point in my life. I don't know -- I don't know how to determine whether or not it was well known or not.

Q. As you sit here today I gather you don't have that paper in mind?

A. Oh, you mean in terms of my familiarity with it?

Q. Yes.

A. Oh, yes, I do not, without looking at it, I can't tell you exactly

what was written in that report, or that academic work.

Q. Do you agree, though, with the general proposition as stated by the SEC staff that academic research implicates constraints on short selling as a possible contributor to bubbles where stock prices rise above what may be justified by fundamentals?

A. Well, again, I mean, there is a lot of statements in there. So I don't know what the -- what the SEC meant by fundamentals. Again, are we talking about fundamental efficiency or informational efficiency? I mean, that is certainly going to impact my answer to that question. So without knowing exactly what the SEC was talking about, I have -- I have a difficult time answering that question.

Q. Okay. So is it the case, then, that as a financial economist you are unable to agree or disagree with the statement by the SEC staff that academic research implicates constraints on short

selling as a possible contributor to bubbles where stock prices rise above what may be justified by fundamentals?

A. I mean, I will defer -- I mean refer to my previous answer.

Q. Do you see then the SEC staff writes "To the extent that GameStop was costly and risky to short, the reluctance to sell short could have contributed to the run-up in prices and the subsequent steep decline"?

A. I do, and then see -- I also see "While a short squeeze did not appear to be the main driver of events, and a gamma squeeze less likely, the episode highlights the role and potential impact of short selling and short cover."

Q. So do you agree with the SEC staff that to the extent GameStop was costly and risky to short, the reluctance to sell short could have contributed to the run-up in prices and the subsequent steep decline?

A. I'm sorry, where are you

looking?

Q. The last full sentence of page 30 on Deposition Exhibit 289.

A. Oh, sure, that is information that would impact -- I mean, that possibly could impact the stock price. I mean, those are -- those are certainly things that investors would take into consideration when trying to value in this case GameStop.

Q. All right. And am I right that you have not performed any analysis to study whether or not the reluctance to sell short in fact contributed to the run-up in prices for GameStop and the subsequent steep decline?

A. Well, I mean, other than what I have read, that it is not a short squeeze, there was not a short squeeze, is that a possible factor? It is a possible factor that could have contributed to stock price changes.

Q. Okay. And you say that it is a possible factor that could have contributed

WERNER

to the run-up in prices for GameStop and the subsequent steep decline.

MR. ROSEN: Mischaracterizes his testimony.

Q. I take it you haven't studied whether it did or not, right?

A. I didn't study whether it did? I believe --

MR. ROSEN: Could you reread the question?

THE WITNESS: Thank you.

(The record was read.)

MR. ROSEN: Objection to the question.

A. My belief is that the price of GameStop and all of these stocks incorporated all information that was out in the public sphere. So to the extent that people may have said there was a short squeeze, that would be incorporated in the stock price. I guess none of this was unknown to the market. Could it have affected the price? Absolutely. Because that would -- people might take into

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consideration how that might affect their opinion about value.

Q. Okay. And did you study whether an actual short squeeze, as opposed to discussion about a potential short squeeze, affected the run-up in price of GameStop and subsequent steep decline here?

A. Well, so I haven't seen -- other than Mr. Fischel and to some extent Mr. -- or Professor Grenadier suggesting a short squeeze may have caused the stock price run-up, I haven't seen anyone say that a short squeeze actually occurred. So what you are asking me is a hypothetical question.

Q. No, because my question is did you study this question. That's my question. It is not hypothetical. It is actual -- either you did study it or you didn't. So my question is did you actually study whether there was an actual short squeeze?

A. I relied on everyone's opinion, including your -- including the deposition

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of your two experts that a short squeeze did not occur. So you are asking me to assume -- did I do any searching into whether or not a short squeeze occurred? I read people's testimony. I read people's reports. I read what the SEC said. I don't know. Is that under your umbrella of investigation? You tell me.

Q. All right. I take it other than the things you just talked about, you didn't do any separate analysis of whether there was actually a short squeeze, right?

A. Did I do any additional analysis? I believe that's correct.

Q. Could you turn, then, please to page 28 in Deposition Exhibit 289.

MR. ROSEN: So we have about ten minutes left before we are at seven hours, just so you know. I'm giving you the ten-minute warning on the clock.

Q. And I'm focused here on footnote 78 which is a footnote about the SEC staff's methodology. Do you see that

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footnote, sir?

A. I do see the footnote, yes.

Q. Okay. And do you see that their figure, and they are referring to Figure 6 above on this page, shows the total buy volume during half-hour intervals from January 19th to February 5th, 2021 of traders identified as having a large short position in GME using data from CAT. Do you see that?

A. Well, along with total buy volume and value-weighted average stock price, I do see that.

Look, if you want to ask me about this, I'm going to have to look -- I'm going to have to refresh my memory as to exactly what was being stated here.

Q. And you understand that CAT is the consolidated audit trail?

A. I believe that's correct. But, again, since you are asking about a specific footnote, usually footnotes are extremely specific, and so they deal with -- they need to be looked at in the

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context of which they're being used. So let me look here.

Q. Now, do you see that four lines from the bottom of the page, the SEC staff writes "Note that since the CAT" --

A. I'm sorry, I'm not -- I'm going forward to get some perspective on exactly what's going on here since I don't remember it. You are now -- now we are talking about footnote 78 again?

Q. Yes, we are talking about footnote 78.

A. Okay.

Q. So do you see that four lines from the bottom the SEC staff wrote that "Note that since the CAT sample only begins on December 24th, 2020 we are not able to include FDIDs' inventory positions accumulated prior to this date"?

A. I see that statement, yes.

Q. And do you see that the FDIDs are the firm designated identifications?

A. Correct.

Q. All right. And so do you have

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the understanding in looking at this SEC staff report that because of limitations in the consolidated audit trail sample, they were not able to include short inventory positions accumulated prior to December 24th, 2020?

A. That's what it states. I have no reason to think that's not correct.

Q. Okay. Let me show you then another article which you discuss in your report. This will be Exhibit 290. This is a working paper by Charles M. Jones and co-authors.

(Defendant's Exhibit 290 marked for identification.)

A. Okay. I should point out, as Professor Grenadier did, Charles M. Jones is no longer with us.

Q. So I gather. That's unfortunate obviously.

All right. So is this the Jones, et al, working paper that you cite in your rebuttal report?

A. I believe it is. Let's just

WERNER

look at my documents relied upon.

Q. So this is page 71 of your rebuttal report marked as Deposition Exhibit 282. Do you see there the Jones, et al, working paper?

A. Yes, I do see it.

Q. All right. And do you see in the abstract on the first page of Exhibit 290 that the authors studied a set of trading restrictions in 38 stocks, including GameStop?

A. Yeah, that's what they said they did.

Q. All right. So the group of stocks that they study is not limited to the nine at-issue stocks in this case, right?

A. That is correct, yes.

Q. Did you note in fact that only six of the nine stocks at issue in this case are included in the group of 38 stocks studied in Jones, et al?

A. I believe that's correct.

Q. All right. And then if you

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could look with me, please, at Table 9, which begins on page 61 and is entitled Individual Firm Regressions and continues on to page 62.

A. Okay.

Q. And do you see here that we see in the left-hand column the list of 38 stocks that are studied by Jones, et al?

A. Oh, maybe I'm on the wrong page. What page are you on?

Q. Page 62.

A. Oh, I'm on page 60, I apologize. Okay.

Q. And do you see we see AMC in the second row?

A. I do.

Q. And I'm looking at what they call the S1 estimated return. Do you see that that is not statistically significant for AMC?

A. I do, yes.

Q. And do you see that the same is true for Bed Bath & Beyond?

A. That is correct.

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Q. And it is correct for Express as well, right?
A. Let me -- let me refresh my memory as to exactly what S1 is.
Q. S1 are the PCO restrictions such as were imposed by Robinhood.
A. Can you point me to where it says that in the report?
Q. If you look at page 15, do you see about eight lines down it says "The first set of restrictions (set 1) are trading restrictions put in place by Robinhood Interactive Brokers and a few other brokerage firms. These begin before trading opens on January 28th"?
Do you see that?
A. I do see that.
Q. I want to show you one other thing.
A. Go ahead.
Q. I think this would be genuinely helpful.
A. Genuinely helpful?
Q. Yes. If you just look a few

WERNER

lines down on page 15 do you see the authors say "Increases on margin are imposed by a second set of brokerage firms (set 2), notably TD Ameritrade"?
So that's my understanding of what S1 and S2 mean in the Jones, et al, working paper.
A. Okay, all right.
Q. So back on page 62, in Table 9, we looked at the first three of the stocks in the Jones, et al, group that are at issue in this case. So I'm now looking at the fourth one, GME. Do you see there the S1 return is not statistically significant?
A. Sorry, I'm just looking at the -- I mean, I assume that's correct. I don't -- do you see a discussion as to what the asterisks mean?
Q. Yes. The asterisk as described on page 61 in the sort of explanatory note to Table 9, three lines from the bottom, one, two and three asterisks denote significance at the 10 percent, 5 percent and 1 percent levels respectively.

WERNER

A. Okay, all right. So it is what I thought they were.
Q. Okay. So now with respect to the fifth stock at issue in this case, Koss, once again, the S1 return is not statistically significant according to Jones, et al, on page 62, right?
A. That is correct.
Q. And for the sixth stock at issue in this case that's in their group, do you see that for Tootsie Roll the S1 return again is not statistically significant?
A. Well, so, I'm sorry, I'm forgetting, what is S -- so those returns, I don't recall what -- there is a column one, two, three, essentially four things over that say IV-RV S1 Estimate, and those things all appear to be statistically significant. So I'm trying to remember, do you know where the description of IV-RV in the context of S1 estimates are?
Q. Yes. It's on page 61.
A. Oh, well -- oh, on page 61, I'm

WERNER

sorry.
Q. Right. The sort of explanatory paragraph that explains the table on the following page, page 62.
A. Oh, I've got this backwards. I'm sorry. Okay, all right, thank you.
Q. So I think I was in the middle of asking for Tootsie Roll, the sixth of the stocks at issue that are in the Jones --
MR. RYAN: I have one more minute. One more minute.
Q. For Tootsie Roll, the final one of the six stocks that are in the Jones, et al, group the S1 return, again, is not statistically significant as shown in Table 9, right?
A. That is correct.
Q. And so it's the case, then, that the Jones, et al, working paper for the individual firm regressions in Table 9, the S1 returns, which are the returns in response to Robinhood PCO restrictions, are not statistically significant for any of

the six stocks at issue in this case included in their group, right?

A. Well, again, without going through the entire paper and refreshing my memory as to exactly what period S1 was measured over, so I don't, as I sit here today, at the end of seven hours of deposition, I don't recall what S1 is. As a practical matter, just looking at this table, right, all six of those things that you mentioned are statistically insignificant.

Q. All right.

A. What that means, I don't remember.

MR. RYAN: Okay. Thank you for your time, Dr. Werner.

MR. ROSEN: I have got a couple of questions for the witness.

EXAMINATION BY MR. ROSEN:

Q. Do you have your opening report, Dr. Werner?

A. Declaration, here we go.

Q. Could you please go to

paragraph 68, page 28.

A. Paragraph 68.

Q. Yeah.

A. Okay, I'm there.

Q. Now, earlier you were asked questions about this paragraph, and specifically there was a sentence in it, I believe it was the second sentence, it reads "To remain as objective as reasonably possible, I broadly defined 'news days' as any day with news releases about a subject company that can be identified through the news aggregating database, Factiva." I'm sorry, it continues on, "In order to" -- then it continues on to the sentence that reads "In order to isolate a test sample of news days that would be more likely than not to contain value relevant information, I focused on the frequency of news releases on each day during the relevant period for each Affected Company."

So the sentence I just read, "In order to isolate a test sample of news days that would be more likely than not to

contain value relevant information, I focused on the frequency of news releases on each day during the relevant period for each Affected Company," so the term "value relevant information," what did you mean by that?

MR. RYAN: Objection to form.

A. I didn't mean that in the sense of fundamental efficiency, I meant it in terms of information that would be material to investors, and so as we've seen, you know, throughout the day, lots of different information that is potentially material to investors, among things, including things like stock prices.

Again, we are talking about people who might be momentum traders or Chartis. So it might be different for different -- different people might value things differently, but in terms of what I meant, I didn't mean in terms of -- I didn't mean valuation in terms of the fundamental valuation that the two defense experts talk about market efficiency. I

meant it in terms of what is important to investors.

Q. Okay. Let's go to your rebuttal report, paragraph 115. It says --

A. I'm sorry, I'm not there yet. I apologize.

Q. Tell me when you're there.

A. Okay.

Q. The first sentence says "Because these markets were efficient during the immediate pre-class period, there is no need to deviate from using market prices to establish the appropriate but-for price absent the alleged market manipulation."

Now, did you mean by that sentence that if it were determined by a factfinder that the markets for these stocks, nine stocks, were inefficient, that the January 7th price would not, market price, would not be an appropriate but-for price?

MR. RYAN: Objection, leading.

A. I think you said January 7th.

WERNER

Q. January 27th.

A. January 27th. So no, you could still use it. I mean, it would be an appropriate price.

Q. Okay. My last question, this exhibit, the last exhibit, the Jones paper. What exhibit number is that? Do you have the Jones paper in front of you? Why don't you grab it.

A. I have already screwed that up.

Q. So I want to ask you about Table 9. Mr. Ryan just showed you Table 9, and there is a regression, some individual firm regressions on page 62.

A. Yes, I see that.

Q. So I don't -- I mean, it is a complicated table. But is it -- for each individual stock that is being studied, are the options and the equity and all these other variables, in other words, does this regression include both stock options and other securities other than the stock itself in the regression so that it is capturing effects to more than just the

WERNER

stock but effects to option prices as well?

MR. RYAN: Objection to form.

A. Right. So it incorporates all these additional variables, and to the extent that these things might be correlated, it can -- it is certainly going to affect the statistical significance as well as the actual returns calculated here.

Q. All right. So if a financial economist wanted to do a regression analysis just to see how the restrictions, the PCO restrictions, affected these stock prices, these nine stock prices, they would not include all of this data about options volume and bid/ask spreads, they would just focus on the stock and they would have different results than this regression; is that right?

MR. RYAN: Objection, leading.

A. I believe the initial step one would take -- would be a univariate analysis as you described it, so just looking at the S1.

Q. But is there any reason to

WERNER

believe that the results would be identical to the results here if you eliminated these variables that are irrelevant to the question at hand, which would be how the equity -- how the stock prices changed upon the implementation of the restrictions on January 28th?

MR. RYAN: Objection to form.

A. Could you reread the question, please?

(The record was read.)

A. There is no reason to believe that they would be identical.

MR. ROSEN: Okay. I have no further questions.

You can redirect on those three issues if you would like.

MR. RYAN: That's fine. I have no questions.

MR. ROSEN: All right, thank you.

THE VIDEOGRAPHER: This will end media unit eight and conclude the deposition of Dr. Adam Werner. We are

WERNER

going off the record at 6:52, 5-3-23.

[TIME NOTED: 6:52 p.m.]

IN RE JANUARY 2021 SHORT SQUEEZE TRADING LITIGATION
5/3/2023 - ADAM WERNER, Ph.D.

ACKNOWLEDGEMENT OF DEPONENT

I, ADAM WERNER, Ph.D., do hereby declare that I have read the foregoing transcript, I have made any corrections, additions, or changes I deemed necessary as noted on the Errata to be appended hereto, and that the same is a true, correct and complete transcript of the testimony given by me.

_____ _____
ADAM WERNER, Ph.D. Date
*If notary is required

SUBSCRIBED AND SWORN TO BEFORE ME THIS
_____ DAY OF _____, 20___.

_____
NOTARY PUBLIC

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CERTIFICATION

I, TODD DeSIMONE, a Notary Public for and within the State of New York, do hereby certify:

That the witness whose testimony as herein set forth, was duly sworn by me; and that the within transcript is a true record of the testimony given by said 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 3rd day of May, 2023.

Todd DeSimone
_____

TODD DESIMONE
* * *

IN RE JANUARY 2021 SHORT SQUEEZE TRADING LITIGATION
5/3/2023 - ADAM WERNER, Ph.D.

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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

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VERITEXT LEGAL SOLUTIONS
COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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